Master Transportation Study

Bostwick Road Area Development

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Executive Summary

Proposed Developments

Arcadis IBI Group was retained by Kilbourne Development Inc. to undertake this Master Transportation Study (MTS) in support of three proposed developments within the Bostwick corridor area:

- **Kilbourne Subdivision** – The Kilbourne Subdivision is bound by the 3080 Bostwick Road development to the north, Bostwick Road to the west, a hydro corridor and commercial development to the east and Wharncliffe Road South to the south. The proposed development will include a total of approximately 3,100 residential units which will be built-out between 2024 and 2035. The Kilbourne Subdivision will be traversed by Bradley Avenue and Kilbourne Road which will provide east-west connections between Bostwick Road and Wonderland Road South.
- **Westwinds Subdivision** – The Westwinds Subdivision is located within the southwest quadrant of the Bostwick Road & Pack Road intersection and is expected to include approximately 800 residential units. The buildout of the Westwinds Subdivision is expected to occur between 2024 and 2026.
- **Foxwood Development** – The Foxwood Development is located within the northwest quadrant of the Wharncliffe Road South & Bostwick Road/Exeter Road intersection and will include approximately 500 apartment units within several mid-rise apartment buildings. Buildout of the Foxwood Development is expected to occur between 2024 and 2026.

The purpose of this MTS is to provide a long-term and coordinated assessment of the broader transportation impacts of development in the area with consideration of major changes planned for the transportation network over the next 10-15 years.

Supplemental memoranda will be prepared for each of the above developments to support their respective applications to the City of London and shall be read in conjunction with this study. Within each of the proposed developments, it is expected that appropriate pedestrian, bicycle and transit facilities will be provided in order to encourage the use of alternative modes of transportation and support the Transportation Master Plan (TMP) mode share targets for 2030. In addition to the various Transportation Demand Management (TDM) measures that the City of London is independently pursuing, it is also expected that specific TDM measures will be implemented as part of these developments.

Study Area

The study area considered as part of the MTS included the following roadways and intersections:

- Roadways:
    - Wonderland Road South
    - Wharncliffe Road South
    - Southdale Road West
    - Bradley Avenue
    - Exeter Road
    - Bostwick Road

  - Pack Road
  - Kilbourne Road
- Intersections:
  - Wonderland Road S & Southdale Road W
  - Wonderland Road S & Bradley Avenue
  - Wonderland Road S & Kilbourne Road
  - Wonderland Road S & Wharncliffe Road S
  - Wonderland Road S & Exeter Road
  - Wharncliffe Road S & Bostwick Road
  - Southdale Road W & Bostwick Road/Exeter Road
  - Southdale Road W & Yorkville Street
  - Southdale Road W & Pine Valley Boulevard
  - Bostwick Road & Pack Road/Bradley Avenue
  - Bostwick Road & Kilbourne Road (future)

Future Conditions

The City of London TMP and the more recent 2021 Development Charges (DC) Background Study Update (October 2020) were reviewed to identify the planned roadway modifications within the study area. The following planned roadway modifications were noted:

- **Wonderland Road South:** Wonderland Road South is expected to be widened south of Exeter to four lanes in 2026. The planned six lane widening of Wonderland north of Southdale has since been postponed, based on recent discussions with City of London staff.
- **Southdale Road West:** Southdale Road West is expected to be widened to four lanes west of Bostwick Road/Farnham Road in 2031. The segment from Pine Valley Boulevard to Bostwick Road/Farnham Road is currently being widened to four lanes.
- **Bostwick Road:** Bostwick Road is expected to be urbanized between Southdale and Pack in 2025 and be widened to four lanes between Pack and Wharncliffe in 2026. As part of the four-lane widening, the Bostwick & Pack/Bradley intersection is expected to be converted to a two-lane roundabout, the Bostwick & Kilbourne intersection is expected to be constructed as a two-lane roundabout as well, and the Wharncliffe & Bostwick/Exeter intersection is expected to be reconstructed but remain signalized.
- **Bradley Avenue:** Bradley Avenue is tentatively scheduled to be extended between Wharncliffe and White Oak in 2024 and extended west from Wonderland to Bostwick in 2028.
- **Pack Road:** Pack Road is expected to be urbanized in 2032.

Future pedestrian, cycling and transit facilities within the study area were also identified based on the TMP, the Cycling Master Plan (CMP), the Official Plan (OP) and the Southwest Area Plan (SWAP).

It is expected that pedestrian facilities will be provided on both sides of Bostwick and Bradley as part of the future roadway widening/extension. It is expected that pedestrian linkages will be incorporated within the proposed developments. For cycling facilities, the City planning documents

indicate that dedicated cycling facilities will be provided along the majority of the study area roadways and that a shared pedestrian-bicycle multi-use path will be provided along the Thornicroft Drain through the Kilbourne Subdivision.

The TMP noted that Bus Rapid Transit (BRT) is planned along Wellington Road with a terminus station at White Oaks Mall – approximately five kilometres east of the study area and easily accessed via Bradley Avenue. The TMP identified key supporting transit routes, one of which passes through the study area. It is expected that as development progresses within the Southwest Area that transit service will gradually improve such that the TMP transit mode share targets can be achieved.

In addition to planned roadway, pedestrian, bicycle and transit network modifications, this study has considered other planned developments within the study area. The following future adjacent developments have been considered in the analysis:

- Talbot Village Phase 5 and 6
- 3080 Bostwick Road
- W3 Farms Residential Development
- Colonel Talbot Subdivision
- 3493 Colonel Talbot Road
- Proposed Commercial Development Wonderland Road at Wharncliffe Road (Phase 1)

Traffic Volumes

Weekday morning and afternoon peak hour traffic counts were provided by the City of London for the majority of study area intersections. Traffic counts were unavailable for two intersections and were therefore collected as part of this study. Given the age of some of the traffic counts, and the fact that two of the traffic counts were collected during the COVID-19 pandemic, adjustments were applied to the traffic counts to ensure they were representative of typical traffic conditions.

Background traffic growth rates were applied to Wharncliffe and Wonderland to account for growth in traffic from outside the study area. Analysis of future traffic model projections indicates that the growth along the other study area roadways is expected to be primarily generated by the proposed developments and/or future adjacent developments rather than from outside the study area. No background traffic growth rate has been applied to roadways that primarily serve the local area either as they are not expected to experience traffic growth from outside the study area.

The planned Bradley Avenue extension will provide an alternate east-west route which is expected to result in a redistribution in traffic volumes along east-west corridors. Based on the future traffic model projections, it was estimated that approximately 20% of traffic will reroute to Bradley Avenue from parallel roadways such as Southdale Road.

Traffic generated by the proposed developments was estimated using the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition). These traffic volumes were subsequently converted into person-trips based on survey data from the ITE Trip Generation Handbook (3rd Edition). Mode share projections were calculated for each analysis year based on the mode share distribution from the 2016 Household Survey Summary Report and the TMP's 2030 mode share targets and used to calculate the future site-generated vehicle-trips for each development and analysis year.

By 2035, the Westwinds Subdivision, Kilbourne Subdivision and Foxwood Development are expected to generate a combined total of approximately 1,000 and 1,200 two-way vehicle-trips during the weekday morning and afternoon peak hours, respectively.

Site-generated traffic was distributed to the north, south, east and west based on origin-destination data from the 2016 Household Survey and assigned to the study area intersections based on engineering judgement with consideration of route capacity, travel distance and location of major commercial/employment nodes.

Intersection Capacity Analysis

Intersection capacity analysis was completed for all study area intersections using Synchro v11 and SIDRA Intersections v9.0. The base road network for each analysis year was based on the planned roadway modifications and timelines specified in the Development Charges Background Study. Where traffic operational issues were noted, potential mitigation measures were identified. Modifications to signal timing plans such as adding additional traffic signal phases (i.e. left-turn phases) and driver behaviour adjustments (e.g. choosing alternate routes) were considered first before considering additional traffic lanes. This is consistent with guidance provided by the National Association of City Transportation Officials (NACTO) and is also consistent with the City's goal to increase the mode share of sustainable modes of transportation.

The results of the intersection capacity analysis indicate that the only physical roadway modifications required to accommodate background or total traffic volumes will be the extension of existing auxiliary lanes, although additional right-turn auxiliary lanes are recommended at several locations to improve intersection safety. It should be noted that the Wonderland & Southdale intersection is expected to approach its theoretical capacity in 2027, although traffic conditions are anticipated to improve significantly once Bradley Avenue is extended and traffic shifts to this new east-west connection.

Table 1 summarizes the recommended roadway modifications for each analysis year and modifications triggered by the proposed developments have been identified with a green checkmark (✔).

Table 1 - Summary of Recommended Modifications

ANALYSIS YEAR	RECOMMENDED MODIFICATIONS
2024	**Southdale & Bostwick/Farnham:** • Increase cycle length to 120s and 130s during the AM and PM peak hour, respectively. • Add protected-permitted left-turn phases on the northbound, southbound and westbound approaches during PM peak hour. • Extend the northbound left-turn lane to provide an additional 55m of storage capacity. • Extend the eastbound right-turn lane to provide an additional 25m of storage capacity. ✔ **Wonderland & Bradley:** • Add a protected-permitted westbound left-turn phase during PM peak hour. **Southdale & Yorkville:** • Increase the cycle length to 130s during PM peak hour. **Wonderland & Southdale:** • Consider providing a westbound auxiliary right-turn lane.

ANALYSIS YEAR	RECOMMENDED MODIFICATIONS
	Southdale & Pine Valley: • Decrease the cycle length to 65s during PM peak hour for signal progression. **Wonderland & Kilbourne:** • Add a protected-permitted eastbound left-turn phase during PM peak hour. **Wonderland & Exeter:** • Add a protected-permitted northbound left-turn phase during PM peak hour. • Consider providing a westbound auxiliary right-turn lane. **Wonderland & Wharncliffe** • Consider providing a northbound auxiliary right-turn lane.
2027	**Wharncliffe & Bostwick/Exeter:** • Increase the cycle length to 120s during AM peak hour. • Add a protected westbound left-turn phase during the AM peak hour. • Add a lagging protected westbound left-turn phase and protected-permitted eastbound left-turn phase during the PM peak hour. **Wonderland & Wharncliffe:** • Extend the eastbound left-turn auxiliary lane to provide sufficient storage to accommodate a 95m long queue. ✓
2030	**Wonderland & Bradley:** • Add a protected-permitted eastbound left-turn phase during the PM peak hour. • Ensure 100m and 70m of auxiliary lane storage is provided for the northbound and westbound left-turn lanes, respectively, when the intersection is reconstructed. ✓
2035	**Wonderland & Bradley:** • Add protected-permitted northbound and southbound left-turn phases during the PM peak hour. ✓ **Wonderland & Wharncliffe:** • Add a protected-permitted southbound left-turn phase during the PM peak hour. ✓

The overall conclusion of the Bostwick Corridor Master Transportation Study is that the proposed Kilbourne Subdivision, Westwinds Subdivision and Foxwood Development can be safely accommodated by the adjacent road network with consideration of the study recommendations and based on the assumption that the City implements all planned road network and transit route modifications in accordance with the timelines specified in the Development Charge Background Study.

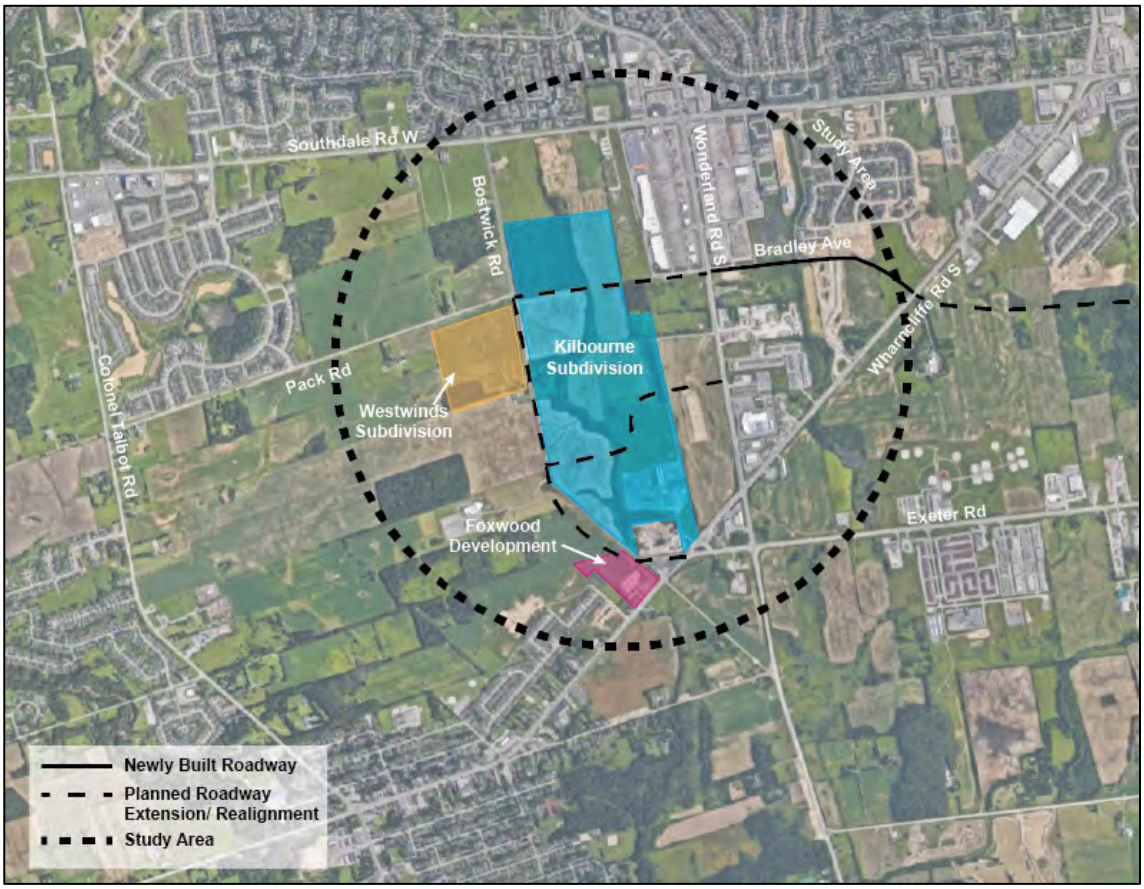
1 Introduction

Arcadis IBI Group has been retained by Kilbourne Developments Inc. to undertake a Master Transportation Study (MTS) in support of three proposed developments within the Bostwick corridor area:

- Kilbourne Subdivision (located east of Bostwick Road) – Draft Plan of Subdivision
- Westwinds Subdivision (located southwest of Pack Road & Bostwick Road) – Draft Plan of Subdivision
- Foxwood Development (located southwest of Wharncliffe Road South & Bostwick Road/Exeter Road) – Zoning By-Law Amendment

The purpose of the MTS is to provide an analysis of major arterial intersections within the study area and the broader traffic impacts associated with all three proposed developments. Separate memoranda will also be prepared to review the site-specific transportation impacts of each of these developments, including the site access intersections. The extent of the study area and the location of the three proposed developments are illustrated in **Figure 1**.

Figure 1 - Study Area



1.1 Study Objectives

The following key objectives of the MTS are identified below:

- Determine the impact of the three proposed developments on the study area intersections;
- Confirm the timing of the planned roadway modifications; and
- Identify any deficiencies in the road network and develop recommendations to mitigate these deficiencies.

1.2 Study Methodology

The MTS approach and Methodology was based on the City of London Transportation Impact Assessment Guidelines (April 2012). City of London staff were consulted to confirm the following study parameters and assumptions:

- Study Area Intersections
- Analysis Time Periods
- Analysis Years
- Trip Generation
- Trip Distribution and Assignment
- Existing Traffic
- Background Traffic Growth Rate
- Adjacent Developments
- Future Roadway, Transit, Pedestrian and Cycling Network

The above study parameters and assumptions were communicated to the City of London staff in the Transportation Pre-Consultation, Southwest Area Master Transportation Study – Assumptions & Study Parameters Memorandum (November 23, 2021 and revised on December 14, 2021). Approval of these parameters was confirmed on December 14, 2021 via email correspondence.

Figure 2 illustrates the study area intersections that will be assessed as part of this study.

Figure 2 - Study Area Intersections

1.3 Reference Material

The following reference material was used in the preparation of this report:

- City of London Transportation Impact Assessment Guidelines (2012)
- City of London Access Management Guidelines (2015)
- City of London Official Plan (2016)
- City of London Transportation Master Plan (Aecom, 2013)
- City of London Cycling Master Plan (MMM Group, 2016)
- City of London 2021 Development Charges Background Study Update (2020)
- City of London 2016 Household Travel Survey Summary Report (IBI Group, 2018)
- Bostwick Road EA (Parsons, 2019)
- Southdale Road EA (Aecom, 2019)
- Wonderland Road EA (MMM Group, 2015)
- W3 Subdivision Study (BT Engineering, 2016)
- 3493 Colonel Talbot TIS (Paradigm, 2015)
- Colonel Talbot Subdivision TIS (Stantec, 2016)
- Wonderland Road TIS (Dillon, 2017)
- 3080 Bostwick TIS (IBI Group, 2016 & 2018)
- Southwest Secondary Plan (2014)
- Southwest Area Plan Transportation Servicing Report (Aecom, 2010)

2 Proposed Developments

2.1 Land Uses and Phasing

The proposed development lands will be entirely residential in nature. **Exhibit 1**, **Exhibit 2** and **Exhibit 3** below illustrate the three proposed developments.

Table 2 presents a summary of the proposed land uses for each of the subject developments. Given the size of the Kilbourne Subdivision, the development has been separated into several subzones, as illustrated in **Exhibit 2**.

Table 2 - Proposed Land Uses

DEVELOPMENT	SUBZONE	CONSTRUCTION	LAND USE	SIZE
Westwinds Subdivision	N/A	2024 to 2030	Single Family Homes	46 units
			Street Townhomes	37 units
			Cluster Townhomes	56 units
			Mid-Rise Apartments (6-8 storeys)	610 units
			Subtotal	**749 units**
Kilbourne Subdivision	A	N/A	Greenspace	N/A
	B	2024 to 2026	Street Townhomes	10 units
			Cluster Housing (3-6 storeys)	226 units
			Mid-Rise Apartments (6-10 storeys)	92 units
	C	2025 to 2030	Single Family Homes	93 units
			Mid-Rise Apartments (6-10 storeys)	310 units
	D	2024 to 2026	Single Family Homes	41 units
			Street Townhomes	9 units
			Mid-Rise Apartments (6-10 storeys)	30 units
	E	2024 to 2030	Single Family Homes	145 units
			Street Townhomes	8 units
			Cluster Housing (3-6 storeys)	26 units
			Mid-Rise Apartments (6-10 storeys)	330 units
	F	2025 to 2028	Single Family Homes	209 units
			Street Townhomes	39 units
			Cluster Housing (3-6 storeys)	67 units
			High-Rise Apartments (11+ storeys)	538 units
	G	2025 to 2030	Cluster Housing (3-6 storeys)	76 units
	H	2030 to 2035	Street Townhomes	147 units

DEVELOPMENT	SUBZONE	CONSTRUCTION	LAND USE	SIZE
			Cluster Housing (3-6 storeys)	157 units
			High-Rise Apartments (11+ storeys)	538 units
			Cluster Housing (3-6 storeys) (Future Development)	50 units
			Subtotal	**3,141 units**
Foxwood Development	N/A	2024 to 2028	Mid-Rise Apartments (3-10 storeys)	462 units
			Subtotal	**462 units**
			Grand Total	**4,352 units**

The construction of the proposed developments is expected to occur over a 12-year period. Based on the above construction timelines, it is expected that Kilbourne Road will require extension from Wonderland to Bostwick around 2025 and that Bradley Avenue will be extended between Wonderland and Bostwick in 2028 as planned in the 2021 Development Charges (DC) Background Study Update (October 2020).

It is expected that the developments will be partially occupied during construction as portions of each development/subzone are built-out, with full occupancy assumed to occur at the end of the same year construction is completed. **Figure 3** summarizes the number of units that are expected to be built per year between 2024 and 2035, as well as the total number of units occupied by the end of each year.

Figure 3 - Units per Year

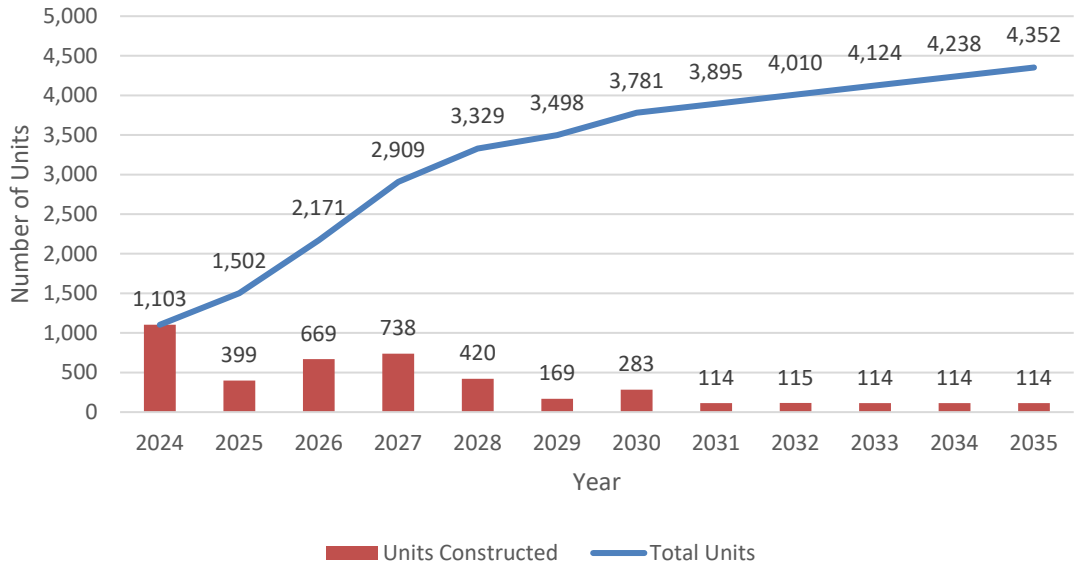


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Exhibit 1:
Westwinds Subdivision

PROJECT No. 136632

SCALE: N.T.S.

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Exhibit 2:
Kilbourne Subdivision

PROJECT No. 136632

SCALE: N.T.S.

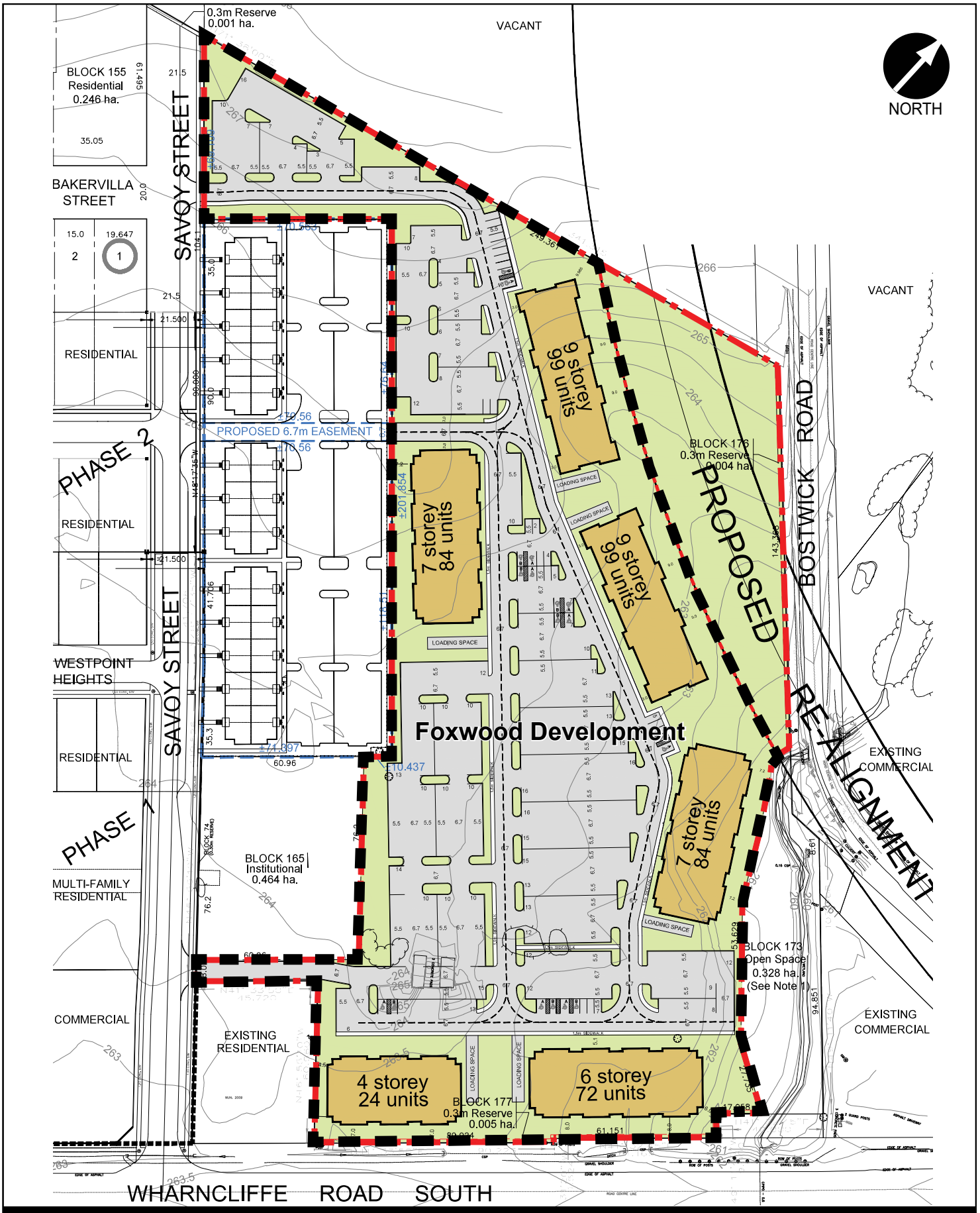

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Exhibit 3:
Foxwood Development

PROJECT No. 136632

SCALE: N.T.S.

2.2 Transportation Demand Management

The City of London TMP outlines several active transportation and Transportation Demand Management (TDM) policies, as the City shifts towards more sustainable modes, such as walking, cycling and transit.

TDM plays a significant role in this process as it often involves low-cost, but high-benefit initiatives or improvements. The Transportation Master Plan (TMP) outlines 28 priority actions for the City to undertake in support of sustainable travel modes, ranging from short-term to long-term measures.

Some priority recommendations that were considered in this report include:

- Expand the “Travelwise” program;
- Enhance the active and safe routes to school program;
- Expand and accelerate on-street bike lanes implementation by focusing on missing connections;
- Ensuring that secure bike parking is available at City facilities, transit stops and major destinations;
- Investing in the off-street multi-use pathway network;
- Addressing gaps in the sidewalk network; and
- Improving winter maintenance along key active transportation corridors.

Within the proposed developments, sustainable transportation modes will be encouraged through the provision of active transportation facilities such as sidewalks and bicycle facilities, where appropriate. The impact of the above TDM measures has been considered in the development of future site-generated traffic volumes.

3 Existing Transportation Network

3.1 Existing Road Network

3.1.1 Roadways

Table 3 provides a summary of all existing roadways within the study area. All of these roads fall under the jurisdiction of the City of London.

Table 3 - Existing Road Network Details

ROADWAY	POSTED SPEED LIMIT	CLASSIFICATION	RIGHT-OF-WAY (ROW) WIDTH	CROSS-SECTION	APPLICABLE SEGMENT
Wonderland	60 km/h	Urban Thoroughfare	36m	Urban, 4-lane, divided	Southdale to Exeter
Bradley	60 km/h	Urban Thoroughfare	36m	Urban, 4-lane, divided	East of Wonderland
Wharncliffe	80 km/h	Civic Boulevard	36m	Rural, 4-lane, undivided	Bostwick to Wonderland
Southdale	60 km/h	Civic Boulevard	34m	Rural/urban, 2-lane, undivided[1]	Bostwick to west of Pine Valley
	60 km/h	Civic Boulevard	40m	Urban, 4-lane west, undivided	West of Pine Valley to Wonderland
Exeter	80 km/h	Civic Boulevard	36m	Rural, 4-lane, undivided	Wharncliffe to Wonderland
Bostwick	70 km/h	Civic Boulevard	20m	Rural, 2-lane, undivided	Southdale to Wharncliffe
Pack	70 km/h	Civic Boulevard	20m	Rural, 2-lane, undivided	Regiment to Bostwick
Kilbourne	50 km/h	Neighbourhood Connector	26m	Urban, 2-lane, undivided	West of Wonderland
Farnham	50 km/h	Neighbourhood Connector	24m	Urban, 2-lane, undivided	Dalhousie to Southdale
Pine Valley	50 km/h	Neighborhood Street	20m	Urban, 2-lane, undivided	Pine Valley to Southdale
Yorkville	50 km/h	Neighborhood Street	22m	Urban, 2-lane, undivided	South of Southdale

Note: 1 – Currently under construction. Widening is expected to be complete by the end of 2023.

3.1.2 Intersections

The following intersections have been analysed as part of this study:

- Wonderland Road South & Southdale Road West
- Wonderland Road South & Bradley Avenue
- Wonderland Road South & Kilbourne Road
- Wonderland Road South & Wharncliffe Road South
- Wonderland Road South & Exeter Road
- Wharncliffe Road South & Bostwick Road
- Southdale Road West & Bostwick Road/Exeter Road
- Southdale Road West & Yorkville Street
- Southdale Road West & Pine Valley Boulevard
- Bostwick Road & Pack Road/Bradley Avenue
- Bostwick Road & Kilbourne Road (future)

All study area intersections are signalized except for the Bostwick & Pack intersection which is currently stop-controlled in the eastbound direction. The configuration of the future Bostwick & Kilbourne intersection will be discussed in Section 4.1. The existing lane configurations and storage lengths are shown in **Exhibit 4**.

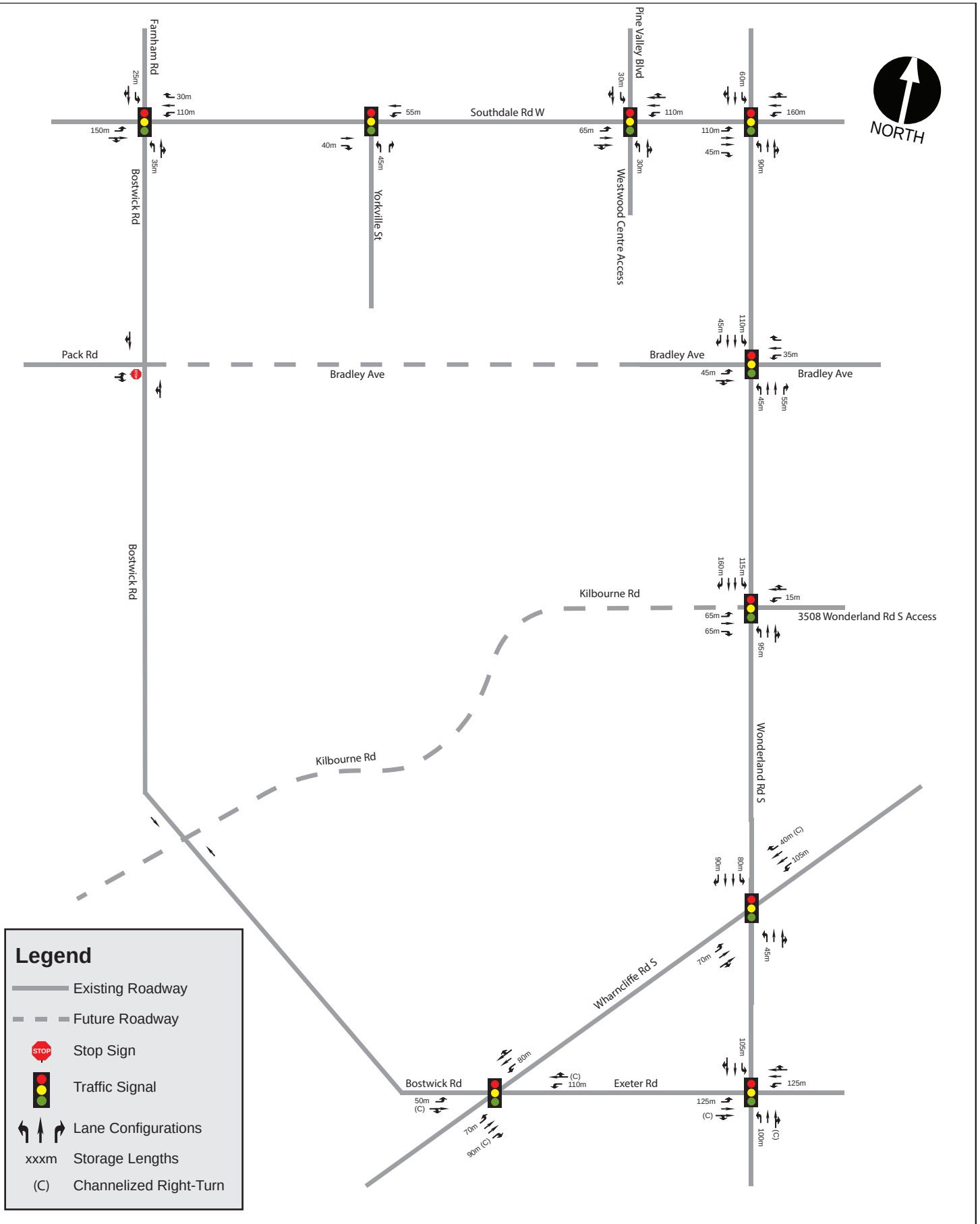

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Exhibit 4:
Existing Lane Configurations and Traffic Control

PROJECT No. 136632

SCALE: N.T.S.

3.2 Existing Pedestrian and Bicycle Facilities

Within the study area, sidewalks currently exist in the following locations:

- On both sides of Wonderland Road, between Southdale and Kilbourne;
- On the east side of Wonderland Road, between Kilbourne and Wharncliffe;
- On both sides of Southdale Road, from Wonderland to Bostwick (constructed in 2023);
- On both sides of Bradley Avenue;
- On the south side of Kilbourne Road;
- On both sides of Farnham Road; and
- On the west side of Yorkville Street.

High-quality cycling infrastructure in the study area includes grade-separated cycle tracks on both sides of Wonderland Road between Southdale and Wharncliffe, on-street bike lanes on Southdale Road east of Wonderland, a narrow multi-use path (MUP) on the north side of Southdale Road west of Bostwick/Farnham and a bi-directional cycle track on the south side of Bradley Avenue.

It should be noted that no pedestrian or bicycle facilities are currently provided on Bostwick Road, Pack Road, Exeter Road or Wharncliffe Road but it is expected that, as development progresses within the area, gaps in the active transportation network will be addressed.

3.3 Existing Transit Service and Facilities

Existing transit service within the study area centres on the Westmount Shopping Centre, which is the key transfer hub for all local routes that connect with the regional transit network.

The following London Transit bus routes provide service within the study area:

Route #10

Route #10 is an all-day bus route providing service between Western University campus and Huron & Highbury via White Oaks Mall and Westmount Mall. The nearest bus stops serving Route 10 are located along Wonderland Road in the vicinity of the Southdale Road intersection. Service is provided at 15-minute intervals during the weekday peak periods. The route is extended to Masonville Place during weekday afternoons.

Route #12

Route #12 is an all-day bus route providing service between the neighbourhood of Bostwick and downtown London. The nearest bus stops serving Route 12 are located in the vicinity of the Southdale & Wonderland intersection. Service is provided at 30-minute intervals during the weekday peak periods.

Route #15

Route #15 is an all-day bus route providing service between the neighbourhood of Westmount and downtown London. The route is subdivided into Route #15A and #15B. The two sub-routes diverge at Westmount Mall with Route #15A going via Wonderland Road, McMaster Drive, Dalhousie Drive, Farnham Road and Southdale Road while Route #15B goes via Viscount Road, Cranbrook Road, Commissioners Road and Wonderland Road. The nearest bus stops serving Route 15 is located on Southdale Road adjacent to the Bostwick Community Centre. Service is provided at 30-minute intervals during the weekday peak periods.

Route #24

Route #24 is an all-day bus route providing service between Talbot Village and Summerside via Victoria Hospital and Westmount Mall. The nearest bus stop serving Route #24 is located on Tillman Road. Service is provided at 45-minute intervals during the weekday peak periods.

Route #28

Route #28 is a weekday peak period bus route which provides service between the neighbourhood of Lambeth and White Oaks Mall. The nearest bus stops serving Route 28 are located along Exeter Road at the Wonderland Road intersection and along Wharncliffe Road near Savoy Street. Service is provided every 40 minutes during the weekday peak periods.

Route #56

Route #56 is a Wednesday-only bus which provides service between White Oaks Mall and the Food Basics at the Commissioners & Wonderland intersection. There are no bus stops located within the vicinity of the study area but the route does pass through the Wonderland & Southdale intersection. Service is provided every hour and 20 minutes between 10 am and 2 pm on Wednesdays.

Figure 4 illustrates the transit routes that operate in the vicinity of the study area. The transit service maps for each of the above routes are provided in **Appendix A**.

Figure 4 - Transit Routes

3.4 Collision Analysis

Historical collision data for the period of January 2015 to December 2020 was provided by the City of London for all of the study area road segments and intersections. The subsequent sections discuss the results of the collision analysis.

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

3.4.1 Roadway Segments

Table 4 below summarizes the number of collisions per type that have occurred along each roadway segment. Roadway segments with no historical collision records have not been included in the table. Particular collision types that have occurred six times or more along a particular roadway segment have been emphasized as these collisions warrant further review to establish if there is a repeating pattern of collisions.

Table 4 - Number of Collisions: Roadway Segments

ROADWAY SEGMENT	COLLISION TYPE									
	Approaching	Angle	Turning Movement	Rear-End	Sideswipe	Single Motor Vehicle	Wild Animal	Pedestrian	Other	Total
Wonderland - Southdale to Power Centre		**7**	**8**	**26**	**18**			3		62
Wonderland – Lowe's Entry to Kilbourne		1	1			1				3
Wonderland – Wharncliffe to Exeter			1	**13**	**10**	4			1	29
Wharncliffe – Bostwick/Exeter to Wonderland		3		3						6
Southdale – Bostwick to Pine Valley	1	5	1	**16**	4	3	3			33
Southdale – Pine Valley to Wonderland		1		**6**	3	1			1	12
Exeter – Bostwick to Wharncliffe				1						1
Exeter – Wharncliffe to Wonderland			1	1			4			6
Bostwick – Southdale to Pack	1			1		3	**16**			21
Bostwick – Pack to Wharncliffe	1			2	1	**7**	**15**			26
Total	3	17	12	69	36	19	38	3	2	199

Wonderland Road – Southdale to Power Centre

Further analysis of the rear-end and sideswipe collisions along this segment of Wonderland Road indicates that the majority occur in the northbound direction during the weekday

afternoon peak period which suggests that congestion associated with the Wonderland & Southdale intersection combined with traffic associated with the adjacent shopping centre may be contributing to the high number of collisions observed.

A review of the angle and turning movement collisions indicate that these events associated with the signalized access to the shopping centres were included in the roadway segment collisions. The majority of the collisions at the signalized access involved northbound left-turning and southbound through vehicles that failed to yield the right-of-way or did an improper turn.

Wonderland Road – Wharncliffe to Exeter

Based on the collision records, the majority of rear-end and sideswipe collisions occurred in the northbound direction during the morning peak period which suggests that these collisions are a result of congestion associated with the Wonderland & Wharncliffe intersection.

Southdale Road – Bostwick to Pine Valley and Pine Valley to Wonderland

Both segments of Southdale Road were combined for further analysis as it was found that both shared similar collision characteristics. For both segments, the majority of rear-end collisions occurred in the westbound direction during the afternoon peak period and wet roadway conditions were a factor in nearly half of the collisions. This could possibly be an indication of poor roadway drainage. The current four-lane widening of Southdale Road from Pine Valley to Bostwick is expected to address any potential historical drainage issues along this segment of roadway.

Bostwick Road – Southdale to Pack and Pack to Wharncliffe

Similar to Southdale Road, both segments of Bostwick Road were combined for further analysis as it was found that both shared similar collision characteristics. The detailed collision analysis of Bostwick Road identified that the majority were collisions with wild animals and single motor vehicle collisions. The collisions involving animals occurred mostly during the early morning and evening periods suggesting that insufficient lighting could be a potential cause. Warning signage (‘Deer Crossing’ Wc-11) presently exists along this segment of the road. The majority of the single motor vehicle collisions occurred under adverse environmental or road surface conditions such as rain, snow and ice.

3.4.2 Intersections

Table 5 below summarizes the number of collisions per collision type that have occurred at each study area intersection. Intersections without any records of collisions have been excluded from the table. Particular collision types that have occurred six times or more at a particular intersection have emphasized as these collisions warrant further analysis to establish if there is a repeating pattern of collisions.

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.

Table 5 - Number of Collisions: Intersections

INTERSECTION	COLLISION TYPE								COLLISIONS PER MVE
	Approaching	Angle	Turning Movement	Rear-End	Sideswipe	Single Motor Vehicle	Other	Total	
Bostwick & Pack		5	3	2	1	1	2	14	0.48
Southdale & Bostwick/Farnham		2	5	**21**	1		1	30	0.49
Southdale & Pine Valley	1	**9**	5	**10**	3	**6**		34	0.63
Wharncliffe & Bostwick/Exeter		2	4	5	3	1		15	0.28
Wonderland & Exeter	1	**7**	**35**	**47**	**9**	1	2	102	**1.32**
Wonderland & Southdale	1	**21**	**46**	**110**	**31**	**9**	4	222	**2.56**
Wonderland & Wharncliffe	2	4	**11**	**62**	**12**	4	4	99	**1.25**
Wonderland & Kilbourne				1				1	0.02
Total	5	50	109	258	60	22	13	517	-

As illustrated above, a number of the study area intersections were noted to have a significant number of collisions. The intersections of Wonderland Road with Southdale, Wharncliffe and Exeter in particular were noted to have a high number of collisions and collision rates per MVE in excess of 1.0 which is considered significant.

It should be noted that the majority of the collisions analyzed above are categorized as non-reportable or included property damage only, therefore they can be considered as minor collisions.

Southdale & Bostwick/Farnham

Further analysis of the rear-end collisions at the Southdale & Bostwick/Farnham intersection reveals that the majority of the collisions occur during the weekday morning and afternoon peak periods. Environmental (e.g. rain or snow) and road surface conditions (e.g. wet, snow, slush, ice) were a factor in approximately half of the recorded rear-end collisions, therefore it is possible that the road may have poor drainage or inadequate winter maintenance within the vicinity of this intersection.

Southdale & Pine Valley

The detailed collision analysis of the Southdale & Pine Valley intersection identified recurring patterns of angle and single motor vehicle collisions. The majority of the angle collisions occurred due to drivers disobeying the traffic signals and the majority of SMV collisions occurred due to drivers performing an improper turn. Angle collisions were split evenly between the four approaches but the majority of the rear-end and single motor vehicle collisions occurred in the eastbound and westbound directions, respectively. In terms of environmental and road surface conditions, the westbound SMV collisions generally occurred when the road surface was described as either wet or slush.

Wonderland & Exeter

Driver behaviour was found to be a contributing factor in the majority of angle, turning movement and rear-end collisions at the Wonderland & Exeter intersection. Disobeying traffic control, failing to yield to right-of-way, improper turning movements and following too closely

constitute the majority of potential causes for these impact types. The directionality of collisions indicated that the majority of rear-end collisions occurred in the northbound and westbound directions and three-quarters of the turning movement collisions occurred in the northbound and southbound directions. The lack of auxiliary right-turn lanes combined with high right-turn volumes may also be a potential contributing factor to the high frequency of rear-end collisions observed at the intersection.

Wonderland & Southdale

Almost half of all reported intersection collisions within the study area occurred at the Wonderland & Southdale intersection and the majority were rear-end impact collisions that are distributed across all four approaches. Driver behaviour was a factor in 40 percent of the rear-end collisions with following to closely as the top contributor. This may suggest that congestion is an issue at this intersection.

A third of all angle collisions occurred when the road was wet which could indicate poor drainage and half of all angled collisions occurred between northbound and either eastbound or westbound vehicles. Turning movement collisions generally involved vehicles travelling in opposite directions (i.e. northbound with southbound, eastbound with westbound, etc.) with the majority occurring in the southbound direction followed by the westbound direction. This may indicate that insufficient traffic signal clearance time is provided for left-turn vehicles to clear the intersection or may indicate that driver impatience is an issue as a result of unacceptable delays. This may also suggest that insufficient green time is provided for the high southbound and westbound turning volumes present at this intersection. The sideswipe collisions mostly occurred evenly within the north, south and westbound directions with only 2 sideswipe impacts in the eastbound direction. Single motor vehicle collisions were reported mainly in the east/west directions.

Collisions occurred more frequently between noon and 8 PM which based on the intersection capacity analysis experiences higher delays and is generally more congested than the morning peak hour, further indicating that congestion may be a key contributing factor to collisions at this intersection.

Wonderland & Wharncliffe

The northbound and southbound vehicles contributed the majority of the turning movement and sideswipe collisions at the Wonderland & Wharncliffe intersection. The southbound direction also contributed over half of the rear-end collisions within this intersection as well. The anticipated increase in the posted speed limit that occurs south of this intersection could potentially be a factor in these rear-end collisions as motorists following too closely was identified as a significant contributing factor in addition to wet road surface conditions.

4 Future Transportation Network

4.1 Future Road Network

The City of London Transportation Master Plan (TMP) was published in May 2013 and outlines future capital projects throughout the City. The projects that may impact traffic patterns near the proposed development have been documented below. The TMP projections have been supplemented by the more recent 2021 Development Charges (DC) Background Study Update (October 2020), which allocates funds and assigns expected completion dates to specific capital projects.

Wonderland Road South

The TMP indicates that Wonderland Road was to be widened from 4 to 6 lanes from Southdale to Sarnia Road (well north of the study area) and from 2 to 4 lanes from Exeter to Highway 402. City of London staff have since indicated that the six-lane widening has been put on hold until further notice. Based on the 2021 DC study, the four-lane widening between Exeter and Highway 402 is anticipated for completion by 2026.

Southdale Road West

The TMP indicates that Southdale Road will be widened to 4 lanes between Colonel Talbot and Wharncliffe. Southdale Road has already been widened to 4 lanes from west of Pine Valley to Wharncliffe and the segment from Bostwick/Farnham to west of Pine Valley is currently being widened to 4 lanes. The remainder will be widened in 2031. An Environmental Assessment (EA) was completed for this widening by Aecom in March 2019 which will be used to inform the roadway and intersection configurations following the widening.

Bostwick Road

The TMP does not identify any widenings for Bostwick Road, however, the 2021 DC study indicates that the segment between Southdale and Pack will be urbanized in 2025 and the segment between Pack and Wharncliffe will be widened to 4 lanes and realigned in 2026. The Southdale Road EA (Aecom, March 2019) outlines the planned roadway configuration for the segment north of Pack while the Bostwick EA (Parsons, March 2019) outlines the planned roadway configuration and intersection configurations for the segment between Pack and Wharncliffe. These two EAs will be used to inform the roadway and intersection configurations following the urbanization and 4-lane widening of Bostwick Road.

Bradley Avenue

Based on the TMP, Bradley Avenue is planned to be extended from White Oak to Bostwick. Since the TMP was completed, the segment of Bradley Avenue between Wharncliffe and Wonderland has been constructed. The 2021 DC study indicates that the segment between White Oak and Wharncliffe will be constructed in 2023, although recent discussions with City staff indicate that construction is tentatively scheduled to begin in 2024, followed by the segment between Bostwick and Wonderland in 2028. Bradley will have a 4-lane cross-section throughout. The segment of Bradley Avenue between Bostwick and Wonderland will bisect the Kilbourne Subdivision.

Pack Road

The 2021 DC study indicates that Pack Road is anticipated to be urbanized between Colonel Talbot and Bostwick in 2032.

In summary, the following roadway modifications are therefore anticipated to be complete by each of the following analysis years:

- Future (2024) Conditions:
    - Southdale Road: widen from 2 to 4 lanes from Bostwick/Farnham to west of Pine Valley (currently under construction)
    - Bradley Avenue: new 4 lane road between Wharncliffe and White Oak
- Future (2027) Conditions:
    - Wonderland Road: widen from 2 to 4 lanes between Exeter and Highway 402
    - Bostwick Road: urbanized between Southdale and Pack
    - Bostwick Road: widen from 2 to 4 lanes between Pack and Wharncliffe
- Future (2030) Conditions:
    - Bradley Avenue: new 4 lane road between Bostwick and Wonderland
- Future (2035) Conditions:
    - Southdale Road: widen from 2 to 4 lanes between Colonel Talbot and Bostwick/Farnham
    - Pack Road: urbanized between Colonel Talbot and Bostwick

The Southdale Road EA, Bostwick Road EA and Wonderland Road South EA were also reviewed to determine the anticipated future intersection configuration for each of the study area intersections. The future planned intersection configurations are illustrated in **Exhibit 5**.

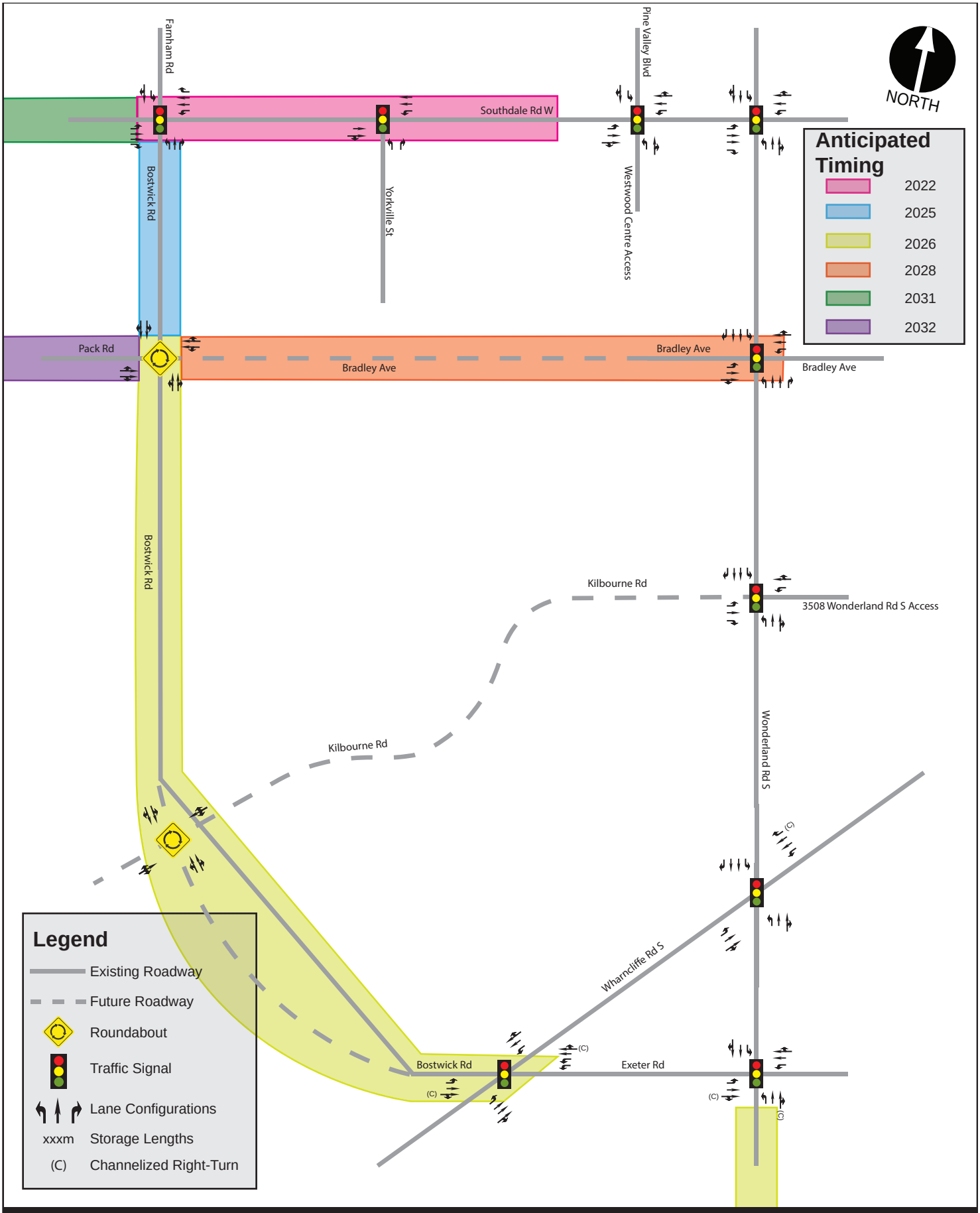

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Exhibit 5:
Planned Lane Configurations and Traffic Control

PROJECT No. 136632

SCALE: N.T.S.

4.2 Future Pedestrian and Bicycle Facilities

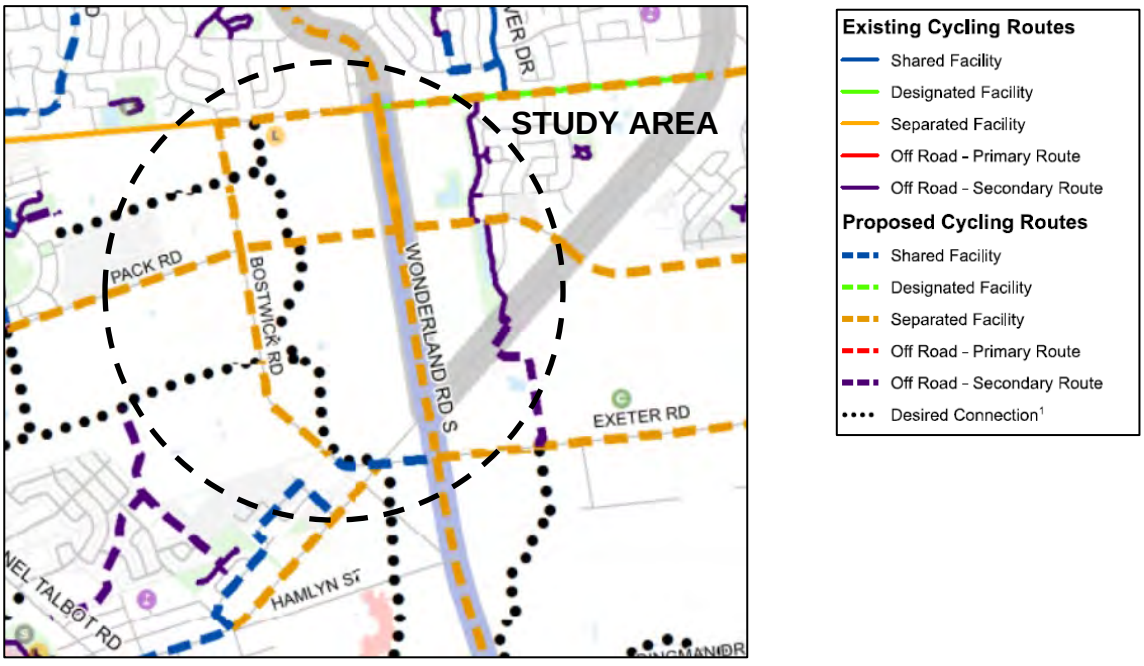
The City of London TMP has identified active transportation (i.e. walking and cycling) as a critical element of the future transportation network. At the time of this study there were no specific plans for future pedestrian facilities within the study area other than the upgrades associated with the planned/ongoing roadwork on Southdale Road and Bostwick Road. The EAs for those two roadways indicate that concrete sidewalks will be provided on both sides of each roadway. It is also assumed that the new 4-lane segments of Bradley Avenue will maintain the same cross-section as the existing segments and have concrete sidewalks on both sides of the roadway.

In September 2016, the City approved the Cycling Master Plan (CMP), which provides further detail regarding the planning, design and staging of cycling infrastructure in the City. The CMP indicates that separated cycling facilities (i.e. on-street bike lanes or grade-separated cycle tracks) will be implemented on Southdale, Wonderland, Bostwick, Bradley, Pack, Exeter (east of Wonderland) and Wharncliffe (south of Exeter). Additionally, a shared pedestrian/cycling facility will be implemented on Exeter Road between Wharncliffe and Wonderland. Based on the cycling facilities on the existing segment of Bradley Avenue between Wonderland and Wharncliffe, it is expected that a bi-directional cycle track will be implemented incrementally on the south side of Bradley.

A recent technical amendment to the CMP has also identified the need for cycling facilities along the segment of Kilbourne Road within the Kilbourne Subdivision.

Figure 5 illustrated the planned cycling network within the study area.

Figure 5 - Future Cycling Network

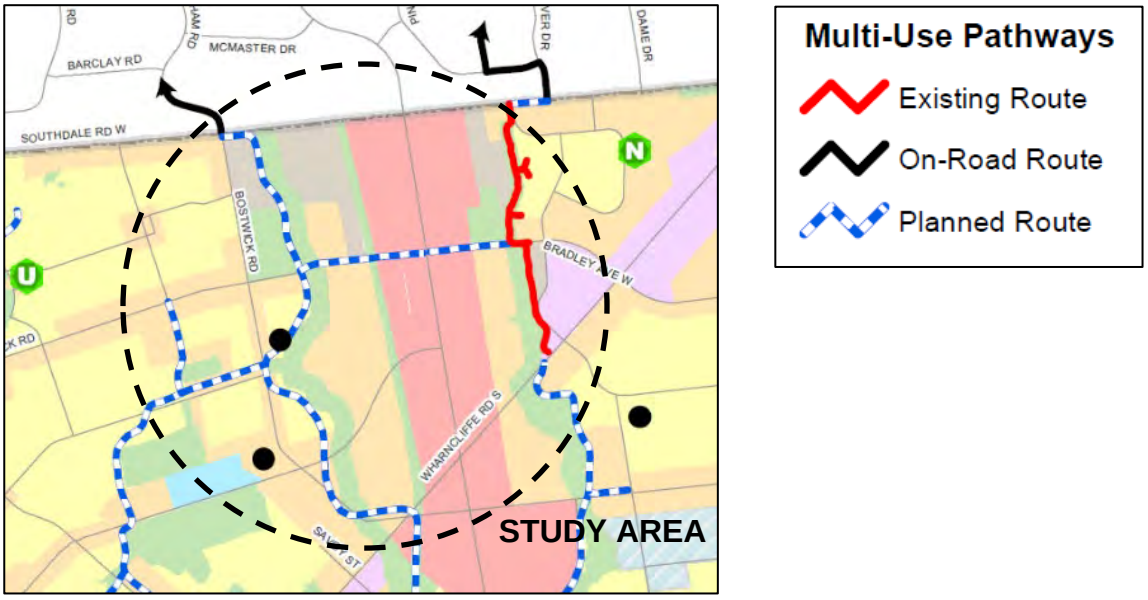


Source: City of London Cycling Master Plan (September 2016)

The Official Plan (OP) and Southwest Area Plan (SWAP) also identify the planned multi-use path (MUP) network within the study area. East of Bostwick Road is the Thornicroft Drain which extends from Southdale Road to south of the study area limits. Along this water feature, the City plans to implement a MUP with connections to the bi-directional cycle track along Bradley and a connection to a MUP heading west of Bostwick Road.

Figure 6 illustrates the future multi-use path (MUP) network within the study area.

Figure 6 - Future Multi-Use Path Network

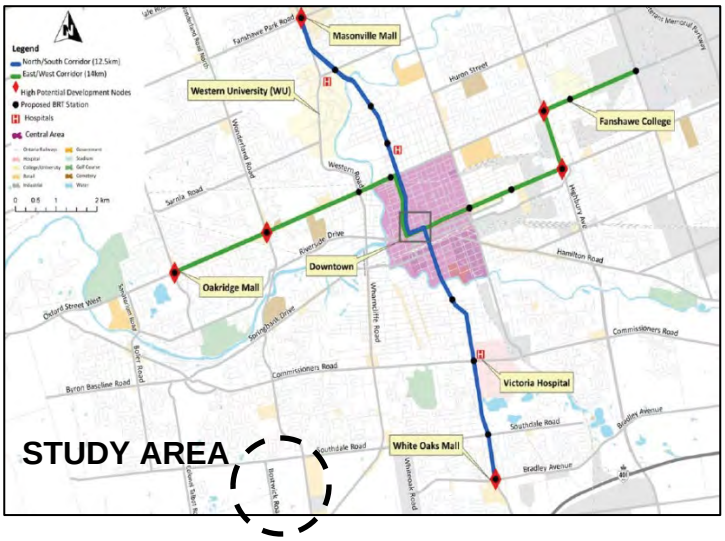


Source: City of London Southwest Area Plan (April 2014)

4.3 Future Transit Service and Facilities

The City of London intends on developing a Bus Rapid Transit (BRT) system directed to the downtown, following two major corridors: the north-east Richmond Street/Dundas Street corridor and the south-west Wellington Road/Oxford Street corridor. As illustrated in **Figure 7**, the recommended corridors are far removed from the study area and are therefore not expected to directly impact transit demand in the study area. Based on the 2021 DC study, the BRT facilities between White Oaks Mall and downtown London are expected to be completed between 2023 and 2026.

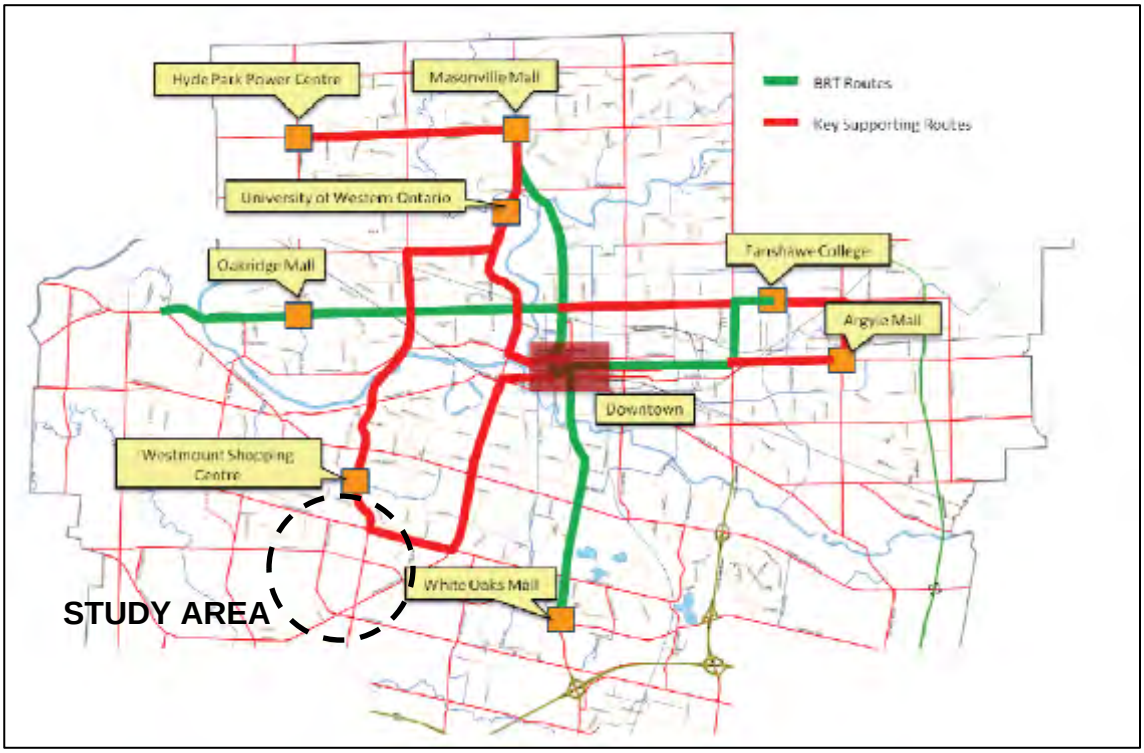
Figure 7 - Future Bus Rapid Transit Network



Source: City of London 2030 Transportation Master Plan (May 2013)

The TMP also identified future transit needs in the Southwest Area and established key supporting transit routes to supplement the gaps in the BRT network, as illustrated in **Figure 8**. The Westmount Shopping Centre is one of the hubs on this supplementary network. The TMP recommended increased investment to the transit supporting network to improve transit ridership and quality of service and established a city-wide target for transit mode share of 15% in 2020, increasing to 20% in 2030. It is therefore expected that the increased investment in transit will be targeted towards measures that will achieve the stated transit mode share targets.

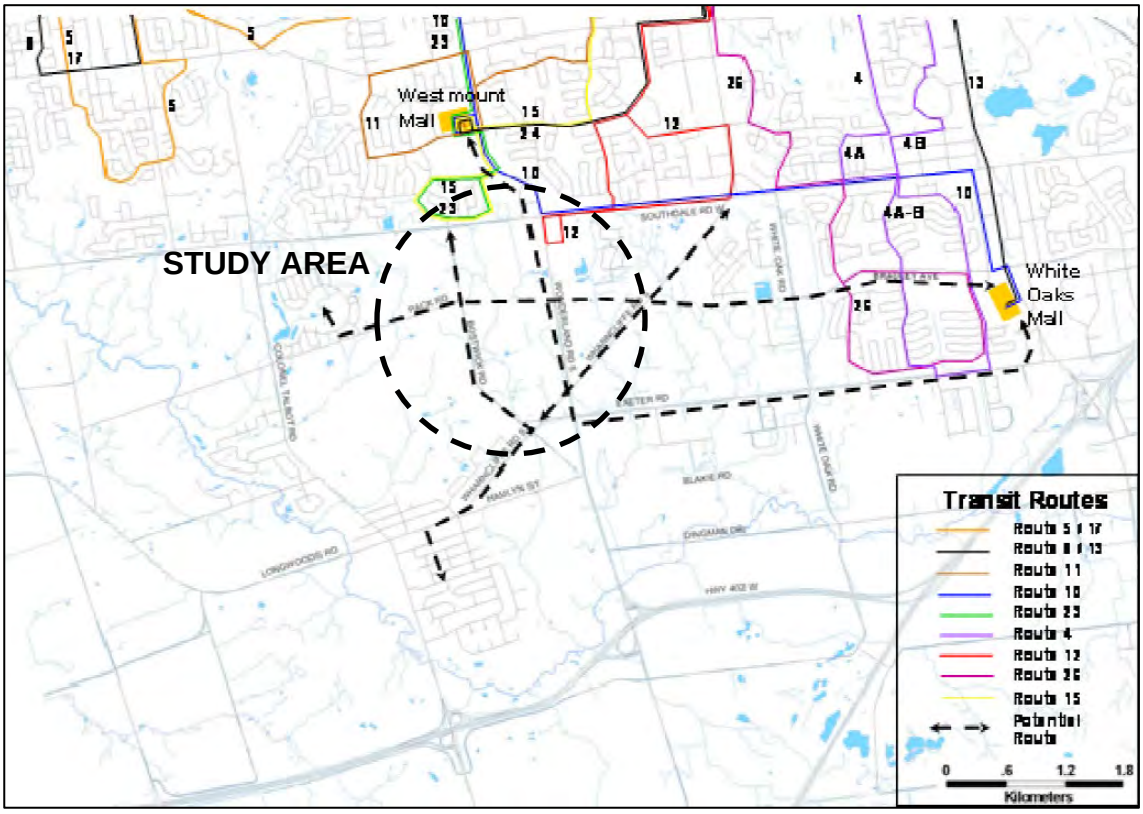
Figure 8 - Future BRT Routes and Key Supporting Routes



Source: City of London 2030 Transportation Master Plan (May 2013)

In addition to the broader transit policies in the TMP, the Southwest Area Plan (SWAP) Transportation Servicing Report (TSR) goes further to suggest future transit routes in the study area, including along Wonderland, Wharncliffe, Exeter, Pack, Bostwick and Bradley, to service new developments, as illustrated in **Figure 9**. Additionally, the SWAP TSR indicates that there is the potential for a transit terminal to be located at the intersection of Wonderland & Wharncliffe.

Figure 9 - Potential Transit Routes



Source: City of London Southwest Area Plan Transportation Servicing Report (May 2010)

4.4 Future Adjacent Developments

The City of London noted that the following adjacent developments are anticipated to contribute traffic volumes to the study area intersections:

Table 6 - Adjacent Developments

ADJACENT DEVELOPMENT	BUILDOUT YEAR	LAND USES
Talbot Village Phase 5 and 6	2024[1]	224 single family homes
3080 Bostwick Road	2023[2]	16 townhome units 48 stacked townhome units 2,464 high-rise residential units 21,528 ft^2 of commercial space 43,056 ft^2 of office space

ADJACENT DEVELOPMENT	BUILDOUT YEAR	LAND USES
W3 Farms Residential Development	2024[3]	376 single family homes 238 street townhomes 113 cluster townhomes 476 medium density apartment units with convenience commercial and small scale offices 32 mixed-use residential/commercial units 2.0-hectare elementary school
Colonel Talbot Subdivision	Phase 1: 2020 Full buildout: 2025	538 single family homes 776 condominium/townhome units
3493 Colonel Talbot Road	2024	177 single family homes 314 condominium/townhome units 10,765 ft^2 of group floor auxiliary commercial space
Proposed Commercial Development Wonderland Road at Wharncliffe Road (Phase 1)	2024[4]	116,000 ft^2 of general retail space 115,000 ft^2 of hardware store space 41,000 ft^2 of fitness gym space 6,500 ft^2 of medical office space

Notes:

[1] – Assumed buildout year.

[2] – The buildout year for this development may be pushed back to 2025 depending on market conditions, however, for consistency with the supporting Traffic Impact Study, the buildout year of 2023 will be maintained.

[3] – The buildout year for this development may be pushed back to 2028 depending on market conditions, however, for consistency with the supporting Traffic Impact Study, the buildout year of 2024 will be maintained.

[4] – Assumed buildout year for remaining buildings within Phase 1.

The buildout dates identified above are conservative estimates based on the latest information available, however, market conditions will ultimately dictate when these future adjacent developments will be built out.

A number of additional future adjacent developments were noted along Wonderland Road for which development applications were submitted. Given the length of time since the applications were submitted, however, it is uncertain when these developments will be constructed. As such, it is assumed that these developments will **not** be built-out within the timeframe of this study. It is expected that the traffic generated by these developments will be accounted for through the application of a background traffic growth rate.

Similarly, the Hudson Park subdivision, located in the southeast quadrant of the Colonel Talbot & Pack intersection, was also identified as a future adjacent development but, as no TIA has been prepared for this development yet, the traffic generated by this site will also be accounted for through the application of a background traffic growth rate.

Exhibit 6 illustrates the locations of the future adjacent developments identified above.

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Exhibit 6:
Adjacent Developments

PROJECT No. 136632

SCALE: N.T.S.

5 Traffic Volumes

5.1 Existing Traffic Volumes

Weekday morning and afternoon peak hour traffic counts were obtained for the following intersections:

- Wonderland & Southdale (City of London, October 2018)
- Wonderland & Bradley (Arcadis IBI Group c/o Horizon Data Services, November 2021)
- Wonderland & Kilbourne (City of London, October 2019)
- Wonderland & Wharncliffe (City of London, October 2019)
- Wonderland & Exeter (City of London, September 2019)
- Wharncliffe & Bostwick/Exeter (City of London, October 2017)
- Southdale & Bostwick (City of London, May 2019)
- Southdale & Pine Valley (City of London, May 2019)
- Bostwick & Pack/Bradley (Arcadis IBI Group c/o Horizon Data Services, November 2021)

In order to estimate representative existing background traffic, a growth rate was applied to the arterial roadways to account for traffic growth from outside of the study area. Further discussion on the background traffic growth rate will be provided in Section 5.2.

Traffic volumes at the Southdale & Yorkville intersection were estimated by using the Bostwick Community Centre trip generation rates from the 3080 Bostwick Road TIS to establish turning movement volumes at the intersection. Traffic volumes were then subsequently balanced with the upstream and downstream intersections in order to calculate the eastbound and westbound through volumes.

The traffic count at the Wharncliffe & Bostwick/Exeter intersection was completed over 6 years ago. Given the age of this traffic count, the volumes at the intersection were balanced with 2019 data for the adjacent Wonderland & Wharncliffe and Wonderland & Exeter intersections to account for any changes in traffic growth since 2017.

Additionally, given that the COVID-19 pandemic was ongoing in 2021, it is anticipated that it had an impact on the two traffic counts completed that year. As such, these two traffic counts were balanced with the adjacent intersections in order to account for the potential traffic impacts of the pandemic.

Historical aerial imagery indicates that Talbot Village Phase 5 and 6 has been under construction since 2018 and was likely only partially built-out and occupied at the time that the traffic counts were collected. As such, the site-generated traffic volumes from the Talbot Village Phase 5 and 6 TIS were added to the turning movement counts to provide a conservative estimate of existing traffic.

Traffic volumes representative of Existing Traffic conditions are provided in **Exhibit 7**. The turning movement counts provided and/or collected for this study have been provided in **Appendix C**.

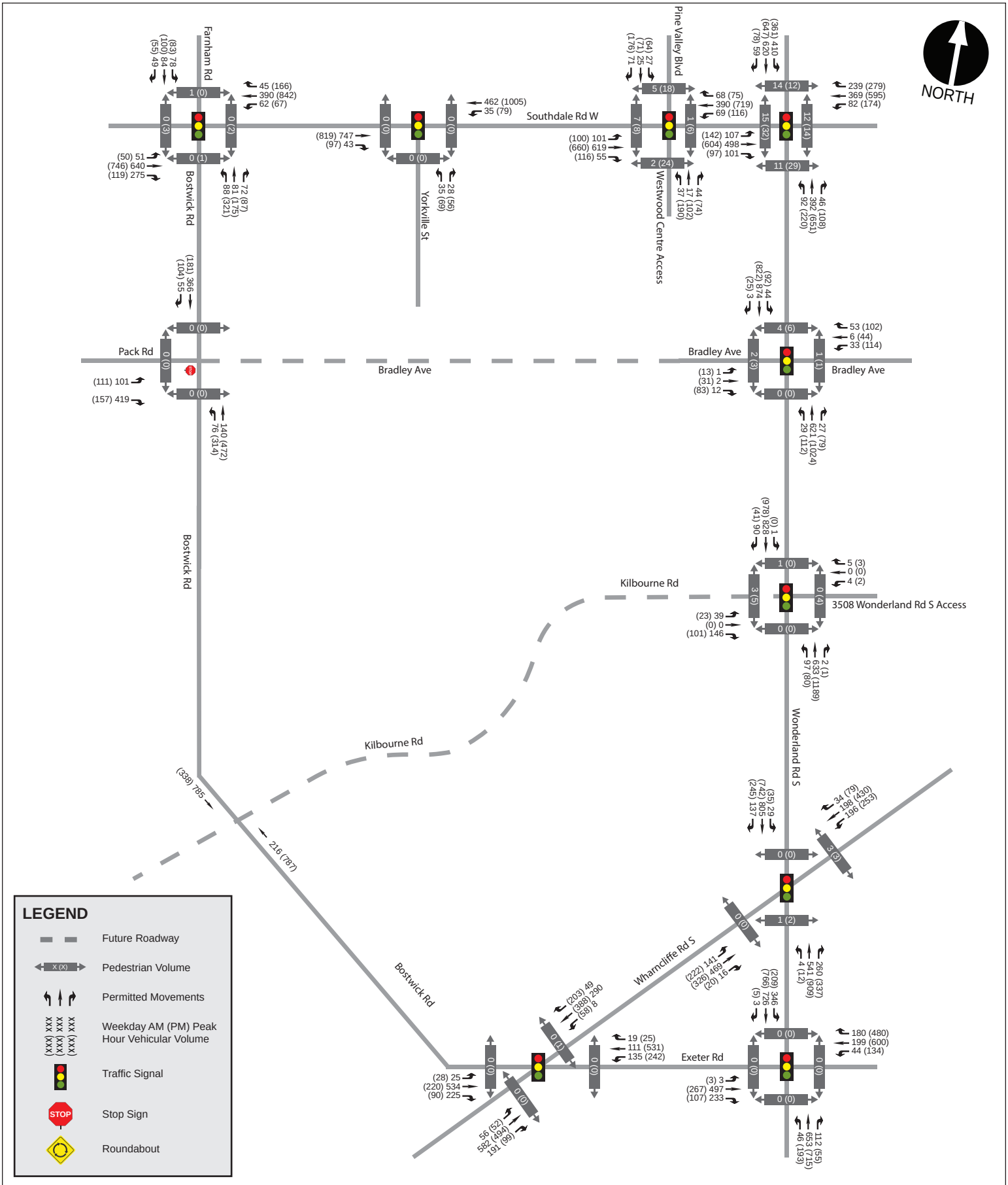

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Exhibit 7:
Existing Traffic

PROJECT No. 136632

SCALE: N.T.S.

5.2 Future Background Traffic Volumes

The following analysis years have been analysed as part of this study and were selected to consider incremental growth of the proposed developments while aligning with the anticipated implementation timing of major transportation network improvements.

- Future (2024) Background & Total Traffic – First Occupancy
- Future (2027) Background & Total Traffic – Partial Buildout
- Future (2030) Background & Total Traffic – Full Buildout/ City of London Planning Horizon
- Future (2035) Background & Total Traffic – 5-Year Study horizon

Based on an analysis of City of London's future traffic model projections, and accounting for site-generated traffic volumes that are included in those model projections, a 1.5% linear background traffic growth rate has been applied to traffic volumes on Wharncliffe Road and Wonderland Road south of Exeter. North of Exeter Road, a 0.5% linear background traffic growth rate has been applied to traffic volumes on Wonderland Road. No background traffic growth rate has been applied to Southdale, Exeter or Bradley as the analysis found that most of the growth in traffic volumes will be a result of site-generated or adjacent development-generated traffic accounted for in this study.

No background traffic growth rate has been applied to roadways that primarily serve the local area and are therefore not expected to be subject to regional traffic growth from areas outside the study area. All background traffic growth on these roadways has been accounted for explicitly through the addition of background development traffic based on their respective TISs.

The Bradley Avenue extension from White Oak to Bostwick is expected to result in a significant shift in traffic patterns in the study area as it will provide an alternative east-west route in the area. Consistent with the City of London's future traffic model projections, approximately 20% of the traffic along Southdale Road east of Bostwick is expected to reroute to the Bradley Avenue extension within the timeframe of this study as these segments parallel to Southdale Road are constructed.

The background traffic growth rates were applied to existing traffic volumes and superimposed with background development traffic to establish the base background traffic volumes. These background traffic volumes were then subsequently adjusted to account for the impacts of the Bradley Avenue extension and are presented in **Exhibit 8**, **Exhibit 9**, **Exhibit 10** and **Exhibit 11**.

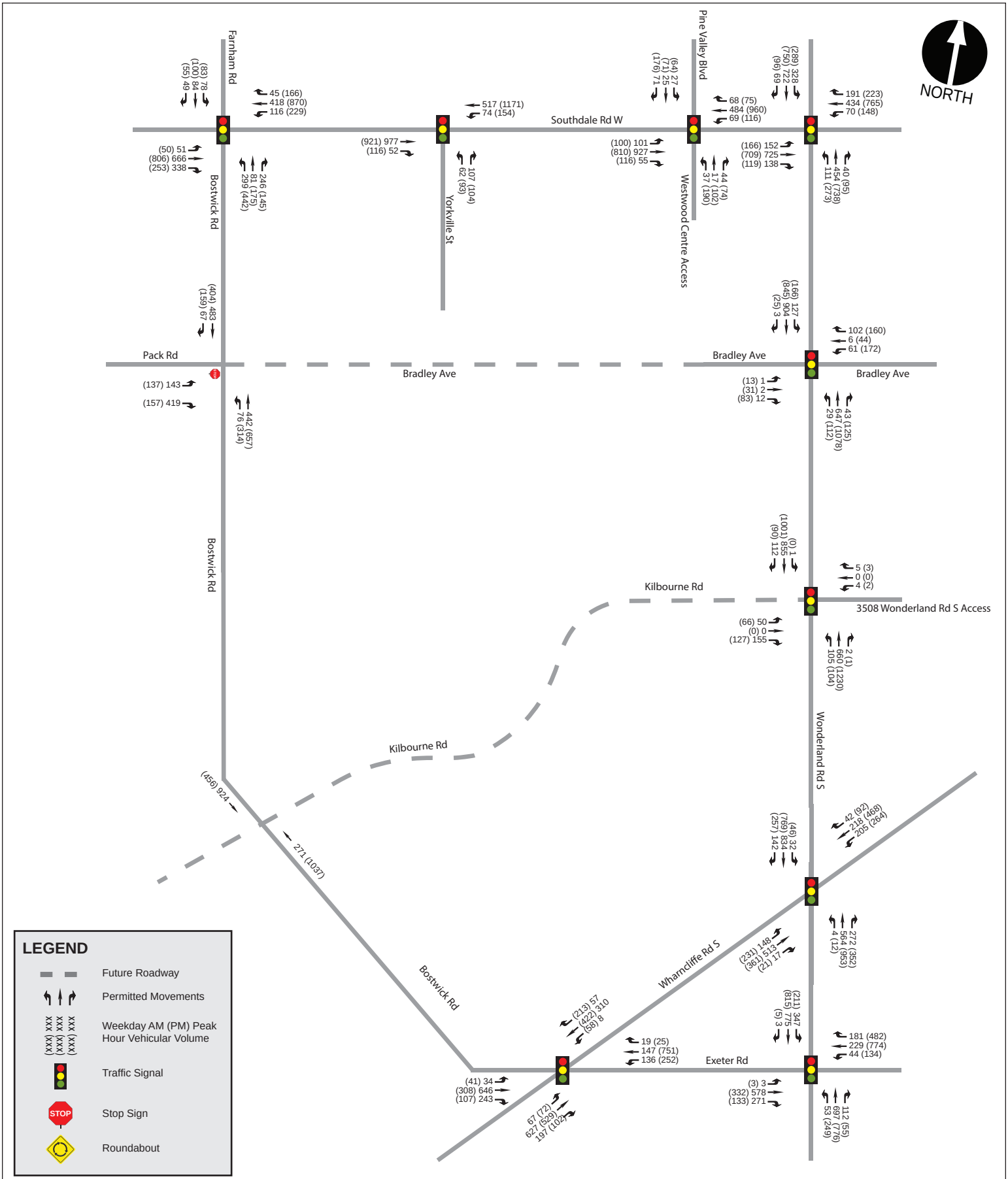

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Exhibit 8:
Future (2024)
Background Traffic

PROJECT No. 136632

SCALE: N.T.S.

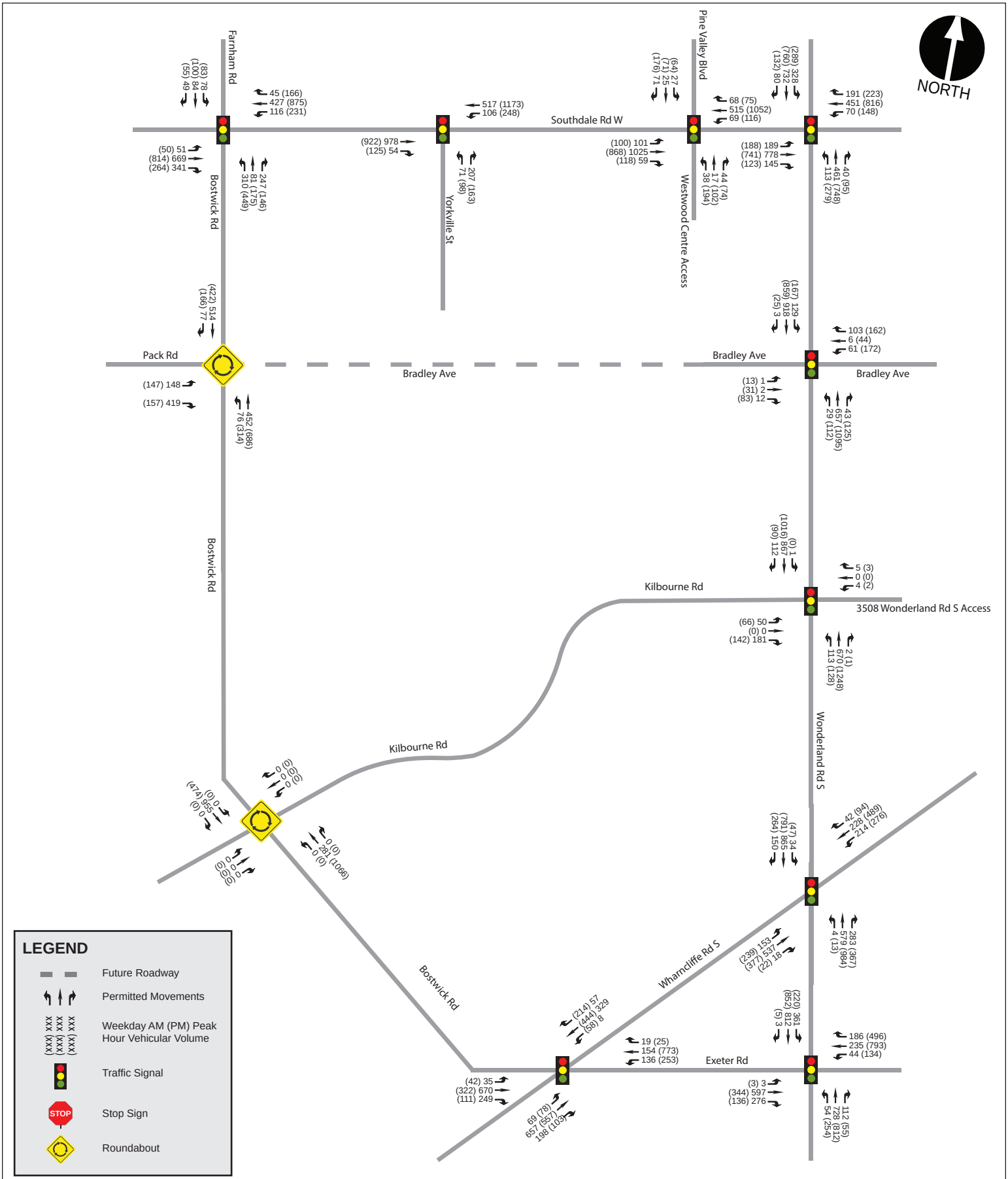

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Exhibit 9:
Future (2027)
Background Traffic

PROJECT No. 136632

SCALE: N.T.S.

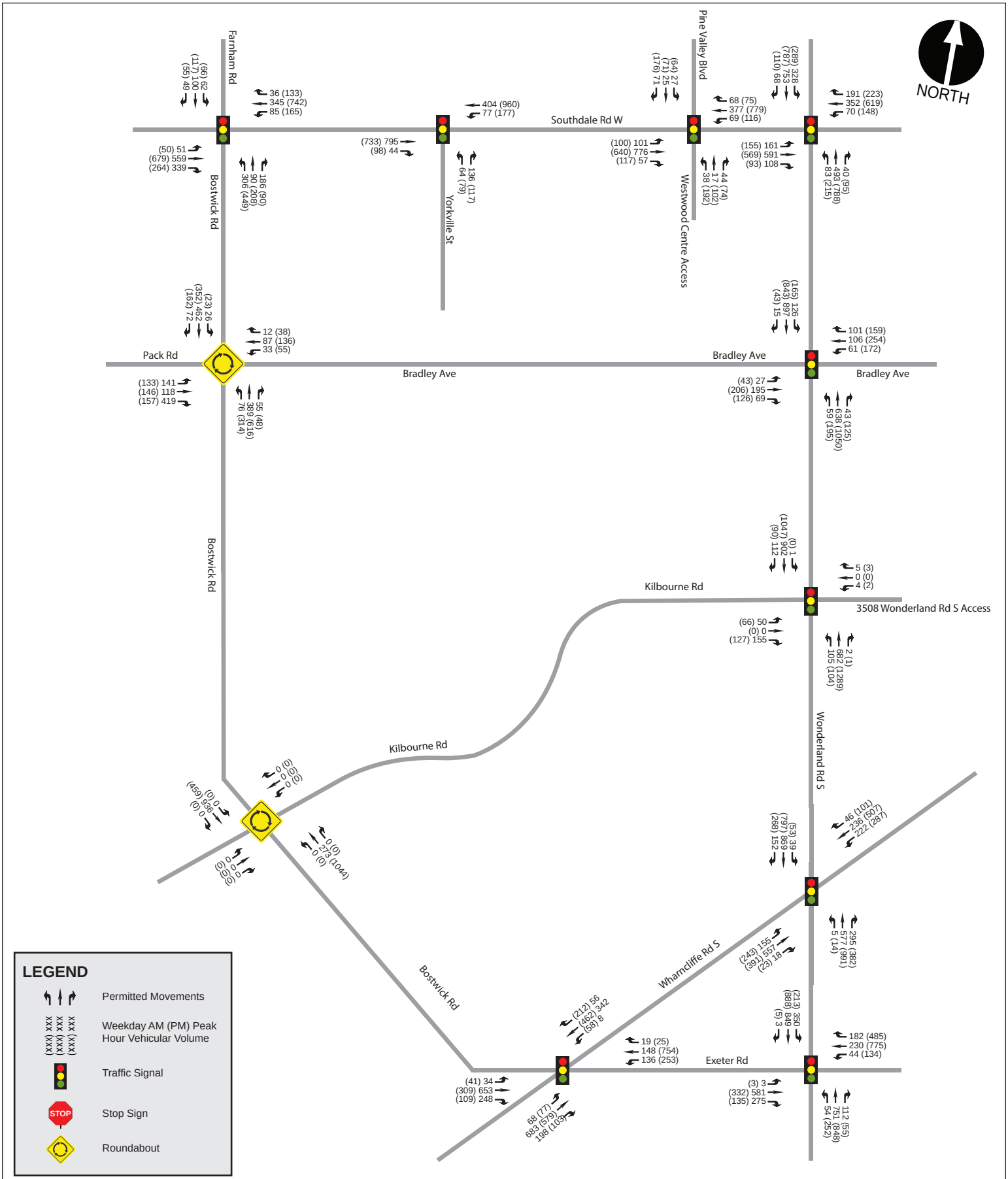

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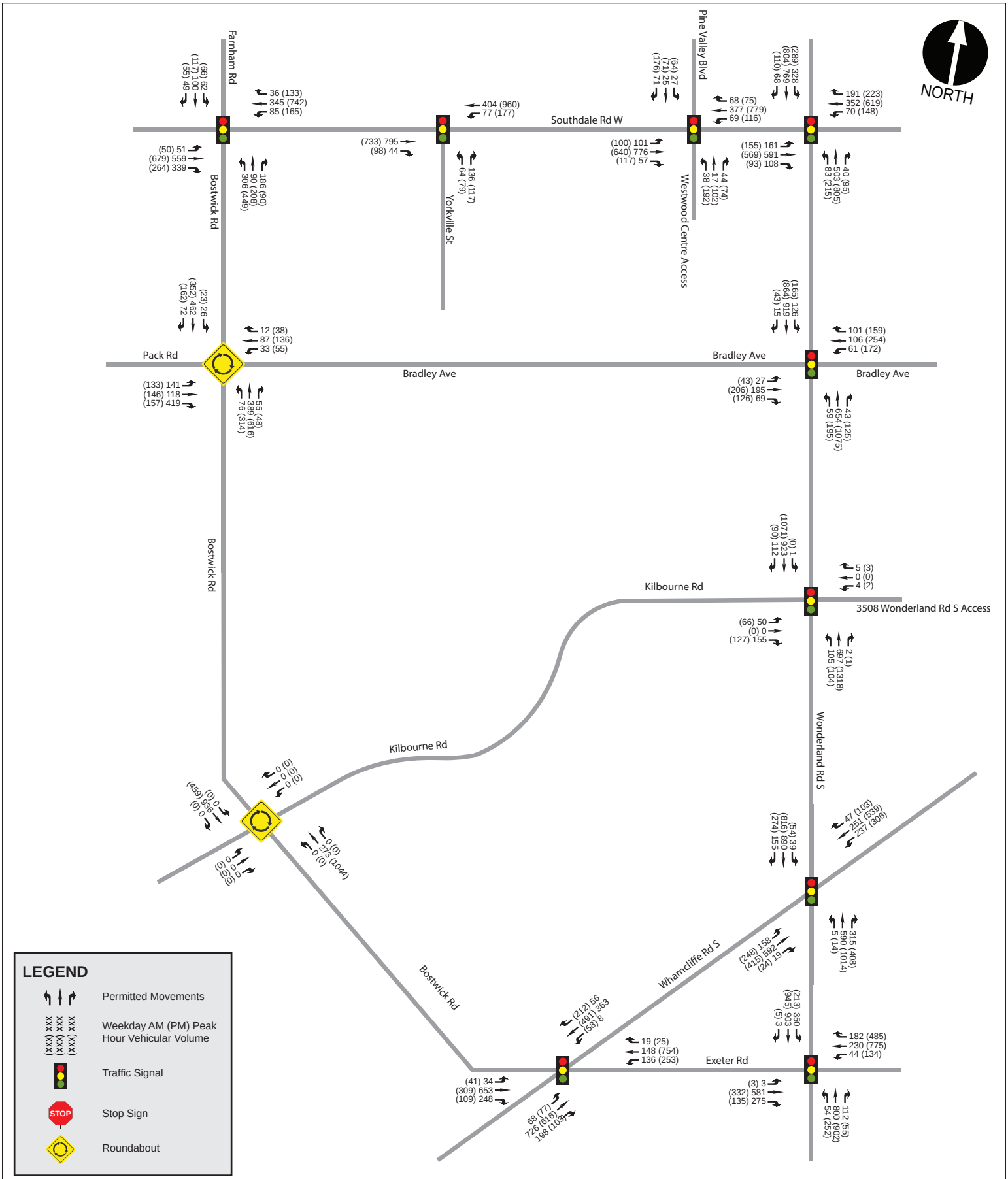
Exhibit 10:
Future (2030)
Background Traffic

PROJECT No. 136632

SCALE: N.T.S.



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Master Transportation Study

Exhibit 11:
Future (2035)
Background Traffic

PROJECT No. 136632

SCALE: N.T.S.

5.3 Trip Generation

The traffic generation of the three proposed developments was estimated using peak hour trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition. The Kilbourne Subdivision has been subdivided into seven subzones, as illustrated in **Exhibit 2**, in order to allow for a more detailed distribution of site-generated traffic.

The vehicle trip generation estimated using the ITE Trip Generation Manual was subsequently converted into person-trips using the methodology outlined in the ITE Trip Generation Handbook (3rd Edition). These person-trips were then subdivided into auto driver, auto passenger, transit, pedestrian, bicycle and 'other' trips based on existing and future mode share distributions.

5.3.1 Baseline Vehicle Trip Generation

Based on the ITE Trip Generation Manual, the baseline vehicle trip generation for the Westwinds Subdivision, Kilbourne Subdivision and Foxwood Development has been summarized in **Table 7**, **Table 8** and **Table 9**, respectively.

Extracts from the ITE Trip Generation Manual have been provided in **Appendix D**.

Table 7 - Baseline Vehicle Trip Generation: Westwinds Subdivision

LAND USE	SIZE	AM PEAK HOUR			PM PEAK HOUR		
		In	Out	Total	In	Out	Total
210: Single-Family Detached Housing	46 units	9	28	37	30	18	48
220: Multifamily Housing (Low-Rise) (1-2 storeys)	37 units	4	14	18	15	9	24
221: Multifamily Housing (Mid-Rise) (3-10 storeys)	666 units	57	162	219	167	107	274
	Total	**70**	**204**	**274**	**212**	**134**	**346**

Table 8 - Baseline Vehicle Trip Generation: Kilbourne Subdivision

LAND USE	SIZE	AM PEAK HOUR			PM PEAK HOUR		
		In	Out	Total	In	Out	Total
Subzone B							
220: Multifamily Housing (Low-Rise) (1-2 storeys)	10 units	1	4	5	5	3	8
221: Multifamily Housing (Mid-Rise) (3-10 storeys)	318 units	28	79	106	82	52	135
	Subtotal	**29**	**83**	**112**	**87**	**55**	**142**

LAND USE	SIZE	AM PEAK HOUR			PM PEAK HOUR		
		In	Out	Total	In	Out	Total
Subzone C							
210: Single-Family Detached Housing	93 units	18	53	71	60	35	95
221: Multifamily Housing (Mid-Rise) (3-10 storeys)	310 units	27	77	104	80	51	131
	Subtotal	**45**	**130**	**175**	**140**	**86**	**226**
Subzone D							
210: Single-Family Detached Housing	41 units	8	25	34	27	16	43
220: Multifamily Housing (Low-Rise) (1-2 storeys)	9 units	1	4	5	4	3	7
221: Multifamily Housing (Mid-Rise) (3-10 storeys)	30 units	3	8	11	9	5	14
	Subtotal	**12**	**37**	**49**	**40**	**24**	**64**
Subzone E							
210: Single-Family Detached Housing	145 units	27	81	108	91	54	145
220: Multifamily Housing (Low-Rise) (1-2 storeys)	8 units	1	3	4	4	2	6
221: Multifamily Housing (Mid-Rise) (3-10 storeys)	356 units	31	88	119	91	58	150
	Subtotal	**59**	**172**	**231**	**186**	**114**	**300**
Subzone F							
210: Single-Family Detached Housing	209 units	38	115	153	130	76	206
220: Multifamily Housing (Low-Rise) (1-2 storeys)	39 units	4	15	19	16	9	25
221: Multifamily Housing (Mid-Rise) (3-10 storeys)	67 units	6	17	23	18	12	30
221: Multifamily Housing (High-Rise) (11+ storeys)	538 units	39	124	163	117	75	192
	Subtotal	**87**	**271**	**358**	**281**	**172**	**453**
Subzone G							
221: Multifamily Housing (Mid-Rise) (3-10 storeys)	76 units	7	19	26	21	13	34
	Subtotal	**7**	**19**	**26**	**21**	**13**	**34**

LAND USE	SIZE	AM PEAK HOUR			PM PEAK HOUR		
		In	Out	Total	In	Out	Total
Subzone H							
220: Multifamily Housing (Low-Rise) (1-2 storeys)	147 units	16	53	69	52	31	83
221: Multifamily Housing (Mid-Rise) (3-10 storeys)	207 units	18	52	70	54	35	89
221: Multifamily Housing (High-Rise) (11+ storeys)	538 units	39	124	164	117	75	191
	Subtotal	**73**	**229**	**302**	**223**	**141**	**364**
	Total	**312**	**941**	**1,253**	**978**	**605**	**1,583**

Table 9 - Baseline Vehicle Trip Generation: Foxwood Development

LAND USE	SIZE	AM PEAK HOUR			PM PEAK HOUR		
		In	Out	Total	In	Out	Total
221: Multifamily Housing (Mid-Rise) (3-10 storeys)	462 units	40	113	153	117	75	192
	Total	**40**	**113**	**153**	**117**	**75**	**192**

5.3.2 Person Trip Generation

The ITE trip generation rates for residential land uses are based on data collected from traffic surveys conducted across North America over the past 20-30 years in mostly suburban areas where transit usage is traditionally very low. The ITE Trip Generation Handbook (3rd Edition) provides the mode share distribution of several survey sites that were used for developing the trip generation rates. Based on these surveys, approximately 97% of trips generated by these developments were via private automobile (either as a driver or passenger) with an average vehicle occupancy of 1.15. Of the 3% of trips via sustainable modes of transportation (i.e. transit, walk or bike), only 0.1% of trips were transit trips. This indicates that these developments generate approximately 1.19 person trips per baseline vehicle trip.

Assuming 1.19 person trips are generated per baseline vehicle trip, the proposed developments are expected to generate the following number of person-trips:

Table 10 - Person Trip Generation

DEVELOPMENT	AM PEAK HOUR			PM PEAK HOUR		
	In	Out	Total	In	Out	Total
Westwinds Subdivision	83	243	326	252	159	411
Kilbourne Subdivision	371	1,120	1,491	1,164	720	1,884
Foxwood Development	29	91	120	98	57	155

5.3.3 Existing and Future Mode Share

The 2016 Household Travel Survey Summary Report (IBI Group, July 2016) indicates that within the City of London, the current mode share distribution is as follows:

- Auto Driver: 62.5%
- Auto Passenger: 14.1%
- Transit: 7.6%
- Walk: 11.3%
- Bicycle: 1.4%
- Other: 3.2%

The proposed developments are within one to two kilometres of one of the key supporting transit routes identified in the TMP and are approximately five kilometres from the planned bus rapid transit stations near the Wellington & Southdale intersection and at White Oaks Mall which will be accessible via direct local feeder bus routes. Additionally, the pedestrian and bicycle network within the study area is expected to be significantly improved as a result of planned roadway upgrades and will also benefit from continuing development in the area. As such, it is expected that the share of daily trips via sustainable modes of transportation (i.e. transit, walk and bicycle) will increase throughout the timeframe of this study.

The TMP identifies three sets of mode share targets: city-wide targets, node and corridor targets and central area targets. The proposed developments are not located along any of the BRT corridors nor are they within the central area of London and, as such, are subject to the city-wide mode share targets which are summarized in **Table 11** below.

Table 11 - Transportation Master Plan Mode Share Targets (City-Wide)

MODE OF TRANSPORTATION	2030 MODE SHARE TARGETS
Transit	20.0%
Active Transportation	15.0%
Automobile Driver and Passenger	60.0%

Assuming a linear progression in mode share from the observed mode share in 2016 towards the targets for 2030, the following mode share distributions are anticipated at each of the analysis years:

Table 12 - Projected Mode Share Distributions

MODE OF TRANSPORTATION	PROJECTED MODE SHARES PER ANALYSIS YEAR			
	2024	2027	2030	2035
Auto Driver	54.7%	51.8%	49.0%	49.0%
Auto Passenger	12.3%	11.7%	11.0%	11.0%
Transit	14.7%	17.3%	20.0%	20.0%
Walk	12.5%	12.9%	13.3%	13.3%
Bicycle	1.5%	1.6%	1.7%	1.7%
Other	4.2%	4.6%	5.0%	5.0%

5.3.4 Summary of Trip Generation

The auto driver mode share distributions from **Table 12** were applied to the estimated person trips from **Table 10** to determine future site-generated vehicle trips for each proposed development. These vehicle trips were then subsequently adjusted based on the anticipated number of units occupied at the end of each analysis year. **Table 13**, **Table 14** and **Table 15** summarize the anticipated vehicle-trip generation for the Westwinds Subdivision, Kilbourne Subdivision and Foxwood Development developments, respectively.

Table 13 - Vehicle Trip Generation: Westwinds Subdivision

ANALYSIS YEAR	AM PEAK HOUR			PM PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL
2024	16	48	64	49	31	80
2027	35	101	136	105	66	171
2030	41	119	160	123	78	201
2035	41	119	160	123	78	201

Table 14 - Vehicle Trip Generation: Kilbourne Subdivision

ANALYSIS YEAR	AM PEAK HOUR			PM PEAK HOUR		
	In	Out	Total	In	Out	Total
2024	14	42	56	45	28	73
2027	95	283	378	299	184	483
2030	139	415	554	440	270	710
2035	182	548	730	570	352	922

Table 15 - Vehicle Trip Generation: Foxwood Development

ANALYSIS YEAR	AM PEAK HOUR			PM PEAK HOUR		
	In	Out	Total	In	Out	Total
2024	0	0	0	0	0	0
2027	19	82	71	54	35	89
2030	23	66	89	68	44	112
2035	23	66	89	68	44	112

5.4 Trip Distribution and Assignment

The distribution of development-generated traffic was based primarily on the City of London 2016 Household Travel Survey. For the Southwest Area, it is estimated that approximately 20% of traffic stays within the area (i.e. local) and 80% travels to/from other areas of the city (i.e. regional).

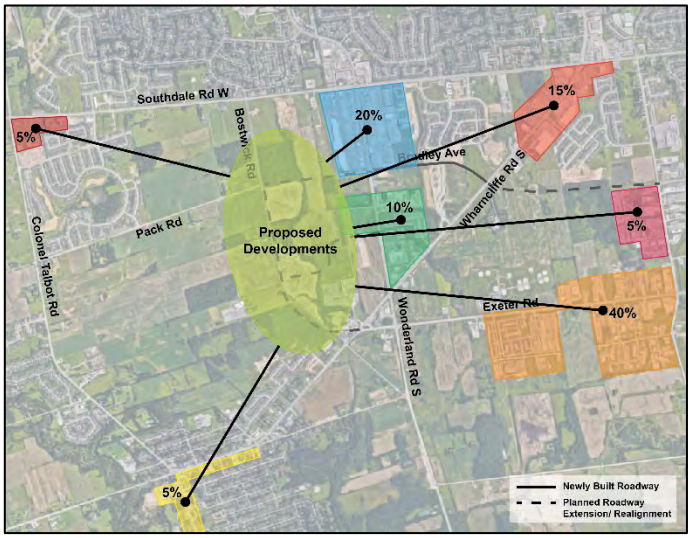
For the Southwest Area, it is estimated that regional traffic will distribute as follows:

- 20% North via Wharncliffe[1]
- 25% North via Wonderland
- 25% East via Southdale, Exeter and Bradley
- 5% East via Highway 402 and 401
- 20% West via Southdale
- 5% West Highway 402

[1] It is expected that some trips to/from the north via Wharncliffe will first travel to/from the east via Southdale, Bradley or directly via Wharncliffe before turning to/from the north via Wharncliffe.

For trips remaining within the Southwest Area, development-generated traffic was distributed based on the concentrations of commercial and employment land uses within the Southwest Area. The resulting local distribution is as follows:

- 10% to/from land uses around Wonderland & Wharncliffe
- 20% to/from land uses south of Southdale adjacent to Wonderland
- 15% to/from land uses around Wharncliffe & Southdale
- 5% to/from land uses around White Oak & Bradley
- 40% to/from land uses around White Oak & Exeter
- 5% to/from land uses around Colonel Talbot & Southdale
- 5% to/from land uses around Colonel Talbot & Wharncliffe



Using these distributions, the estimated development-generated traffic was assigned to the adjacent road network based on engineering judgement. **Exhibit 12**, **Exhibit 13**, **Exhibit 14** and **Exhibit 15** illustrate the projected development-generated traffic volumes in 2024, 2027, 2030 and 2035, respectively.

5.5 Future Total Traffic Volumes

The future background traffic volumes were superimposed with the site-generated traffic volumes to estimate the future total traffic volumes, as presented in **Exhibit 16**, **Exhibit 17**, **Exhibit 18** and **Exhibit 19**.

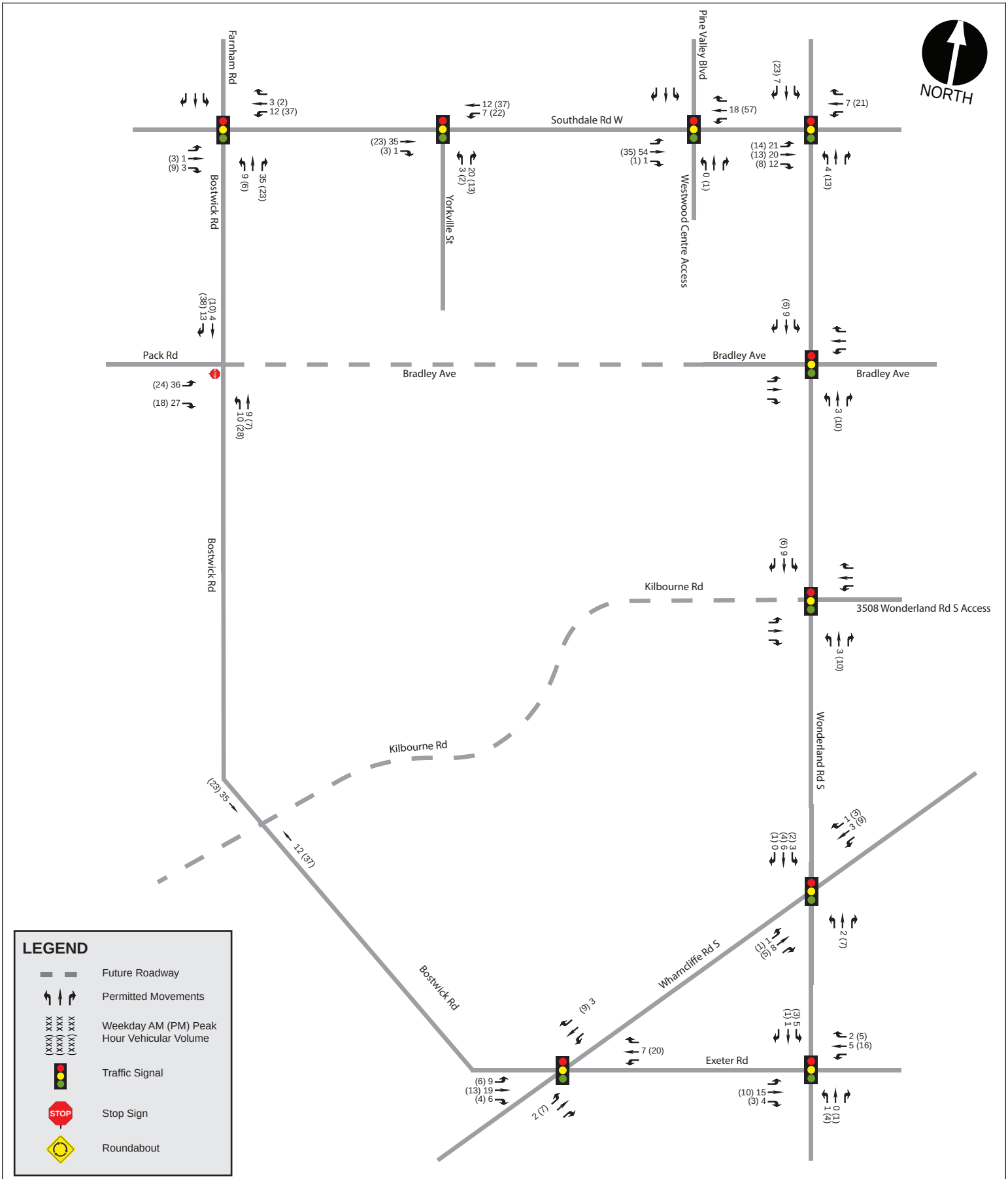


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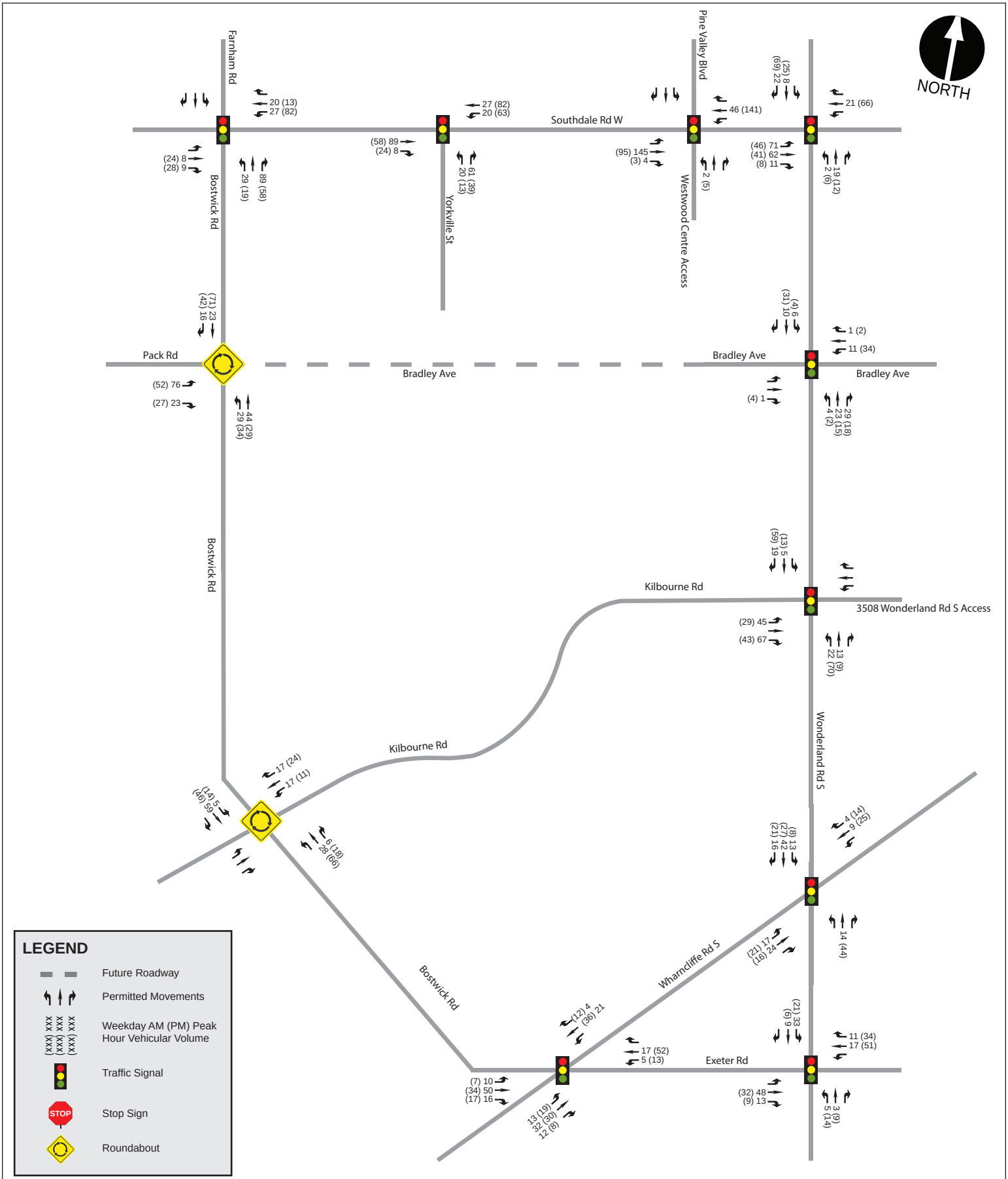
Exhibit 12:
(2024) Site
Generated Traffic

PROJECT No. 136632

SCALE: N.T.S.



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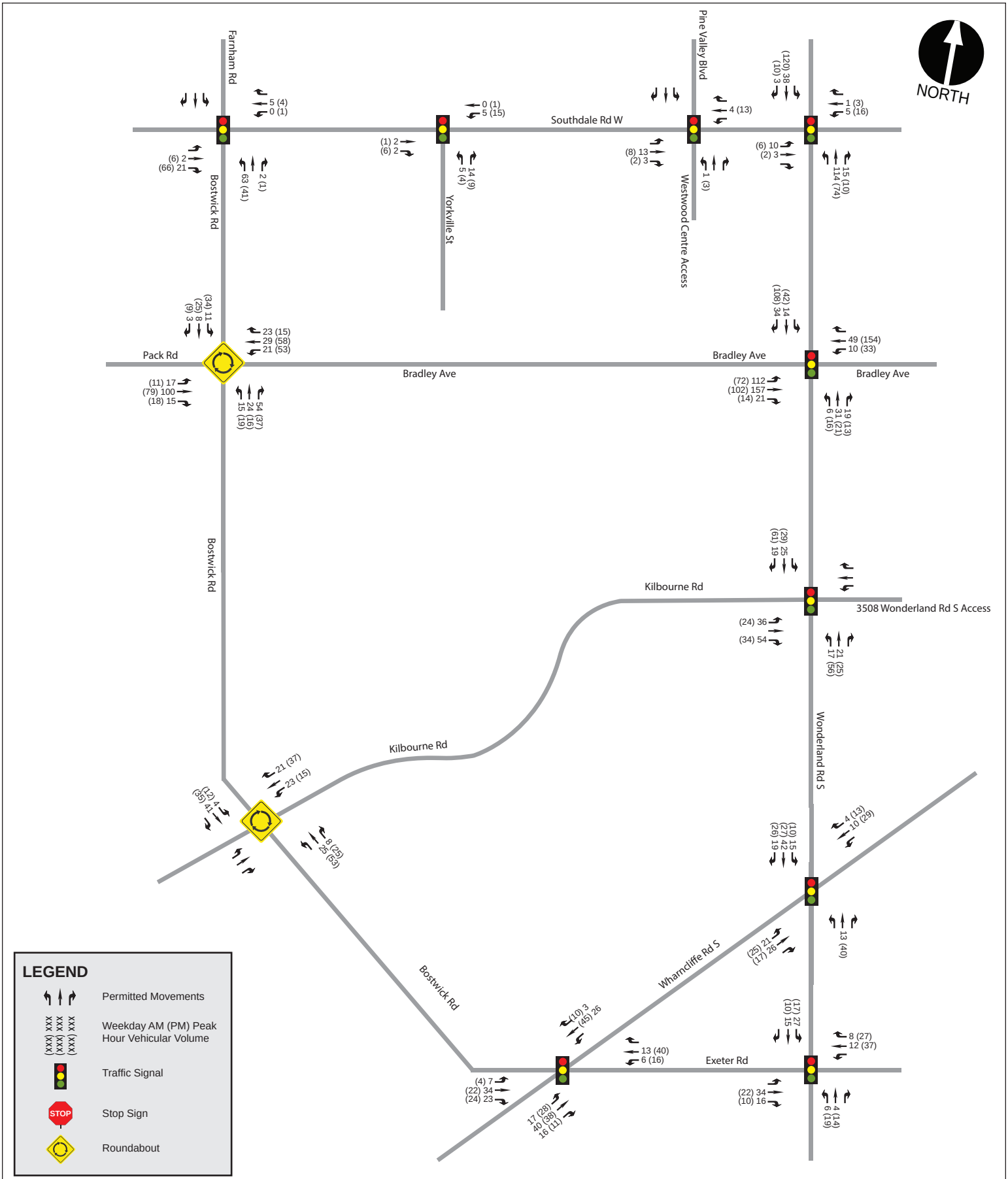
Bostwick Corridor
Master Transportation Study

Exhibit 13:
(2027) Site
Generated Traffic

PROJECT No. 136632

SCALE: N.T.S.



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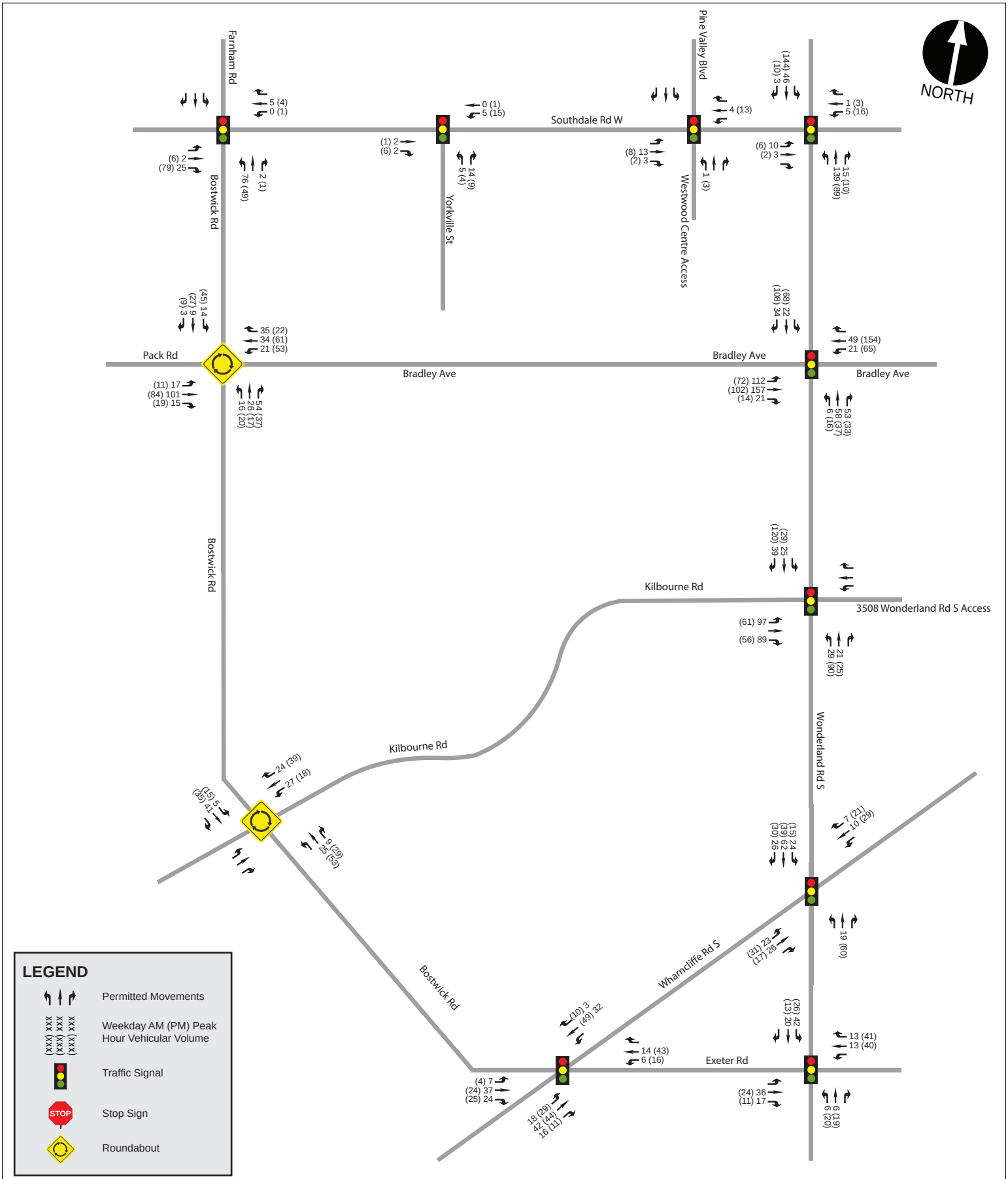
Bostwick Corridor
Master Transportation Study

Exhibit 14:
(2030) Site
Generated Traffic

PROJECT No. 136632

SCALE: N.T.S.



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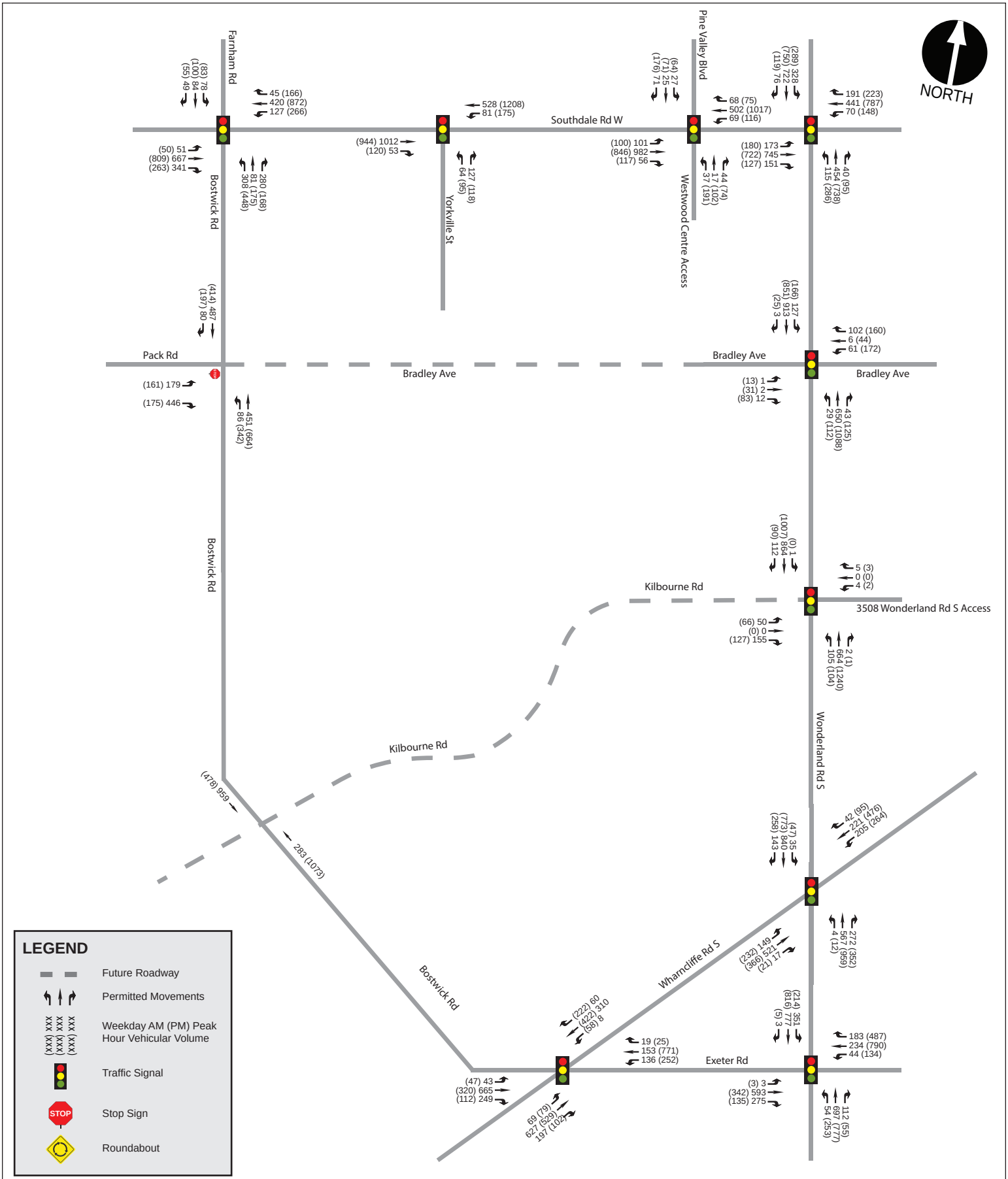
Master Transportation Study

Exhibit 15:
(2035) Site
Generated Traffic

PROJECT No. 136632

SCALE: N.T.S.



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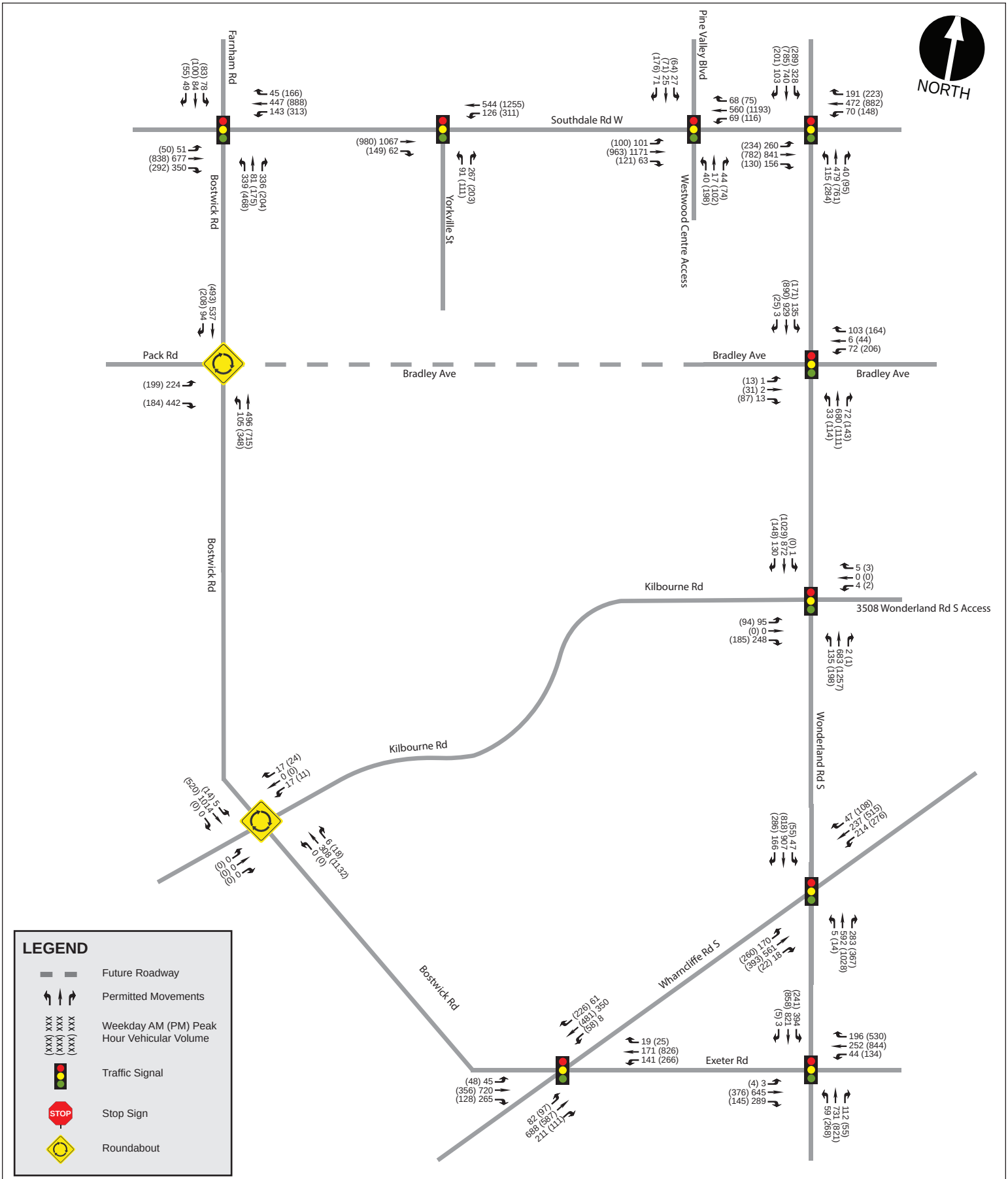
Bostwick Road Area Development
Master Transportation Study

Exhibit 16:
Future (2024)
Total Traffic

PROJECT No. 136632

SCALE: N.T.S.



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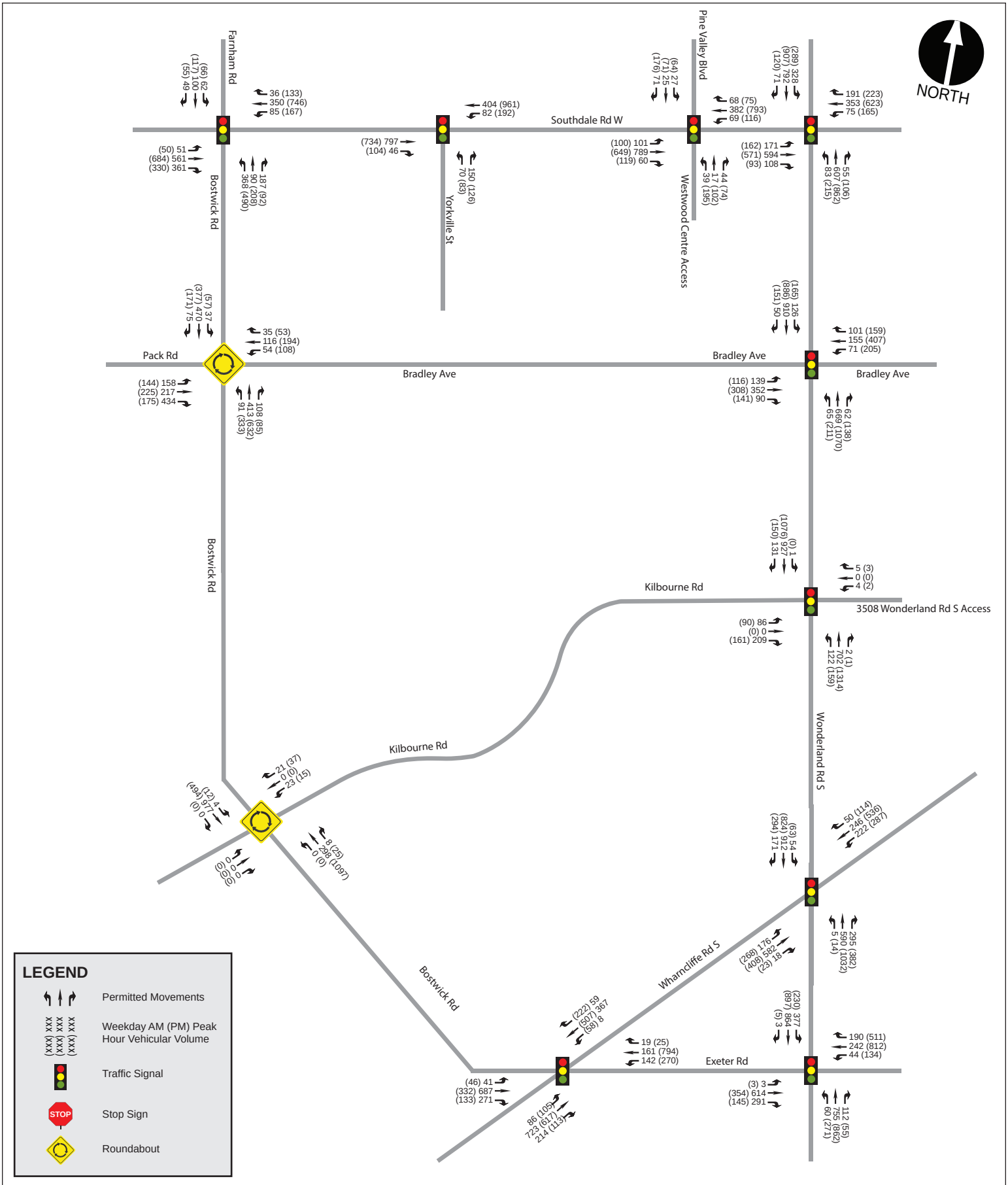
Bostwick Road Area Development
Master Transportation Study

Exhibit 17:
Future (2027)
Total Traffic

PROJECT No. 136632

SCALE: N.T.S.



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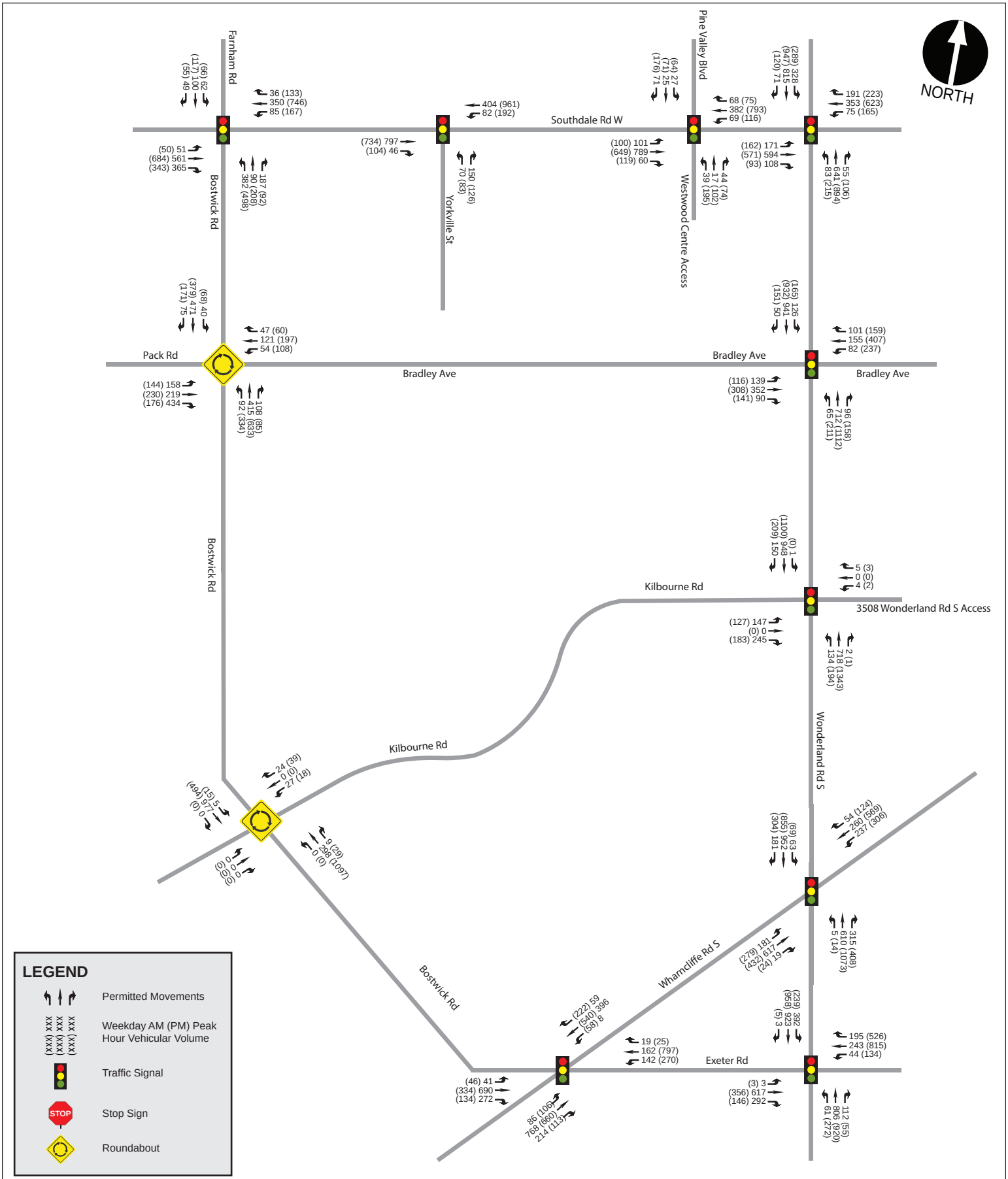
Bostwick Road Area Development
Master Transportation Study

Exhibit 18:
Future (2030)
Total Traffic

PROJECT No. 136632

SCALE: N.T.S.



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Bostwick Road Area Development
Master Transportation Study

Exhibit 19:
Future (2035)
Total Traffic

PROJECT No. 136632

SCALE: N.T.S.

6 Intersection Capacity Analysis

Traffic operations at all study area intersections were evaluated using Synchro v11 and SIDRA Intersections v9.0 for the weekday morning and afternoon peak hours under the following traffic conditions:

- Existing Traffic
- Future (2024) Background and Total Traffic
- Future (2027) Background and Total Traffic
- Future (2030) Background and Total Traffic
- Future (2035) Background and Total Traffic

6.1 Base Road Network

The existing and ultimate intersection lane configurations and traffic control for all study area intersections were shown in **Exhibit 4** and **Exhibit 5**, respectively. The existing signal timing plans were provided by the City of London. For intersections that will be reconstructed, future traffic signal clearance intervals (i.e. amber, all-red, walk and flash don't walk times) were calculated in accordance with Ontario Traffic Manual (OTM) Book 12: Traffic Signals (MTO, March 2012). Pedestrian and vehicle clearance distances were estimated based on the planned lane configurations and assumed lane widths/stop bar setbacks.

For Existing Traffic conditions, the analysis considers pre-construction conditions for the intersections along Southdale Road given that the four-lane roadway widening is still ongoing.

Table 16 summarizes the assumed base road network for each analysis year under background and total traffic conditions.

Table 16 – Base Road Network per Analysis Year

ANALYSIS YEAR	ROAD NETWORK CONFIGURATION
2024	• Southdale Road widened from 2 to 4 lanes from Bostwick/Farnham to west of Pine Valley (currently under construction) • Bradley Avenue extended between Wharncliffe and White Oak
2027	• Wonderland Road widened from 2 to 4 lanes south of Exeter • Bostwick Road widened from 2 to 4 lanes between Pack and Wharncliffe, and urbanized but maintaining a 2-lane cross-section between Southdale and Pack • Kilbourne Road extended between Bostwick and Wonderland
2030	• Bradley Avenue extended between Bostwick and Wonderland
2035	• Southdale Road widened from 2 to 4 lanes west of Bostwick/Farnham • Pack Road urbanized but maintaining a 2-lane cross-section west of Bostwick

It is assumed that signal timing optimization will be conducted regularly by the City, therefore the signal timing plan for all signalized intersections has been optimized for all future background and total traffic scenarios. Existing signal timing offsets were maintained at all intersections in order to maintain coordination within the coordinated signal timing network.

6.2 Intersection Capacity Analysis Criteria

6.2.1 Signalized Intersections

The intersection capacity of a traffic signal controlled intersection is commonly expressed by the manner in which an intersection functions in terms of its v/c ratio and the Level of Service (LOS) it provides.

The v/c ratio is the relationship between the observed or estimated traffic demand and available capacity. This value can be evaluated for a single lane, an approach or an intersection. A v/c ratio of less than 1.00 means there is sufficient capacity to accommodate traffic demand. A v/c ratio of 1.00 or more means the available capacity only meets or is insufficient to accommodate traffic demand.

The Level of Service defines operational conditions within a traffic stream and their perception by motorists. A level-of-service definition generally describes these conditions in terms of delay, in seconds, during a single cycle at a traffic signal. Levels of Service are given letter designations from ‘A’ to ‘F’. Level of Service ‘A’ represents the best operating conditions and Level of Service ‘F’ indicates very poor operating conditions. The limits for each Level of Service grade are summarized in **Table 17**.

Table 17 - Level of Service Criteria: Signalized Intersections

LEVEL OF SERVICE	DELAY PER VEHICLE (s)
A	<10
B	>10 and ≤20
C	>20 and ≤35
D	>45 and ≤55
E	>55 and ≤80
F	>80

6.2.2 Unsignalized Intersections and Roundabouts

For an unsignalized intersection or roundabout, the Level of Service is defined in terms of the average movement delays at the intersection. The Highway Capacity Manual 2010 (HCM), prepared by the Transportation Research Board, includes the following Levels of Service criteria for unsignalized intersections and roundabouts, related to average movement delays at the intersection, as shown in **Table 18** and **Table 19**, respectively.

Table 18 - Level of Service Criteria: Unsignalized Intersections

LEVEL OF SERVICE	DELAY PER VEHICLE (s)
A	<10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Table 19 - Level of Service Criteria: Roundabouts

LEVEL OF SERVICE	DELAY PER VEHICLE (s)
A	<10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤50
E	>50 and ≤70
F	>70

6.3 Intersection Capacity Analysis Methodology

The peak hour factor (PHF) is defined as the ratio of the peak hour volume divided by the peak 15-minute flow rate within the peak hour and is a measure of the variability of traffic fluctuations within the peak hour. The saturation flow rate is the theoretical maximum number of vehicles that can be accommodated within a single lane assuming perfect conditions and a continuous green signal. Consistent with the 3080 Bostwick Road TIS, a peak hour factor (PHF) of 0.95 and saturation flow rate of 1,900 vehicles per hour per lane was assumed for all study area intersections under Existing Traffic conditions.

Theoretically, it is impossible to observe traffic demand that exceeds capacity (i.e. v/c ratio > 1.00). As such, in accordance with the City of London Transportation Impact Assessment (TIA) Guidelines, the intersection capacity analysis model was calibrated to existing conditions by adjusting the saturation flow rate for movements with v/c ratios greater 1.00.

Under Future Traffic conditions, it is expected that increasing traffic volumes will result in adjustments to driver behaviour as drivers adjust their departure times in order to avoid congestion. As such, a PHF of 1.00 has been assumed for all study area intersections under Future Traffic conditions to recognize peak spreading beyond a 15-minute period in congested conditions.

The TIA Guidelines indicate that intersections and movements with a v/c ratio greater than 0.90 or LOS ‘E’ or worse should be identified and turning movements with 95th percentile queues that exceed the available storage capacity should also be identified.

At locations that do not meet the prescribed v/c ratio and LOS criteria, potential mitigation measures will be evaluated. In recognition of the City of London’s stated goal to increase

sustainable transportation modes over the private automobile, the identification of potential mitigation measures will consider the following order of preference:

1. Optimizing the traffic signal timing plan
2. Adding additional traffic signal phases (i.e. left-turn phases)
3. Adjustments to driver behaviour due to congestion such as drivers shifting to alternate routes
4. Increasing vehicular capacity by adding traffic lanes

Adding traffic lanes is considered last due to the significant capital and maintenance costs associated with this option. This is consistent with guidance provided by the National Association of City Transportation Officials (NACTO)[1], which encourages consideration of signal timing and transportation demand management (TDM) measures to shift congestion rather than relying on increasing capacity through additional traffic lanes.

6.4 Traffic Signal Warrants

All study area intersections are currently signalized with the exception of the Bostwick & Pack intersection. It is expected that this intersection will be upgraded to a 2-lane roundabout in 2026 when Bostwick is widened to 4 lanes as indicated in Section 4.1. Traffic signal warrant analysis was therefore not required for any of the study area intersections.

6.5 Intersection Capacity Analysis Results

Given the number of study area intersections, the results below only include movements/lane groups that meet one of the following criteria:

- v/c ratio > 0.90
- LOS ‘E’ or worse
- 95th percentile queue > storage

If no movements/lane groups meet the above criteria, then only the overall intersection delay and LOS is shown. The full intersection capacity analysis results have been provided in **Appendix E**.

[1] https://nacto.org/publication/urban-street-design-guide/design-controls/design-hour/

6.5.1 Existing Traffic

The results of the intersection capacity analysis of Existing Traffic conditions are presented in **Table 20**.

Table 20 - Intersection Capacity Analysis: Existing Traffic

Intersection	Traffic Control	Lane Group	Storage (m)	AM Peak Hour (PM Peak Hour)					
				Int. Delay	Int. LOS	Delay (s)	LOS	v/c Ratio	95th Percentile Queue (m)
Southdale & Bostwick /Farnham	Signalized	EBTR	-	14.7 (32.4)	B (C)	17.7 (41.6)	B (D)	0.80 (0.97)	#161.0 (#172.8)
		WBT	-			6.8 (33.6)	A (C)	0.34 (0.93)	37.5 (#163.4)
		NBL	35			24.6 (45.1)	C (D)	0.42 (0.87)	18.1 (#75.2)
Wonderland & Bradley	Signalized	WBL	35	4.6 (12.1)	A (B)	48.9 (72.6)	D (E)	0.30 (0.73)	15.6 (44.9)
Southdale & Yorkville	Signalized	NBL	45	6.2 (9.8)	A (A)	58.7 (28.8)	E (C)	0.30 (0.31)	19.0 (17.9)
Wonderland & Southdale	Signalized	WBTR	-	29.8 (46.8)	C (D)	42.7 (75.8)	D (E)	0.80 (1.00)	75.8 (#164.3)
		SBL	60			20.1 (55.5)	C (E)	0.70 (0.92)	83.4 (#123.0)
Southdale & Pine Valley	Signalized	NBL	30	8.2 (21.8)	A (C)	62.9 (119.0)	E (F)	0.39 (1.03)	19.6 (#81.5)
		SBL	30			57.7 (38.5)	E (D)	0.27 (0.26)	15.3 (23.4)
	Signalized[1]	NBL	30	8.2 (21.2)	A (C)	62.9 (106.5)	E (F)	0.39 (0.99)	19.6 (#79.2)
		SBL	30			57.7 (35.2)	E (D)	0.27 (0.23)	15.3 (22.1)
Wonderland & Kilbourne	Signalized	EBL	65	5.9 (4.4)	A (A)	49.7 (59.0)	D (E)	0.34 (0.25)	17.4 (14.0)
Wonderland & Exeter	Signalized	EBTR	-	28.9 (32.2)	C (C)	55.1 (39.5)	E (D)	0.83 (0.32)	m81.8 (49.4)
		WBL	125			100.9 (33.1)	F (C)	0.77 (0.44)	#27.9 (41.5)
		NBL	100			26.8 (64.2)	C (E)	0.19 (0.83)	16.9 (#98.1)
Wonderland & Wharncliffe	Signalized	N/A	-	23.7 (28.8)	C (C)	- (-)	- (-)	- (-)	- (-)
Wharncliffe & Bostwick /Exeter	Signalized	EBTR	-	69.9 (31.1)	E (C)	60.4 (28.1)	E (C)	1.00 (0.48)	#229.7 (69.0)
		WBL	110			614.3 (44.3)	F (D)	2.22 (0.83)	#84.7 (m81.4)
	Signalized[1]	EBTR	-	55.7 (31.1)	E (C)	60.4 (28.1)	E (C)	1.00 (0.48)	#229.7 (69.0)
		WBL	110			379.5 (44.3)	F (D)	1.69 (0.83)	#80.4 (m81.4)
Bostwick & Pack	Two-way stop control	EBRL	-	27.8 (51.6)	- (-)	60.7 (247.4)	F (F)	0.98 (1.39)	95.9 (114.8)

Notes:

[1] – Movements with v/c ratios greater than 1.00 were calibrated.

Given that Southdale Road is currently undergoing four-lane widening, the analysis of Existing Traffic conditions evaluated the following intersections under their pre-construction condition:

- Southdale & Bostwick/Farnham
- Southdale & Yorkville

As indicated above, many of the study area intersections are experiencing capacity issues with movements with v/c ratios greater than 0.90 and experiencing a LOS of ‘E’ or worse. The overall intersection LOS, however, is generally LOS ‘D’ or better except for the Wharncliffe & Bostwick/Exeter intersection. Many of these capacity issues can be addressed through signal timing optimization or adding additional traffic signal phases. Conditions at the Southdale & Bostwick/Farnham intersection are expected to improve following completion of the ongoing four-lane widening of Southdale Road.

Three intersections were observed to have movements where demand exceeded capacity:

- Southdale & Pine Valley: NBL
- Wharncliffe & Bostwick/Exeter: WBL
- Bostwick & Pack: EBRL

Only traffic conditions at Southdale & Pine Valley could be fully calibrated. Conditions at the two other intersections could not be fully calibrated due to limitations inherent in the traffic analysis software.

6.5.2 Future (2024) Background Traffic

The results of the intersection capacity analysis of Future (2024) Background Traffic conditions are presented in **Table 21**.

Table 21 - Intersection Capacity Analysis: Future (2024) Background Traffic

Intersection	Traffic Control	Lane Group	Storage (m)	AM Peak Hour (PM Peak Hour)					
				Int. Delay	Int. LOS	Delay (s)	LOS	v/c Ratio	95th Percentile Queue (m)
Southdale & Bostwick /Farnham	Signalized[1]	EBR	50	18.3 (33.3)	B (C)	5.3 (20.3)	A (C)	0.35 (0.47)	29.4 **(50.9)**
		NBL	70			54.1 (54.6)	D (D)	0.81 (0.89)	**84.4 (#126.4)**
		SBTR	-			21.9 (61.0)	C **(E)**	0.23 (0.68)	27.5 (53.1)
Wonderland & Bradley	Signalized	WBL	35	5.7 (13.8)	A (B)	51.2 (59.6)	D **(E)**	0.44 (0.71)	23.0 **(55.5)**
	Signalized[2]	WBL	35	5.7 (14.6)	A (B)	51.2 (54.1)	D (D)	0.44 (0.67)	23.0 **(54.1)**
Southdale & Yorkville	Signalized[3]	NBL	45	8.8 (8.7)	A (A)	54.6 (67.1)	D **(E)**	0.35 (0.54)	26.3 (38.9)
Wonderland & Southdale	Signalized	EBL	110	33.1 (45.1)	C (D)	51.8 (69.2)	D **(E)**	0.75 (0.79)	#49.5 (#63.4)
		SBL	60			19.9 (54.3)	B (D)	0.61 (0.86)	**65.1 (#96.4)**
Southdale & Pine Valley	Signalized	NBL	30	11.2 (18.2)	B (B)	56.4 (103.1)	**E (F)**	0.31 **(0.97)**	18.3 **(#75.5)**
		NBTR	-			57.0 (32.2)	**E** (C)	0.40 (0.36)	26.0 (43.8)
	Signalized[4]	NBL	30	11.2 (16.3)	B (B)	56.4 (37.2)	**E** (D)	0.31 (0.73)	18.3 **(33.7)**
		NBTR	-			57.0 (13.6)	**E** (B)	0.40 (0.34)	26.0 (20.7)
Wonderland & Kilbourne	Signalized	EBL	65	6.5 (7.4)	A (A)	51.0 (57.1)	D **(E)**	0.40 (0.43)	20.1 (27.4)
	Signalized[5]	N/A	-	6.5 (7.3)	A (A)	- (-)	- (-)	- (-)	- (-)
Wonderland & Exeter	Signalized	WBL	125	25.8 (33.6)	C (C)	62.7 (31.9)	**E** (C)	0.60 (0.43)	#21.2 (40.6)
		NBL	100			23.5 (86.8)	C **(F)**	0.19 **(0.98)**	17.2 **(#112.1)**
	Signalized[6]	WBL	125	25.8 (32.5)	C (C)	62.7 (31.9)	**E** (C)	0.60 (0.43)	#21.2 (40.6)
Wonderland & Wharncliffe	Signalized	N/A	-	22.2 (31.3)	C (C)	- (-)	- (-)	- (-)	- (-)
Wharncliffe & Bostwick /Exeter	Signalized	N/A	-	28.5 (28.8)	C (C)	- (-)	- (-)	- (-)	- (-)
Bostwick & Pack	Two-way stop control	EBTRL	-	81.8 (171.3)	- (-)	236.0 (1054.1)	**F (F)**	**1.43 (3.13)**	200.2 (201.6)

Notes:

[1] – Increased cycle length to 120s and 130s during AM and PM peak hour, respectively, to allow signal coordination with other intersections on Southdale and to accommodate increased clearance times, and added a protected-permitted northbound, southbound and westbound left-turn phase during the PM peak hour.

[2] – Added a protected-permitted westbound left-turn phase during PM peak hour.

[3] – Changed the signal timing during PM peak hour from a half-cycle of 65s to a full cycle of 130s in order to ensure the increased clearance times can be accommodated.

[4] – Changed the signal timing during the PM peak hour from a full cycle of 130s to a half-cycle of 65s.

[5] – Added a protected-permitted eastbound left-turn phase during PM peak hour.

[6] *– Added a protected-permitted northbound left-turn phase during PM peak hour.*

Southdale Road, from Bostwick/Farnham to Pine Valley is currently being widened to 4 lanes. Upon completion of the associated intersection works, this will result in increased vehicle and pedestrian clearances at the intersections with Bostwick/Farnham and Yorkville.

It is expected that the signal timing of the reconstructed Southdale & Bostwick/Farnham intersection will be coordinated with the adjacent intersections and the cycle length will be increased to match. Permitted-protected left-turn phases will be required on the northbound, southbound and westbound approach during the afternoon peak hour to accommodate the projected demand. At the Southdale & Yorkville intersection, the traffic signal currently operates on a half-cycle of 65s during the afternoon peak hour, however, with the increased clearance intervals required by the roadway widening, it has been determined that a cycle length of 130s will be required. With these signal timing modifications, no movements will exceed a v/c ratio of 0.90 at either intersection. The southbound through-right movement and the northbound left-turn movement at the Bostwick/Farnham intersection and the Yorkville intersection, respectively, will operate at LOS ‘E’ during the afternoon peak hour, however. No mitigation measures are recommended as the intersections operate with an acceptable overall LOS.

In several instances, the introduction of additional permitted-protected left-turn phases was found to address the capacity issues observed at some study area intersections. At the Wonderland & Exeter intersection, the westbound left-turn movement operates at LOS ‘E’ during the morning peak hour, however, no permitted-protected left-turn phase is recommended as future analyses indicated that adding this phase would eventually lead to future capacity issues. As the overall intersection LOS is ‘C’ and no movements have v/c ratios exceeding 0.90, this is considered acceptable.

The results of the analysis indicate that reducing the Southdale & Pine Valley intersection to a half-cycle during the afternoon peak hour is shown to improve traffic conditions. This is not possible to implement for the morning peak hour, however, due to the roadway width and pedestrian phase lengths.

The Bostwick & Pack intersection is shown to continue operating above its theoretical capacity during both peak periods. As the intersection is expected to be upgraded to a 2-lane roundabout in 2026 in conjunction with the Bostwick Road widening, no modifications are recommended to address this temporary condition. The City may want to consider implementing the planned roundabout at this intersection ahead of the planned Bostwick Road widening in order to address existing capacity issues.

6.5.3 Future (2027) Background Traffic

The results of the intersection capacity analysis of Future (2027) Background Traffic conditions are presented in **Table 22**.

Table 22 - Intersection Capacity Analysis: Future (2027) Background Traffic

Intersection	Traffic Control	Lane Group	Storage (m)	AM Peak Hour (PM Peak Hour)					
				Int. Delay	Int. LOS	Delay (s)	LOS	v/c Ratio	95th Percentile Queue (m)
Southdale & Bostwick /Farnham	Signalized	EBR	50	18.3 (36.6)	B (D)	5.6 (22.2)	A (C)	0.35 (0.50)	30.3 **(54.9)**
		NBL	70			53.7 (49.5)	D (D)	0.82 (0.86)	**86.8 (#117.5)**
		SBTR	-			21.3 (61.5)	C **(E)**	0.23 (0.68)	27.0 (53.3)
Wonderland & Bradley	Signalized	WBL	35	5.8 (14.4)	A (B)	51.2 (54.1)	D (D)	0.44 (0.67)	23.0 **(54.1)**
Southdale & Yorkville	Signalized	NBL	45	13.6 (8.0)	B (A)	43.6 (65.3)	D **(E)**	0.24 (0.54)	25.9 (40.3)
Wonderland & Southdale	Signalized	EBL	110	35.2 (49.5)	D (D)	50.7 (82.0)	D **(F)**	0.79 (0.89)	#60.5 (#77.5)
		NBL	90			20.0 (60.9)	C **(E)**	0.36 (0.87)	23.1 **(#97.1)**
		NBTR	-			32.7 (58.5)	C **(E)**	0.42 (0.89)	72.0 (#161.6)
		SBL	60			21.3 (56.4)	C **(E)**	0.63 (0.86)	**65.1 (#94.6)**
		SBTR	-			25.2 (56.8)	C **(E)**	0.52 (0.89)	94.2 (#165.2)
Southdale & Pine Valley	Signalized	NBL	30	10.8 (16.0)	B (B)	55.6 (36.3)	**E** (D)	0.31 (0.72)	18.7 **(34.8)**
		NBTR	-			56.8 (15.9)	**E** (B)	0.38 (0.37)	26.1 (22.8)
Wonderland & Kilbourne	Signalized	N/A	-	7.0 (8.0)	A (A)	- (-)	- (-)	- (-)	- (-)
Wonderland & Exeter	Signalized	WBL	125	26.5 (34.0)	C (C)	67.3 (30.4)	**E** (C)	0.63 (0.42)	#22.0 (39.6)
Wonderland & Wharncliffe	Signalized	N/A	-	27.0 (31.3)	C (C)	- (-)	- (-)	- (-)	- (-)
Wharncliffe & Bostwick /Exeter	Signalized[1]	WBL	110	31.2 (30.7)	C (C)	62.4 (34.4)	**E** (C)	0.56 (0.49)	26.3 (m30.6)
Bostwick & Pack/Bradley	Roundabout	N/A	-	8.1 (8.5)	A (A)	- (-)	- (-)	- (-)	- (-)

Notes:

[1] – Increased cycle length to 120s during AM peak hour to accommodate increased pedestrian and vehicle clearance times due to reconstructed intersection, added a protected westbound left-turn phase during the AM peak hour, and added a lagging protected westbound left-turn phase and protected-permitted eastbound left-turn phase during the PM peak hour.

Under Future (2027) Background Traffic conditions, traffic operations are expected to be similar to those observed under Future (2024) Background Traffic conditions with the exception of three intersections: Bostwick & Pack, Wharncliffe & Bostwick/Exeter and Wonderland & Southdale.

Bostwick Road is planned to be widened prior to 2027 and both the Bostwick & Pack intersection and the Wharncliffe & Bostwick/Exeter intersection are expected to be reconstructed. As a result of the increased intersection size when Wharncliffe & Bostwick/Exeter is reconstructed, a minimum cycle length of 120s during the morning peak hour will be required in order to accommodate the minimum clearance intervals and a protected westbound left-turn phase. The other intersections in this coordinated network presently operate on 100s cycle lengths during the morning peak hour therefore this intersection will no longer be fully coordinated which may result in additional queueing. Even with the increased cycle length, the westbound left-turn is expected to operate at LOS ‘E’. The intersection as a whole is expected to operate at LOS ‘C’ therefore this is considered acceptable. The planned roundabout at Bostwick & Pack is expected to operate at LOS ‘A’ under Future (2027) Background Traffic conditions and will therefore address the existing capacity issues.

The Wonderland & Southdale intersection was previously shown to be operating at an acceptable Level of Service in 2024 with only one movement during the weekday afternoon peak hour operating at LOS ‘E’. With the increase in background traffic anticipated between 2024 and 2027, several intersection movements are expected to operate at LOS ‘E’ during the weekday afternoon peak hour and the eastbound left-turn movement will operate at LOS ‘F’. Given that none of the intersection movements are expected to exceed a v/c ratio of 0.90 and the intersection as a whole is operating at an acceptable Level of Service (i.e., LOS ‘D’ or better) under this scenario, no mitigation measures are recommended. It is expected that the future extension of Bradley between Wonderland and Bostwick will reroute traffic away from the intersection, thereby alleviating the anticipated capacity issues.

6.5.4 Future (2030) Background Traffic

The results of the intersection capacity analysis of Future (2030) Background Traffic conditions are presented in **Table 23**.

Table 23 - Intersection Capacity Analysis: Future (2030) Background Traffic

Intersection	Traffic Control	Lane Group	Storage (m)	AM Peak Hour (PM Peak Hour)					
				Int. Delay	Int. LOS	Delay (s)	LOS	v/c Ratio	95th Percentile Queue (m)
Southdale & Bostwick /Farnham	Signalized	EBR	50	18.7 (32.3)	B (C)	4.5 (18.2)	A (B)	0.35 (0.42)	24.5 **(51.7)**
		NBL	70			53.8 (54.1)	D (D)	0.82 (0.89)	**85.0 (#126.6)**
		SBTR	-			22.7 (62.0)	C **(E)**	0.25 (0.70)	30.1 (58.3)
Wonderland & Bradley	Signalized	EBL	45	10.9 (20.3)	B (C)	41.1 (59.6)	D **(E)**	0.19 (0.40)	12.2 (20.4)
		WBL	35			54.7 (54.9)	D (D)	0.50 (0.73)	23.1 **(50.4)**
		NBL	45			2.3 (24.0)	A (C)	0.15 (0.62)	2.3 **(58.1)**
	Signalized[1]	WBL	35	10.9 (20.8)	B (C)	54.7 (48.2)	D (D)	0.50 (0.67)	23.1 **(49.0)**
		NBL	45			2.3 (25.3)	A (C)	0.15 (0.64)	2.3 **(#74.8)**
Southdale & Yorkville	Signalized	NBL	45	12.6 (7.0)	B (A)	50.3 (62.5)	D **(E)**	0.30 (0.45)	25.8 (33.7)
Wonderland & Southdale	Signalized	SBL	60	32.0 (42.9)	C (D)	17.9 (50.6)	B (D)	0.61 (0.83)	**61.5 (#92.9)**
Southdale & Pine Valley	Signalized	NBL	30	11.6 (17.4)	B (B)	60.0 (36.5)	**E** (D)	0.35 (0.72)	19.3 **(34.5)**
		NBTR	-			58.4 (12.5)	**E** (B)	0.43 (0.35)	26.2 (19.5)
		SBL	30			56.1 (18.4)	**E** (B)	0.25 (0.21)	15.0 (12.1)
Wonderland & Kilbourne	Signalized	N/A	-	6.4 (7.7)	A (A)	- (-)	- (-)	- (-)	- (-)
Wonderland & Exeter	Signalized	WBL	125	25.9 (34.5)	C (C)	64.2 (31.9)	**E** (C)	0.61 (0.43)	#21.5 (40.6)
Wonderland & Wharncliffe	Signalized	N/A	-	25.2 (32.2)	C (C)	- (-)	- (-)	- (-)	- (-)
Wharncliffe & Bostwick /Exeter	Signalized	WBL	110	31.0 (30.6)	C (C)	62.4 (33.6)	**E** (C)	0.56 (0.49)	26.3 (m29.5)
Bostwick & Pack/Bradley	Roundabout	N/A	-	8.6 (9.8)	A (A)	- (-)	- (-)	- (-)	- (-)

Notes:

[1] – Added a protected-permitted eastbound left-turn phase during PM peak hour.

Under Future (2030) Background Traffic conditions, some individual movements are expected to operate at LOS ‘E’. All intersections as a whole are expected to operate at an acceptable Level of Service, however, and no movements are expected to have v/c ratios greater than 0.90 therefore no signal phasing or lane configuration modifications are recommended with the exception of a protected-permitted eastbound left-turn phase at the Wonderland & Bradley intersection.

Traffic operations at the Wonderland & Southdale intersection are shown to improve significantly relative to Future (2027) Background Traffic conditions. This is a result of the Bradley Road extension between Wonderland and Bostwick which will result in a significant shift in traffic patterns in the area.

6.5.5 Future (2035) Background Traffic

The results of the intersection capacity analysis of Future (2035) Background Traffic conditions are presented in **Table 24**.

Table 24 - Intersection Capacity Analysis: Future (2035) Background Traffic

Intersection	Traffic Control	Lane Group	Storage (m)	AM Peak Hour (PM Peak Hour)					
				Int. Delay	Int. LOS	Delay (s)	LOS	v/c Ratio	95th Percentile Queue (m)
Southdale & Bostwick /Farnham	Signalized	EBR	50	18.8 (32.3)	B (C)	4.5 (18.2)	A (B)	0.35 (0.42)	24.5 **(51.7)**
		NBL	70			53.8 (54.1)	D (D)	0.82 (0.89)	**85.0 (#126.6)**
		SBTR	-			22.7 (62.0)	C **(E)**	0.25 (0.70)	30.1 (58.3)
Wonderland & Bradley	Signalized	WBL	35	10.8 (18.7)	B (B)	54.7 (48.2)	D (D)	0.50 (0.67)	23.1 **(49.0)**
		NBL	45			2.4 (19.8)	A (B)	0.16 (0.66)	2.4 **(#76.1)**
Southdale & Yorkville	Signalized	NBL	45	12.6 (7.0)	B (A)	50.3 (62.5)	D **(E)**	0.30 (0.45)	25.8 (33.7)
Wonderland & Southdale	Signalized	SBL	60	32.1 (43.5)	C (D)	18.1 (53.6)	B (D)	0.61 (0.84)	**61.5 (#95.3)**
Southdale & Pine Valley	Signalized	NBL	30	11.6 (17.4)	B (B)	60.0 (36.5)	**E** (D)	0.35 (0.72)	19.3 **(34.5)**
		NBTR	-			58.4 (12.5)	**E** (B)	0.43 (0.35)	26.2 (19.5)
		SBL	30			56.1 (18.4)	**E** (B)	0.25 (0.21)	15.0 (12.1)
Wonderland & Kilbourne	Signalized	N/A	-	6.5 (7.9)	A (A)	- (-)	- (-)	- (-)	- (-)
Wonderland & Exeter	Signalized	WBL	125	27.1 (34.6)	C (C)	69.1 (31.9)	**E** (C)	0.64 (0.43)	#22.2 (40.6)
Wonderland & Wharncliffe	Signalized	EBL	70	27.2 (30.0)	C (C)	18.5 (38.0)	B (D)	0.34 (0.78)	26.7 **(#72.1)**
Wharncliffe & Bostwick /Exeter	Signalized	WBL	110	31.1 (28.5)	C (C)	62.4 (34.8)	**E** (C)	0.56 (0.49)	26.3 (m30.5)
Bostwick & Pack/Bradley	Roundabout	N/A	-	8.6 (9.8)	A (A)	- (-)	- (-)	- (-)	- (-)

Traffic operations under Future (2035) Background Traffic conditions are largely the same as observed under 2030 conditions. As such, no signal phasing or lane configuration modifications are recommended.

6.5.6 Future (2024) Total Traffic

The results of the intersection capacity analysis of Future (2024) Total Traffic conditions are presented in **Table 25**.

Table 25 - Intersection Capacity Analysis: Future (2024) Total Traffic

Intersection	Traffic Control	Lane Group	Storage (m)	AM Peak Hour (PM Peak Hour)					
				Int. Delay	Int. LOS	Delay (s)	LOS	v/c Ratio	95th Percentile Queue (m)
Southdale & Bostwick /Farnham	Signalized	EBR	50	18.4 (37.5)	B (D)	5.5 (23.3)	A (C)	0.35 (0.52)	29.8 **(54.9)**
		NBL	70			53.4 (52.4)	D (D)	0.81 (0.88)	**85.5 (#123.7)**
		SBTR	-			21.5 (61.1)	C **(E)**	0.23 (0.68)	27.2 (53.2)
Wonderland & Bradley	Signalized	WBL	35	5.7 (14.6)	A (B)	51.2 (54.1)	D (D)	0.44 (0.67)	23.0 **(54.1)**
Southdale & Yorkville	Signalized	NBL	45	9.9 (8.7)	A (A)	51.8 (65.6)	D **(E)**	0.32 (0.53)	26.1 (39.3)
Wonderland & Southdale	Signalized	EBL	110	33.9 (47.7)	C (D)	51.4 (73.9)	D **(E)**	0.77 (0.83)	#56.9 (#69.9)
		SBL	60			20.4 (54.9)	C (D)	0.61 (0.85)	**65.1 (#95.2)**
Southdale & Pine Valley	Signalized	NBL	30	11.3 (16.1)	B (B)	55.8 (37.0)	**E** (D)	0.30 (0.73)	18.3 **(33.8)**
		NBTR	-			56.3 (14.3)	**E** (B)	0.39 (0.34)	25.9 (21.3)
Wonderland & Kilbourne	Signalized	N/A	-	6.5 (7.3)	A (A)	- (-)	- (-)	- (-)	- (-)
Wonderland & Exeter	Signalized	WBL	125	25.9 (33.1)	C (C)	65.3 (31.2)	**E** (C)	0.62 (0.43)	#21.6 (40.2)
Wonderland & Wharncliffe	Signalized	N/A	-	22.7 (28.9)	C (C)	- (-)	- (-)	- (-)	- (-)
Wharncliffe & Bostwick/Exeter	Signalized	N/A	-	28.3 (28.9)	C (C)	- (-)	- (-)	- (-)	- (-)
Bostwick & Pack	Two-way stop control	EBTRL	-	115.0 (265.3)	- (-)	322.5 (1568.5)	**F (F)**	**1.63 (4.24)**	249.2 (240.1)

With the addition of site-generated traffic in 2024, traffic operations at most of the study area intersections remain largely unchanged as compared to background conditions.

The poor Level of Service observed at the Bostwick & Pack intersection under background traffic conditions is expected to continue under total traffic conditions. As noted previously, given that the intersection is slated for reconstruction in 2026 as part of the Bostwick Road widening, no roadway modifications are recommended to address this temporary condition. The City may, however, want to consider implementing a roundabout at this location sooner than planned to address existing capacity issues.

6.5.7 Future (2027) Total Traffic

The results of the intersection capacity analysis of Future (2027) Total Traffic conditions are presented in **Table 26**.

Table 26 - Intersection Capacity Analysis: Future (2027) Total Traffic

Intersection	Traffic Control	Lane Group	Storage (m)	AM Peak Hour (PM Peak Hour)					
				Int. Delay	Int. LOS	Delay (s)	LOS	v/c Ratio	95th Percentile Queue (m)
Southdale & Bostwick /Farnham	Signalized	EBR	50	18.8 (40.3)	B (D)	6.2 (26.5)	A (C)	0.37 (0.57)	33.0 **(64.3)**
		NBL	70			52.1 (53.3)	D (D)	0.83 (0.89)	**94.8 (#131.7)**
		SBTR	-			19.6 (61.5)	B **(E)**	0.21 (0.68)	26.1 (53.3)
Wonderland & Bradley	Signalized	WBL	35	6.5 (13.5)	A (B)	51.9 (52.6)	D (D)	0.48 (0.71)	25.9 **(61.9)**
Southdale & Yorkville	Signalized	WBL	120	11.2 (12.8)	B (B)	7.8 (44.9)	A (D)	0.38 (0.90)	15.4 **(#136.5)**
		NBL	45			48.3 (57.7)	D **(E)**	0.35 (0.47)	32.4 (42.2)
Wonderland & Southdale	Signalized	EBL	110	36.6 (57.8)	D **(E)**	51.2 (98.2)	D **(F)**	0.83 **(0.98)**	#76.9 (#98.6)
		WBTR	-			49.2 (65.9)	D **(E)**	0.82 **(0.98)**	90.3 (#191.7)
		NBL	90			25.7 (77.4)	C **(E)**	0.45 **(0.95)**	26.3 **(#111.5)**
		NBTR	-			37.3 (58.3)	D **(E)**	0.50 (0.90)	74.8 (#149.8)
		SBL	60			28.7 (63.4)	C **(E)**	0.71 (0.90)	**72.6 (#102.1)**
		SBTR	-			30.9 (67.0)	C **(E)**	0.61 **(0.97)**	108.1 (#173.1)
Southdale & Pine Valley	Signalized	NBL	30	10.1 (18.5)	B (B)	55.0 (35.3)	**E** (D)	0.31 (0.71)	19.1 **(35.0)**
		NBTR	-			55.6 (17.0)	**E** (B)	0.37 (0.37)	26.0 (23.8)
Wonderland & Kilbourne	Signalized	N/A	-	10.2 (9.8)	B (A)	- (-)	- (-)	- (-)	- (-)
Wonderland & Exeter	Signalized	WBL	125	29.2 (38.5)	C (D)	86.7 (28.3)	**F** (C)	0.72 (0.42)	#25.2 (38.4)
		SBL	105			54.0 (54.2)	D (D)	0.90 (0.87)	**#106.3** (m#73.2)
Wonderland & Wharncliffe	Signalized	EBL	70	29.6 (29.2)	C (C)	19.5 (50.7)	B (D)	0.36 (0.86)	29.0 **(#73.1)**
Wharncliffe & Bostwick /Exeter	Signalized	WBL	110	31.9 (31.4)	C (C)	63.1 (40.8)	**E** (D)	0.58 (0.52)	27.1 (m35.5)
Bostwick & Pack/Bradley	Roundabout	N/A	-	8.9 (9.7)	A (A)	- (-)	- (-)	- (-)	- (-)
Bostwick & Kilbourne	Roundabout	N/A	-	7.6 (8.1)	A (A)	- (-)	- (-)	- (-)	- (-)

Under Future (2027) Total Traffic conditions, traffic operations are expected to deteriorate significantly at several intersections as a result of site-generated traffic.

The westbound left-turn movement at the Wonderland & Exeter intersection is expected to operate at LOS ‘F’ during the afternoon peak hour under Future (2027) Total Traffic conditions. Given that this only impacts a small number of vehicles and the intersection operates well overall, no signal phasing modifications are recommended.

The Wonderland & Southdale intersection is expected to have movements with v/c ratios exceeding acceptable standards, however, none of the movements at the Wonderland & Southdale intersection are expected to exceed their theoretical capacity (i.e. all v/c ratios are less than 1.00). Although traffic conditions at the Wonderland & Southdale intersection are approaching their theoretical capacity, no lane modifications are recommended as this is expected to be a temporary condition that will be significantly improved once Bradley Avenue is extended to Bostwick.

6.5.8 Future (2030) Total Traffic

The results of the intersection capacity analysis of Future (2030) Total Traffic conditions are presented in **Table 27**.

Table 27 - Intersection Capacity Analysis: Future (2030) Total Traffic

Intersection	Traffic Control	Lane Group	Storage (m)	AM Peak Hour (PM Peak Hour)					
				Int. Delay	Int. LOS	Delay (s)	LOS	v/c Ratio	95th Percentile Queue (m)
Southdale & Bostwick /Farnham	Signalized	EBR	50	19.7 (33.6)	B (C)	5.4 (21.8)	A (C)	0.39 (0.54)	28.3 **(68.2)**
		NBL	70			50.3 (52.2)	D (D)	0.84 (0.90)	**100.3 (#126.2)**
		SBTR	-			19.1 (62.2)	B **(E)**	0.22 (0.70)	27.9 (58.6)
Wonderland & Bradley	Signalized	WBL	35	16.9 (25.6)	B (C)	49.2 (46.4)	D (D)	0.53 (0.73)	24.2 **(52.2)**
		NBL	45			7.5 (47.8)	A (D)	0.20 (0.86)	9.6 **(#97.9)**
Southdale & Yorkville	Signalized	NBL	45	10.6 (7.2)	B (A)	54.7 (63.3)	D **(E)**	0.38 (0.47)	28.4 (35.2)
Wonderland & Southdale	Signalized	EBL	110	32.0 (46.1)	C (D)	42.8 (60.1)	D **(E)**	0.69 (0.71)	47.8 (#50.5)
		SBL	60			21.6 (54.4)	C (D)	0.68 (0.84)	**63.9 (87.3)**
Southdale & Pine Valley	Signalized	NBL	30	10.5 (16.7)	B (B)	60.4 (35.6)	**E** (D)	0.36 (0.71)	19.5 **(34.7)**
		NBTR	-			58.4 (12.2)	**E** (B)	0.43 (0.34)	26.2 (19.4)
		SBL	30			56.1 (18.0)	**E** (B)	0.25 (0.20)	15.0 (12.1)
Wonderland & Kilbourne	Signalized	N/A	-	8.6 (9.8)	A (A)	- (-)	- (-)	- (-)	- (-)
Wonderland & Exeter	Signalized	WBL	125	27.8 (40.2)	C (D)	80.1 (29.0)	**F** (C)	0.69 (0.42)	#24.3 (38.7)
Wonderland & Wharncliffe	Signalized	EBL	70	27.8 (30.1)	C (C)	19.3 (48.7)	B (D)	0.37 (0.86)	29.7 **(#78.3)**
		SBL	80			22.1 (62.0)	C **(E)**	0.32 (0.72)	15.8 (#39.1)
Wharncliffe & Bostwick /Exeter	Signalized	WBL	110	31.6 (31.2)	C (C)	63.2 (41.7)	**E** (D)	0.59 (0.53)	27.2 (m37.9)
Bostwick & Pack/Bradley	Roundabout	N/A	-	10.1 (12.5)	B (B)	- (-)	- (-)	- (-)	- (-)
Bostwick & Kilbourne	Roundabout	N/A	-	7.4 (7.9)	A (A)	- (-)	- (-)	- (-)	- (-)

By 2030, the Bradley Avenue extension to Bostwick is slated for completion and the resulting shift in traffic patterns is expected to significantly improve traffic operations at the Wonderland & Southdale intersection. Relative to Future (2027) Total Traffic conditions, only the eastbound left-turn movement is operating at LOS ‘E’. No movements have v/c ratios greater than 0.90 and the overall intersection LOS is ‘D’ or better.

The southbound movement at the Wonderland & Wharncliffe intersection is expected to operate at LOS ‘E’ during the afternoon peak hour but no modifications are recommended as the intersection is projected to operate at an acceptable Level of Service overall.

6.5.9 Future (2035) Total Traffic

The results of the intersection capacity analysis of Future (2035) Total Traffic conditions are presented in **Table 28**.

Table 28 - Intersection Capacity Analysis: Future (2035) Total Traffic

Intersection	Traffic Control	Lane Group	Storage (m)	AM Peak Hour (PM Peak Hour)					
				Int. Delay	Int. LOS	Delay (s)	LOS	v/c Ratio	95th Percentile Queue (m)
Southdale & Bostwick/ Farnham	Signalized	EBR	50	20.2 (33.8)	C (C)	5.5 (22.8)	A (C)	0.40 (0.57)	28.4 **(72.3)**
		NBL	70			50.6 (50.7)	D (D)	0.85 (0.90)	**105.5 (#127.0)**
		SBTR	-			18.6 (62.3)	B **(E)**	0.21 (0.70)	27.9 (58.6)
Wonderland & Bradley	Signalized	WBL	35	18.4 (26.8)	B (C)	53.5 (53.7)	D (D)	0.60 (0.82)	27.4 **(#66.8)**
		NBL	45			13.5 (62.2)	B **(E)**	0.21 **(0.94)**	17.3 **(#101.8)**
	Signalized[1]	WBL	35	18.4 (28.4)	B (C)	53.5 (53.7)	D (D)	0.60 (0.82)	27.4 **(#66.8)**
		NBL	45			13.5 (39.3)	B (D)	0.21 (0.75)	17.3 **(#49.1)**
Southdale & Yorkville	Signalized	NBL	45	14.4 (7.2)	B (A)	50.2 (63.3)	D **(E)**	0.32 (0.47)	27.6 (35.2)
Wonderland & Southdale	Signalized	EBL	110	33.8 (46.4)	C (D)	45.5 (66.8)	D **(E)**	0.66 (0.77)	55.6 (#56.4)
		SBL	60			23.3 (54.7)	C (D)	0.71 (0.84)	**65.1 (87.3)**
Southdale & Pine Valley	Signalized	NBL	30	12.7 (16.4)	B (B)	60.4 (35.6)	**E** (D)	0.36 (0.71)	19.5 **(34.7)**
		NBTR	-			58.4 (12.2)	**E** (B)	0.43 (0.34)	26.2 (19.4)
		SBL	30			56.1 (18.0)	**E** (B)	0.25 (0.20)	15.0 (12.1)
Wonderland & Kilbourne	Signalized	N/A	-	11.3 (12.8)	B (B)	- (-)	- (-)	- (-)	- (-)
Wonderland & Exeter	Signalized	WBL	125	29.5 (41.2)	C (D)	92.8 (29.6)	**F** (C)	0.73 (0.42)	#26.5 (39.3)
		NBL	100			32.8 (60.7)	C **(E)**	0.32 (0.89)	21.4 (#93.7)
		SBL	105			54.1 (61.1)	D **(E)**	0.89 (0.89)	#103.3 (m#71.1)
Wonderland & Wharncliffe	Signalized	EBL	70	29.1 (35.2)	C (D)	18.8 (68.4)	B **(E)**	0.37 **(0.96)**	30.3 **(#92.6)**
		WBL	105			27.1 (66.8)	C **(E)**	0.67 **(0.93)**	39.2 (#84.9)
		WBT	-			30.0 (55.4)	C **(E)**	0.29 (0.81)	30.1 (86.0)
		SBL	80			24.7 (115.7)	C **(F)**	0.42 **(0.93)**	#16.6 (#47.6)
	Signalized[2]	EBL	70	29.1 (38.0)	C (D)	18.8 (49.1)	B (D)	0.37 (0.89)	30.3 **(#90.9)**
		WBT	-			30.0 (58.8)	C **(E)**	0.29 (0.84)	30.1 (88.0)
Wharncliffe & Bostwick/Exeter	Signalized	WBL	110	31.7 (30.7)	C (C)	63.2 (40.7)	**E** (D)	0.59 (0.53)	27.2 (m35.4)
Bostwick & Pack/Bradley	Roundabout	N/A	-	10.1 (12.8)	B (B)	- (-)	- (-)	- (-)	- (-)
Bostwick & Kilbourne	Roundabout	N/A	-	7.4 (8.0)	A (A)	- (-)	- (-)	- (-)	- (-)

Notes:

[1] – Added protected-permitted northbound and southbound left-turn phases during PM peak hour.

[2] – Added a protected-permitted southbound left-turn phase during PM peak hour.

Under Future (2035) Total Traffic conditions, traffic operations at most study area intersections are shown to be similar to conditions under Future (2035) Background Traffic.

The northbound left-turn movement at the Wonderland & Bradley intersection is expected to operate at LOS ‘E’ with a v/c ratio of 0.94 during the afternoon peak hour as a result of site-generated traffic. The addition of protected-permitted northbound and southbound left-turn phase during this peak period is recommended to address this operational issue.

The addition of site-generated traffic is also expected to result in many movements at the Wonderland & Wharncliffe intersection to operate at LOS ‘E’ or ‘F’ with v/c ratios greater than 0.90 during the afternoon peak hour. The addition of a protected-permitted southbound left-turn phase is expected to address the majority of the capacity issues, however, the new left-turn phase will reduce the green time available to the other intersection movements resulting in a LOS of ‘E’ for the westbound through movement. As delays are only slightly over the threshold for LOS ‘E’, the v/c ratio is less than 0.90 and the intersection as a whole operates at an acceptable Level of Service, no further intersection modifications are recommended.

The Wonderland & Exeter intersection is also expected to have movements that operate at LOS ‘E’ during the afternoon peak hour. These traffic capacity issues are a result of the amount of green time required to accommodate the heavy westbound right-turn traffic which must share a lane with westbound through traffic. Given that none of the intersection movements are expected to operate with a v/c ratio greater than 0.90 and the intersection as a whole operates at an acceptable Level of Service, no intersection modifications are recommended based on the intersection capacity results alone.

7 Geometric Analyses

The auxiliary lane analyses below have been completed in accordance with the City of London Access Management Guidelines and the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads.

7.1 Left-Turn Auxiliary Lane Analysis

The anticipated ultimate auxiliary left-turn lane storage requirements at all signalized study area intersections are shown below in **Table 29**. The maximum 95th percentile queue was recorded for all Future (2024 to 2035) Background & Total Traffic conditions analyzed and compared with the existing or expected future storage lengths. Any deficiencies were identified, and additional storage recommendations were noted. The results do not consider taper length or deceleration requirements.

Table 29 - Auxiliary Left-Turn Lane Storage Requirements

INTERSECTION	MOVEMENT	AUXILIARY STORAGE LENGTH (m)	95TH PERCENTILE QUEUE[1] (m)	DEFICIENCY (m)
Southdale & Bostwick /Farnham	NBL	70	135	55
	SBL	25	25	-
	EBL	60	25	-
	WBL	110	170	-
Wonderland & Bradley	NBL	45	100	55
	SBL	110	75	-
	EBL	45	40	-
	WBL	35	70	35
Southdale & Yorkville	NBL	45	45	-
	WBL	120	140	-[2]
Wonderland & Southdale	NBL	90	115	25
	SBL	60	105	45
	EBL	110	100	-
	WBL	160	45	-
Southdale & Pine Valley	NBL	30	35	-[3]
	SBL	30	15	-
	EBL	65	45	-
	WBL	110	30	-
Wonderland & Kilbourne	NBL	95	50	-
	SBL	115	5	-
	EBL	65	45	-
	WBL	15	5	-
Wonderland & Exeter	NBL	100	95	-
	SBL	105	110	-[3]
	EBL	125	5	-
	WBL	125	45	-

INTERSECTION	MOVEMENT	AUXILIARY STORAGE LENGTH (m)	95TH PERCENTILE QUEUE[1] (m)	DEFICIENCY (m)
Wonderland & Wharncliffe	NBL	45	5	-
	SBL	80	40	-
	EBL	70	95	25
	WBL	105	90	-
Wharncliffe & Bostwick /Exeter	NBL	70	35	-
	SBL	80	25	-
	EBL	50	25	-
	WBL	110	60	-

Notes:

[1] – 95th percentile queue lengths have been rounded up to nearest multiple of 5m.

[2] – The left-turn lane is part of a series of three continuous left-turn lanes. As such, the left-turn queue can spillback into the upstream left-turn lane without impacting through traffic. No auxiliary lane extension is required as a result.

[3] – Minor deficiency, no auxiliary lane extension recommended.

As illustrated above, six potential auxiliary left-turn lane storage lane deficiencies have been identified within the study area.

At the Southdale & Bostwick/Farnham intersection, an additional 55m of storage is required for the northbound left-turn movement. As Bostwick Road is expected to be urbanized in 2025, it is recommended that this additional storage be provided at that time.

The intersections of Wonderland & Bradley and Wharncliffe & Bostwick/Exeter intersections are expected to be reconstructed in the future as part of planned roadway network modifications. It is therefore recommended that the above queue length results be taken into consideration during the design of these intersections in order to ensure sufficient auxiliary lane capacity is provided. The westbound left-turn lane at the Wonderland & Bradley intersection will likely be constrained by the commercial access to the east and therefore it may not be possible to address the auxiliary lane deficiency for this lane.

The southbound left-turn queue at the Wonderland & Southdale intersection is expected to extend up to 105m in 2027 and therefore exceed its available auxiliary lane capacity and spillback into the two-way left-turn lane. This is an existing condition which is expected to be moderately alleviated as a result of the Bradley Avenue extension. As any extension of the left-turn lane would limit access to adjacent developments, it is not recommended that the southbound left-turn lane be extended.

The northbound left-turn queue at that intersection is also expected to exceed the length of the auxiliary left-turn lane and spillback into the adjacent northbound through lane. This is primarily a background condition that will be slightly exacerbated by site-generated traffic. The length of this auxiliary lane is constrained by the southbound left-turn lane for the Wonderland Centre access and therefore cannot be extended.

The eastbound left-turn queue at the Wonderland & Wharncliffe intersection is anticipated to exceed its auxiliary lane capacity by 25m. It is therefore recommended that the left-turn lane be extended sufficiently to accommodate the 95th percentile queue.

7.2 Right-Turn Auxiliary Lane Analysis

The City of London Access Management Guidelines indicate that auxiliary right-turn lanes should be considered when the volume of right-turning traffic represents between 10% and 20% of approaching traffic and exceeds 60 vehicles per hour during the peak hour. **Table 30** summarizes the right-turn movements which meet the right-turn warrants, as well as the storage lengths and maximum 95th percentile queue lengths for locations that currently have, or are planned to have, auxiliary right-turn lanes. The right-turn warrants for Future (2035) Total Traffic conditions were only verified if the right-turn warrants were not met under Future (2035) Background Traffic conditions.

Table 30 - Auxiliary Right-Turn Lane Storage Requirements

INTERSECTION	MOVEMENT	RIGHT-TURN WARRANTED?		AUX. STORAGE LENGTH (M)	95TH %ILE QUEUE[1] (M)	DEFICIENCY (M)
		FUTURE (2035) BACK-GROUND TRAFFIC	FUTURE (2035) TOTAL TRAFFIC			
Southdale & Bostwick /Farnham	NBR	Yes		65	55	-
	SBR			-	-	-
	EBR	Yes		50	75	25
	WBR	Yes		45	35	-
Wonderland & Bradley	NBR		Yes	55	15	-
	SBR		Yes	45	20	-
	EBR	Yes		-	-	-
	WBR	Yes		-	40	-
Southdale & Yorkville	NBR	Yes		N/A[2]	65	-
	EBR	Yes		-	-	-
Wonderland & Southdale	NBR			-	-	-
	SBR			-	-	-
	EBR	Yes		45	35	-
	WBR	Yes		-	-	-
Southdale & Pine Valley	NBR	Yes		-	-	-
	SBR	Yes		-	-	-
	EBR	Yes		-	-	-
	WBR	Yes		-	-	-
Wonderland & Kilbourne	NBR			-	-	-
	SBR	Yes		160	15	-
	EBR	Yes		65	50	-
	WBR			-	-	-
Wonderland & Exeter	NBR	Yes		-	-	-
	SBR			-	-	-
	EBR	Yes		-	-	-
	WBR	Yes		-	-	-

INTERSECTION	MOVEMENT	RIGHT-TURN WARRANTED?		AUX. STORAGE LENGTH (M)	95TH %ILE QUEUE[1] (M)	DEFICIENCY (M)
		FUTURE (2035) BACK-GROUND TRAFFIC	FUTURE (2035) TOTAL TRAFFIC			
Wonderland & Wharncliffe	NBR	Yes		-	-	-
	SBR	Yes		90	50	-
	EBR			-	-	-
	WBR	Yes		40	25	-
Wharncliffe & Bostwick /Exeter	NBR	Yes		-	20	-
	SBR	Yes		-	-	-
	EBR	Yes		-	-	-
	WBR			-	-	-

Notes:

[1] – Maximum 95th percentile queue length under Future (2024 to 2035) Background & Total Traffic. Queue lengths have been rounded up to nearest multiple of 5m. Queue lengths are only reported for locations that currently have, or are planned to have, auxiliary right-turn lanes.

[2] – A through lane transitions to a dedicated right-turn lane at this location therefore there is theoretically no limit on the storage length.

Based on the above, auxiliary right-turn lanes are technically warranted at all signalized study area intersections as a result of background traffic. Under Future (2035) Total Traffic conditions, additional auxiliary right-turn lanes become warranted for the northbound and southbound right-turn movements of the Wonderland & Bradley intersection. Auxiliary right-turn lanes have already been provided for both movements and the 95th percentile queue is not expected to exceed capacity.

Although additional auxiliary right-turn lanes are not operational required, consideration should be given to providing right-turn lanes at locations with particularly high traffic volumes and high rear-end collision rates such as the following locations:

- **Wonderland & Southdale:** Westbound approach
- **Wonderland & Wharncliffe:** Northbound approach
- **Wonderland & Exeter:** Westbound approach

All of these locations have high right-turn volumes (~200 to 500 vehicles per hour) and high frequencies of rear-end collisions (16 to 33 rear-end collisions over 6 years) and would, therefore, benefit from the addition of an auxiliary right-turn lane.

At the Southdale & Bostwick/Farnham intersection, an additional 25m of eastbound right-turn storage capacity will be required in order to accommodate site-generated traffic demand. It is therefore recommended that this lane be extended in the near future.

8 Conclusions and Recommendations

A total of three proposed developments were reviewed:

- Kilbourne Subdivision (east of Bostwick)
- Westwinds Subdivision (southwest quadrant of the Bostwick & Pack intersection)
- Foxwood Development (southwest quadrant of the Wharncliffe & Bostwick/Exeter intersection)

Combined, the above three developments include a total of approximately 4,400 residential units comprised of a mix of single family, townhome and apartment units. Trip generation estimates were calculated for each of the developments, and it is estimated that by 2035 the Westwinds Subdivision, Kilbourne Subdivision and Foxwood Development will generate a combined total of approximately 1,000 and 1,200 two-way vehicle-trips during the weekday morning and afternoon peak hours, respectively.

The modifications summarized in **Table 31** are recommended based on the results of the analysis. The recommended modifications have been grouped by analysis year and modifications triggered by the proposed developments have been identified with a green checkmark (✔).

Table 31 - Summary of Recommended Modifications

ANALYSIS YEAR	RECOMMENDED MODIFICATIONS
2024	**Southdale & Bostwick/Farnham:** • Increase cycle length to 120s and 130s during the AM and PM peak hour, respectively. • Add protected-permitted left-turn phases on the northbound, southbound and westbound approaches during PM peak hour. • Extend the northbound left-turn lane to provide an additional 55m of storage capacity. • Extend the eastbound right-turn lane to provide an additional 25m of storage capacity. ✔ **Wonderland & Bradley:** • Add a protected-permitted westbound left-turn phase during PM peak hour. **Southdale & Yorkville:** • Increase cycle length to 130s during PM peak hour. **Wonderland & Southdale:** • Consider providing a westbound auxiliary right-turn lane. **Southdale & Pine Valley:** • Decrease cycle length to 65s during PM peak hour for signal progression. **Wonderland & Kilbourne:** • Add protected-permitted eastbound left-turn phase during PM peak hour. **Wonderland & Exeter:** • Add protected-permitted northbound left-turn phase during PM peak hour. • Consider providing a westbound auxiliary right-turn lane.

ANALYSIS YEAR	RECOMMENDED MODIFICATIONS
	Wonderland & Wharncliffe • Consider providing a northbound auxiliary right-turn lane.
2027	**Wharncliffe & Bostwick/Exeter:** • Increase cycle length to 120s during AM peak hour. • Add a protected westbound left-turn phase during the AM peak hour. • Add a lagging protected westbound left-turn phase and protected-permitted eastbound left-turn phase during the PM peak hour. **Wonderland & Wharncliffe:** • Extend the eastbound left-turn auxiliary lane to provide sufficient storage to accommodate a 95m long queue. ✔
2030	**Wonderland & Bradley:** • Add a protected-permitted eastbound left-turn phase during the PM peak hour. • Ensure 100m and 70m of auxiliary lane storage is provided for the northbound and westbound left-turn lanes, respectively, when the intersection is reconstructed. ✔
2035	**Wonderland & Bradley:** • Add protected-permitted northbound and southbound left-turn phases during the PM peak hour. ✔ **Wonderland & Wharncliffe:** • Add protected-permitted southbound left-turn phase during the PM peak hour. ✔

The overall conclusion of the Bostwick Corridor Master Transportation Study is that the proposed Kilbourne Subdivision, Westwinds Subdivision and Foxwood Development can be safely accommodated by the adjacent road network with consideration of the study recommendations and based on the assumption that the City implements all planned road network and transit route modifications in accordance with the timelines specified in the Development Charge Background Study.

9 Professional Authorization

Report Prepared By:

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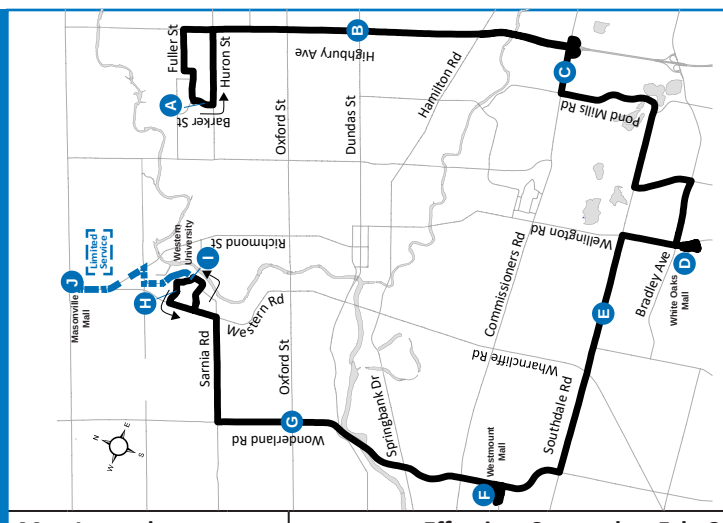
Appendix A – Transit Service Maps

10 NATURAL SCIENCE / MASONVILLE PLACE - BARKER AT HURON



Map Legend				Effective: September 5th, 2021			
A	Timepoint		Shopping Centre		Route Direction		
	University	10	Service Notes				

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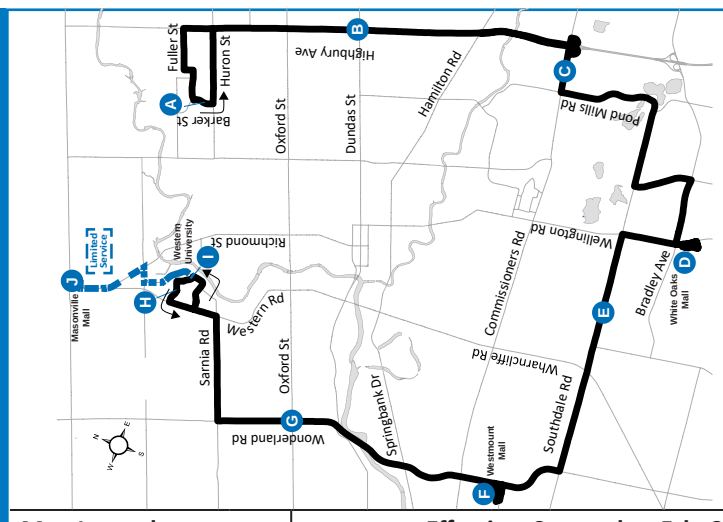
london transit

10 NATURAL SCIENCE / MASONVILLE PLACE - BARKER AT HURON



Map Legend				Effective: September 5th, 2021			
A	Timepoint		Shopping Centre		Route Direction		
	University	10	Service Notes				

519-451-1347
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london transit

use realtime.londontransit.ca for up-to-date arrivals

ROUTE 10 - MONDAY TO FRIDAY

WHITE OAKS WB			WESTERN							WHITE OAKS EB							HURON & BARKER	
Barker at Huron	Highbury at Dundas	Commissioners at Deveron	White Oaks Mall	Southdale at Dundalk	Westmount Mall	Wonderland at Oxford	Natural Science	Delaware Hall	Masonville Place	Masonville Place	Natural Science	Wonderland at Oxford	Westmount Mall	Southdale at Jalna	White Oaks Mall	Commissioners at Deveron	Highbury at Dundas	Barker at Huron
A	B	C	D	E	F	G	H	I	J	J	H	G	F	E	D	C	B	A
LVS			LVS		LVS		ARR		ARR	LVS	LVS		LVS		LVS			ARR
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5:56	6:10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6:26	6:40
-	-	-	-	-	-	-	-	-	-	-	5:35	5:47	5:55	6:07	6:24	6:41	6:51	7:03
-	-	-	-	-	-	-	-	-	-	-	6:05	6:17	6:25	6:37	6:54	7:12	7:23	7:36
-	-	5:33	5:52	6:00	6:10	6:20	6:32	-	-	-	6:37	6:49	6:57	7:09	7:23	7:41	7:52	8:05
-	-	5:48	6:07	6:15	6:25	6:35	6:47	-	-	-	6:52	7:05	7:14	7:27	7:41	7:59	8:10	8:23
5:40	5:53	6:03	6:22	6:30	6:40	6:50	7:02	-	-	-	7:07	7:21	7:30	7:43	7:57	8:15	8:26	8:39
-	-	6:18	6:37	6:45	6:55	7:05	7:17	-	-	-	7:22	7:36	7:45	7:58	8:12	8:30	8:41	8:54
6:10	6:23	6:33	6:52	7:00	7:10	7:20	7:32	-	-	-	7:39	7:53	8:02	8:15	8:29	8:47+	-	-
-	-	6:48	7:07	7:15	7:25	7:35	7:47	-	-	-	7:55	8:09	8:18	8:31	8:45	9:03	9:13	9:26
6:40	6:53	7:03	7:22	7:30	7:40	7:50	8:02	-	-	-	8:09	8:23	8:32	8:45	8:59	9:17*	To Garage	
-	-	7:18	7:37	7:45	7:55	8:05	8:17	-	-	-	8:30	8:44	8:53	9:07	9:24	9:42	9:52	10:05
7:08	7:21	7:33	7:54	8:03	8:15	8:28	8:44	-	-	-	8:51	9:05	9:16	9:30	9:47	10:05	10:15	10:28
7:41	7:54	8:06	8:27	8:36	8:48	9:01	9:18	-	-	-	9:25	9:40	9:51	10:05	10:22	10:40	10:50	11:03
8:10	8:23	8:35	8:56	9:05	9:17	9:30	9:47	-	-	-	9:55	10:10	10:21	10:35	10:52	11:10	11:20	11:33
8:28	8:41	8:53	9:14	9:23	9:35	9:48	10:05	-	-	-	10:15	10:30	10:41	10:55	11:12	11:30	11:40	11:53
8:44	8:58*	To Garage																
9:05	9:17	9:28	9:48	9:57	10:09	10:22	10:39	-	-	-	10:45	11:00	11:11	11:25	11:42	12:00	12:10	12:24
9:35	9:47	9:58	10:18	10:27	10:39	10:52	11:09	-	-	-	11:15	11:30	11:41	11:55	12:07	12:25	12:35	12:59
10:05	10:17	10:28	10:48	10:57	11:09	11:22	11:39	-	-	-	11:45	12:00	12:11	12:26	12:48	1:06	1:16	1:29
10:35	10:47	10:58	11:18	11:27	11:39	11:52	12:11	-	-	-	12:15	12:32	12:43	12:58	1:15	1:33	1:43	1:57
11:05	11:17	11:28	11:48	11:57	12:09	12:23	12:43	-	-	-	12:45	1:02	1:13	1:28	1:45	2:03	2:13	2:27
11:35	11:47	11:58	12:18	12:28	12:41	12:55	1:15	-	-	-	1:15	1:32	1:43	1:58	2:15	2:33	2:43	2:57
-	-	12:14	12:29	12:38	12:50	1:02	-	1:20	1:30	1:30	1:45	2:02	2:13	2:28	2:45	3:03	3:13	3:27
12:04	12:17	12:29	12:54	1:04	1:16	1:30	-	1:47	1:57	1:57	2:15	2:36	2:47	3:02	3:14	3:33	3:43	3:57
12:34	12:47	12:59	1:24	1:34	1:46	2:00	-	2:19	2:29	2:30	2:40	3:01	3:12	3:27	3:44	4:03	4:13	4:27
12:59	1:12	1:24	1:44	1:54	2:06	2:19	-	2:38	2:48	2:50	3:05	3:26	3:37	3:52	4:14	4:33	4:43	4:57
1:29	1:42	1:54	2:15	2:25	2:39	2:52	-	3:11	3:21	3:25	3:40	4:01	4:12	4:27	4:47	5:06	5:16	5:30
1:57	2:11	2:24	2:46	2:56	3:10	3:23	-	3:42	3:52	3:52	4:02	4:23	4:34	4:49	5:12	5:31	5:41	5:55
2:27	2:41	2:54	3:12	3:22	3:36	3:49	-	4:08	4:18	4:18	4:29	4:56	5:09	5:25	5:45	6:04	6:15	6:29
2:57	3:11	3:24	3:46	3:56	4:10	4:23	-	4:42	4:52	4:54	5:05	5:32	5:45	6:01	6:14	6:33*	To Garage	
-	-	3:40	4:03	4:13	4:26	4:41	-	5:00	5:10	5:10	5:21	5:48	6:01	6:17	6:25	6:44	6:55	7:09
3:27	3:41	3:54	4:16	4:26	4:40	4:53	-	5:12	5:22	5:24	5:35	6:02	6:15	6:31	6:44	7:03*	To Garage	
-	-	4:10	4:33	4:43	4:56	5:11	-	5:30	5:40	5:55	6:05	6:22	6:31	6:44	6:56	7:14	7:24	7:36
3:57	4:11	4:26	4:49	4:59	5:12	5:28	-	5:48	6:01	6:01	6:11	6:28	6:37	6:50	7:02	7:20*	To Garage	
-	-	4:40	5:03	5:13	5:26	5:41	-	6:00	6:10	6:25	6:35	6:52	7:01	7:14	7:30	7:48	7:58	8:10
4:27	4:41	4:56	5:27	5:37	5:50	6:06	-	6:26	6:39	6:40	6:50	7:07	7:16	7:29	7:41	7:59*	To Garage	
4:57	5:11	5:26	5:49	5:59	6:12	6:28	-	6:48	7:01	7:01	7:11	7:28	7:37	7:49	8:00	8:18	8:28	8:40
5:30	5:44	5:59	6:22	6:32	6:45	7:01	-	7:21	7:34	7:35	7:45	8:02	8:11	8:24	8:36	8:54*	To Garage	
5:55	6:06	6:17	6:45	6:54	7:07	7:18	-	7:35	7:42	7:42	7:52	8:09	8:18	8:31	8:38	8:56	9:06	9:18
6:29	6:40	6:51	7:18	7:27	7:40	7:51	-	8:08	8:15	8:15	8:25	8:42	8:51	9:04	9:16	9:34	9:44	9:56
7:10	7:21	7:32	7:51	8:00	8:13	8:24	-	8:41	8:48	8:48	8:58	9:15	9:24	9:37	9:54	10:12	10:22	10:34
7:36	7:47	8:03	8:21	8:30	8:43	8:54	-	9:11	9:18	9:18	9:26	9:39	9:48	9:59	10:05	10:20*	To Garage	
8:10	8:21	8:32	8:51	9:00	9:13	9:24	-	9:41	9:48	9:48	9:56	10:09	10:18	10:29	10:35	10:50	10:58	11:09
8:40	8:51	9:02	9:21	9:30	9:43	9:54	-	10:11	10:18	10:18	10:26	10:39	10:48	10:59	11:10	11:25	11:33	11:44
9:18	9:28	9:37	9:54	10:02	10:13	10:22	10:36	-	-	-	10:56	11:09	11:18	11:29	11:35	11:50	11:58	12:09
9:56	10:06	10:15	10:32	10:40	10:51	11:00	11:14	-	-	-	11:26	11:39	11:48	11:59	12:05	12:20	12:28	12:39
10:34	10:44	10:53	11:10	11:18	11:29	11:38	11:52	-	-	-	11:56	12:09	12:18	12:29	12:35	12:50	12:58	1:09
11:09	11:19	11:28	11:45	11:53	12:04	12:13	12:27	-	-	-	12:27	12:40	12:49	1:00	1:06	1:21	1:29	1:40
11:44	11:54	12:03	12:20	12:28	12:39	12:48	1:02	-	-	-	1:02	1:15	1:24	1:35	1:41	1:56*	To Garage	
12:09	12:19	12:28	12:45	12:53	1:04	1:13	1:27*	To Garage										
12:39	12:49	12:58	1:15	1:23	1:34	1:43	1:57*	To Garage										
1:09	1:23*	To Garage																
1:40	1:54*	To Garage																

LEGEND			
+	Route Change	*	Bus into Garage
0:00	Bus goes into service at Highbury at Brydges 9min earlier towards Western, or 3min earlier towards Barker at Huron		

ROUTE 10 - SATURDAY

WHITE OAKS WB			WESTERN							WHITE OAKS EB							HURON & BARKER	
Barker at Huron	Highbury at Dundas	Commissioners at Deveron	White Oaks Mall	Southdale at Dundalk	Westmount Mall	Wonderland at Oxford	Natural Science	Delaware Hall	Masonville Place	Masonville Place	Natural Science	Wonderland at Oxford	Westmount Mall	Southdale at Jalna	White Oaks Mall	Commissioners at Deveron	Highbury at Dundas	Barker at Huron
A	B	C	D	E	F	G	H	I	J	J	H	G	F	E	D	C	B	A
LVS			LVS		LVS		ARR		ARR	LVS	LVS		LVS		LVS			ARR
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6:28	6:37
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7:03	7:12

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ROUTE 10 - SATURDAY

WHITE OAKS WB										WHITE OAKS EB					HURON & BARKER			
Barker at Huron	Highbury at Dundas	Commissioners at Deveron	White Oaks Mall	Southdale at Dundalk	Westmount Mall	Wonderland at Oxford	Natural Science	Delaware Hall	Masonville Place	Masonville Place	Natural Science	Wonderland at Oxford	Westmount Mall	Southdale at Jalna	White Oaks Mall	Commissioners at Deveron	Highbury at Dundas	Barker at Huron
A	B	C	D	E	F	G	H	I	J	J	H	G	F	E	D	C	B	A
LVS			LVS		LVS		ARR		ARR	LVS	LVS		LVS		LVS			ARR
-	-	-	-	-	-	-	-	-	-	-	6:32	6:43	6:50	7:00	7:10	7:23	7:30	7:39
-	-	5:49	6:00	6:09	6:18	6:27	-	6:38	6:43	6:58	7:02	7:13	7:20	7:30	7:40	7:53	8:00	8:09
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8:18	8:27
-	-	6:24	6:35	6:44	6:53	7:02	-	7:13	7:18	7:31	7:35	7:46	7:53	8:04	8:15	8:29	8:37	8:46
6:37	6:47	6:55	7:10	7:19	7:28	7:37	-	7:48	7:53	7:57	8:02	8:14	8:22	8:34	8:45	8:59	9:07	9:16
-	-	-	-	-	-	-	-	-	-	8:27	8:32	8:44	8:52	9:04	9:15	9:29	9:37	9:46
7:12	7:22	7:30	7:45	7:54	8:03	8:13	-	8:26	8:32	8:52	8:57	9:09	9:17	9:29	9:40	9:54	10:03	10:14
7:44	7:54	8:03	8:20	8:29	8:40	8:50	-	9:03	9:09	9:21	9:26	9:38	9:46	9:58	10:10	10:26	10:36	10:47
8:12	8:23	8:33	8:50	8:59	9:10	9:20	-	9:33	9:39	9:47	9:52	10:05	10:14	10:28	10:40	10:56	11:06	11:17
8:27	8:38	8:48	9:05	9:14	9:25	9:35	-	9:48	9:54	10:10	10:15	10:30	10:39	10:53	11:05	11:21	11:31	11:42
8:57	9:08	9:18	9:35	9:44	9:55	10:06	-	10:21	10:27	10:40	10:45	11:00	11:09	11:23	11:35	11:51	12:01	12:12
9:26	9:37	9:47	10:05	10:15	10:27	10:38	-	10:53	10:59	11:09	11:14	11:29	11:38	11:53	12:05	12:22	12:32	12:43
9:54	10:07	10:17	10:35	10:45	10:57	11:08	-	11:23	11:29	11:38	11:43	11:58	12:07	12:23	12:35	12:52	1:02	1:13
10:24	10:37	10:47	11:05	11:15	11:27	11:38	-	11:53	11:59	12:05	12:11	12:28	12:37	12:53	1:05	1:22	1:32	1:43
10:54	11:07	11:17	11:35	11:45	11:57	12:09	-	12:25	12:32	12:35	12:41	12:58	1:07	1:23	1:35	1:52	2:02	2:13
-	-	-	-	-	-	-	-	-	-	1:05	1:11	1:28	1:37	1:53	2:05	2:22	2:32	2:43
11:24	11:37	11:47	12:05	12:16	12:29	12:42	-	12:58	1:05	1:20	1:26	1:43	1:52	2:08	2:20	2:37	2:47	2:58
11:52	12:05	12:16	12:35	12:46	12:59	1:12	-	1:28	1:35	1:49	1:55	2:12	2:22	2:38	2:50	3:07	3:17	3:28
12:22	12:35	12:46	1:05	1:16	1:29	1:42	-	1:58	2:05	2:18	2:24	2:42	2:52	3:08	3:20	3:37	3:47	3:58
12:52	1:05	1:16	1:35	1:46	1:59	2:12	-	2:28	2:35	2:48	2:54	3:12	3:22	3:38	3:50	4:07	4:17	4:28
1:21	1:34	1:45	2:05	2:17	2:30	2:43	-	2:59	3:06	3:18	3:24	3:42	3:52	4:08	4:20	4:37	4:47	4:58
1:52	2:06	2:16	2:35	2:47	3:00	3:13	-	3:29	3:36	3:48	3:54	4:12	4:22	4:38	4:50	5:07	5:17	5:28
2:22	2:36	2:46	3:05	3:17	3:30	3:43	-	3:59	4:06	4:18	4:24	4:42	4:52	5:08	5:20	5:37	5:47	5:58
2:47	3:01	3:11	3:30	3:42	3:55	4:08	-	4:24	4:31	4:48	4:54	5:12	5:22	5:38	5:50	6:07	6:15	6:26
3:07	3:21	3:31	3:50	4:02	4:15	4:28	-	4:44	4:51*	To Garage								
3:37	3:51	4:01	4:20	4:32	4:45	4:58	-	5:14	5:21	5:23	5:29	5:47	5:57	6:09	6:20	6:36	6:44	6:55
4:07	4:21	4:31	4:50	5:02	5:15	5:28	-	5:44	5:51	5:58	6:04	6:19	6:27	6:39	6:50	7:06	7:14	7:25
4:37	4:51	5:01	5:20	5:32	5:45	5:58	-	6:13	6:20	6:28	6:34	6:49	6:57	7:09	7:20	7:36	7:44	7:55
5:07	5:21	5:31	5:50	6:02	6:13	6:24	-	6:39	6:46	6:58	7:04	7:19	7:27	7:39	7:50	8:06	8:14	8:25
5:39	5:53	6:03	6:20	6:30	6:41	6:52	-	7:07	7:14	7:23	7:29	7:44	7:52	8:04	8:15	8:31	8:39	8:50
6:07	6:18	6:28	6:45	6:55	7:06	7:17	-	7:32	7:39	7:48	7:54	8:09	8:17	8:29	8:40	8:56	9:04	9:14
6:37	6:48	6:58	7:15	7:25	7:36	7:47	-	8:02	8:09	8:20	8:26	8:41	8:49	9:00	9:10	9:25	9:33	9:43
7:07	7:18	7:28	7:45	7:55	8:06	8:17	-	8:32	8:39	8:48	8:54	9:07	9:15	9:25	9:35	9:50	9:58	10:08
7:37	7:48	7:58	8:15	8:25	8:36	8:47	-	9:02	9:08	9:19	9:25	9:37	9:45	9:55	10:05	10:20	10:28	10:38
8:07	8:18	8:28	8:45	8:55	9:06	9:15	-	9:25	9:31	9:44	9:50	10:02	10:10	10:20	10:30	10:45	10:53	11:03
8:37	8:47	8:55	9:10	9:18	9:28	9:37	9:48*	To Garage										
9:02	9:12	9:20	9:35	9:43	9:53	10:02	10:13	-	-	-	10:20	10:32	10:40	10:50	11:00	11:15	11:23	11:33
9:27	9:37	9:45	10:00	10:08	10:18	10:27	10:38	-	-	-	10:50	11:02	11:10	11:20	11:30	11:45	11:53	12:03
9:52	10:02	10:10	10:25	10:33	10:43	10:52	11:03	-	-	-	11:15	11:27	11:35	11:45	11:55	12:10	12:17	12:27
10:17	10:27	10:35	10:50	10:58	11:08	11:17	11:28	-	-	-	11:32	11:44	11:52	12:02	12:08	12:23*	To Garage	
10:47	10:57	11:05	11:20	11:28	11:38	11:47	11:58	-	-	-	12:06	12:17	12:24	12:32	12:40	12:55	1:02	1:12
11:17	11:27	11:35	11:50	11:58	12:08	12:16	12:26	-	-	-	12:30	12:41	12:48	12:56	1:02	1:17*	To Garage	
12:11	12:19	12:27	12:40	12:47	12:55	1:03	1:13*	To Garage										
11:33	11:43*	To Garage																
12:27	12:35	12:43	12:54*	To Garage														
1:12	1:20*	To Garage																

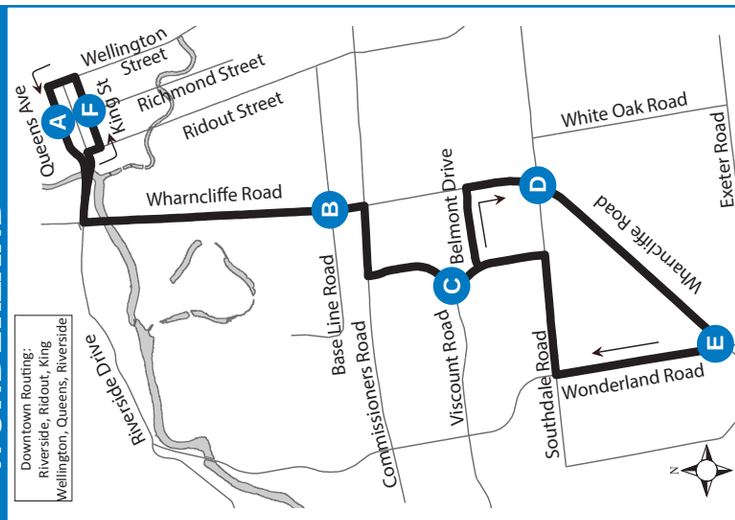
ROUTE 10 - SUNDAY / HOLIDAY

WHITE OAKS WB										WHITE OAKS EB					HURON & BARKER			
Barker at Huron	Highbury at Dundas	Commissioners at Deveron	White Oaks Mall	Southdale at Dundalk	Westmount Mall	Wonderland at Oxford	Natural Science	Delaware Hall	Masonville Place	Masonville Place	Natural Science	Wonderland at Oxford	Westmount Mall	Southdale at Jalna	White Oaks Mall	Commissioners at Deveron	Highbury at Dundas	Barker at Huron
A	B	C	D	E	F	G	H	I	J	J	H	G	F	E	D	C	B	A
LVS			LVS		LVS		ARR		ARR	LVS	LVS				LVS			ARR
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7:07	7:16
-	-	-	-	-	-	-	-	-	-	6:45	6:52	7:05	7:13	7:26	7:35	7:49	7:57	8:06
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8:30	8:39
-	-	6:41	6:53	7:01	7:10	7:19	-	7:31	7:36	7:40	7:47	8:00	8:08	8:21	8:30	8:44	8:52	9:01
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9:28	9:37
-	-	-	-	-	-	-	-	-	-	8:28	8:35	8:48	8:56	9:09	9:20	9:34	9:42	9:51
7:16	7:26	7:35	7:50	7:58	8:07	8:16	-	8:28	8:33	8:47	8:54	9:08	9:16	9:29	9:40	9:54	10:02	10:11
-	-	-	-	-	-	-	-	-	-	9:17	9:24	9:38	9:46	9:59	10:10	10:24	10:32	10:41
8:11	8:21	8:30	8:45	8:53	9:02	9:12	-	9:26	9:32	9:42	9:49	10:03	10:11	10:24	10:35	10:49	10:57	11:06
8:39	8:49	8:58	9:15	9:24	9:34	9:44	-	9:58	10:04	10:12	10:19	10:33	10:41	10:54	11:05	11:19	11:27	11:36
9:07	9:18	9:28	9:45	9:54	10:04	10:14	-	10:28	10:34	10:42	10:49	11:03	11:11	11:24	11:35	11:49	11:57	12:06
9:37	9:48	9:58	10:15	10:24	10:34	10:44	-	10:58	11:04	11:11	11:18	11:32	11:40	11:53	12:05	12:21	12:31	12:42
10:02	10:13	10:23	10:40	10:49	10:59	11:09	-	11:23	11:29	11:38	11:45	12:00	12:09	12:23	12:35	12:51	1:01	1:12
10:27	10:38	10:48	11:05	11:14	11:24	11:34	-	11:48	11:54	12:02	12:10	12:25	12:34	12:48	1:00	1:16	1:26	1:37
10:52	11:03	11:13	11:30	11:39	11:49	11:59	-	12:15	12:22	12:32	12:40	12:55	1:04	1:18	1:30	1:46	1:56	2:07
11:17	11:28	11:38	11:55	12:04	12:15	12:27	-	12:42	12:49	1:02	1:10	1:25	1:34	1:48	2:00	2:16	2:26	2:37
11:46	11:57	12:07	12:25	12:35	12:46	12:58	-	1:13	1:20	1:32	1:40	1:55	2:04	2:18	2:30	2:46	2:56	3:07
12:14	12:27	12:37	12:55	1:05	1:16	1:28	-	1:43	1:50	2:02	2:10	2:25	2:34	2:48	3:00	3:16	3:26	3:37
12:44	12:57	1:07	1:25	1:35	1:46	1:58	-	2:13	2:20	2:32	2:40	2:55	3:04	3:18	3:30	3:46	3:56	4:07
1:14	1:27	1:37	1:55	2:05	2:16	2:28	-	2:43	2:50	3:02	3:10	3:25	3:34	3:48	4:00	4:16	4:26	4:37
1:44	1:57	2:07	2:25	2:35	2:46	2:58	-	3:13	3:20	3:32	3:40	3:55	4:04	4:18	4:30	4:46	4:56	5:07
2:14	2:27	2:37	2:55	3:05	3:16	3:28	-	3:43	3:50	4:02	4:10	4:25	4:34	4:48	5:00	5:15	5:24	5:34
2:44	2:57	3:07	3:25	3:35	3:46	3:58	-	4:13	4:20	4:30	4:38	4:53	5:01	5:14	5:25	5:40	5:49	5:59
3:14	3:27	3:37	3:55	4:05	4:16	4:28	-	4:43	4:50	5:02	5:10	5:23	5:31	5:44	5:55	6:10	6:19	6:29
3:44	3:57	4:07	4:25	4:35	4:46	4:58	-	5:10	5:16	5:20	5:28	5:41	5:49	6:02	6:09	6:24*	To Garage	
4:14	4:27	4:37	4:55	5:05	5:16	5:27	-	5:39	5:45	5:49	5:57	6:10	6:18	6:31	6:42	6:57	7:06	7:16
4:45	4:58	5:08	5:25	5:34	5:45	5:56	6:10	-	-	-	6:14	6:27	6:35	6:48	6:55	7:10*	To Garage	
5:18	5:28	5:38	5:55	6:04	6:15	6:26	6:40	-	-	-	6:52	7:05	7:13	7:26	7:37	7:52	8:01	8:11
5:34	5:44*	To Garage																
6:18	6:28	6:38	6:55	7:04	7:15	7:26	7:40	-	-	-	7:52	8:05	8:13	8:26	8:37	8:52	9:01	9:11
6:29	6:39*	To Garage																
7:18	7:28	7:38	7:55	8:04	8:15	8:26	8:40	-	-	-	8:52	9:05	9:13	9:26	9:37	9:52	10:01	10:10
8:18	8:28	8:38	8:55	9:04	9:15	9:26	9:40	-	-	-	9:50	10:02	10:10	10:22	10:32	10:47	10:55	11:04
9:18	9:28	9:38	9:55	10:04	10:13	10:22	10:36	-	-	-	10:50	11:02	11:10	11:22	11:28	11:43*	To Garage	
10:21	10:30	10:38	10:55	11:02	11:11	11:20	11:34*	To Garage										
11:04	11:13*	To Garage																

LEGEND

+	Route Change	*	Bus into Garage
0:00	Bus goes into service at Highbury at Brydges 9min earlier towards Western, or 3min earlier towards Barker at Huron		

12 DOWNTOWN - WHARNCLIFFE AT WONDERLAND



Map Legend

A Timepoint → Route Direction

Effective: September 5th, 2021

london transit

519-451-1347

www.londontransit.ca

use realtime.londontransit.ca for up-to-date arrivals

ROUTE 12 - MONDAY TO FRIDAY

SOUTHBOUND				NORTHBOUND					
Queens at Richmond	Wharncliffe at Base Line	Notre Dame at Viscount	Wharncliffe at Southdale	Wonderland at Wharncliffe	Wonderland at Wharncliffe	Notre Dame at Viscount	Wharncliffe at Base Line	King at Richmond	Queens at Richmond
A	B	C	D	E	E	C	B	F	A
LVS				ARR	LVS				ARR
-	-	-	-	-	6:00	6:08	6:13	6:22	6:25
-	-	-	-	-	6:30	6:37	6:42	6:51	6:56
6:30	6:38	6:43	6:47	6:51	6:59	7:08	7:13	7:23	7:27
6:59	7:07	7:12	7:17	7:21	7:24	7:33	7:39	7:51	7:57
7:27	7:37	7:42	7:47	7:51	7:54	8:03	8:09	8:21	8:27
7:57	8:07	8:12	8:17	8:21	8:24	8:33	8:39	8:51	8:57
8:27	8:37	8:42	8:47	8:51	8:54	9:03	9:09	9:21	9:27
8:57	9:07	9:12	9:17	9:21	9:26	9:35	9:41	9:52	9:57
9:27	9:36	9:40	9:45	9:49	9:56	10:05	10:11	10:22	10:27
9:57	10:06	10:10	10:15	10:19	10:26	10:35	10:41	10:52	10:57
10:27	10:36	10:40	10:45	10:49	10:56	11:05	11:11	11:22	11:27
10:57	11:06	11:10	11:15	11:19	11:26	11:35	11:41	11:52	11:57
11:27	11:36	11:40	11:45	11:49	11:56	12:05	12:11	12:22	12:27
11:57	12:06	12:10	12:15	12:19	12:26	12:35	12:41	12:52	12:57
12:27	12:37	12:42	12:47	12:51	12:56	1:05	1:11	1:22	1:27
12:57	1:07	1:12	1:17	1:21	1:26	1:35	1:41	1:52	1:57
1:27	1:37	1:42	1:47	1:51	1:56	2:05	2:11	2:22	2:27
-	-	-	-	-	2:20	2:28	2:34	2:45	2:52
1:57	2:07	2:12	2:17	2:21	2:37	2:45	2:51	3:02	3:08
2:27	2:38	2:44	2:49	2:53	3:02	3:10	3:16	3:27	3:33
2:52	3:03	3:09	3:14	3:18	3:27	3:35	3:41	3:52	3:58
3:08	3:19	3:25	3:30	3:34	3:52	4:00	4:06	4:17	4:23
3:33	3:44	3:50	3:55	3:59	4:17	4:26	4:32	4:44	4:50
3:58	4:09	4:15	4:20	4:24	4:42	4:51	4:57	5:09	5:15
4:23	4:36	4:42	4:47	4:51	5:07	5:16	5:22	5:34	5:46
4:50	5:03	5:09	5:14	5:18	5:32	5:41	5:47	5:59	6:05
5:15	5:28	5:34	5:39	5:43	5:57	6:06	6:12	6:24	6:30
5:46	5:59	6:05	6:09	6:13	6:14	6:22*	To Garage		
6:05	6:15	6:20	6:24	6:28	6:28	6:36	6:42	6:53	6:58
6:30	6:40	6:45	6:49	6:53	6:58	7:06	7:12	7:23	7:28
6:58	7:08	7:13	7:17	7:21	7:28	7:36	7:42	7:53	7:58
7:28	7:38	7:43	7:47	7:51	7:58	8:06	8:12	8:23	8:28
7:58	8:08	8:13	8:17	8:21	8:33	8:41	8:47	8:58	9:19
8:28	8:38	8:43	8:47	8:51	9:14	9:21	9:26	9:35	9:39
9:19	9:27	9:31	9:35	9:38*	To Garage				
9:39	9:47	9:51	9:55	9:58	10:17	10:24	10:29	10:38	10:42
10:42	10:50	10:54	10:58	11:01	11:17	11:24	11:29	11:38	11:56
11:56	12:04	12:08	12:12	12:15	12:15	12:22*	To Garage		

LEGEND

*	Bus into Garage	+	Route Change

use realtime.londontransit.ca for up-to-date arrivals

ROUTE 12 - SATURDAY

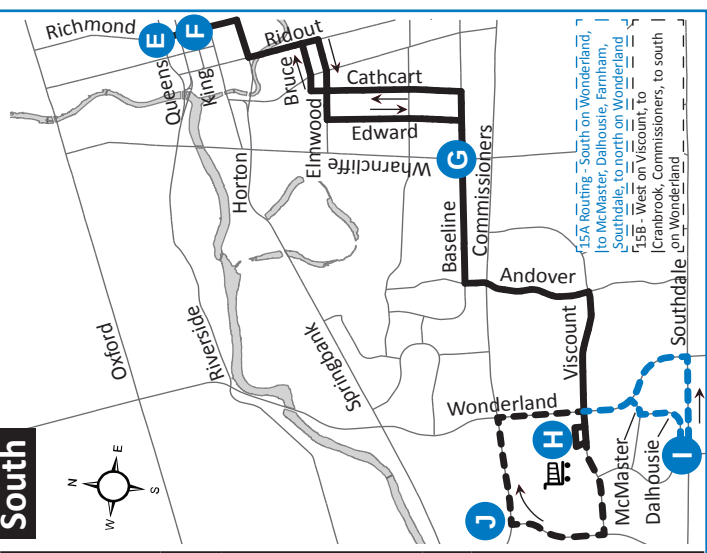
SOUTHBOUND				NORTHBOUND					
Queens at Richmond	Wharncliffe at Base Line	Notre Dame at Viscount	Wharncliffe at Southdale	Wonderland at Wharncliffe	Wonderland at Wharncliffe	Notre Dame at Viscount	Wharncliffe at Base Line	King at Richmond	Queens at Richmond
A	B	C	D	E	E	C	B	F	A
LVS				ARR	LVS				ARR
-	-	-	-	-	6:02	6:10	6:15	6:23	6:28
6:30	6:38	6:42	6:46	6:50	7:02	7:10	7:15	7:23	7:28
7:30	7:38	7:42	7:46	7:50	8:00	8:08	8:14	8:24	8:29
8:30	8:38	8:42	8:46	8:50	8:54	9:03	9:09	9:20	9:25
9:25	9:33	9:37	9:41	9:45	9:49	9:58	10:04	10:15	10:20
10:20	10:29	10:33	10:38	10:42	10:49	10:58	11:04	11:15	11:20
11:20	11:29	11:33	11:38	11:42	11:47	11:57	12:04	12:15	12:20
-	-	-	-	-	12:23	12:33	12:39	12:50	12:55
12:20	12:29	12:34	12:39	12:43	12:57	1:07	1:14	1:25	1:30
12:55	1:04	1:09	1:14	1:18	1:33	1:43	1:49	2:00	2:05
1:30	1:39	1:44	1:49	1:53	2:08	2:18	2:24	2:35	2:40
2:05	2:14	2:19	2:23	2:26	2:43	2:53	2:59	3:10	3:15
2:40	2:49	2:54	2:58	3:01	3:18	3:28	3:34	3:45	3:50
3:15	3:24	3:29	3:33	3:36	3:53	4:03	4:09	4:20	4:25
3:50	3:59	4:04	4:08	4:11	4:28	4:38	4:44	4:55	5:00
4:25	4:34	4:39	4:43	4:46	5:08	5:16	5:22	5:31	5:35
5:00	5:09	5:14	5:18	5:21	5:42	5:52*	To Garage		
5:35	5:44	5:49	5:53	5:56	6:00	6:08	6:14	6:23	6:27
6:30	6:38	6:42	6:46	6:50	6:53	7:01	7:07	7:16	7:20
7:20	7:28	7:32	7:36	7:40	7:43	7:51	7:57	8:06	8:10
8:10	8:18	8:22	8:26	8:30	8:35	8:41	8:46	8:55	9:00
9:00	9:08	9:12	9:16	9:19	9:35	9:41	9:46	9:55	10:00
10:00	10:08	10:12	10:16	10:19	10:28	10:34	10:39	10:48	11:00
11:00	11:08	11:12	11:16	11:19	11:28	11:34	11:39	11:48	12:00
12:00	12:08	12:12	12:16	12:19	12:19	12:25*	To Garage		

ROUTE 12 - SUNDAY / HOLIDAY

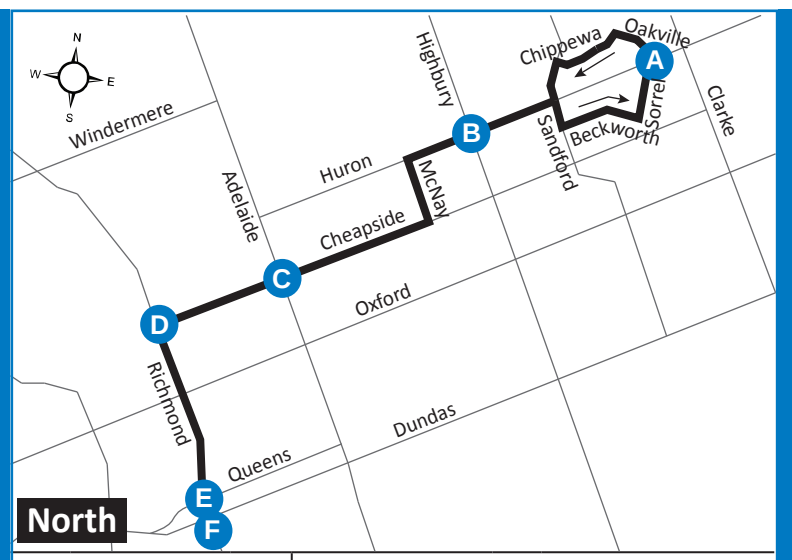
SOUTHBOUND				NORTHBOUND					
Queens at Richmond	Wharncliffe at Base Line	Notre Dame at Viscount	Wharncliffe at Southdale	Wonderland at Wharncliffe	Wonderland at Wharncliffe	Notre Dame at Viscount	Wharncliffe at Base Line	King at Richmond	Queens at Richmond
A	B	C	D	E	E	C	B	F	A
LVS				ARR	LVS				ARR
-	-	8:21	8:25	8:29	8:29	8:37	8:44	8:52	8:52
9:00	9:09	9:13	9:17	9:21	9:26	9:34	9:41	9:49	9:49
9:53	10:02	10:06	10:10	10:14	10:20	10:28	10:35	10:43	10:43
10:53	11:02	11:06	11:10	11:14	11:14	11:22	11:29	11:37	11:37
11:47	11:56	12:00	12:04	12:08	12:08	12:17	12:23	12:31	12:31
12:41	12:50	12:55	12:59	1:03	1:03	1:12	1:18	1:26	1:26
1:36	1:45	1:50	1:54	1:58	1:58	2:07	2:13	2:21	2:21
2:30	2:39	2:44	2:48	2:52	2:58	3:07	3:13	3:21	3:21
3:30	3:39	3:44	3:48	3:52	3:58	4:07	4:13	4:21	4:21
4:30	4:39	4:44	4:48	4:52	4:58	5:07	5:13	5:21	5:21
5:30	5:39	5:44	5:48	5:52	5:59	6:07	6:13	6:21	6:21
6:30	6:39	6:43	6:47	6:51	6:57	7:05	7:11	7:19	7:19
7:28	7:37	7:41	7:45	7:49	7:54	8:02	8:08	8:16	8:16
8:26	8:35	8:39	8:43	8:47	8:49	8:57	9:03	9:11	9:11
9:15	9:24	9:28	9:32	9:36	9:36	9:44*	To Garage		

LEGEND			
*	Bus into Garage	+	Route Change
0:00	Bus goes into service at Commissioners and Wharncliffe 3 minutes earlier		

15 HURON HEIGHTS - WESTMOUNT MALL



Map Legend			Effective: September 5th, 2021		
A	Timepoint		Shopping Centre	→	Route Direction



Map Legend			Effective: September 5th, 2021		
A	Timepoint		Shopping Centre	→	Route Direction

519-451-1347
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ROUTE 15 - MONDAY TO FRIDAY

SOUTHBOUND							NORTHBOUND								
Oakville at Huron	Huron at Highbury	Cheapside at Adelaide	Cheapside at Richmond	Richmond at King	Base Line at Wharncliffe	Westmount Mall	Westmount Mall	Dalhousie at Brixham	Cranbrook at Commissioners	Base Line at Wharncliffe	Richmond at Queens	Cheapside at Richmond	Cheapside at Adelaide	Huron at Highbury	Oakville at Huron
A	B	C	D	F	G	H	H	I	J	G	E	D	C	B	A
LVS				LVS		ARR	LVS				LVS				ARR
								15 A	15 B						
-	-	-	-	-	-	-	-	-	-	-	-	-	-	6:18	6:24
-	-	-	-	-	-	-	-	-	-	-	-	-	-	5:56	6:02
-	-	-	-	-	-	-	-	-	-	-	-	-	-	6:37	6:43
-	-	-	-	-	-	-	5:57	6:02	-	6:17	6:30	6:36	6:40	6:48	6:54
-	-	-	-	-	-	-	6:20	-	6:25	6:38	6:50	6:56	7:00	7:08	7:15
-	-	-	-	-	-	-	-	-	-	-	-	-	-	7:07	7:13
-	-	-	-	-	-	-	6:36	6:41	-	6:56	7:10	7:17	7:21	7:29	7:36
6:02	6:08	6:17	6:20	6:30	6:40	6:49	6:51	-	6:56	7:12	7:26	7:33	7:37	7:45	7:52
-	-	-	-	-	-	-	7:05	7:10	-	7:28	7:42	7:49	7:53	8:01	8:08
6:24	6:30	6:39	6:42	6:50	7:00	7:10	7:18	-	7:23	7:39	7:53	8:00	8:04	8:12	8:19
6:43	6:49	6:58	7:01	7:10	7:20	7:31	7:32	7:37	-	7:55	8:09	8:16	8:20	8:28	8:35
6:57	7:04	7:14	7:17	7:26	7:36	7:46	7:50	-	7:55	8:11	8:25	8:32	8:36	8:44	8:51
7:13	7:20	7:30	7:33	7:42	7:52	8:03	8:04	8:09	-	8:27	8:41	8:48	8:52	9:00	9:06
7:24	7:31	7:41	7:44	7:53	8:03	8:13	8:22	-	8:27	8:43	8:57	9:04	9:08	9:16	9:22
7:40	7:47	7:57	8:00	8:09	8:19	8:30	8:38	8:43	-	9:00	9:12	9:19	9:23	9:31	9:37
7:56	8:03	8:13	8:16	8:25	8:35	8:45	8:56	-	9:01	9:15	9:27	9:34	9:38	9:46	9:52
8:12	8:19	8:29	8:32	8:41	8:51	9:02	9:09	9:13	-	9:30	9:42	9:49	9:53	10:01	10:07
8:28	8:35	8:45	8:48	8:57	9:07	9:17	9:26	-	9:31	9:45	9:57	10:04	10:08	10:16	10:22
8:43	8:50	9:00	9:03	9:12	9:22	9:32	9:39	9:43	-	10:00	10:12	10:19	10:23	10:31	10:37
8:58	9:05	9:15	9:18	9:27	9:37	9:47	9:56	-	10:01	10:15	10:27	10:34	10:38	10:46	10:52
9:13	9:20	9:30	9:33	9:42	9:52	10:02	10:09	10:13	-	10:30	10:42	10:49	10:53	11:01	11:07
9:28	9:35	9:45	9:48	9:57	10:07	10:17	10:26	-	10:31	10:45	10:57	11:04	11:08	11:16	11:22
9:43	9:50	10:00	10:03	10:12	10:22	10:32	10:39	10:43	-	11:00	11:12	11:19	11:23	11:31	11:37
9:58	10:05	10:15	10:18	10:27	10:37	10:47	10:56	-	11:01	11:15	11:27	11:34	11:38	11:46	11:52
10:13	10:20	10:30	10:33	10:42	10:52	11:02	11:09	11:13	-	11:30	11:42	11:49	11:53	12:01	12:08
10:28	10:35	10:45	10:48	10:57	11:07	11:17	11:26	-	11:31	11:45	11:57	12:04	12:08	12:17	12:24
10:43	10:50	11:00	11:03	11:12	11:22	11:32	11:40	11:44	-	12:00	12:12	12:19	12:23	12:32	12:39
10:58	11:05	11:15	11:18	11:27	11:37	11:47	11:57	-	12:02	12:15	12:27	12:34	12:38	12:47	12:54
11:13	11:20	11:30	11:33	11:42	11:52	12:02	12:10	12:14	-	12:30	12:42	12:49	12:53	1:02	1:09
11:28	11:35	11:45	11:48	11:57	12:07	12:17	12:27	-	12:32	12:45	12:57	1:04	1:08	1:17	1:24
11:43	11:50	12:00	12:03	12:12	12:22	12:32	12:40	12:44	-	1:00	1:12	1:19	1:23	1:32	1:39
11:58	12:05	12:15	12:18	12:27	12:37	12:47	12:57	-	1:02	1:15	1:27	1:34	1:38	1:47	1:54
12:13	12:20	12:30	12:33	12:42	12:52	1:02	1:10	1:14	-	1:30	1:42	1:49	1:53	2:02	2:10
12:28	12:35	12:45	12:48	12:57	1:07	1:17	1:25	-	1:30	1:43	1:55	2:02	2:07	2:16	2:24
-	-	-	-	-	-	-	-	-	-	-	-	-	-	2:28	2:36
12:43	12:50	1:00	1:03	1:12	1:22	1:32	1:39	1:43	-	1:59	2:12	2:20	2:25	2:34	2:42
12:58	1:05	1:15	1:18	1:27	1:37	1:47	1:54	-	1:59	2:14	2:27	2:35	2:40	2:49	2:57
1:13	1:20	1:30	1:33	1:42	1:52	2:02	2:06	2:11	-	2:29	2:42	2:50	2:55	3:04	3:12
1:28	1:35	1:45	1:48	1:57	2:08	2:19	2:24	-	2:29	2:44	2:57	3:05	3:10	3:19	3:27
1:42	1:49	1:59	2:02	2:11	2:23	2:35	2:36	2:41	-	2:59	3:12	3:20	3:25	3:34	3:42
1:56	2:03	2:14	2:17	2:26	2:38	2:49	2:54	-	2:59	3:14	3:27	3:35	3:40	3:49	3:57
2:11	2:18	2:29	2:32	2:41	2:53	3:05	3:07	3:12	-	3:30	3:43	3:51	3:56	4:05	4:12
2:26	2:33	2:44	2:47	2:56	3:08	3:19	3:24	-	3:29	3:44	3:57	4:05	4:10	4:19	4:26
2:36	2:43	2:54	2:57	3:06	3:18	3:30	3:36	3:41	-	3:59	4:12	4:22	4:27	4:36	4:43
2:51	2:58	3:09	3:12	3:21	3:33	3:44	3:50	-	3:55	4:09	4:26	4:36	4:41	4:50	4:57
3:06	3:13	3:24	3:27	3:36	3:48	4:00	4:02	4:07	-	4:24	4:50	5:00	5:05	5:14	5:21
3:20	3:27	3:38	3:41	3:50	4:02	4:13	4:25	-	4:30	4:44	5:07	5:17	5:22	5:31	5:38
3:37	3:44	3:55	3:58	4:08	4:20	4:31	4:37	4:42	-	4:59	5:12	5:22	5:27	5:36	5:43
3:52	3:59	4:10	4:13	4:23	4:35	4:46	5:00	-	5:05	5:19	5:32	5:42	5:47	5:56	6:03
4:09	4:16	4:27	4:30	4:40	4:52	5:03	5:12	5:17	-	5:34	5:47	5:57	6:02	6:11	6:18
4:26	4:33	4:44	4:47	4:57	5:09	5:20	5:35	-	5:40	5:54	6:07	6:17	6:21	6:29	6:36
4:43	4:50	5:01	5:04	5:14	5:26	5:37	5:47	5:52	-	6:09	6:21	6:28	6:32	6:40	6:47
4:58	5:05	5:16	5:19	5:29	5:41	5:52	6:10	-	6:15	6:28	6:40	6:47	6:51	6:59	7:06
5:15	5:22	5:33	5:36	5:46	5:58	6:09	6:22	6:26	-	6:42	6:54	7:01	7:05	7:13	7:20
5:32	5:39	5:50	5:53	6:02	6:13	6:23	6:40	-	6:45	6:58	7:15	7:22	7:26	7:34	7:41
5:43	5:50*	To Garage													
5:51	5:58	6:07	6:10	6:19	6:30	6:41	7:08	7:12	-	7:28	7:40	7:47	7:51	7:59	8:06
6:03	6:10*	To Garage													
6:21	6:28	6:37	6:40	6:49	7:00	7:10	7:30	-	7:35	7:48	8:00	8:07	8:11	8:19	8:26
6:36	6:43*	To Garage													
6:51	6:58	7:07	7:10	7:19	7:30	7:41	8:00	8:04	-	8:20	8:32	8:39	8:43	8:51	8:58
7:13	7:20*	To Garage													
7:23	7:30	7:39	7:42	7:51	8:02	8:12	8:30	-	8:35	8:48	8:59	9:05	9:09	9:17	9:24
7:53	8:00	8:09	8:12	8:21	8:32	8:43	9:00	9:04	-	9:19	9:30	9:36	9:40	9:48	9:55
8:24	8:31	8:40	8:43	8:51	9:01	9:10	9:30	-	9:34	9:47	9:58	10:04	10:08	10:16	10:23
8:46	8:52	9:00	9:03	9:11	9:21	9:31	10:00	10:04	-	10:19	10:30	10:36	10:40	10:48	10:55
9:11	9:17	9:25	9:28	9:36	9:46	9:55	10:24	-	10:28	10:41	10:52	10:58	11:02	11:10	11:17
9:36	9:42	9:50	9:53	10:01	10:11	10:21	10:52	10:56	-	11:11	11:22	11:28	11:32	11:40	11:47
10:06	10:12	10:20	10:23	10:31	10:41	10:50	11:05	-	11:09	11:22	11:33	11:39	11:43	11:51	11:57
10:36	10:42	10:50	10:53	11:01	11:11	11:21	11:42	11:46	-	12:01	12:12	12:18	12:21	12:28	12:34
11:06	11:12	11:20	11:23	11:31	11:41	11:50	12:07	-	12:11*	To Garage					
11:35	11:41	11:49	11:52	12:00	12:10	12:19	12:31	-	12:35	12:47	1:00	1:06	1:09	1:16	1:22
11:47	11:53*	To Garage													
12:08	12:14	12:21	12:23	12:33	12:42	12:51	12:51	12:54*	To Garage						
12:34	12:40*	To Garage													
1:22	1:28*	To Garage													

LEGEND

*	Into Garage	+	Route Change

Use realtime.londontransit.ca for up-to-date arrivals

use realtime.londontransit.ca for up-to-date arrivals

ROUTE 15 - SATURDAY

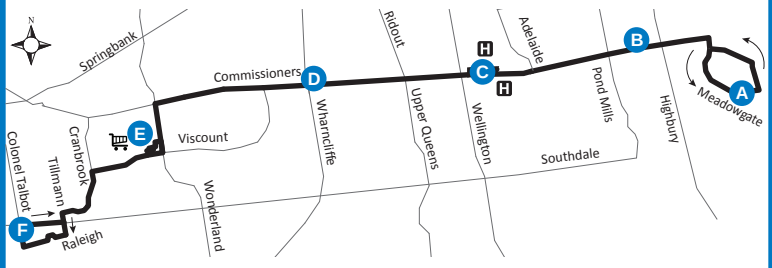
SOUTHBOUND							NORTHBOUND								
Oakville at Huron	Huron at Highbury	Cheapside at Adelaide	Cheapside at Richmond	Richmond at King	Base Line at Wharncliffe	Westmount Mall	Westmount Mall	Dalhousie at Brixham	Cranbrook at Commissioners	Base Line at Wharncliffe	Richmond at Queens	Cheapside at Richmond	Cheapside at Adelaide	Huron at Highbury	Oakville at Huron
A	B	C	D	F	G	H	H	I	J	G	E	D	C	B	A
LVS				LVS		ARR	LVS				LVS				ARR
								15 A	15 B						
-	-	-	-	-	-	-	-	-	-	-	-	-	-	5:58	6:04
-	-	-	-	-	-	-	-	-	-	-	-	-	-	6:25	6:31
-	-	-	-	-	-	-	6:02	-	6:06	6:18	6:30	6:35	6:39	6:47	6:53
-	-	-	-	-	-	-	-	-	-	-	-	-	-	7:25	7:31
6:04	6:10	6:18	6:20	6:28	6:40	6:50	6:50	6:55	-	7:10	7:20	7:25	7:29	7:37	7:43
6:31	6:37	6:45	6:47	6:55	7:05	7:14	7:29	-	7:33	7:45	7:55	8:00	8:04	8:12	8:19
7:01	7:07	7:15	7:17	7:25	7:35	7:45	7:45	7:57	-	8:14	8:25	8:30	8:34	8:42	8:49
7:31	7:37	7:45	7:47	7:55	8:05	8:15	8:26	-	8:30	8:44	8:55	9:00	9:04	9:12	9:19
7:53	7:59	8:08	8:11	8:20	8:30	8:40	8:40	8:57	-	9:14	9:25	9:30	9:34	9:42	9:49
-	-	-	-	-	-	-	-	-	-	-	-	-	-	10:05	10:12
8:24	8:30	8:39	8:42	8:50	9:00	9:10	9:26	-	9:30	9:44	9:55	10:00	10:04	10:12	10:18
8:53	8:59	9:08	9:11	9:20	9:30	9:40	9:40	9:46	-	10:03	10:15	10:21	10:25	10:33	10:39
-	-	-	-	-	-	-	-	-	10:09	10:23	10:35	10:41	10:45	10:53	10:59
9:24	9:30	9:39	9:42	9:50	10:00	10:10	10:25	-	10:29	10:43	10:55	11:01	11:05	11:13	11:19
9:53	9:59	10:09	10:12	10:20	10:30	10:40	10:40	10:46	-	11:03	11:15	11:21	11:25	11:33	11:39
10:12	10:18	10:28	10:31	10:40	10:50	11:00	11:05	-	11:09	11:23	11:35	11:41	11:45	11:53	11:59
10:28	10:34	10:44	10:47	10:55	11:05	11:15	11:15	11:26	-	11:43	11:55	12:01	12:05	12:13	12:19
10:47	10:53	11:03	11:06	11:15	11:25	11:35	11:46	-	11:50	12:03	12:15	12:21	12:25	12:33	12:39
11:08	11:14	11:24	11:27	11:35	11:45	11:55	11:55	12:05	-	12:23	12:35	12:41	12:45	12:53	12:59
11:27	11:33	11:43	11:46	11:55	12:05	12:15	12:26	-	12:30	12:43	12:55	1:01	1:05	1:13	1:19
11:47	11:53	12:03	12:06	12:15	12:26	12:36	12:36	12:45	-	1:03	1:15	1:21	1:25	1:33	1:39
12:07	12:13	12:23	12:26	12:35	12:46	12:56	1:06	-	1:10	1:23	1:35	1:41	1:45	1:53	1:59
12:27	12:33	12:43	12:46	12:55	1:06	1:16	1:16	1:25	-	1:43	1:55	2:01	2:05	2:14	2:21
12:47	12:53	1:03	1:06	1:15	1:26	1:36	1:46	-	1:50	2:03	2:15	2:22	2:26	2:35	2:42
1:07	1:13	1:23	1:26	1:35	1:46	1:56	1:56	2:06	-	2:23	2:35	2:42	2:46	2:55	3:02
1:27	1:33	1:43	1:46	1:55	2:06	2:16	2:26	-	2:30	2:43	2:55	3:02	3:06	3:15	3:22
1:47	1:53	2:03	2:06	2:15	2:26	2:37	2:37	2:46	-	3:03	3:15	3:22	3:26	3:35	3:42
2:06	2:13	2:23	2:26	2:35	2:46	2:56	3:06	-	3:10	3:23	3:35	3:42	3:46	3:55	4:02
2:26	2:33	2:43	2:46	2:55	3:06	3:17	3:17	3:26	-	3:43	3:55	4:02	4:06	4:15	4:22
2:46	2:53	3:03	3:06	3:15	3:26	3:36	3:46	-	3:50	4:03	4:15	4:22	4:26	4:35	4:42
3:06	3:13	3:23	3:26	3:35	3:46	3:57	3:57	4:06	-	4:23	4:35	4:42	4:46	4:55	5:02
3:26	3:33	3:43	3:46	3:55	4:06	4:16	4:26	-	4:30	4:43	4:55	5:02	5:06	5:15	5:22
3:46	3:53	4:03	4:06	4:15	4:26	4:37	4:37	4:46	-	5:03	5:15	5:22	5:26	5:35	5:42
4:06	4:13	4:23	4:26	4:35	4:46	4:56	5:01	-	5:05	5:18	5:30	5:37	5:41	-	5:57
4:26	4:33	4:43	4:46	4:55	5:06	5:17	5:17	5:26	-	5:43	5:55	6:02	6:06	6:14	6:21
4:46	4:53	5:03	5:06	5:15	5:26	5:36*	To Garage								
5:04	5:11	5:21	5:24	-	5:44	5:54	5:56	-	6:00	6:13	6:25	6:31	6:35	6:43	6:50
5:26	5:33	5:43	5:46	5:55	6:06	6:17	6:17	6:27	-	6:43	6:55	7:01	7:05	7:13	7:20
5:42	5:48*	To Garage													
5:58	6:04	6:14	6:17	6:25	6:35	6:46	6:56	-	7:00	7:13	7:25	7:31	7:35	7:43	7:50
6:27	6:33	6:43	6:46	6:55	7:05	7:16	7:16	7:27	-	7:43	7:55	8:01	8:05	8:13	8:20
6:58	7:04	7:14	7:17	7:25	7:35	7:46	7:56	-	8:00	8:13	8:25	8:31	8:35	8:43	8:50
7:27	7:33	7:43	7:46	7:55	8:05	8:16	8:16	8:27	-	8:43	8:55	9:01	9:05	9:13	9:19
7:58	8:04	8:14	8:17	8:25	8:35	8:46	8:54	-	8:58	9:09	9:20	9:26	9:30	9:38	9:44
8:27	8:33	8:43	8:46	8:55	9:05	9:14	9:14	9:25	-	9:39	9:50	9:56	10:00	10:08	10:14
8:55	9:01	9:09	9:12	9:20	9:30	9:40	9:49	-	9:53	10:04	10:15	10:21	10:25	10:33	10:39
9:25	9:31	9:39	9:42	9:50	10:00	10:09	10:09	10:20	-	10:34	10:45	10:51	10:55	11:03	11:09
9:50	9:56	10:04	10:07	10:15	10:25	10:35	10:44	-	10:48	10:59	11:10	11:16	11:20	11:28	11:34
10:15	10:21	10:29	10:32	10:40	10:50	10:59	10:59	11:10	-	11:24	11:35	11:41	11:45	11:53	11:59
10:45	10:51	10:59	11:02	11:10	11:20	11:30	11:39	-	11:43	11:54	12:05	12:11	12:15	12:22	12:27
11:11	11:17	11:25	11:28	11:36	11:46	11:55	11:55*	To Garage							
11:41	11:47	11:55	11:58	12:06	12:15	12:23	12:23	12:33	-	12:47	1:00	1:06	1:10	1:17	1:22
11:59	12:05*	To Garage													
12:33	12:39	12:47	12:50	12:58	1:10	1:18*	To Garage								
1:22	1:28*	To Garage													

ROUTE 15 - SUNDAY / HOLIDAY

SOUTHBOUND							NORTHBOUND								
Oakville at Huron	Huron at Highbury	Cheapside at Adelaide	Cheapside at Richmond	Richmond at King	Basel Lne at Wharncliffe	Westmount Mall	Westmount Mall	Dalhousie at Brixham	Cranbrook at Commissioners	Base Line at Wharncliffe	Richmond at Queens	Cheapside at Richmond	Cheapside at Adelaide	Huron at Highbury	Oakville at Huron
A	B	C	D	F	G	H	H	I	J	G	E	D	C	B	A
LVS				LVS		ARR	LVS				LVS				ARR
								15 A	15 B						
-	-	-	-	-	-	-	-	-	-	-	-	-	-	6:27	6:32
-	-	-	-	-	-	-	6:28	6:32	-	6:47	7:00	7:05	7:09	7:17	7:23
6:32	6:38	6:48	6:51	6:58	7:10	7:19	7:27	-	7:31	7:44	7:55	8:00	8:04	8:12	8:18
-	-	-	-	-	-	-	-	-	-	-	-	-	-	8:44	8:50
-	-	-	-	-	-	-	-	-	-	-	-	-	-	9:03	9:09
7:34	7:40	7:50	7:53	8:00	8:10	8:19	8:19	8:29	-	8:44	8:55	9:00	9:04	9:12	9:18
8:23	8:29	8:39	8:42	8:49	8:59	9:08	9:10	-	9:14	9:27	9:38	9:44	9:48	9:56	10:02
8:50	8:56	9:06	9:09	9:17	9:27	9:36	9:36	9:41	-	9:57	10:08	10:14	10:18	10:26	10:32
9:09	9:15	9:25	9:28	9:36	9:46	9:56	10:02	-	10:06	10:19	10:30	10:36	10:40	10:48	10:54
9:34	9:40	9:50	9:53	10:01	10:11	10:20	10:20	10:33	-	10:49	11:00	11:06	11:10	11:18	11:24
10:04	10:10	10:20	10:23	10:31	10:41	10:51	10:57	-	11:01	11:14	11:25	11:31	11:35	11:43	11:49
10:34	10:40	10:50	10:53	11:01	11:11	11:20	11:20	11:28	-	11:44	11:55	12:01	12:05	12:13	12:20
10:59	11:05	11:15	11:18	11:26	11:36	11:46	11:56	-	12:00	12:13	12:25	12:31	12:35	12:43	12:50
11:26	11:32	11:42	11:45	11:53	12:03	12:13	12:13	12:24	-	12:41	12:53	12:59	1:03	1:11	1:18
11:54	12:00	12:11	12:14	12:23	12:34	12:44	12:54	-	12:58	1:11	1:23	1:29	1:33	1:41	1:48
12:24	12:30	12:41	12:44	12:53	1:04	1:14	1:14	1:24	-	1:41	1:53	1:59	2:03	2:11	2:18
12:54	1:00	1:11	1:14	1:23	1:34	1:44	1:54	-	1:58	2:11	2:23	2:29	2:33	2:41	2:48
1:24	1:30	1:41	1:44	1:53	2:04	2:14	2:14	2:24	-	2:41	2:53	2:59	3:03	3:11	3:18
1:54	2:00	2:11	2:14	2:23	2:34	2:44	2:54	-	2:58	3:11	3:23	3:29	3:33	3:41	3:48
2:24	2:30	2:41	2:44	2:53	3:04	3:14	3:14	3:24	-	3:41	3:53	3:59	4:03	4:11	4:18
2:54	3:00	3:11	3:14	3:23	3:34	3:44	3:54	-	3:58	4:11	4:23	4:29	4:33	4:41	4:48
3:24	3:30	3:41	3:44	3:53	4:04	4:14	4:14	4:24	-	4:41	4:53	4:59	5:03	5:11	5:18
3:54	4:00	4:11	4:14	4:23	4:34	4:44	4:55	-	4:59	5:12	5:23	5:29	5:33	5:41	5:48
4:24	4:30	4:41	4:44	4:53	5:04	5:14	5:14	5:27	-	5:42	5:53	5:59	6:03	6:11	6:18
4:57	5:03	5:12	5:15	5:23	5:33	5:43	5:55	-	5:59	6:12	6:23	6:29	6:33	6:41	6:48
5:27	5:33	5:42	5:45	5:53	6:03	6:13	6:13	6:23	-	6:38	6:49	6:55	6:59	7:07	7:14
5:57	6:03	6:12	6:15	6:23	6:33	6:43	6:51	-	6:55	7:08	7:19	7:25	7:29	7:37	7:44
6:22	6:28	6:37	6:40	6:48	6:58	7:08	7:08	7:23	-	7:38	7:49	7:55	7:59	8:07	8:14
6:52	6:58	7:07	7:10	7:18	7:28	7:38	7:46	-	7:50	8:03	8:14	8:20	8:24	8:32	8:39
7:17	7:23	7:32	7:35	7:43	7:53	8:03	8:03	8:13	-	8:28	8:39	8:45	8:49	8:57	9:04
7:47	7:53	8:02	8:05	8:13	8:23	8:33	8:41	-	8:45	8:58	9:09	9:15	9:19	9:27	9:34
8:17	8:23	8:32	8:35	8:43	8:53	9:03	9:03	9:13	-	9:28	9:39	9:45	9:49	9:57	10:04
8:42	8:48	8:57	9:00	9:08	9:18	9:28	9:32	-	9:36	9:49	10:00	10:06	10:10	10:18	10:25
9:12	9:18	9:27	9:30	9:38	9:48	9:58	9:58	10:05	-	10:19	10:30	10:36	10:40	10:48	10:55
9:39	9:45	9:54	9:57	10:05	10:15	10:25	10:32	-	10:36	10:47	11:00	11:06	11:10	11:18	11:25
10:09	10:15	10:23	10:26	10:34	10:44	10:54	10:54	10:58*	To Garage						
10:33	10:39	10:47	10:50	10:58	11:10	11:20	11:20	-	11:24*	To Garage					
10:55	11:01*	To Garage													
11:25	11:31*	To Garage													

LEGEND			
*	Into Garage	+	Route Change

24 Talbot Village - Summerside



Map Legend			Effective: September 5th, 2021		
A	Timepoint		Shopping Centre	→	Route Direction
H	Hospital				

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ROUTE 24 - MONDAY TO FRIDAY

WESTBOUND							EASTBOUND							
Darnley at Meadowgate	Commissioners at Deveron	Commissioners at Deveron	Victoria Hospital Zone A	Commissioners at Wharncliffe	Wesmount Mall	Westmount Mall	Colonel Talbot at Southdale	Westmount Mall	Westmount Mall	Commissioners at Wharncliffe	Victoria Hospital Zone A	Commissioners at Deveron	Commissioners at Deveron	Darnley at Meadowgate
A	B	B	C	D	E	E	F	E	E	D	C	B	B	A
LVS	ARR	LVS			ARR	LVS		ARR	LVS			ARR	LVS	ARR
-	-	-	-	-	-	-				-	-	-	-	5:58
-	-	-	-	-	-	-	6:03	6:10	6:13	6:20	6:28	6:36	6:38	6:43
5:58	6:05	6:06	6:12	6:19	6:27	6:32	6:43	6:50	6:53	7:00	7:08	7:16	7:18	7:23
6:43	6:50	6:51	6:57	7:04	7:12	7:22	7:33	7:40	7:41	7:50	7:58	8:05	8:07	8:12
7:23	7:31	7:32	7:39	7:47	7:56	7:56	8:07	8:14	8:27	8:36	8:44	8:51	8:53	8:58
8:12	8:20	8:21	8:28	8:36	8:45	8:52	9:03	9:09	9:12	9:19	9:27	9:35	9:37	9:42
8:58	9:06	9:07	9:14	9:22	9:31	9:38	9:49	9:55	9:58	10:05	10:13	10:21	10:23	10:28
9:42	9:49	9:51	9:57	10:05	10:13	10:23	10:33	10:39	10:42	10:49	10:57	11:05	11:07	11:12
10:28	10:35	10:37	10:43	10:51	10:59	11:09	11:19	11:25	11:28	11:35	11:43	11:51	11:53	11:58
11:12	11:19	11:21	11:27	11:35	11:43	11:53	12:03	12:09	12:12	12:19	12:27	12:34	12:37	12:42
11:58	12:05	12:07	12:13	12:21	12:29	12:39	12:49	12:55	12:58	1:05	1:13	1:20	1:23	1:28
12:42	12:49	12:50	12:57	1:05	1:13	1:23	1:33	1:39	1:42	1:49	1:57	2:04	2:07	2:12
1:28	1:35	1:36	1:43	1:51	1:59	2:09	2:19	2:25	2:25	2:33	2:43	2:51	2:52	2:57
2:12	2:20	2:20	2:28	2:40	2:49	2:53	3:04	3:10	3:10	3:18	3:28	3:36	3:37	3:42
2:57	3:05	3:05	3:13	3:25	3:34	3:38	3:49	3:55	3:55	4:03	4:13	4:21	4:22	4:27
3:42	3:50	3:50	3:58	4:10	4:19	4:23	4:34	4:41	4:42	4:50	4:59	5:06	5:08	5:12
4:27	4:35	4:36	4:45	5:00	5:09	5:18	5:29	5:36	5:37	5:45	5:54	6:01	6:03	6:07
5:12	5:20	5:21	5:30	5:45	5:54	6:03	6:14	6:21	6:24	6:30	6:37	6:44	6:46	6:51
6:07	6:17	6:19	6:25	6:33	6:40	6:50	7:00	7:07	7:10	7:16	7:23	7:30	7:32	7:37
6:51	7:01	7:03	7:09	7:17	7:24	7:34	7:44	7:51	7:54	8:00	8:07	8:14	8:16	8:21
7:37	7:47	7:49	7:55	8:03	8:10	8:20	8:30	8:37	8:40	8:46	8:53	9:00	9:02	9:07
8:21*	To Garage													
9:07*	To Garage													

LEGEND			
*	Bus into Garage	+	Route Change
5:58	Bus goes into service at Commissioners and Highbury 8min earlier		
6:03	Bus goes into service at Tillman and Southdale 3min earlier		

use realtime.londontransit.ca for up-to-date arrivals

ROUTE 24 - SATURDAY

WESTBOUND							EASTBOUND							
Darnley at Meadowgate	Commissioners at Deveron	Commissioners at Deveron	Victoria Hospital Zone A	Commissioners at Wharncliffe	Wesmount Mall	Westmount Mall	Colonel Talbot at Southdale	Westmount Mall	Westmount Mall	Commissioners at Wharncliffe	Victoria Hospital Zone A	Commissioners at Deveron	Commissioners at Deveron	Darnley at Meadowgate
A	B	B	C	D	E	E	F	E	E	D	C	B	B	A
LVS	ARR	LVS			ARR	LVS		ARR	LVS			ARR	LVS	ARR
-	-	-	-	-	-	-	-	-	-	-	-	-	-	10:04
-	-	9:38	9:44	9:51	9:58	10:00	10:07	10:12	10:12	10:18	10:24	10:31	10:34	10:39
10:04	10:11	10:11	10:17	10:24	10:31	10:35	10:42	10:47	10:47	10:53	10:59	11:06	11:09	11:14
10:39	10:46	10:46	10:52	10:59	11:06	11:10	11:17	11:22	11:22	11:28	11:34	11:41	11:47	11:52
11:14	11:21	11:21	11:27	11:34	11:41	11:49	11:56	12:01	12:01	12:07	12:14	12:22	12:22	12:27
11:52	11:59	11:59	12:06	12:14	12:21	12:21	12:29	12:35	12:41	12:47	12:54	1:02	1:02	1:07
12:27	12:34	12:39	12:46	12:54	1:01	1:01	1:09	1:15	1:21	1:27	1:34	1:42	1:42	1:47
1:07	1:14	1:19	1:26	1:34	1:41	1:41	1:49	1:55	2:01	2:07	2:14	2:22	2:22	2:27
1:47	1:54	1:59	2:06	2:14	2:21	2:21	2:29	2:35	2:41	2:47	2:54	3:02	3:02	3:07
2:27	2:34	2:39	2:46	2:54	3:01	3:01	3:09	3:15	3:21	3:27	3:34	3:42	3:42	3:47
3:07	3:14	3:19	3:26	3:34	3:41	3:41	3:49	3:55	4:01	4:07	4:14	4:22	4:22	4:27
3:47	3:54	3:59	4:06	4:14	4:21	4:21	4:29	4:35	4:41	4:47	4:54	5:02	5:02	5:07
4:27	4:34	4:39	4:46	4:54	5:01	5:01	5:09	5:15	5:17	5:23	5:30	5:38*	To Garage	
5:07*	To Garage													

ROUTE 24 - SUNDAY / HOLIDAY

WESTBOUND							EASTBOUND							
Darnley at Meadowgate	Commissioners at Deveron	Commissioners at Deveron	Victoria Hospital Zone A	Commissioners at Wharncliffe	Wesmount Mall	Westmount Mall	Colonel Talbot at Southdale	Westmount Mall	Westmount Mall	Commissioners at Wharncliffe	Victoria Hospital Zone A	Commissioners at Deveron	Commissioners at Deveron	Darnley at Meadowgate
A	B	B	C	D	E	E	F	E	E	D	C	B	B	A
LVS	ARR	LVS			ARR	LVS		ARR	LVS			ARR	LVS	ARR
-	-	-	-	-	-	-	-	-	-	-	-	-	-	10:04
-	-	9:38	9:44	9:51	9:58	10:00	10:07	10:12	10:12	10:18	10:24	10:31	10:34	10:39
10:04	10:11	10:11	10:17	10:24	10:31	10:35	10:42	10:47	10:47	10:53	10:59	11:06	11:09	11:14
10:39	10:46	10:46	10:52	10:59	11:06	11:10	11:17	11:22	11:22	11:28	11:34	11:41	11:47	11:52
11:14	11:21	11:21	11:27	11:34	11:41	11:49	11:56	12:01	12:01	12:07	12:14	12:22	12:22	12:27
11:52	11:59	11:59	12:06	12:14	12:21	12:21	12:29	12:35	12:41	12:47	12:54	1:02	1:02	1:07
12:27	12:34	12:39	12:46	12:54	1:01	1:01	1:09	1:15	1:21	1:27	1:34	1:42	1:42	1:47
1:07	1:14	1:19	1:26	1:34	1:41	1:41	1:49	1:55	2:01	2:07	2:14	2:22	2:22	2:27
1:47	1:54	1:59	2:06	2:14	2:21	2:21	2:29	2:35	2:41	2:47	2:54	3:02	3:02	3:07
2:27	2:34	2:39	2:46	2:54	3:01	3:01	3:09	3:15	3:21	3:27	3:34	3:42	3:42	3:47
3:07	3:14	3:19	3:26	3:34	3:41	3:41	3:49	3:55	4:01	4:07	4:14	4:22	4:22	4:27
3:47	3:54	3:59	4:06	4:14	4:21	4:21	4:29	4:35	4:41	4:47	4:54	5:02	5:02	5:07
4:27	4:34	4:39	4:46	4:54	5:01	5:01	5:09	5:15	5:17	5:23	5:30	5:38*	To Garage	
5:07*	To Garage													

LEGEND			
*	Bus into Garage	+	Route Change
0:00	Bus goes into service at Commissioners and Highbury 8min earlier		

28 WHITE OAKS MALL-LAMBETH

Map Legend

- A — Timepoint
- Shopping Centre
- Route Direction

Effective: September 5th, 2021

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28 WHITE OAKS MALL-LAMBETH

Map Legend

- A — Timepoint
- Shopping Centre
- Route Direction

Effective: September 5th, 2021

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use realtime.londontransit.ca for up-to-date arrivals

ROUTE 28 - MONDAY TO FRIDAY

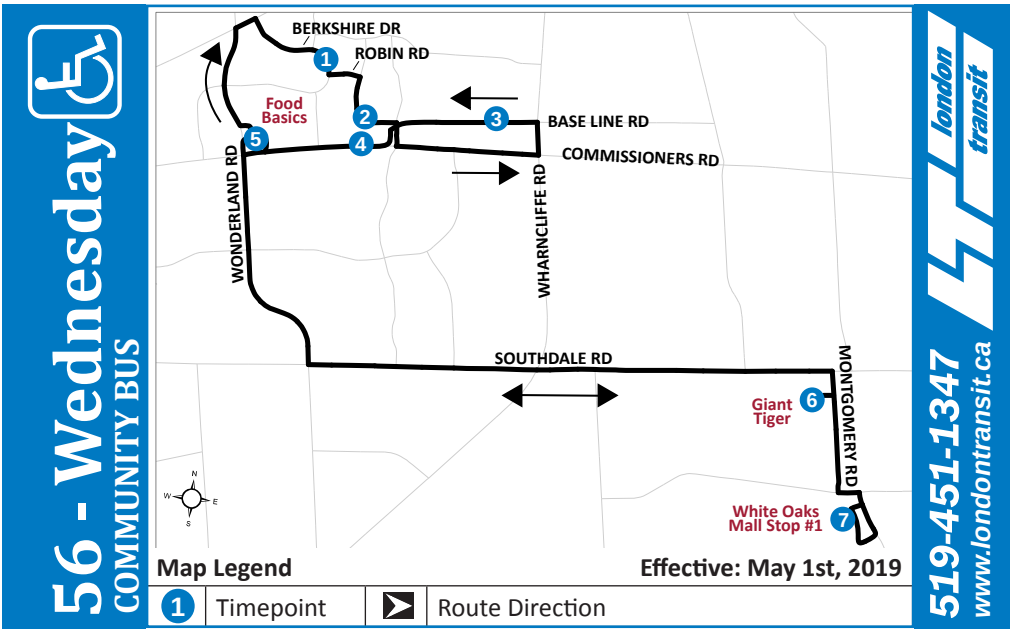
SOUTHBOUND				NORTHBOUND			
White Oaks Mall	White Oak at Bradley	Main at Campbell	Sunray at Colonel Talbot	Sunray at Colonel Talbot	Main at Campbell	White Oak at Bradley	White Oaks Mall
A	B	C	D	D	C	B	A
LVS			ARR	LVS			ARR
-	-	-	-	-	-	6:26	6:32
6:35	6:41	6:49	6:51	6:51	6:53	7:01	7:07
7:14	7:20	7:28	7:31	7:31	7:33	7:41	7:47
7:54	8:00	8:08	8:11	8:11	8:13	8:21	8:27
8:34	8:40	8:48	8:51	8:51	8:54	9:02	9:08
9:14	9:20	9:28	9:31	9:31	9:34	9:42	9:48
9:54	10:00	10:08	10:11	10:11	10:14*	To Garage	
No Service Until PM							
-	-	-	-	-	-	2:36	2:42
2:48	2:54	3:02	3:05	3:05	3:08	3:16	3:22
3:28	3:34	3:42	3:45	3:45	3:48	3:56	4:02
4:08	4:14	4:22	4:25	4:25	4:28	4:36	4:42
4:48	4:54	5:02	5:05	5:05	5:08	5:16	5:22
5:28	5:34	5:42	5:45	5:45	5:48	5:56	6:02
6:08	6:14	6:22	6:25	6:25	6:28	6:36	6:42
6:48	6:54	7:02	7:05	7:05	7:08*	To Garage	

LEGEND

+	Route Change	*	Bus into Garage

SERVICE NOTE:

Route 28 operates on a modified weekday peak period service only from 6:30AM – 10:30AM and 2:30PM – 7:00PM.



Community Bus

Routings are specially designed to serve the needs of seniors and persons with mobility challenges. The vehicle is fully accessible with a low floor and no steps.

Please note that only locations listed on schedule will be serviced. There are no "courtesy" stops.

Route 56 - Community Bus (Wednesday's Only)

500/550 Berkshire	285/301/303 Base Line	30/90 Base Line	303/331 Commissioners	Food Basics	Giant Tiger	White Oaks Mall Stop #1	White Oaks Mall Stop #1	Giant Tiger	Food Basics
1	2	3	4	5	6	7	7	6	5
						ARR	LVS		
10:00	10:03	10:13	10:19	10:24	10:36	10:42	10:50	10:58	11:13
11:19	11:22	11:32	11:38	11:43	11:55	12:01	12:09	12:17	12:32
12:38	12:41	12:51	12:57	1:02	1:14	1:20	1:28	1:36	1:51
1:57	1:59	2:05	2:09	*DROPOFFS ONLY*					

Appendix B – Collision Data

Collision Details Report

From: **To:**

Location ..... BOSTWICK RD @ PACK RD **Municipality.....** LONDON

Traffic Control.... Stop sign **Total Collisions....** 14

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
15-76081	2015-Jul-15, Wed,16:57	Clear	Turning movement	Non-fatal injury	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Improper lane change	
Comments:					South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly	
16-24227s	2016-Mar-10, Thu,07:10	Rain	Rear end	Non-reportable	East	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Other	
Comments:					East	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
16-113727s	2016-Oct-25, Tue,16:30	Clear	Angle	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					East	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way	
17300	2016-Dec-31, Sat,19:00	Clear	SMV other	P.D. only	South	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	48: Deer										
17-855922s	2017-Dec-24, Sun,19:20	Snow	Angle	Non-reportable	South	Packed snow	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					East	Packed snow	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
18-854747s	2018-Jun-19, Tue,08:05	Clear	Turning movement	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly	
18-855163s	2018-Jul-05, Thu,07:30	Clear	Rear end	Non-reportable	East	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
19-851639s	2019-Feb-17, Sun,00:00	Snow	Angle	Non-reportable	East	Packed snow	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North	Packed snow	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly	
19-61729	2019-Jun-27, Thu,14:27	Clear	Turning movement	Non-fatal injury	North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way	
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	

19-856246s	2019-Aug-01, Thu,00:00	Clear	Other	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Reversing	Automobile, station wagon	Other motor vehicle	Other
19-101926	2019-Oct-05, Sat,00:00	Clear	Angle	Non-fatal injury	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
20-8760	2020-Jan-25, Sat,02:39	Rain	Angle	P.D. only	West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control
Comments:					South	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
20-851707s	2020-Feb-16, Sun,15:00	Clear	Other	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
20-852967s	2020-Apr-24, Fri,19:45	Clear	Sideswipe	Non-reportable	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly

Collision Details Report

From: **To:**

Location ..... BOSTWICK RD btwn PACK RD & SOUTHDALE RD W **Municipality.....** LONDON

Traffic Control.... No control **Total Collisions....** 21

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
15-100165s	2015-Sep-14, Mon,03:36	Clear	SMV other	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	Deer										
15-133750s	2015-Dec-10, Thu,19:10	Clear	SMV other	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	Deer										
15-5595s	2015-Jan-14, Wed,18:30	Clear	SMV other	Non-reportable	South	Slush	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	Deer										
17-300s	2017-Dec-31, Sun,19:00	Clear	SMV other	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	DEER										
17-32413	2017-Apr-01, Sat,12:47	Clear	SMV other	Non-fatal injury	North	Dry	Going ahead	Passenger van	Pole (utility, power)	Other	
Comments:											
17-34644s	2017-Apr-07, Fri,06:15	Clear	SMV other	Non-reportable	South	Wet	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	Deer										
17-42280	2017-Apr-28, Fri,04:20	Clear	SMV other	P.D. only	North	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	DEER										
17-850332s	2017-May-15, Mon,16:10	Clear	SMV other	Non-reportable	North	Dry	Going ahead	Pick-up truck	Debris falling off vehicle	Driving properly	
Comments:											
17-853520s	2017-Oct-06, Fri,21:50	Clear	SMV other	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	Deer										
17-855651s	2017-Dec-17, Sun,17:35	Clear	SMV other	Non-reportable	South	Dry	Slowing or stopping	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	Deer										

18-123115	2018-Nov-16, Fri,04:04	Snow	Approaching	Non-fatal injury	North	Wet	Going ahead	Automobile, station wagon			
Comments:					South	Wet	Going ahead	Automobile, station wagon	Ditch	Driving properly	
18-858456s	2018-Nov-04, Sun,22:40	Clear	SMV other	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	48: Deer										
18-858513s	2018-Nov-06, Tue,19:15	Clear	SMV other	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	48: Deer										
18-859039s	2018-Nov-20, Tue,00:00	Clear	SMV other	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	Deer										
18-859896s	2018-Dec-14, Fri,06:25	Rain	SMV other	Non-reportable	South	Wet	Going ahead	Pick-up truck	Animal - wild	Driving properly	
Comments:	Deer										
19-856392s	2019-Aug-08, Thu,00:00	Clear	Rear end	Non-reportable	North	Dry	Slowing or stopping	Pick-up truck	Other motor vehicle	Driving properly	
Comments:					North	Dry	Going ahead	Delivery van	Other motor vehicle	Driving properly	
19-859420s	2019-Nov-16, Sat,06:35	Clear	SMV other	Non-reportable	North	Dry	Going ahead	Pick-up truck	Animal - wild	Driving properly	
Comments:	Deer										
19-860360s	2019-Dec-11, Wed,17:30	Clear	SMV other	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	Deer										
20-851131s	2020-Jan-31, Fri,16:00	Snow	SMV other	Non-reportable	North	Wet	Turning right	Pick-up truck	Skidding/sliding	Lost control	
Comments:											
20-853272s	2020-May-22, Fri,20:40	Clear	SMV other	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	48: Wild animal										
20855361	2020-Sep-16, Wed,18:30	Clear	SMV other	P.D. only	South	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	48: Wild animal										

Location ..... BOSTWICK RD btwn PACK RD & UNKNOWN **Municipality.....** LONDON

Traffic Control.... No control **Total Collisions....** 12

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
15-004509s	2015-Jan-12, Mon,18:40	Clear	SMV other	Non-reportable	South	Wet	Slowing or stopping	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	Deer										

16-103548s	2016-Sep-28, Wed,19:25	Rain	SMV other	Non-reportable	North	Wet	Going ahead	Automobile, station wagon	Animal - wild	Driving properly
Comments:	DEER									
16-129956s	2016-Dec-08, Thu,17:15	Clear	SMV other	Non-reportable	North	Loose snow	Going ahead	Automobile, station wagon	Animal - wild	Driving properly
Comments:	DEER									
16-136691	2016-Dec-29, Thu,01:50	Snow	SMV other	P.D. only	South	Loose snow	Going ahead	Automobile, station wagon	Animal - wild	Other
Comments:	WILD ANIMAL									
17-6767s	2017-Jan-20, Fri,07:00	Fog, mist, smoke, dust	SMV other	Non-reportable	North	Wet	Going ahead	Pick-up truck	Animal - wild	Driving properly
Comments:	Deer									
17-854915s	2017-Nov-24, Fri,23:30	Clear	SMV other	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly
Comments:	Deer									
17-855502s	2017-Dec-14, Thu,03:00	Snow	SMV other	Non-reportable	North	Loose snow	Going ahead	Pick-up truck	Animal - wild	Driving properly
Comments:	Deer									
18-110915	2018-Oct-14, Sun,00:25	Clear	SMV other	P.D. only	North	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly
Comments:	Deer									
18-80213	2018-Jul-31, Tue,03:20	Clear	SMV other	P.D. only	North	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly
Comments:	Deer									
18-855068s	2018-Jun-30, Sat,18:00	Clear	Rear end	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-850908s	2019-Jan-28, Mon,00:00	Snow	SMV other	Non-reportable	South	Ice	Going ahead	Automobile, station wagon	Ran off road	Driving properly
Comments:										
19-857880s	2019-Sep-30, Mon,23:20	Clear	SMV other	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly
Comments:	Deer									

Location ..... BOSTWICK RD btwn UNKNOWN & WHARNCLIFFE RD S **Municipality.....** LONDON

Traffic Control.... No control **Total Collisions....** 14

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped

15126142	2015-Nov-19, Thu,18:30	Clear	SMV other	P.D. only	South	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly
Comments:	48: Deer									
15-133173s	2015-Dec-09, Wed,19:00	Clear	SMV other	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Animal - wild	Driving properly
Comments:	Deer									
15-54798	2015-May-23, Sat,01:30	Clear	SMV other	P.D. only	South	Dry	Turning left	Automobile, station wagon	Ran off road	Exceeding speed limit
Comments:										
16-121245s	2016-Nov-14, Mon,06:30	Clear	SMV other	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly
Comments:	DEER									
18-107048	2018-Oct-03, Wed,21:34	Fog, mist, smoke, dust	SMV other	Non-fatal injury	East	Dry	Other	Automobile, station wagon	Ran off road	Driving properly
Comments:	46: Animal crossed in front of V1					Dry				
1810748	2018-Oct-03, Wed,21:34	Clear	SMV other	P.D. only	East	Dry	Going ahead	Automobile, station wagon	Ran off road	Driving properly
Comments:										
18-852501s	2018-Mar-17, Sat,23:30	Clear	Rear end	Non-reportable	North	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
18-857734s	2018-Oct-14, Sun,01:00	Clear	SMV other	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly
Comments:	Deer									
19-117072	2019-Nov-17, Sun,22:45	Clear	SMV other	Non-fatal injury	North	Dry	Going ahead	Automobile, station wagon	Ran off road	Lost control
Comments:										
19-857382s	2019-Sep-06, Fri,06:00		Approaching	Non-reportable	South	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Lost control
Comments:					North	Wet				
20109291	2020-Nov-08, Sun,15:33	Clear	SMV other	Non-fatal injury	South	Dry	Going ahead	Automobile, station wagon	Ran off road	Lost control
Comments:										
20115352	2020-Nov-25, Wed,11:53	Clear	SMV other	P.D. only	South	Wet	Unknown	Automobile, station wagon	Ran off road	
Comments:										
20-851296s	2020-Feb-04, Tue,22:30	Clear	Sideswipe	Non-reportable	East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East					

20852780	2020-Apr-01, Wed,23:00	Clear	SMV other	P.D. only	North	Dry		Going ahead	Automobile, station wagon	Animal - wild	Driving properly

Comments: 48: Deer

Collision Details Report

From: **To:**

Location ..... EXETER RD btwn BOSTWICK RD & WHARNCLIFFE RD S **Municipality.....** LONDON

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

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
19-860669s	2019-Dec-19, Thu,17:15	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					West	Dry					

Location ..... EXETER RD btwn WHARNCLIFFE RD S & WONDERLAND RD S **Municipality.....** LONDON

Traffic Control.... No control **Total Collisions....** 6

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
16-101447s	2016-Sep-23, Fri,13:00	Clear	SMV other	Non-reportable	East	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	DEER										
16-108494s	2016-Oct-09, Sun,21:30	Clear	SMV other	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	DEER										
17-22413s	2017-Mar-04, Sat,14:08	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					East						
18-860236s	2018-Dec-23, Sun,00:00	Clear	SMV other	Non-reportable	West	Wet	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	Deer										
19-855240s	2019-Jun-25, Tue,00:00	Clear	Turning movement	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					West		Making "U" turn	Automobile, station wagon	Other motor vehicle	Driving properly	
20856284	2020-Oct-29, Thu,21:30	Clear	SMV other	P.D. only	East	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	48: Wild animal										

Collision Details Report

From: **To:**

Location ..... BOSTWICK RD @ SOUTHDALE RD W **Municipality.....** LONDON

Traffic Control.... Traffic signal **Total Collisions....** 30

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
1521645	2015-Feb-26, Thu,16:35	Clear	Rear end	Non-reportable	South	Dry	Stopped	Passenger van	Other motor vehicle	Driving properly	
Comments:					South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle		
15-56306s	2015-May-28, Thu,11:10	Clear	Rear end	Non-reportable	East	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Other	
Comments:					East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
15-57251	2015-May-30, Sat,10:43	Clear	Turning movement	Non-fatal injury	West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn	
Comments:					East	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly	
1578009	2015-Jul-20, Mon,16:45	Clear	Sideswipe	Non-reportable	West	Dry	Stopped		Other motor vehicle	Driving properly	
Comments:					West	Dry	Going ahead		Other motor vehicle		
15-81231	2015-Jul-28, Tue,16:24	Clear	Rear end	Non-fatal injury	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Other	
Comments:					West	Dry	Slowing or stopping	Passenger van	Other motor vehicle	Driving properly	
15-122351s	2015-Nov-10, Tue,17:32	Rain	Rear end	Non-reportable	East	Wet	Slowing or stopping	Pick-up truck	Other motor vehicle	Speed too fast for condition	
Comments:					East	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
16-70395s	2016-Jul-08, Fri,10:10	Clear	Rear end	Non-reportable	West	Dry	Going ahead	Pick-up truck	Other motor vehicle	Following too close	
Comments:					West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
16-116038s	2016-Oct-31, Mon,17:10	Clear	Rear end	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close	
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
17-2622s	2017-Jan-08, Sun,09:55	Snow	Rear end	Non-reportable	South	Ice	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					South	Ice	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Lost control	

17-14760s	2017-Feb-11, Sat,13:00	Clear	Rear end	Non-reportable	East	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
17-19565s	2017-Feb-24, Fri,17:30	Rain	Rear end	Non-reportable	East	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
17-42449s	2017-Apr-28, Fri,13:30	Clear	Turning movement	Non-reportable	East	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
Comments:					East	Dry	Turning left	Unknown	Other motor vehicle	Driving properly
17-42602s	2017-Apr-28, Fri,14:00	Clear	Other	Non-reportable	South	Dry	Reversing	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
17-850582s	2017-May-25, Thu,10:15	Rain	Rear end	Non-reportable	West	Wet	Going ahead	Pick-up truck	Other motor vehicle	Other
Comments:					West		Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
17-61502	2017-Jun-19, Mon,18:16	Rain	Rear end	Non-fatal injury	East	Wet	Going ahead	Pick-up truck	Other motor vehicle	Other
Comments:					East	Wet	Going ahead	Passenger van	Other motor vehicle	Driving properly
17-109343	2017-Oct-21, Sat,22:48	Clear	Turning movement	P.D. only	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-850057s	2018-Jan-03, Wed,09:15	Clear	Rear end	Non-reportable	East	Other	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					East	Wet	Stopped	Pick-up truck	Other motor vehicle	Driving properly
18-859711s	2018-Dec-08, Sat,14:30	Clear	Rear end	Non-reportable	East	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
19-850819s	2019-Jan-26, Sat,08:50	Clear	Rear end	Non-reportable	East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
19-852022s	2019-Mar-01, Fri,00:00	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry				

19-852061s	2019-Mar-03, Sun,00:00	Clear	Rear end	Non-reportable	East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close
19-853320s	2019-Apr-16, Tue,00:00	Rain	Turning movement	Non-reportable	North	Wet	Going ahead		Other motor vehicle	Driving properly
Comments:					South	Wet	Turning left			
19-858167s	2019-Oct-10, Thu,16:25	Clear	Rear end	Non-reportable	East	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					East	Dry				
19-858294s	2019-Oct-15, Tue,00:00	Clear	Angle	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
19-858350s	2019-Oct-16, Wed,00:00	Rain	Rear end	Non-reportable	West	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
19-858361s	2019-Oct-17, Thu,00:00	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
20-850080s	2020-Jan-04, Sat,17:20	Clear	Rear end	Non-reportable	West	Wet	Slowing or stopping	Truck-other	Other motor vehicle	Driving properly
Comments:					West	Wet	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
20856571	2020-Nov-11, Wed,10:00	Clear	Rear end	P.D. only	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
20856949	2020-Dec-01, Tue,08:00	Snow	Angle	P.D. only	South	Loose snow	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Loose snow	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
20857082	2020-Dec-04, Fri,16:45	Clear	Turning movement	P.D. only	West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly

Collision Details Report

From: **To:**

Location ..... PINE VALLEY BLVD @ SOUTHDALE RD W **Municipality.....** LONDON

Traffic Control.... Traffic signal **Total Collisions....** 34

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
15-258823	2015-Mar-10, Tue,14:30	Clear	SMV other	Non-fatal injury	West	Wet	Turning right		Pedestrian	Improper turn	1
Comments:											
1525823	2015-Mar-10, Tue,14:30	Clear	SMV other	Non-fatal injury	West	Wet	Turning right		Pedestrian	Improper turn	
Comments:						Wet					
15-49615	2015-May-11, Mon,16:12	Clear	Angle	Non-fatal injury	East	Dry	Going ahead	Bicycle	Other motor vehicle	Disobeyed traffic control	
Comments:					South	Dry	Going ahead	Automobile, station wagon	Cyclist	Driving properly	
15-112584	2015-Oct-15, Thu,21:25	Clear	SMV other	Non-fatal injury	East	Dry	Going ahead	Automobile, station wagon	Pedestrian	Driving properly	1
Comments:											
16-3712	2016-Jan-11, Mon,13:58	Snow	Angle	Non-fatal injury	West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control	
Comments:					South	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
16-4027	2016-Jan-12, Tue,12:55	Snow	Angle	Non-fatal injury	East	Loose snow	Going ahead	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control	
Comments:					South	Packed snow	Going ahead	Pick-up truck	Other motor vehicle	Driving properly	
16-18450s	2016-Feb-22, Mon,17:05	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close	
16-81345s	2016-Aug-03, Wed,18:40	Clear	Angle	Non-reportable	North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					East	Dry					
16-93384s	2016-Sep-03, Sat,16:30	Clear	Sideswipe	Non-reportable	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					South	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Driving properly	
17-3315s	2017-Jan-10, Tue,12:30	Snow	SMV other	Non-reportable	West	Slush	Slowing or stopping	Pick-up truck	Curb	Lost control	
Comments:											

17-36817s	2017-Apr-13, Thu,12:45	Clear	Angle	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
17-89901	2017-Sep-02, Sat,10:32	Clear	Rear end	Non-fatal injury	East	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control
Comments:					East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
17-101007	2017-Sep-30, Sat,06:11	Clear	SMV other	P.D. only	North	Dry	Turning right	Truck - tractor	Pole (utility, power)	Improper turn
Comments:										
18-851973s	2018-Feb-26, Mon,08:30	Clear	Rear end	Non-reportable	East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Lost control
18-853076s	2018-Apr-12, Thu,00:01	Clear	Sideswipe	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry				
18-854083s	2018-May-23, Wed,15:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry				
18-68869	2018-Jul-03, Tue,11:49	Clear	Turning movement	Non-fatal injury	West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-855398s	2018-Jul-14, Sat,10:45	Rain	Angle	Non-reportable	West	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
18-855673s	2018-Jul-25, Wed,14:45	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-857194s	2018-Sep-22, Sat,14:10	Clear	Approaching	Non-reportable	South	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
18-859470s	2018-Dec-01, Sat,00:00	Rain	Rear end	Non-reportable	West	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Wet				
18-860170s	2018-Dec-21, Fri,00:00	Clear	Turning movement	Non-reportable	West	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly

18-136851	2018-Dec-24, Mon,00:00	Clear	Rear end	Non-fatal injury	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	
Comments:					West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
19-851250s	2019-Feb-05, Tue,00:00	Clear	Turning movement	Non-reportable	West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-854159s	2019-May-17, Fri,00:00	Clear	Angle	Non-reportable	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-56268	2019-Jun-13, Thu,00:00	Rain	Rear end	Non-fatal injury	East	Wet	Going ahead	Truck - tractor	Other motor vehicle	Following too close
Comments:					East	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
19-97394	2019-Sep-24, Tue,00:00	Clear	SMV other	Non-fatal injury	West	Dry	Turning right	Automobile, station wagon	Pedestrian	Improper turn
Comments:										
19-859764s	2019-Nov-24, Sun,16:15	Clear	Turning movement	Non-reportable	East	Dry	Turning left	Pick-up truck	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Truck-other	Other motor vehicle	Driving properly
19-860898s	2019-Dec-23, Mon,14:00	Clear	Rear end	Non-reportable	South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
20-852171s	2020-Feb-28, Fri,21:45	Snow	Sideswipe	Non-reportable	West	Loose snow	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West		Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
20-854008s	2020-Jul-06, Mon,16:00	Clear	Turning movement	Non-reportable	East	Dry	Turning left	Pick-up truck	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
20855267	2020-Sep-12, Sat,14:35	Clear	Angle	P.D. only	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
20855735	2020-Oct-04, Sun,13:00	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly

20105342	2020-Oct-29, Thu,14:40	Clear	Angle	Non-fatal injury	North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control

Collision Details Report

From: **To:**

Location ..... SOUTHDALE RD W btwn BOSTWICK RD & PINE VALLEY BLVD **Municipality.....** LONDON

Traffic Control.... No control **Total Collisions....** 34

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
15-139805	2015-Dec-29, Tue,08:00	Rain	SMV other	Non-fatal injury	East	Wet	Other	Automobile, station wagon	Pole (utility, power)	Lost control	
Comments:											
16-121967s	2016-Nov-16, Wed,17:40	Clear	Rear end	Non-reportable	West	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close	
Comments:					West		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
16-63927	2016-Jun-22, Wed,14:58	Clear	Approaching	Non-fatal injury	East	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					West	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly	
1717090	2017-Feb-17, Fri,16:10	Clear	Rear end	P.D. only	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					West		Going ahead	Pick-up truck	Other motor vehicle	Following too close	
17-32233s	2017-Mar-31, Fri,22:00	Clear	Rear end	Non-reportable	West	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					West		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
17-852209s	2017-Aug-13, Sun,13:30	Clear	Angle	Non-reportable	North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way	
Comments:					East		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
17-854369s	2017-Nov-06, Mon,15:00	Clear	Angle	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
18-125071	2018-Nov-21, Wed,17:00	Snow	Rear end	P.D. only	East	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close	
Comments:					East	Wet	Slowing or stopping	Delivery van	Other motor vehicle	Driving properly	
18-853807s	2018-May-12, Sat,17:00	Clear	Angle	Non-reportable	North	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Improper turn	
Comments:					West	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly	

18-854054s	2018-May-22, Tue,22:15	Clear	SMV other	Non-reportable	East	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly
Comments:	Raccoon									
18-857563s	2018-Oct-05, Fri,17:30	Clear	Rear end	Non-reportable	East	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
Comments:					East		Going ahead	Pick-up truck	Other motor vehicle	Driving properly
18-858358s	2018-Nov-01, Thu,10:00	Rain	SMV other	Non-reportable	South	Wet	Going ahead	Automobile, station wagon	Other	Other
Comments:	48: Cement pole									
18-859173s	2018-Nov-23, Fri,18:00	Clear	Rear end	Non-reportable	West	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Loose sand or gravel	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
18-859680s	2018-Dec-07, Fri,17:00	Clear	Rear end	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
18-859722s	2018-Dec-08, Sat,00:00	Clear	SMV other	Non-reportable	West	Ice	Slowing or stopping	Automobile, station wagon	Pole (utility, power)	Driving properly
Comments:										
18-859858s	2018-Dec-12, Wed,00:00	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West		Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
18-860111s	2018-Dec-19, Wed,00:00	Clear	Angle	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-860285s	2018-Dec-26, Wed,00:00	Clear	Rear end	Non-reportable	West	Wet	Slowing or stopping	Pick-up truck	Other motor vehicle	Driving properly
Comments:					West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Other
19-108976	2019-Oct-25, Fri,00:00	Clear	Rear end	Non-fatal injury	East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Other
Comments:					East	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
19-126280	2019-Dec-13, Fri,18:40	Clear	Sideswipe	P.D. only	East	Dry	Going ahead	Pick-up truck	Other motor vehicle	Improper lane change
Comments:					East	Dry	Going ahead	Automobile, station wagon		Driving properly
19-853096s	2019-Apr-09, Tue,00:00	Clear	Sideswipe	Non-reportable	East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Changing lanes	Truck - closed	Other motor vehicle	Driving properly

19-853310s	2019-Apr-16, Tue,00:00	Rain	Rear end	Non-reportable	East	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Wet				
19-853910s	2019-May-08, Wed,00:00	Rain	SMV other	Non-reportable	West	Wet	Going ahead	Automobile, station wagon	Animal - wild	Driving properly
Comments:	Deer									
19-854338s	2019-May-25, Sat,00:00	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-858266s	2019-Oct-13, Sun,00:00	Clear	Sideswipe	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West					
19-859309s	2019-Nov-13, Wed,22:00	Clear	SMV other	Non-reportable	West	Loose snow	Going ahead	Automobile, station wagon	Animal - wild	Driving properly
Comments:	Deer									
19-860668s	2019-Dec-19, Thu,17:30	Clear	Rear end	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Lost control
Comments:					West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
19-99692	2019-Sep-30, Mon,10:10	Clear	Turning movement	Non-fatal injury	West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
2083998	2020-Aug-31, Mon,12:49	Clear	Angle	Non-fatal injury	North	Dry	Turning right	Automobile, station wagon	Cyclist	Failed to yield right-of-way
Comments:					West		Going ahead	Bicycle	Other motor vehicle	Driving properly
20-850239s	2020-Jan-09, Thu,18:15	Rain	Rear end	Non-reportable	West	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
20-850661s	2020-Jan-17, Fri,17:10	Clear	Rear end	Non-reportable	East	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
20-851564s	2020-Feb-10, Mon,16:00	Clear	Sideswipe	Non-reportable	East	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
20-851597s	2020-Feb-13, Thu,10:20	Snow	Rear end	Non-reportable	West	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly

20-851899s	2020-Feb-22, Sat,12:15	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					West		Slowing or stopping	Pick-up truck	Other motor vehicle	Driving properly	

Location ..... SOUTHDALE RD W btwn PINE VALLEY BLVD & WONDERLAND RD S **Municipality.....** LONDON

Traffic Control.... No control **Total Collisions....** 12

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
15-113626	2015-Oct-19, Mon,02:23	Clear	SMV other	Non-fatal injury	West	Dry	Pulling onto shoulder or toward curb	Automobile, station wagon	Curb	Lost control	
Comments:											
15-18404s	2015-Feb-18, Wed,15:30	Clear	Sideswipe	Non-reportable	West	Wet	Changing lanes	Automobile, station wagon	Other motor vehicle	Improper lane change	
Comments:					West		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
15-48501s	2015-May-08, Fri,17:20	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					West		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
16-52234s	2016-May-25, Wed,18:00	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					East	Dry					
17-116863	2017-Nov-11, Sat,13:35	Clear	Angle	P.D. only	East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle		
Comments:					North	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Improper turn	
17-851174s	2017-Jun-21, Wed,16:25	Clear	Rear end	Non-reportable	West	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly	
Comments:					West						
17-851929s	2017-Jul-25, Tue,22:15	Clear	Other	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					South						
17-855838s	2017-Dec-21, Thu,19:20	Snow	Rear end	Non-reportable	West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					West	Wet					
18-859095s	2018-Nov-22, Thu,14:32	Clear	Sideswipe	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					West	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly	

19-857524s	2019-Sep-19, Thu,12:30	Clear	Rear end	Non-reportable	West	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
20-854203s	2020-Jul-16, Thu,11:30	Snow	Sideswipe	Non-reportable	East	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East					
20855933A	2020-Oct-14, Wed,17:20	Clear	Rear end	P.D. only	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West		Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly

Collision Details Report

From: **To:**

Location ..... EXETER RD @ WHARNCLIFFE RD S **Municipality.....** LONDON

Traffic Control.... Traffic signal **Total Collisions....** 15

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
15-14047s	2015-Feb-06, Fri,19:30	Clear	Turning movement	Non-reportable	East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn	
16-10205s	2016-Jan-30, Sat,10:55	Clear	Angle	Non-reportable	North	Wet	Going ahead	Pick-up truck	Other motor vehicle	Driving properly	
Comments:					West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control	
16-48702s	2016-May-16, Mon,17:05	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					South	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly	
16-84156	2016-Aug-10, Wed,22:25	Clear	Rear end	P.D. only	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Other	
Comments:					West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
16-127412s	2016-Dec-01, Thu,15:40	Clear	Turning movement	Non-reportable	South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly	
17-851657s	2017-Jul-13, Thu,11:45	Clear	Angle	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control	
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
17-852654s	2017-Sep-02, Sat,17:00	Rain	Rear end	Non-reportable	West	Wet	Going ahead	Automobile, station wagon	Skidding/sliding	Following too close	
Comments:					West	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
17-853216s	2017-Sep-25, Mon,20:30	Clear	Sideswipe	Non-reportable	East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					East	Dry	Changing lanes	Passenger van	Other motor vehicle	Improper lane change	
17-855366s	2017-Dec-11, Mon,07:30	Clear	Turning movement	Non-reportable	East	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					West	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way	

18-850491s	2018-Jan-12, Fri,16:00	Snow	Sideswipe	Non-reportable	West	Loose snow	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
Comments:					West	Loose snow	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
18-852092s	2018-Mar-01, Thu,19:30	Snow	Rear end	Non-reportable	West	Slush	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Slush				
18-106080	2018-Oct-01, Mon,16:18	Clear	Turning movement	Non-fatal injury	East	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn
Comments:					West	Wet	Going ahead	Passenger van	Other motor vehicle	Driving properly
19-857839s	2019-Sep-29, Sun,12:30	Clear	Rear end	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
20856415	2020-Nov-05, Thu,04:40	Clear	SMV other	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly
Comments:	48: Wild animal					Dry				
20856515	2020-Nov-09, Mon,16:55	Clear	Sideswipe	Non-reportable	East	Dry	Going ahead	Other school vehicle/bus	Other motor vehicle	Driving properly
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	

Collision Details Report

From: **To:**

Location ..... WHARNCLIFFE RD S btwn BOSTWICK RD & WONDERLAND RD S **Municipality.....** LONDON

Traffic Control.... No control **Total Collisions....** 6

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
10-56408s	2010-May-25, Tue,17:36	Clear	Rear end	Non-reportable	East	Dry	Stopped	Truck - closed	Other motor vehicle	Driving properly	
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
12-101809s	2012-Sep-03, Mon,16:45	Clear	Rear end	Non-reportable	East	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
17-852317s	2017-Aug-17, Thu,19:10	Rain	Rear end	Non-reportable	East	Wet	Slowing or stopping	Pick-up truck	Other motor vehicle	Following too close	
Comments:					East		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
18-852739s	2018-Mar-29, Thu,12:30	Rain	Angle	Non-reportable	East	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way	
Comments:					North						
19-852444s	2019-Mar-15, Fri,00:00	Rain	Angle	Non-reportable	East	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North		Turning left	Automobile, station wagon	Other motor vehicle	Driving properly	
19-856285s	2019-Aug-03, Sat,00:00	Clear	Angle	Non-reportable	East	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	

Collision Details Report

From: **To:**

Location ..... EXETER RD @ WONDERLAND RD S **Municipality.....** LONDON

Traffic Control.... Traffic signal **Total Collisions....** 102

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
15-001691s	2015-Jan-05, Mon,15:15	Clear	Turning movement	Non-reportable	West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					East	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way	
15-5041s	2015-Jan-14, Wed,08:30	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					South	Dry	Going ahead	Delivery van	Other motor vehicle	Following too close	
15-11650	2015-Jan-31, Sat,20:19	Clear	Turning movement	P.D. only	North	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control	
Comments:					South	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
15-15687s	2015-Feb-11, Wed,11:10	Clear	Rear end	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Other	
Comments:					West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
15-21646s	2015-Feb-27, Fri,08:00	Clear	Rear end	Non-reportable	South	Packed snow	Stopped	Passenger van	Other motor vehicle	Driving properly	
Comments:					South	Packed snow	Slowing or stopping		Other motor vehicle	Following too close	
15-23464s	2015-Mar-04, Wed,09:20	Clear	Turning movement	Non-reportable	North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					South	Wet	Turning left	Pick-up truck	Other motor vehicle	Failed to yield right-of-way	
1536284	2015-Apr-07, Tue,11:40	Clear	Rear end	Non-reportable	West	Dry	Slowing or stopping	Pick-up truck	Other motor vehicle	Driving properly	
Comments:					West	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle		
15-36859s	2015-Apr-08, Wed,07:45	Clear	Rear end	Non-reportable	South	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Following too close	
Comments:					South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
15-39926s	2015-Apr-16, Thu,07:30	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close	

15-57492s	2015-May-30, Sat,22:25	Clear	Rear end	Non-reportable	East	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Other
Comments:					East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
15-68084	2015-Jun-25, Thu,15:50	Clear	Turning movement	Non-fatal injury	West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn
Comments:					East	Dry	Going ahead	Delivery van	Other motor vehicle	Driving properly
1572843	2015-Jul-07, Tue,15:30	Clear	Rear end	Non-reportable	East	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Wet	Slowing or stopping		Other motor vehicle	
15-73753s	2015-Jul-09, Thu,19:20	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Pick-up truck	Other motor vehicle	Other
15-80622s	2015-Jul-27, Mon,09:15	Clear	Turning movement	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
15-84868	2015-Aug-06, Thu,16:48	Clear	Rear end	Non-fatal injury	West	Dry	Going ahead	Pick-up truck	Other motor vehicle	Other
Comments:					West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
15-117822s	2015-Oct-30, Fri,12:00	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Other
15-119634s	2015-Nov-03, Tue,16:30	Clear	Rear end	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					North	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
15-126884s	2015-Nov-22, Sun,13:00	Clear	Rear end	Non-reportable	West	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					West	Wet				
15-127061s	2015-Nov-23, Mon,08:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close
15-140122s	2015-Dec-30, Wed,07:30	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close

16-4700	2016-Jan-14, Thu,00:00	Clear	Angle	P.D. only	West	Wet	Going ahead	Pick-up truck	Other motor vehicle	Disobeyed traffic control
Comments:					South	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
16-8065	2016-Jan-24, Sun,08:46	Clear	Rear end	Non-fatal injury	West	Ice	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					West	Ice	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
16-12440	2016-Feb-05, Fri,10:15	Clear	Turning movement	Non-fatal injury	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					North	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
1652130	2016-Mar-25, Fri,14:15	Clear	Turning movement	Non-fatal injury	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					North	Dry	Going ahead	Municipal transit bus	Other motor vehicle	Driving properly
16-39750s	2016-Apr-22, Fri,13:00	Clear	Rear end	Non-reportable	North	Dry	Going ahead	Delivery van	Other motor vehicle	Following too close
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
16-43370s	2016-May-02, Mon,13:30	Clear	Turning movement	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Turning left	Pick-up truck	Other motor vehicle	Driving properly
16-51372	2016-May-23, Mon,14:54	Clear	Turning movement	Non-fatal injury	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
16-52130	2016-May-25, Wed,14:15	Clear	Turning movement	Non-fatal injury	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					North	Dry	Going ahead	Municipal transit bus	Other motor vehicle	Driving properly
16-63267s	2016-Jun-21, Tue,08:30	Clear	Rear end	Non-reportable	North	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
Comments:					North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
16-72631	2016-Jul-13, Wed,09:35	Clear	Turning movement	Non-fatal injury	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn
Comments:					North	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
16-80171s	2016-Jul-31, Sun,14:30	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close

16-110230s	2016-Oct-16, Sun,12:40	Rain	Rear end	Non-reportable	North	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Speed too fast for condition
16-114021s	2016-Oct-26, Wed,14:45	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Other
16-116293s	2016-Nov-01, Tue,11:45	Clear	Turning movement	Non-reportable	West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
16-117219s	2016-Nov-03, Thu,16:30	Clear	Sideswipe	Non-reportable	North	Dry	Going ahead	Truck - tractor	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
16-119127s	2016-Nov-08, Tue,19:35	Clear	Turning movement	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Turning left	Pick-up truck	Other motor vehicle	Failed to yield right-of-way
16124570	2016-Nov-24, Thu,03:05	Rain	Approaching	Fatal injury	East	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Speed too fast for condition
Comments:					West	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
16-126449s	2016-Nov-29, Tue,08:30	Clear	Rear end	Non-reportable	East	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Wet				
16127358	2016-Dec-01, Thu,15:20	Clear	Rear end	P.D. only	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
16-132620s	2016-Dec-16, Fri,07:00	Clear	Turning movement	Non-reportable	South	Ice	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Ice	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
16-136175s	2016-Dec-23, Fri,20:30	Clear	SMV other	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Debris on road	Driving properly
Comments:						Dry				
17-737s	2017-Jan-03, Tue,19:17	Rain	Turning movement	Non-reportable	South	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
17-2815s	2017-Jan-09, Mon,05:30	Clear	Turning movement	Non-reportable	South	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly

17-20597s	2017-Feb-26, Sun,20:30	Clear	Rear end	Non-reportable	South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
17-850260s	2017-May-12, Fri,12:15	Clear	Other	Non-reportable	South	Dry	Reversing	Delivery van	Other motor vehicle	Driving properly
Comments:					South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
17-850387s	2017-May-17, Wed,11:30	Clear	Rear end	Non-reportable	West	Dry	Slowing or stopping	Pick-up truck	Other motor vehicle	Following too close
Comments:					West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
17-850570s	2017-May-25, Thu,17:30	Rain	Turning movement	Non-reportable	South	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					North	Wet	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
17-86407	2017-Aug-24, Thu,09:13	Clear	Turning movement	Non-fatal injury	West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
17-102624	2017-Oct-04, Wed,06:20	Clear	Turning movement	Non-fatal injury	South	Dry	Turning left		Other motor vehicle	Improper turn
Comments:					North	Dry	Going ahead		Other motor vehicle	Driving properly
17-854391s	2017-Nov-07, Tue,08:02	Clear	Rear end	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
18-851817s	2018-Feb-19, Mon,16:00	Rain	Sideswipe	Non-reportable	North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-852170s	2018-Mar-05, Mon,10:15	Clear	Turning movement	Non-reportable	East	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
Comments:					West	Dry	Turning left	Passenger van	Other motor vehicle	Driving properly
18-852344s	2018-Mar-10, Sat,13:00	Clear	Angle	Non-reportable	East	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-852661s	2018-Mar-25, Sun,16:40	Clear	Turning movement	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly

18-852837s	2018-Apr-02, Mon,09:18	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry				
18-853164s	2018-Apr-16, Mon,15:30	Clear	Turning movement	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
18-853264s	2018-Apr-20, Fri,12:15	Clear	Rear end	Non-reportable	South	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry				
18-48380	2018-May-13, Sun,17:44	Clear	Angle	Non-fatal injury	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-48979	2018-May-15, Tue,10:09	Clear	Turning movement	Non-fatal injury	South	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn
Comments:					North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-854017s	2018-May-22, Tue,15:00	Clear	Rear end	Non-reportable	West	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Pick-up truck	Other motor vehicle	Following too close
18-854401s	2018-Jun-05, Tue,17:20	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
18-62531	2018-Jun-17, Sun,18:15	Clear	Angle	P.D. only	West	Dry	Going ahead	Police vehicle	Other motor vehicle	Failed to yield right-of-way
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-856067s	2018-Aug-09, Thu,14:45	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
18-859123s	2018-Nov-23, Fri,06:55	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
18-126104	2018-Nov-24, Sat,17:40	Rain	Turning movement	Non-fatal injury	South	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn
Comments:					North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-133019	2018-Dec-13, Thu,00:00	Clear	Turning movement	Non-fatal injury	North	Dry	Going ahead	Passenger van	Other motor vehicle	Disobeyed traffic control
Comments:					South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly

19-850089s	2019-Jan-05, Sat,14:00	Clear	Rear end	Non-reportable	West	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
19-850513s	2019-Jan-16, Wed,17:15	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-850565s	2019-Jan-19, Sat,00:00	Snow	Rear end	Non-reportable	West	Slush	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Slush				
19-851524s	2019-Feb-13, Wed,00:00	Snow	Angle	Non-reportable	North	Slush	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Slush	Turning right	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
19-852118s	2019-Mar-04, Mon,00:00	Clear	Turning movement	Non-reportable	East	Dry	Going ahead	Truck - tractor	Other motor vehicle	Driving properly
Comments:					West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
19-856088s	2019-Jul-26, Fri,14:30	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-74853	2019-Jul-30, Tue,17:20	Clear	Turning movement	Non-fatal injury	North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-856597s	2019-Aug-16, Fri,00:00	Clear	Sideswipe	Non-reportable	East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry				
19-857030s	2019-Sep-03, Tue,00:00	Clear	Turning movement	Non-reportable	West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-858138s	2019-Oct-09, Wed,00:00	Clear	Angle	Non-reportable	North	Dry	Going ahead	Truck - closed	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-858211s	2019-Oct-11, Fri,00:00	Clear	Sideswipe	Non-reportable	East	Dry	Going ahead	Passenger van	Other motor vehicle	Driving properly
Comments:					East	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly
19-109274	2019-Oct-26, Sat,12:57	Clear	Turning movement	Non-fatal injury	South	Dry	Turning left	Pick-up truck	Other motor vehicle	Improper turn
Comments:					North	Dry	Going ahead	Passenger van	Other motor vehicle	Driving properly

19-858797s	2019-Oct-29, Tue,06:00	Fog, mist, smoke, dust	Sideswipe	Non-reportable	North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Wet				
19-859696s	2019-Nov-13, Wed,07:45	Clear	Turning movement	Non-reportable	West	Wet	Turning left	Other	Other motor vehicle	Driving properly
Comments:					East		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-859415s	2019-Nov-15, Fri,06:40	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry				
19-859485s	2019-Nov-17, Sun,19:30	Clear	Turning movement	Non-reportable	North	Dry	Going ahead	Truck-other	Other motor vehicle	Driving properly
Comments:					South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
19-860477s	2019-Dec-14, Sat,16:00	Rain	Rear end	Non-reportable	South	Wet	Stopped	Truck-other	Other motor vehicle	Driving properly
Comments:					South	Wet				
19-860976s	2019-Dec-31, Tue,09:30	Snow	Rear end	Non-reportable	North	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
20-851128s	2020-Jan-31, Fri,17:00	Clear	Rear end	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
20-12283	2020-Feb-03, Mon,00:00	Clear	Turning movement	Non-fatal injury	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control
Comments:					South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
20-851309s	2020-Feb-05, Wed,13:15	Clear	Turning movement	Non-reportable	North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
20-23749	2020-Mar-07, Sat,22:33	Clear	Turning movement	Non-fatal injury	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
20852819	2020-Apr-07, Tue,14:55	Rain	Rear end	P.D. only	South	Wet	Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
20-852996s	2020-Apr-28, Tue,17:20	Clear	Turning movement	Non-reportable	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly

20-853022s	2020-Apr-30, Thu,12:30	Clear	Other	Non-reportable	North	Wet	Reversing	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Wet				
20-853257s	2020-May-22, Fri,13:30	Clear	Rear end	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					North		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
20-853455s	2020-Jun-05, Fri,16:30	Clear	Rear end	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
20-853709s	2020-Jun-19, Fri,15:00	Clear	Sideswipe	Non-reportable	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South		Merging	Automobile, station wagon	Other motor vehicle	Driving properly
20854485	2020-Aug-01, Sat,18:00	Rain	Sideswipe	P.D. only	East	Wet	Making "U" turn	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
20854661	2020-Aug-13, Thu,10:45	Clear	Sideswipe	P.D. only	North	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
20854728	2020-Aug-17, Mon,12:20	Clear	Rear end	P.D. only	North	Dry	Going ahead	Truck - dump	Other motor vehicle	Driving properly
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
20854771	2020-Aug-19, Wed,11:55	Clear	Rear end	Non-reportable	East	Dry	Stopped	Passenger van	Other motor vehicle	Driving properly
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	
20856486	2020-Nov-06, Fri,07:15	Clear	Rear end	Non-reportable	East	Other	Merging	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Other	Merging	Automobile, station wagon	Other motor vehicle	Driving properly
20856821	2020-Nov-24, Tue,10:30	Rain	Sideswipe	P.D. only	East	Wet	Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Wet	Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
20856977	2020-Dec-01, Tue,09:30	Snow	Angle	P.D. only	East	Wet	Going ahead	School bus	Other motor vehicle	Driving properly
Comments:					South	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Lost control

20857427	2020-Dec-20, Sun,18:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	

Collision Details Report

From: **To:**

Location ..... KILBOURNE RD @ WONDERLAND RD S **Municipality.....** LONDON

Traffic Control.... Traffic signal **Total Collisions....** 1

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
17-45381	2017-May-06, Sat,17:30	Rain	Rear end	Non-fatal injury	South	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close	
Comments:	UNKNOWN LOCATION				South	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	

Collision Details Report

From: **To:**

Location ..... SOUTHDALE RD W @ WONDERLAND RD S **Municipality.....** LONDON

Traffic Control.... Traffic signal **Total Collisions....** 222

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
15-004079s	2015-Jan-11, Sun,16:30	Clear	Turning movement	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way	
15-7795s	2015-Jan-21, Wed,15:40	Clear	Rear end	Non-reportable	South	Dry	Slowing or stopping	Municipal transit bus	Other motor vehicle	Following too close	
Comments:					South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
15-11706	2015-Jan-31, Sat,23:10	Clear	Turning movement	P.D. only	South	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn	
Comments:					North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
15-32027	2015-Mar-26, Thu,16:40	Clear	Turning movement	Non-fatal injury	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn	
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
15-51632	2015-May-16, Sat,11:30	Clear	Rear end	Non-fatal injury	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Other	
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
15-53340s	2015-May-20, Wed,17:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Passenger van	Other motor vehicle	Driving properly	
Comments:					North		Stopped	Pick-up truck	Other motor vehicle	Driving properly	
15-66823s	2015-Jun-22, Mon,12:45	Clear	Angle	Non-reportable	North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					West	Dry	Going ahead	Passenger van	Other motor vehicle	Disobeyed traffic control	
15-72274s	2015-Jul-04, Sat,11:00	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:	special case				West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Following too close	
15-75649s	2015-Jul-14, Tue,14:30	Clear	Rear end	Non-reportable	South	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					South	Wet	Unknown	Unknown	Other motor vehicle		

15-77928s	2015-Jul-20, Mon,13:30	Clear	Turning movement	Non-reportable	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn	
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
15-83553s	2015-Jul-31, Fri,17:25	Clear	Rear end	Non-reportable	South	Dry	Slowing or stopping	Pick-up truck	Other motor vehicle	Following too close	
Comments:					South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
1582553	2015-Jul-31, Fri,17:25	Clear	Rear end	P.D. only	South	Dry	Slowing or stopping	Pick-up truck	Other motor vehicle	Following too close	
Comments:					South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
15-85919s	2015-Aug-09, Sun,08:50	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					West	Dry	Slowing or stopping	Passenger van	Other motor vehicle	Following too close	
15-90223	2015-Aug-20, Thu,15:21	Clear	Turning movement	Non-fatal injury	West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn	
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
15-91343	2015-Aug-23, Sun,14:55	Clear	SMV other	Non-fatal injury	West	Dry	Turning left	Automobile, station wagon	Pedestrian	Other	1
Comments:											
15-92733s	2015-Aug-27, Thu,11:38	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close	
15-100694	2015-Sep-16, Wed,05:30	Clear	Angle	Non-fatal injury	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control	
Comments:					East	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly	
15105093	2015-Sep-26, Sat,13:45	Clear	Rear end	P.D. only	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					East	Dry	Going ahead		Other motor vehicle		
15-108362s	2015-Oct-04, Sun,14:30	Clear	Rear end	Non-reportable	South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close	
Comments:					South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
15112196	2015-Oct-14, Wed,16:50	Clear	Sideswipe	P.D. only	East	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					East	Dry	Changing lanes		Other motor vehicle		

15-115481s	2015-Oct-23, Fri,20:20	Clear	Turning movement	Non-reportable	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
15-116122s	2015-Oct-25, Sun,16:30	Clear	Sideswipe	Non-reportable	South	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
15-116981	2015-Oct-28, Wed,09:52	Rain	Angle	Non-fatal injury	East	Wet	Going ahead	Ambulance	Other motor vehicle	Failed to yield right-of-way
Comments:					South	Wet	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
15-117840s	2015-Oct-30, Fri,13:00	Clear	Sideswipe	Non-reportable	East	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Improper lane change
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
15-119467s	2015-Nov-03, Tue,10:45	Clear	Rear end	Non-reportable	South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
15129388	2015-Nov-29, Sun,15:15	Clear	Turning movement	P.D. only	East	Dry	Going ahead	Pick-up truck	Other motor vehicle	
Comments:					West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn
15-130401	2015-Dec-02, Wed,13:30	Clear	Turning movement	Non-fatal injury	East	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper lane change
Comments:					West	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
15-139429s	2015-Dec-27, Sun,18:00	Clear	Turning movement	Non-reportable	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control
16-1496s	2016-Jan-04, Mon,18:00	Clear	Turning movement	Non-reportable	North	Ice	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					South	Ice	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
16-2878	2016-Jan-08, Fri,23:14	Clear	Angle	Non-fatal injury	West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control
Comments:					North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
16-25061s	2016-Mar-11, Fri,22:15	Clear	Sideswipe	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Improper turn

16-28190s	2016-Mar-20, Sun,16:20	Clear	Turning movement	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
16-29983s	2016-Mar-26, Sat,14:30	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry				
16-33514	2016-Apr-05, Tue,12:15	Clear	Turning movement	Non-fatal injury	North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
16-37647s	2016-Apr-16, Sat,19:25	Clear	Sideswipe	Non-reportable	South	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Improper lane change
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
16-42460s	2016-Apr-29, Fri,19:00	Clear	Rear end	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
16-42815s	2016-Apr-30, Sat,18:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close
16-43811	2016-May-03, Tue,15:56	Clear	Rear end	Non-fatal injury	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Other
Comments:					West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
16-45974s	2016-May-09, Mon,15:30	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close
16-51664s	2016-May-24, Tue,11:30	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
16-52540s	2016-May-26, Thu,13:20	Clear	Sideswipe	Non-reportable	South	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
Comments:					South	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly
16-56237s	2016-Jun-03, Fri,19:50	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry				
16-57627s	2016-Jun-07, Tue,12:15	Clear	Turning movement	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Turning left			

16-61496s	2016-Jun-16, Thu,19:50	Clear	Rear end	Non-reportable	North	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
Comments:					North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Other
16-73785	2016-Jul-15, Fri,21:36	Clear	Angle	Non-fatal injury	West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn
Comments:					South	Dry	Going ahead	Automobile, station wagon		Driving properly
16-84987s	2016-Aug-12, Fri,19:00	Clear	Rear end	Non-reportable	North	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Speed too fast for condition
16-804008	2016-Aug-24, Wed,10:00	Clear	Angle	Non-fatal injury	West	Dry	Going ahead	Automobile, station wagon	Cyclist	Driving properly
Comments:					South	Dry	Going ahead	Bicycle	Other motor vehicle	Driving properly
16-92876	2016-Sep-02, Fri,13:00	Clear	Turning movement	Non-fatal injury	South	Dry	Turning left	Pick-up truck	Other motor vehicle	Improper turn
Comments:					North	Dry	Going ahead	Passenger van	Other motor vehicle	Driving properly
16-97626s	2016-Sep-14, Wed,05:20	Clear	Angle	Non-reportable	West	Wet	Going ahead	Pick-up truck	Other motor vehicle	Disobeyed traffic control
Comments:					South	Wet	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
16-106661s	2016-Oct-06, Thu,14:25	Clear	Turning movement	Non-reportable	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
16-111975s	2016-Oct-20, Thu,15:00	Rain	Rear end	Non-reportable	South	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
16-115847s	2016-Oct-31, Mon,09:40	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close
16-115917s	2016-Oct-31, Mon,11:35	Clear	Rear end	Non-reportable	North	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
Comments:					North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Other
16-119313s	2016-Nov-08, Tue,19:30	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry				

16-121339	2016-Nov-15, Tue,07:12	Clear	Turning movement	Non-fatal injury	West	Dry	Going ahead	Passenger van	Other motor vehicle	Disobeyed traffic control
Comments:					East	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
16-127665	2016-Dec-02, Fri,12:01	Clear	SMV other	P.D. only	East	Dry	Going ahead	Pick-up truck	Ran off road	Driving properly
Comments:										
16-131881s	2016-Dec-13, Tue,13:20	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
16-133319s	2016-Dec-18, Sun,11:40	Snow	Rear end	Non-reportable	South	Loose snow	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Loose snow	Going ahead	Pick-up truck	Other motor vehicle	Other
16-134102s	2016-Dec-20, Tue,17:10	Clear	Rear end	Non-reportable	South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South		Going ahead	Pick-up truck	Other motor vehicle	Following too close
17-2287s	2017-Jan-07, Sat,09:30	Clear	Angle	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
17-8819s	2017-Jan-23, Mon,09:15	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry				
17-10193s	2017-Jan-29, Sun,18:30	Clear	Sideswipe	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
17-12710s	2017-Feb-05, Sun,12:10	Clear	Turning movement	Non-reportable	North	Wet	Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South		Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
17-20797s	2017-Feb-27, Mon,15:00	Clear	Sideswipe	Non-reportable	West	Dry	Changing lanes	Pick-up truck	Other motor vehicle	Other
Comments:					West	Dry				
17-20812s	2017-Feb-28, Tue,12:00	Clear	Rear end	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Other	Automobile, station wagon	Other motor vehicle	Other
17-25180s	2017-Mar-12, Sun,14:30	Clear	Rear end	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly

17-26298s	2017-Mar-15, Wed,18:30	Clear	Turning movement	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					South	Dry	Turning left				
17-27460s	2017-Mar-18, Sat,17:30	Clear	Turning movement	Non-reportable	West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					East		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
17-30094	2017-Mar-25, Sat,21:40	Rain	Turning movement	P.D. only	North	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn	
Comments:					South	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
17-34501s	2017-Apr-07, Fri,08:45	Clear	Angle	Non-reportable	West	Wet	Going ahead	Pick-up truck	Other motor vehicle	Driving properly	
Comments:					South	Wet	Going ahead	Pick-up truck	Other motor vehicle	Driving properly	
17-37829	2017-Apr-10, Mon,03:23	Clear	SMV other	Other	East	Dry	Going ahead	Automobile, station wagon	Pole (sign, parking meter)		
Comments:											
17-40163s	2017-Apr-22, Sat,14:15	Clear	Rear end	Non-reportable	East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close	
Comments:					East		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
17-42095s	2017-Apr-27, Thu,14:25	Clear	Rear end	Non-reportable	East	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly	
Comments:					East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
17-850463s	2017-May-20, Sat,11:05	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					East						
17-850507s	2017-May-23, Tue,13:30	Clear	Rear end	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
17-55589	2017-May-31, Wed,14:40	Clear	SMV other	Non-fatal injury	West	Dry	Turning right	Automobile, station wagon	Pedestrian	Failed to yield right-of-way	1
Comments:						Dry					
17-850764s	2017-Jun-04, Sun,15:26	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
17-851068s	2017-Jun-16, Fri,07:10	Clear	Turning movement	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly	

17-851482s	2017-Jul-05, Wed,12:55	Clear	Rear end	Non-reportable	West	Dry	Going ahead	Passenger van	Other motor vehicle	Following too close
Comments:					West		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
17-70635	2017-Jul-13, Thu,18:30	Clear	Rear end	P.D. only	East	Dry	Turning right	Pick-up truck	Other motor vehicle	Other
Comments:					East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
17-851820s	2017-Jul-21, Fri,12:20	Clear	Sideswipe	Non-reportable	North	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
17-851864s	2017-Jul-23, Sun,18:00	Clear	Sideswipe	Non-reportable	West	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
Comments:					West		Changing lanes	Pick-up truck	Other motor vehicle	Other
17-852347s	2017-Aug-18, Fri,17:00	Clear	Rear end	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry				
17-100334	2017-Sep-28, Thu,14:46	Clear	Sideswipe	Other	West	Dry	Changing lanes	Pick-up truck	Curb	Improper lane change
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
17-853572s	2017-Oct-08, Sun,12:00	Clear	Rear end	Non-reportable	East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
17-854092s	2017-Oct-26, Thu,12:40	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
17-854762s	2017-Nov-18, Sat,13:30	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry				
17-855279s	2017-Dec-07, Thu,17:50	Clear	Rear end	Non-reportable	East	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry				
18-850506s	2018-Jan-13, Sat,12:30	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry				
18-851199s	2018-Feb-02, Fri,09:55	Clear	Rear end	Non-reportable	South	Loose snow	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Loose snow	Going ahead	Automobile, station wagon	Other motor vehicle	Other

18-851284s	2018-Feb-05, Mon,08:30	Clear	Turning movement	Non-reportable	North	Wet	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
Comments:					South	Wet	Turning left	Passenger van	Other motor vehicle	Driving properly
18-13709	2018-Feb-05, Mon,08:39	Clear	SMV unattended vehicle	P.D. only	West	Loose snow	Turning right	Ambulance	Other motor vehicle	Improper turn
Comments:					East	Loose snow	Parked	Fire vehicle	Other motor vehicle	Driving properly
18-851771s	2018-Feb-17, Sat,10:15	Clear	Rear end	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					West	Dry				
18-851966s	2018-Feb-25, Sun,17:23	Clear	Rear end	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry				
18-852305s	2018-Mar-08, Thu,19:15	Clear	Rear end	Non-reportable	South	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Wet				
18-852504s	2018-Mar-18, Sun,14:20	Clear	Rear end	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
18-39021	2018-Apr-18, Wed,21:48	Rain	Rear end	Non-fatal injury	West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Other
Comments:					West	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
18-853362s	2018-Apr-25, Wed,08:55	Rain	Rear end	Non-reportable	North	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Wet				
18-53039	2018-May-25, Fri,15:09	Freezing Rain	Sideswipe	P.D. only	South	Dry	Going ahead	Truck - dump	Other motor vehicle	Driving properly
Comments:					South	Dry	Merging	Automobile, station wagon		Improper lane change
18-854119s	2018-May-25, Fri,17:20	Clear	Angle	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Passenger van	Other motor vehicle	Driving properly
18-854235s	2018-May-30, Wed,12:49	Clear	Sideswipe	Non-reportable	North	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					North	Dry	Going ahead	Truck - tractor	Other motor vehicle	Driving properly
18-854305s	2018-Jun-01, Fri,13:00	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly

18-57633	2018-Jun-05, Tue,13:30	Clear	Sideswipe	Other	South	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Improper lane change
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-854600s	2018-Jun-13, Wed,15:00	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East					
18-854623s	2018-Jun-14, Thu,09:50	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Pick-up truck	Other motor vehicle	Following too close
18-64320	2018-Jun-21, Thu,21:04	Clear	Angle	Non-fatal injury	West	Dry	Turning right	Automobile, station wagon	Cyclist	Improper turn
Comments:					South	Dry	Going ahead	Bicycle	Other motor vehicle	Other
18-855511s	2018-Jul-18, Wed,08:30	Clear	Rear end	Non-reportable	East	Dry	Stopped	Passenger van	Other motor vehicle	Driving properly
Comments:					East	Dry				
18-855946s	2018-Aug-04, Sat,15:55	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
18-855955s	2018-Aug-05, Sun,11:55	Clear	Sideswipe	Non-reportable	North	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Pick-up truck	Other motor vehicle	Improper lane change
18-856128s	2018-Aug-11, Sat,13:15	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry				
18-86067	2018-Aug-14, Tue,12:29	Clear	Angle	Non-fatal injury	South	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-856518s	2018-Aug-28, Tue,17:30	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Going ahead	School bus	Other motor vehicle	Other
18-92436	2018-Aug-29, Wed,20:11	Clear	Turning movement	Non-fatal injury	West	Dry	Going ahead	Passenger van	Other motor vehicle	Disobeyed traffic control
Comments:					East	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
18-856785s	2018-Sep-07, Fri,20:30	Clear	Turning movement	Non-reportable	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly

18-857290s	2018-Sep-26, Wed,10:50	Clear	Rear end	Non-reportable	West	Dry	Going ahead	Delivery van	Other motor vehicle	Following too close
Comments:					West	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
18-104050	2018-Sep-26, Wed,16:40	Clear	SMV other	P.D. only	West	Dry	Turning right	Tow truck	Other	Driving properly
Comments:	48: Hanging traffic light									
18-857551s	2018-Oct-05, Fri,16:15	Clear	Sideswipe	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry				
18-857744s	2018-Oct-14, Sun,16:40	Clear	Rear end	Non-reportable	North	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
18-857769s	2018-Oct-15, Mon,15:35	Clear	Rear end	Non-reportable	North	Dry	Slowing or stopping	Pick-up truck	Other motor vehicle	Following too close
Comments:					North		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
18-857856s	2018-Oct-18, Thu,14:20	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East					
18-857945s	2018-Oct-21, Sun,15:10	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-858444s	2018-Nov-04, Sun,00:00	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry				
18-858527s	2018-Nov-04, Sun,16:00	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Slowing or stopping	Pick-up truck	Other motor vehicle	Driving properly
18-858630s	2018-Nov-09, Fri,00:00	Snow	Rear end	Non-reportable	South	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Wet				
18-858740s	2018-Nov-14, Wed,06:30	Clear	Turning movement	Non-reportable	West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
18-859394s	2018-Nov-29, Thu,19:30	Snow	Turning movement	Non-reportable	South	Loose snow	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Loose snow	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly

18-859463s	2018-Dec-01, Sat,00:00	Rain	Angle	Non-reportable	North	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control
Comments:					West	Wet				
18-859623s	2018-Dec-06, Thu,00:00	Snow	Turning movement	Non-reportable	South	Loose snow	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Loose snow	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-859748s	2018-Dec-09, Sun,00:00	Clear	Turning movement	Non-reportable	South	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn
18-859811s	2018-Dec-11, Tue,13:30	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry				
18-860194s	2018-Dec-21, Fri,00:00	Clear	Turning movement	Non-reportable	East	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West		Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
18-860231s	2018-Dec-23, Sun,00:00	Clear	Rear end	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
18-860234s	2018-Dec-23, Sun,00:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Stopped	Passenger van	Other motor vehicle	Driving properly
18-860374s	2018-Dec-30, Sun,00:00	Clear	Turning movement	Non-reportable	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-860398s	2018-Dec-31, Mon,15:00	Rain	Rear end	Non-reportable	West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
19-850075s	2019-Jan-04, Fri,16:50	Clear	Sideswipe	Non-reportable	South	Dry	Going ahead	Passenger van	Other motor vehicle	Driving properly
Comments:					South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
19-850849s	2019-Jan-27, Sun,08:50	Clear	Turning movement	Non-reportable	South	Slush	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Slush	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-11267	2019-Feb-04, Mon,00:00	Rain	SMV other	Non-fatal injury	East	Wet	Turning left	Pick-up truck	Pedestrian	Driving properly
Comments:										

19-13046	2019-Feb-09, Sat,00:00	Clear	Turning movement	P.D. only	East	Other	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn
Comments:					West	Other	Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
19-851707s	2019-Feb-20, Wed,00:00	Clear	Turning movement	Non-reportable	East	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-852492s	2019-Mar-14, Thu,00:00	Clear	Turning movement	Non-reportable	North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South		Going ahead	Passenger van	Other motor vehicle	Driving properly
19-852674s	2019-Mar-22, Fri,00:00	Clear	Turning movement	Non-reportable	West	Dry	Turning left	Pick-up truck	Other motor vehicle	Driving properly
Comments:					East	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Other
19-852738s	2019-Mar-26, Tue,00:00	Clear	Rear end	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	
19-852795s	2019-Mar-28, Thu,00:00	Rain	Rear end	Non-reportable	North	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Wet				
19-853509s	2019-Apr-23, Tue,00:00	Clear	Rear end	Non-reportable	East	Wet	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
Comments:					East	Wet	Stopped	Pick-up truck	Other motor vehicle	Driving properly
19-853871s	2019-May-07, Tue,00:00	Clear	Sideswipe	Non-reportable	West	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-853904s	2019-May-08, Wed,00:00	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Other
19-853927s	2019-May-08, Wed,00:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
Comments:					North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Other
19-853991s	2019-May-10, Fri,00:00	Clear	Turning movement	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly

19-854214s	2019-May-21, Tue,00:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Pick-up truck	Other motor vehicle	Other
19-854230s	2019-May-21, Tue,00:00	Clear	Sideswipe	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly
19-854267s	2019-May-23, Thu,00:00	Clear	Rear end	Non-reportable	West	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West		Slowing or stopping	Delivery van	Other motor vehicle	Driving properly
19-854378s	2019-May-27, Mon,00:00	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Going ahead	Municipal transit bus	Other motor vehicle	Driving properly
19-854785s	2019-Jun-10, Mon,00:00	Clear	Sideswipe	Non-reportable	North	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-855009s	2019-Jun-17, Mon,00:00	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
19-855253s	2019-Jun-25, Tue,19:10	Clear	Sideswipe	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly
19-855423s	2019-Jul-02, Tue,18:50	Clear	Rear end	Non-reportable	East	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Wet				
19-855476s	2019-Jul-04, Thu,09:20	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close
19-855483s	2019-Jul-04, Thu,13:00	Clear	Other	Non-reportable	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
19-855589s	2019-Jul-08, Mon,14:30	Clear	Rear end	Non-reportable	East	Dry	Slowing or stopping	Truck - tractor	Other motor vehicle	Other
Comments:					East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly

19-68637	2019-Jul-15, Mon,12:21	Clear	Rear end	Non-fatal injury	South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
Comments:					South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
19-69452	2019-Jul-17, Wed,08:45	Rain	Turning movement	P.D. only	West	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					East	Wet	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
19-855829s	2019-Jul-17, Wed,13:30	Clear	Angle	Non-reportable	East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-855879s	2019-Jul-18, Thu,17:45	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West		Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
19-70288	2019-Jul-19, Fri,11:25	Clear	Sideswipe	Non-fatal injury	South	Dry	Overtaking	Automobile, station wagon	Other motor vehicle	Improper passing
Comments:					South		Going ahead	Passenger van	Other motor vehicle	Driving properly
19-856027s	2019-Jul-23, Tue,00:00	Clear	Other	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	
19-856204s	2019-Jul-31, Wed,13:45	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry				
19856527	2019-Aug-14, Wed,16:30	Clear	Rear end	P.D. only	West	Dry	Stopped	Passenger van	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close
19-856771s	2019-Aug-23, Fri,00:00	Clear	Turning movement	Non-reportable	South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
19857524	2019-Sep-19, Thu,12:15	Clear	Rear end	Non-fatal injury	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-857639s	2019-Sep-23, Mon,14:00	Clear	Turning movement	Non-reportable	North	Dry	Going ahead	Delivery van	Other motor vehicle	Driving properly
Comments:					South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
19-858019s	2019-Oct-04, Fri,00:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Passenger van	Other motor vehicle	Driving properly
Comments:					North	Dry				

19-858420s	2019-Oct-19, Sat,14:40	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry				
19-859161s	2019-Nov-08, Fri,23:15	Clear	Rear end	Non-reportable	North	Wet	Going ahead	Truck-other	Other motor vehicle	Driving properly
Comments:					North	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
19-859572s	2019-Nov-13, Wed,07:50	Clear	Angle	Non-reportable	North	Dry		Passenger van	Other motor vehicle	
Comments:					East		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-859307s	2019-Nov-13, Wed,18:00	Clear	Rear end	Non-reportable	West	Ice	Other	Passenger van	Other motor vehicle	Driving properly
Comments:					West	Ice	Stopped	Pick-up truck	Other motor vehicle	Driving properly
19-859963s	2019-Nov-30, Sat,19:30	Clear	Turning movement	Non-reportable	South	Dry	Turning left	Pick-up truck	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-860104s	2019-Dec-04, Wed,18:00	Snow	Angle	Non-reportable	North	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-860106s	2019-Dec-04, Wed,19:00	Snow	Rear end	Non-reportable	South	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Following too close
19-856527s	2019-Dec-14, Sat,00:00	Clear	Rear end	Non-reportable	West	Dry	Stopped	Passenger van	Other motor vehicle	Driving properly
Comments:					West	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
19-860879s	2019-Dec-20, Fri,07:00	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Other
19-860885s	2019-Dec-20, Fri,08:10	Clear	Rear end	Non-reportable	West	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Wet				
19-130443	2019-Dec-26, Thu,07:30	Clear	SMV other	Non-fatal injury	South	Dry	Turning left	Automobile, station wagon	Pedestrian	Failed to yield right-of-way
Comments:										
19-860966s	2019-Dec-30, Mon,18:00	Clear	Angle	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Driving properly

20-850350s	2020-Jan-06, Mon,16:50	Clear	Sideswipe	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South		Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly
20-850319s	2020-Jan-11, Sat,16:30	Rain	Rear end	Non-reportable	West	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
20-850585s	2020-Jan-16, Thu,20:45	Snow	Approaching	Non-reportable	East	Wet	Going ahead	Passenger van	Other motor vehicle	Driving properly
Comments:					West	Wet				
20-850857s	2020-Jan-17, Fri,14:00	Clear	Rear end	Non-reportable	North	Dry		Automobile, station wagon		Other
Comments:					North					
20-850896s	2020-Jan-25, Sat,10:45	Clear	Sideswipe	Non-reportable	West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West		Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
20-851778s	2020-Feb-19, Wed,12:15	Clear	Turning movement	Non-reportable	North	Dry	Going ahead	Truck - closed	Other motor vehicle	Driving properly
Comments:	V2 unknown direction					Dry				
20-852433s	2020-Mar-07, Sat,14:50	Clear	Turning movement	Non-reportable	South	Dry	Turning left	Pick-up truck	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead			
20-852423s	2020-Mar-09, Mon,11:30	Clear	Angle	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
20-852641s	2020-Mar-17, Tue,08:30	Clear	Turning movement	Non-reportable	West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
20-852761s	2020-Apr-01, Wed,15:00	Clear	Rear end	Non-reportable	West	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
Comments:					West	Dry				
20-852948s	2020-Apr-23, Thu,18:45	Rain	Rear end	Non-reportable	East	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
20-853124s	2020-Apr-29, Wed,02:00	Rain	Rear end	Non-reportable	West	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Wet				

20-50457	2020-May-30, Sat,13:26	Clear	Turning movement	Non-fatal injury	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control
Comments:					East	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
20-853396s	2020-Jun-02, Tue,17:40	Clear	Rear end	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
20-853446s	2020-Jun-05, Fri,12:15	Clear	Sideswipe	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Changing lanes	Passenger van	Other motor vehicle	Driving properly
20-853588s	2020-Jun-13, Sat,16:00	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry				
20-853725s	2020-Jun-19, Fri,20:10	Clear	Turning movement	Non-reportable	West	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:	V2 - unknown direction					Dry				
20853883	2020-Jun-30, Tue,10:00	Clear	Sideswipe	P.D. only	West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
20-853989s	2020-Jul-05, Sun,16:45	Clear	Sideswipe	Non-reportable	South	Dry	Turning left	Pick-up truck	Other motor vehicle	Driving properly
Comments:					South	Dry	Making "U" turn	Automobile, station wagon	Other motor vehicle	Driving properly
20-854095s	2020-Jul-10, Fri,12:30	Clear	Rear end	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Turning left	Pick-up truck	Other motor vehicle	Driving properly
20854376	2020-Jul-27, Mon,10:30	Clear	Sideswipe	Non-reportable	South	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
Comments:					South	Dry	Slowing or stopping	Truck - closed	Other motor vehicle	Driving properly
20855114	2020-Sep-04, Fri,15:35	Clear	Sideswipe	Non-reportable	North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Other
Comments:					North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
2087911	2020-Sep-09, Wed,19:59	Clear	SMV other	Non-fatal injury	West	Dry	Turning right	Automobile, station wagon	Pedestrian	Failed to yield right-of-way
Comments:						Dry				
20855269	2020-Sep-12, Sat,16:40	Clear	Turning movement	P.D. only	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly

2091095	2020-Sep-18, Fri,15:52	Clear	Rear end	Non-fatal injury	East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
20855933	2020-Oct-14, Wed,17:15	Clear	Angle	P.D. only	South	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
20855922	2020-Oct-15, Thu,08:10	Rain	Rear end	P.D. only	North	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
20856244	2020-Oct-29, Thu,10:30	Clear	Angle	P.D. only	North	Dry	Turning left	Pick-up truck	Other motor vehicle	Driving properly
Comments:					West	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
20856407	2020-Nov-04, Wed,19:10	Clear	Other	P.D. only	West	Dry	Reversing	Automobile, station wagon	Other motor vehicle	Other
Comments:					West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
20856463	2020-Nov-07, Sat,11:00	Clear	Rear end	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
20856511	2020-Nov-09, Mon,15:10	Clear	Rear end	Non-reportable	South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Going ahead	Pick-up truck	Other motor vehicle	Lost control
20856696	2020-Nov-18, Wed,13:50	Clear	Rear end	P.D. only	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Other
Comments:					South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Other
20856809	2020-Nov-24, Tue,14:15	Clear	Rear end	Non-reportable	North	Dry	Going ahead	Passenger van	Other motor vehicle	Driving properly
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
20856861	2020-Nov-26, Thu,15:15	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	
20856892A	2020-Nov-28, Sat,12:00	Clear	Sideswipe	P.D. only	North	Dry	Going ahead	Passenger van	Other motor vehicle	Driving properly
Comments:					North		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly

20856892	2020-Nov-28, Sat,13:00	Clear	Sideswipe	P.D. only	South	Dry	Changing lanes	Passenger van	Other motor vehicle	Driving properly
Comments:					South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
20856953	2020-Dec-01, Tue,08:00	Snow	SMV other	P.D. only	North	Packed snow	Slowing or stopping	Automobile, station wagon	Pole (utility, power)	Driving properly
Comments:						Packed snow				
20857031	2020-Dec-01, Tue,12:30	Rain	Angle	P.D. only	North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly

Collision Details Report

From: **To:**

Location ..... WHARNCLIFFE RD S @ WONDERLAND RD S **Municipality.....** LONDON

Traffic Control.... Traffic signal **Total Collisions....** 99

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
15-16223	2015-Feb-12, Thu,17:40	Clear	Rear end	Non-fatal injury	West	Loose snow	Going ahead	Automobile, station wagon	Other motor vehicle		
Comments:					West	Loose snow	Slowing or stopping	Automobile, station wagon		Driving properly	
15-27072	2015-Mar-13, Fri,16:32	Clear	Rear end	Non-fatal injury	South	Dry	Slowing or stopping	Pick-up truck	Other motor vehicle	Other	
Comments:					South	Dry	Stopped	Passenger van	Other motor vehicle	Driving properly	
1542539	2015-Apr-23, Thu,17:30	Clear	Rear end	P.D. only	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle		
15-45132s	2015-Apr-30, Thu,14:30	Clear	Angle	Non-reportable	East	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Other	
Comments:					North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
15-45932	2015-May-02, Sat,13:54	Clear	Rear end	Non-fatal injury	West	Dry	Going ahead	Pick-up truck	Other motor vehicle	Following too close	
Comments:					West	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly	
15-54719	2015-May-24, Sun,10:04	Clear	Angle	Non-fatal injury	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control	
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
15-63644	2015-Jun-14, Sun,14:53	Clear	Turning movement	Non-fatal injury	North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn	
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
15-90526s	2015-Aug-21, Fri,10:30	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					South	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly	
15-90944s	2015-Aug-22, Sat,12:16	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					East	Dry	Going ahead	Pick-up truck	Other motor vehicle	Other	

15-99653	2015-Sep-11, Fri,09:50	Clear	Rear end	Non-fatal injury	West	Dry	Going ahead	Pick-up truck	Other motor vehicle	Following too close
Comments:					West	Dry	Stopped	Passenger van	Other motor vehicle	Driving properly
15-107212s	2015-Oct-01, Thu,15:15	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Truck - closed	Other motor vehicle	Following too close
15-110242s	2015-Oct-09, Fri,12:00	Rain	Angle	Non-reportable	North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control
15121180	2015-Nov-07, Sat,13:45	Clear	Rear end	P.D. only	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	
16-881	2016-Jan-03, Sun,15:33	Snow	SMV other	P.D. only	West	Ice	Slowing or stopping	Automobile, station wagon	Ran off road	Lost control
Comments:										
16-3078s	2016-Jan-09, Sat,13:30	Clear	Rear end	Non-reportable	North	Dry	Stopped	Other	Other motor vehicle	Driving properly
Comments:					North	Dry	Slowing or stopping	Pick-up truck	Other motor vehicle	Following too close
16-3437s	2016-Jan-10, Sun,15:00	Snow	Rear end	Non-reportable	South	Loose snow	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Loose snow				
16-3438	2016-Jan-10, Sun,16:35	Strong wind	SMV other	P.D. only	South	Slush	Slowing or stopping	Automobile, station wagon	Curb	Lost control
Comments:										
16-12243	2016-Feb-03, Wed,18:10	Snow	Rear end	P.D. only	South	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					South	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
16-12611	2016-Feb-05, Fri,18:25	Clear	Rear end	Non-fatal injury	South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Other
Comments:					South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
16-32560s	2016-Apr-02, Sat,14:40	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Other
16-44428s	2016-May-04, Wed,15:45	Clear	Rear end	Non-reportable	South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly

16-50225	2016-May-20, Fri,13:08	Clear	Turning movement	Non-fatal injury	East	Dry	Turning right	Truck - tractor	Other motor vehicle	Disobeyed traffic control
Comments:					West	Dry	Turning left	Other	Other motor vehicle	Driving properly
1670563	2016-Jul-08, Fri,09:39	Clear	Sideswipe	Non-fatal injury	South	Dry	Turning right	Truck - tractor	Other motor vehicle	Improper turn
Comments:					South	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
16-72012s	2016-Jul-11, Mon,17:30	Clear	Rear end	Non-reportable	West	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
Comments:					West	Dry				
16-79377s	2016-Jul-29, Fri,17:35	Clear	Turning movement	Non-reportable	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
16-93998s	2016-Sep-02, Fri,17:20	Clear	Rear end	Non-reportable	North	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
Comments:					North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
16-106292	2016-Oct-05, Wed,14:00	Clear	SMV other	Non-fatal injury	North	Dry	Turning right	Automobile, station wagon	Pedestrian	Failed to yield right-of-way 1
Comments:										
16106232	2016-Oct-05, Wed,14:00	Clear	SMV other	Non-fatal injury	North	Dry	Turning right	Automobile, station wagon	Pedestrian	Failed to yield right-of-way
Comments:						Dry				
16-111262s	2016-Oct-18, Tue,20:30	Clear	Rear end	Non-reportable	South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
16-129245s	2016-Dec-06, Tue,16:40	Rain	Rear end	Non-reportable	East	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					East	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
16-132622s	2016-Dec-15, Thu,14:00	Clear	Rear end	Non-reportable	South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
16-136252s	2016-Dec-27, Tue,14:10	Clear	Rear end	Non-reportable	East	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
16-137100s	2016-Dec-29, Thu,15:00	Clear	Sideswipe	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry				

17-20924s	2017-Feb-28, Tue,18:15	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
17-31444s	2017-Mar-29, Wed,16:30	Clear	Rear end	Non-reportable	South	Dry	Slowing or stopping	Pick-up truck	Other motor vehicle	Following too close
Comments:					South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
17-34250s	2017-Apr-06, Thu,12:40	Clear	Sideswipe	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry				
17-34499	2017-Apr-07, Fri,08:40	Drifting Snow	Turning movement	Non-fatal injury	South	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Disobeyed traffic control
Comments:					North	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
17-39727s	2017-Apr-21, Fri,11:26	Clear	Approaching	Non-reportable	North	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
Comments:					South	Dry	Going ahead	Delivery van	Other motor vehicle	Driving properly
17-850149s	2017-May-06, Sat,14:30	Clear	Rear end	Non-reportable	South	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
17-850495s	2017-May-21, Sun,13:00	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
17-851248s	2017-Jun-23, Fri,17:10	Clear	Turning movement	Non-reportable	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
17-854300s	2017-Nov-03, Fri,14:10	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry				
17-854600s	2017-Nov-14, Tue,07:50	Clear	Turning movement	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
17-854705s	2017-Nov-17, Fri,11:00	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Other
17-854743s	2017-Nov-18, Sat,15:00	Rain	Sideswipe	Non-reportable	South	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Wet	Changing lanes	Automobile, station wagon	Other motor vehicle	Improper lane change

18-3856	2018-Jan-06, Sat,15:08	Clear	Approaching	P.D. only	East	Loose snow	Turning left	Pick-up truck	Other motor vehicle	Disobeyed traffic control
Comments:					West	Loose snow	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-850478s	2018-Jan-12, Fri,11:50	Freezing Rain	Rear end	Non-reportable	South	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Wet				
18-13145	2018-Feb-03, Sat,09:51	Clear	Turning movement	P.D. only	North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-851297s	2018-Feb-05, Mon,09:45	Clear	Rear end	Non-reportable	North	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Wet				
18-851784s	2018-Feb-17, Sat,16:30	Clear	Rear end	Non-reportable	East	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Other
Comments:					East	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
18-852010s	2018-Feb-27, Tue,10:00	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Stopped	Truck - closed	Other motor vehicle	Driving properly
18-852089s	2018-Mar-02, Fri,09:00	Clear	Other	Non-reportable	North	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
18-852950s	2018-Apr-06, Fri,12:40	Clear	Turning movement	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Turning left	Pick-up truck	Other motor vehicle	Driving properly
18-853009s	2018-Apr-09, Mon,13:30	Clear	Rear end	Non-reportable	South	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
18-853077s	2018-Apr-11, Wed,16:50	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry				
18-853888s	2018-May-08, Tue,13:00	Clear	Sideswipe	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly
18-853863s	2018-May-11, Fri,15:00	Rain	Rear end	Non-reportable	South	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Wet				

18-854143s	2018-May-26, Sat,19:00	Clear	Angle	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-854647s	2018-Jun-15, Fri,07:40	Clear	Other	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry				
18-855432s	2018-Jul-16, Mon,08:50	Clear	Rear end	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry				
18-855779s	2018-Jul-29, Sun,16:50	Clear	Sideswipe	Non-reportable	East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly
18-855976s	2018-Aug-06, Mon,16:40	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
18-857471s	2018-Oct-02, Tue,13:35	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry				
18-857771s	2018-Oct-15, Mon,13:05	Clear	Rear end	Non-reportable	South	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
Comments:					South	Dry				
18-858174s	2018-Oct-27, Sat,00:00	Clear	Rear end	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry				
18-859035s	2018-Nov-20, Tue,16:30	Clear	Turning movement	Non-reportable	North	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
Comments:					South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
18-859910s	2018-Dec-12, Wed,16:30	Clear	Rear end	Non-reportable	West	Wet	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Wet	Slowing or stopping	Pick-up truck	Other motor vehicle	Following too close
18-860052s	2018-Dec-14, Fri,06:30	Rain	Sideswipe	Non-reportable	South	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Wet				
19-850656s	2019-Jan-19, Sat,00:00	Snow	Rear end	Non-reportable	South	Ice	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Ice				

19-9553	2019-Jan-30, Wed,00:00	Snow	Sideswipe	Non-fatal injury	East	Packed snow	Turning left	Automobile, station wagon	Other motor vehicle	Lost control
Comments:					East	Packed snow	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
19-852678s	2019-Mar-23, Sat,00:00	Clear	Turning movement	Non-reportable	South	Dry	Turning left	Other	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-853214s	2019-Apr-13, Sat,00:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-854002s	2019-May-11, Sat,00:00	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South		Turning right	Pick-up truck	Other motor vehicle	Driving properly
19-856209s	2019-Jul-31, Wed,00:00	Clear	Sideswipe	Non-reportable	South	Dry	Changing lanes	Pick-up truck	Other motor vehicle	Driving properly
Comments:					South	Dry				
19-856217s	2019-Jul-31, Wed,00:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry				
19-856406s	2019-Aug-08, Thu,00:00	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry				
19-856560s	2019-Aug-15, Thu,00:00	Clear	Rear end	Non-reportable	West	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry				
19-856656s	2019-Aug-18, Sun,00:00	Rain	Rear end	Non-reportable	North	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Wet				
19-857367s	2019-Sep-12, Thu,00:00	Rain	Rear end	Non-reportable	South	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South					
19857367	2019-Sep-12, Thu,07:00	Rain	Rear end	Non-reportable	South	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Wet	Going ahead		Other motor vehicle	
19-858474s	2019-Oct-21, Mon,00:00	Clear	Turning movement	Non-reportable	South	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead			

19-858765s	2019-Oct-29, Tue,17:20	Clear	Rear end	Non-reportable	North	Dry	Stopped	Delivery van	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-859223s	2019-Nov-11, Mon,16:30	Snow	Rear end	Non-reportable	West	Loose snow	Slowing or stopping	Automobile, station wagon	Skidding/sliding	Driving properly
Comments:					West	Loose snow	Stopped	Pick-up truck	Other motor vehicle	Driving properly
19-860041s	2019-Nov-28, Thu,10:30	Clear	Other	Non-reportable	East	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
Comments:					East	Dry				
19-860052s	2019-Dec-03, Tue,15:27	Clear	Other	Non-reportable	South	Dry	Reversing	Delivery van	Other motor vehicle	Other
Comments:					South	Dry				
19-127608	2019-Dec-17, Tue,16:07	Clear	Sideswipe	P.D. only	South	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Improper lane change
Comments:					South	Dry	Going ahead	Police vehicle	Other motor vehicle	Driving properly
20-852441s	2020-Mar-09, Mon,15:00	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
20-852447s	2020-Mar-10, Tue,09:05	Rain	Rear end	Non-reportable	South	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
20-853321s	2020-May-27, Wed,15:30	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry				
20-853497s	2020-Jun-08, Mon,13:30	Clear	Rear end	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North		Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
20-853758s	2020-Jun-23, Tue,08:20	Clear	Rear end	Non-reportable	West	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Other
20-854073s	2020-Jul-09, Thu,15:00	Clear	Rear end	Non-reportable	North	Dry	Going ahead	Pick-up truck	Other motor vehicle	Following too close
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
20-854141s	2020-Jul-13, Mon,12:40	Clear	Rear end	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Other

20855083	2020-Sep-03, Thu,14:30	Clear	Rear end	Non-reportable	South	Dry	Slowing or stopping	Passenger van	Other motor vehicle	Driving properly
Comments:					South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
20855708	2020-Oct-03, Sat,13:05	Clear	Rear end	P.D. only	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
20855999	2020-Oct-17, Sat,12:10	Clear	Sideswipe	P.D. only	North	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
Comments:					North	Dry	Merging		Other motor vehicle	
20855999A	2020-Oct-17, Sat,12:15	Clear	Sideswipe	P.D. only	North	Dry	Overtaking	Truck-other	Other motor vehicle	Driving properly
Comments:					North		Going ahead	Pick-up truck	Other motor vehicle	Driving properly
20856030	2020-Oct-19, Mon,14:15	Clear	Rear end	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	
20857351	2020-Dec-16, Wed,22:00	Drifting Snow	Rear end	P.D. only	East	Loose snow	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Loose snow	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly

Collision Details Report

From: **To:**

Location ..... WONDERLAND RD S btwn EXETER RD & WHARNCLIFFE RD S **Municipality.....** LONDON

Traffic Control.... No control **Total Collisions....** 30

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
15-12257s	2015-Jan-15, Thu,11:00	Clear	Rear end	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close	
Comments:					North		Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly	
1530069	2015-Mar-21, Sat,14:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly	
Comments:					North		Going ahead	Automobile, station wagon	Other motor vehicle		
15-53982s	2015-May-21, Thu,16:00	Clear	Other	Non-reportable	South	Dry	Going ahead	Passenger van	Other motor vehicle	Driving properly	
Comments:					North		Going ahead	Automobile, station wagon		Driving properly	
15-66412s	2015-Jun-21, Sun,11:30	Clear	Sideswipe	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Improper lane change	
16-112681s	2016-Oct-22, Sat,16:45	Rain	Sideswipe	Non-reportable	North	Wet	Changing lanes	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way	
Comments:					North		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
16-122610s	2016-Nov-18, Fri,11:45	Clear	Sideswipe	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North		Changing lanes	Automobile, station wagon	Other motor vehicle	Improper lane change	
16-127358s	2016-Feb-05, Fri,00:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North		Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close	
16-16324s	2016-Feb-16, Tue,17:10	Clear	SMV unattended vehicle	Non-reportable	South	Wet	Going ahead	Pick-up truck	Other motor vehicle	Driving properly	
Comments:					South	Wet	Making "U" turn	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way	
16-30008s	2016-Mar-26, Sat,14:30	Clear	Rear end	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close	
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	

17-850287s	2017-May-13, Sat,14:20	Clear	Rear end	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North					
17-853063s	2017-Sep-20, Wed,10:30	Clear	Sideswipe	Non-reportable	South	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Improper passing
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
17-853399s	2017-Oct-01, Sun,13:00	Clear	Rear end	Non-reportable	South	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
Comments:					South		Slowing or stopping	Passenger van	Other motor vehicle	Driving properly
17-856020s	2017-Dec-28, Thu,10:20	Clear	Rear end	Non-reportable	South	Slush	Stopped		Other motor vehicle	Driving properly
Comments:					South					
17-9659s	2017-Jan-27, Fri,23:20	Snow	Rear end	Non-reportable	North	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
Comments:					North		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
18-851978s	2018-Feb-26, Mon,10:45	Clear	Sideswipe	Non-reportable	North	Dry	Changing lanes	Pick-up truck	Other motor vehicle	Failed to yield right-of-way
Comments:					North		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-855454s	2018-Jul-16, Mon,17:00	Clear	Sideswipe	Non-reportable	South	Dry	Stopped	Truck - closed	Other motor vehicle	Driving properly
Comments:					South		Turning left	Other	Other motor vehicle	Driving properly
18-857378s	2018-Sep-28, Fri,11:41	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North					
18-858023s	2018-Oct-23, Tue,21:20	Rain	SMV other	Non-reportable	South	Wet	Going ahead	Automobile, station wagon	Other	Driving properly
Comments:	Pot hole									
19-854510s	2019-May-31, Fri,00:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-856253s	2019-Aug-01, Thu,00:00	Clear	Rear end	Non-reportable	South	Dry	Slowing or stopping	Pick-up truck	Other motor vehicle	Driving properly
Comments:					South		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
19-858389s	2019-Oct-18, Fri,00:00	Clear	Sideswipe	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry				

19-860415s	2019-Dec-13, Fri,17:05	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry				
19-860826s	2019-Dec-23, Mon,12:25	Clear	SMV other	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Skidding/sliding	Driving properly
Comments:										
20-850720s	2020-Jan-20, Mon,20:00	Other	SMV other	Non-reportable	South	Slush	Going ahead	Automobile, station wagon	Animal - wild	Driving properly
Comments:	Deer									
20-853061s	2020-May-04, Mon,15:45	Clear	Sideswipe	Non-reportable	South	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
20-853392s	2020-Jun-02, Tue,14:00	Clear	Sideswipe	Non-reportable	North	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
Comments:					North		Merging	Passenger van	Other motor vehicle	Speed too slow
20-853885s	2020-Jun-29, Mon,15:30	Clear	Rear end	Non-reportable	South	Dry	Going ahead	Other	Other motor vehicle	Driving properly
Comments:					South		Stopped	Pick-up truck	Other motor vehicle	Driving properly
20-854099s	2020-Jul-09, Thu,15:30	Clear	Rear end	Non-reportable	North	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
Comments:					North		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
20856147	2020-Oct-24, Sat,14:05	Clear	Turning movement	P.D. only	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South		Making "U" turn	Automobile, station wagon	Other motor vehicle	Driving properly
20856340	2020-Nov-02, Mon,11:10	Clear	Sideswipe	P.D. only	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South		Merging	Delivery van	Other motor vehicle	Driving properly

Location ..... WONDERLAND RD S btwn KILBOURNE RD & LOWES ENTRY **Municipality.....** LONDON

Traffic Control.... No control **Total Collisions....** 3

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
17-75511	2017-Jul-26, Wed,15:32	Clear	Turning movement	P.D. only	South	Dry	Going ahead	Pick-up truck	Other motor vehicle	Other	
Comments:					North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly	

19-83108	2019-Aug-20, Tue,00:00	Clear	Angle	Non-fatal injury	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
20-21521	2020-Mar-01, Sun,16:38	Rain	SMV other	Non-fatal injury	North	Wet	Going ahead	Passenger van	Pole (utility, power)	Lost control	
Comments:	Unknown location										

Location ..... WONDERLAND RD S btwn POWER CENTRE & SOUTHDALE RD W **Municipality.....** LONDON

Traffic Control.... No control **Total Collisions....** 62

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
15-108114s	2015-Oct-03, Sat,19:20	Rain	Sideswipe	Non-reportable	North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North		Turning right	Automobile, station wagon	Other motor vehicle	Driving properly	
15-109891	2015-Oct-08, Thu,14:07	Clear	Turning movement	Non-fatal injury	South	Dry	Going ahead	Passenger van	Other motor vehicle	Driving properly	
Comments:					North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn	
15-123499s	2015-Nov-13, Fri,19:10	Rain	Turning movement	Non-reportable	South	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North	Wet	Turning left	Pick-up truck	Other motor vehicle	Failed to yield right-of-way	
15-140196	2015-Dec-30, Wed,13:30	Clear	Rear end	Non-fatal injury	North	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close	
Comments:					North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
15-17387s	2015-Feb-15, Sun,17:15	Clear	Rear end	Non-reportable	North	Slush	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North	Slush	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Speed too fast for condition	
15-24998s	2015-Mar-07, Sat,11:00	Clear	Rear end	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close	
Comments:	7 - 1, special case				North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
152963	2019-Jun-04, Tue,13:42	Clear	SMV other	Non-fatal injury	West	Dry	Going ahead	Automobile, station wagon	Pedestrian	Failed to yield right-of-way	
Comments:											
15-35401s	2015-Apr-04, Sat,13:40	Clear	Sideswipe	Non-reportable	North	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly	
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	

15-37958s	2015-Apr-11, Sat,16:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North		Going ahead	Automobile, station wagon	Other motor vehicle	Following too close	
15-70952	2015-Jul-02, Thu,18:30	Clear	Rear end	Non-fatal injury	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Following too close	
Comments:					North	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly	
15-73876	2015-Jul-10, Fri,05:04	Clear	SMV other	Non-fatal injury	North	Dry	Going ahead	Pick-up truck	Pedestrian	Driving properly	1
Comments:											
15-73974s	2015-Jul-10, Fri,11:00	Clear	Rear end	Non-reportable	South	Dry	Slowing or stopping	Truck - closed	Other motor vehicle	Following too close	
Comments:					South		Stopped	Passenger van	Other motor vehicle	Driving properly	
15-82438s	2015-Jul-31, Fri,12:00	Clear	Angle	Non-reportable	South	Dry	Going ahead	Truck - closed	Other motor vehicle	Driving properly	
Comments:					East		Turning right	Unknown	Other motor vehicle		
16-111936s	2016-Oct-19, Wed,18:00	Clear	Rear end	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close	
16-122768s	2016-Nov-18, Fri,17:20	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					South	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly	
16-134812s	2016-Dec-22, Thu,15:30	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North		Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close	
16-37124s	2016-Apr-15, Fri,10:30	Clear	Sideswipe	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
16-38681s	2016-Apr-19, Tue,17:30	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					North	Dry	Slowing or stopping	Pick-up truck	Other motor vehicle	Lost control	
16-42382s	2016-Apr-29, Fri,16:09	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:					South		Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close	

16-53421s	2016-May-28, Sat,13:00	Clear	Rear end	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Other
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
16-54242s	2016-May-30, Mon,11:30	Clear	Angle	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
16-90618s	2016-Aug-27, Sat,14:00	Clear	Rear end	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North		Going ahead	Pick-up truck	Other motor vehicle	Following too close
16-96474s	2016-Sep-10, Sat,17:00	Clear	Turning movement	Non-reportable	North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South		Going ahead			
17-11131s	2017-Jan-31, Tue,17:15	Snow	Rear end	Non-reportable	North	Loose snow	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
17-32138s	2017-Mar-31, Fri,16:15	Rain	Rear end	Non-reportable	South	Wet	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
17-37643s	2017-Apr-15, Sat,15:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North		Slowing or stopping	Automobile, station wagon	Other motor vehicle	Following too close
17-42444s	2017-Apr-28, Fri,12:30	Clear	Sideswipe	Non-reportable	North	Dry	Stopped	Truck - closed	Other motor vehicle	Driving properly
Comments:					North	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Improper lane change
17-4791s	2017-Jan-14, Sat,17:40	Clear	Rear end	Non-reportable	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North		Going ahead	Automobile, station wagon	Other motor vehicle	Following too close
17-66331	2017-Jul-02, Sun,16:30	Clear	Angle	Non-fatal injury	South	Dry	Going ahead	Bicycle	Other motor vehicle	Failed to yield right-of-way
Comments:					West	Dry	Turning right	Automobile, station wagon	Cyclist	Driving properly
17-850262s	2017-May-12, Fri,11:40	Clear	Sideswipe	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South					
17-850358s	2017-May-16, Tue,16:30	Clear	Sideswipe	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South					

17-850763s	2017-Jun-04, Sun,14:45	Clear	Turning movement	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
17-851750s	2017-Jul-18, Tue,12:45	Clear	Turning movement	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North		Turning left	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
17851814	2017-Jul-21, Fri,13:40	Clear	Turning movement	P.D. only	North	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					North		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
17-851814s	2017-Jun-21, Wed,12:00	Clear	Turning movement	Non-reportable	North	Dry	Turning right	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					North		Going ahead	Truck - closed	Other motor vehicle	Driving properly
17-853360s	2017-Sep-30, Sat,16:45	Clear	Sideswipe	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Improper turn
Comments:					North					
17-854016s	2017-Oct-24, Tue,17:25	Clear	Angle	Non-reportable	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Merging	Automobile, station wagon	Other motor vehicle	Following too close
17-854063s	2017-Oct-26, Thu,11:30	Clear	Sideswipe	Non-reportable	North	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North		Going ahead	Truck - closed	Other motor vehicle	Driving properly
17-854333s	2017-Nov-04, Sat,17:20	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry				
17-855814s	2017-Dec-21, Thu,20:00	Snow	Sideswipe	Non-reportable	South	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Wet				
18-851755s	2018-Feb-16, Fri,20:30	Clear	Sideswipe	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-856510s	2018-Aug-28, Tue,13:30	Clear	Sideswipe	Non-reportable	North	Dry	Changing lanes	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					North		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
18-857178s	2018-Sep-21, Fri,18:30	Clear	Rear end	Non-reportable	East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Other
Comments:					East		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly

19-52663	2019-Jun-04, Tue,00:00	Clear	SMV other	Non-fatal injury	West	Dry	Going ahead	Automobile, station wagon	Pedestrian	Failed to yield right-of-way
Comments:										
19-850775s	2019-Jan-25, Fri,00:00	Snow	Angle	Non-reportable	East	Ice	Other	Automobile, station wagon	Other motor vehicle	Other
Comments:					South	Ice				
19-851623s	2019-Feb-17, Sun,00:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
19-852449s	2019-Mar-14, Thu,00:00	Rain	Sideswipe	Non-reportable	North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North		Changing lanes	Automobile, station wagon	Other motor vehicle	Improper lane change
19-854386s	2019-May-27, Mon,00:00	Clear	Rear end	Non-reportable	South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South		Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
19-854903s	2019-Jun-13, Thu,00:00	Clear	Sideswipe	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry				
19-855212s	2019-Jun-24, Mon,00:00	Clear	Rear end	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North		Going ahead	Automobile, station wagon	Other motor vehicle	Other
19-855218s	2019-Jun-24, Mon,17:40	Clear	Sideswipe	Non-reportable	North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry				
19-855654s	2019-Jul-10, Wed,18:15	Clear	Sideswipe	Non-reportable	South	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
Comments:					South		Slowing or stopping	Truck - closed	Other motor vehicle	Driving properly
19-856778s	2019-Aug-24, Sat,00:00	Clear	Angle	Non-reportable	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East		Turning right	Automobile, station wagon	Other motor vehicle	Driving properly
19-857233s	2019-Sep-10, Tue,00:00	Clear	Rear end	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
19-860379s	2019-Dec-12, Thu,16:25	Clear	Rear end	Non-reportable	South	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					South	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly

19-860748s	2019-Dec-22, Sun,12:15	Clear	Sideswipe	Non-reportable	North	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North	Dry	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
20-852572s	2020-Mar-12, Thu,17:45	Clear	Angle	Non-reportable	East	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper passing
Comments:					North		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
20855741	2020-Oct-05, Mon,16:10	Clear	Rear end	P.D. only	North	Dry	Slowing or stopping	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					North		Stopped	Automobile, station wagon	Other motor vehicle	Driving properly
20855970	2020-Oct-16, Fri,15:20	Clear	Rear end	P.D. only	North	Dry	Stopped	Pick-up truck	Other motor vehicle	Driving properly
Comments:					North		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
20856892B	2020-Nov-28, Sat,12:00	Clear	Sideswipe	P.D. only	North	Dry	Going ahead	Passenger van	Other motor vehicle	Driving properly
Comments:					North		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
20857602	2020-Dec-30, Wed,19:30	Clear	Sideswipe	P.D. only	North	Wet	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
Comments:					North		Changing lanes	Automobile, station wagon	Other motor vehicle	Driving properly
2098904	2020-Oct-10, Sat,10:37	Clear	Turning movement	Non-fatal injury	North	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Improper turn
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly

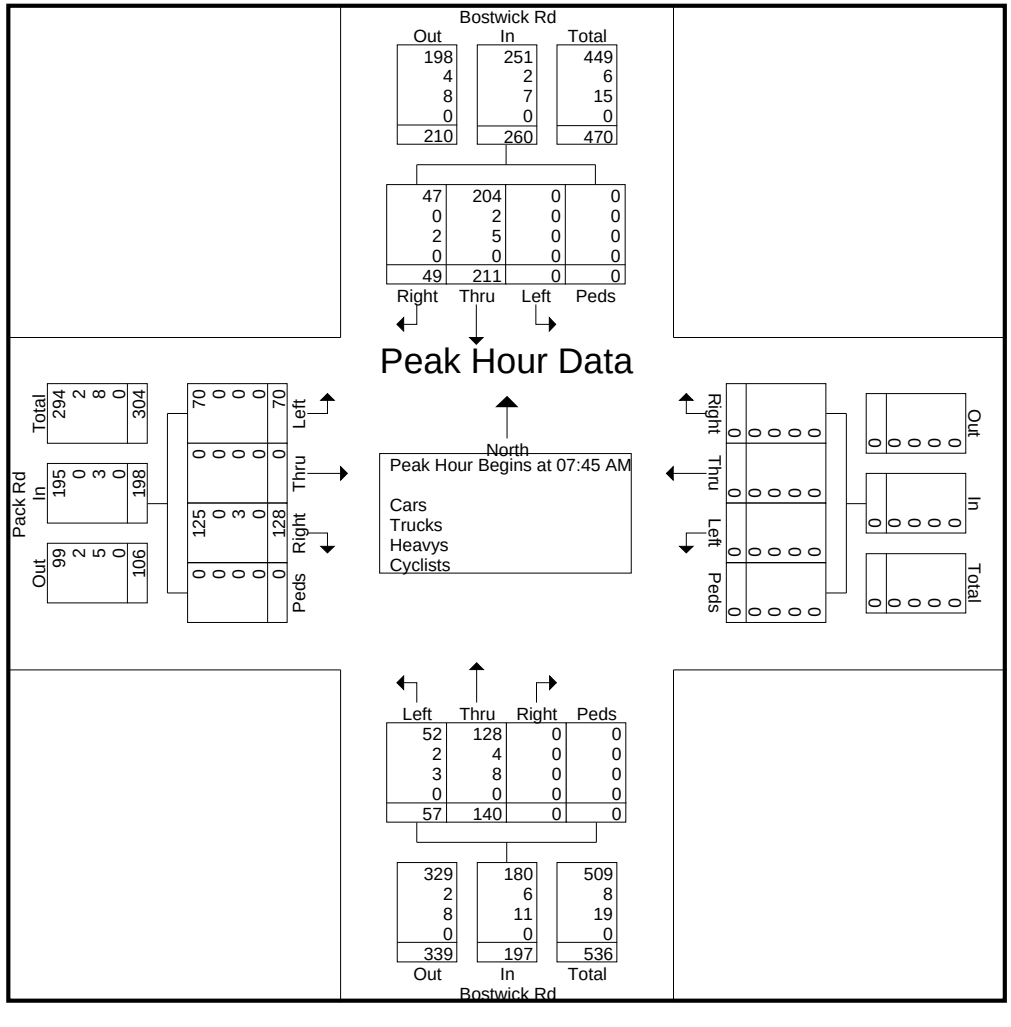
Appendix C – Traffic Count Data

Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Bostwick Road & Pack Road
Site Code : 00000000
Start Date : 11/17/2021
Page No : 5

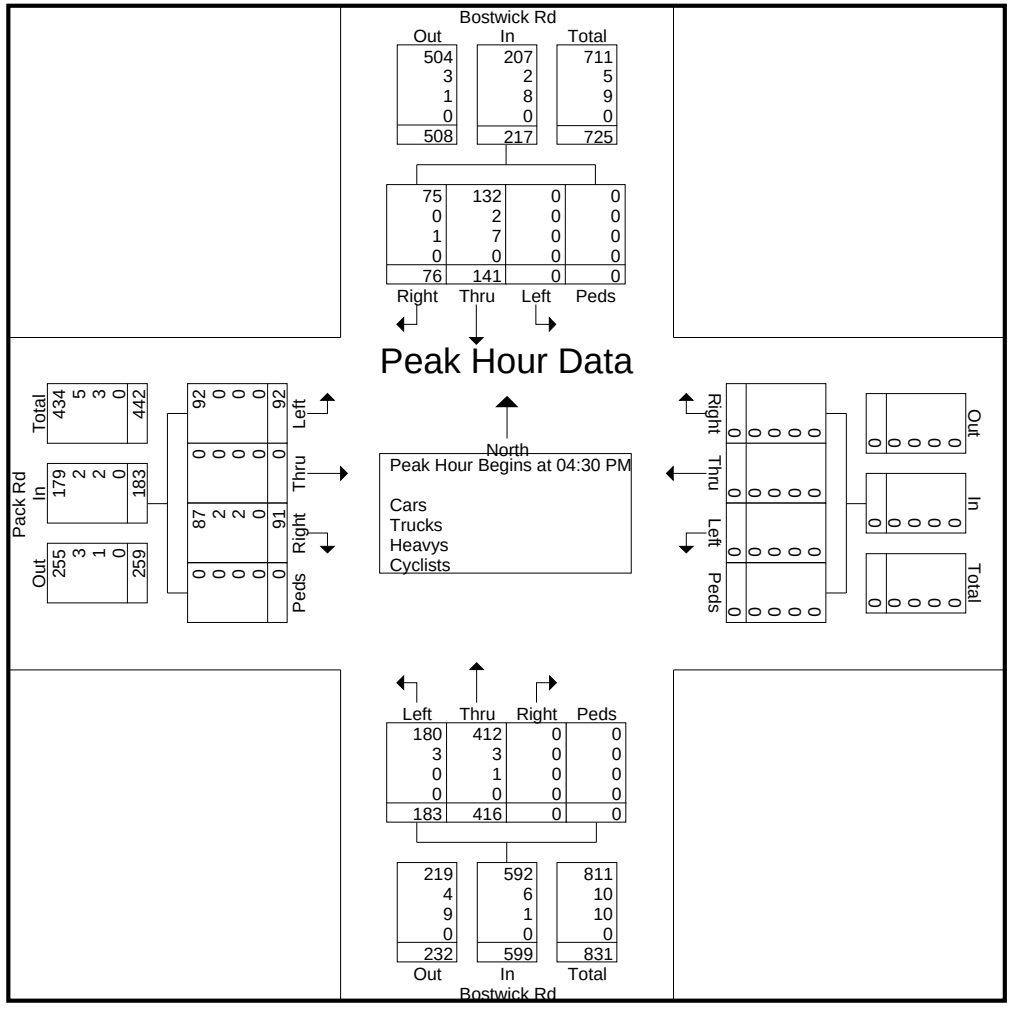


Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5

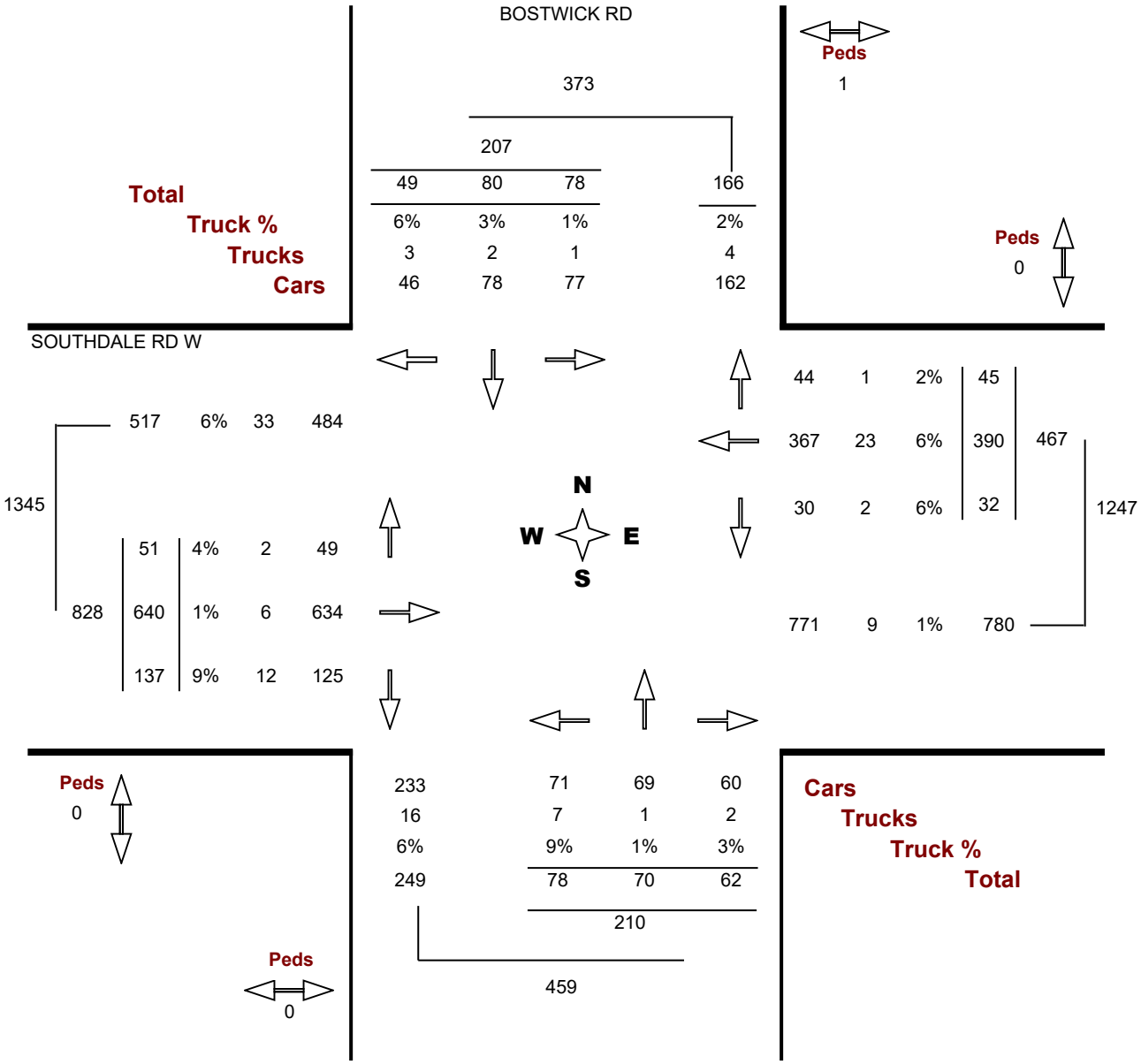
"we always count...never estimated"

File Name : Bostwick Road & Pack Road
Site Code : 00000000
Start Date : 11/17/2021
Page No : 11



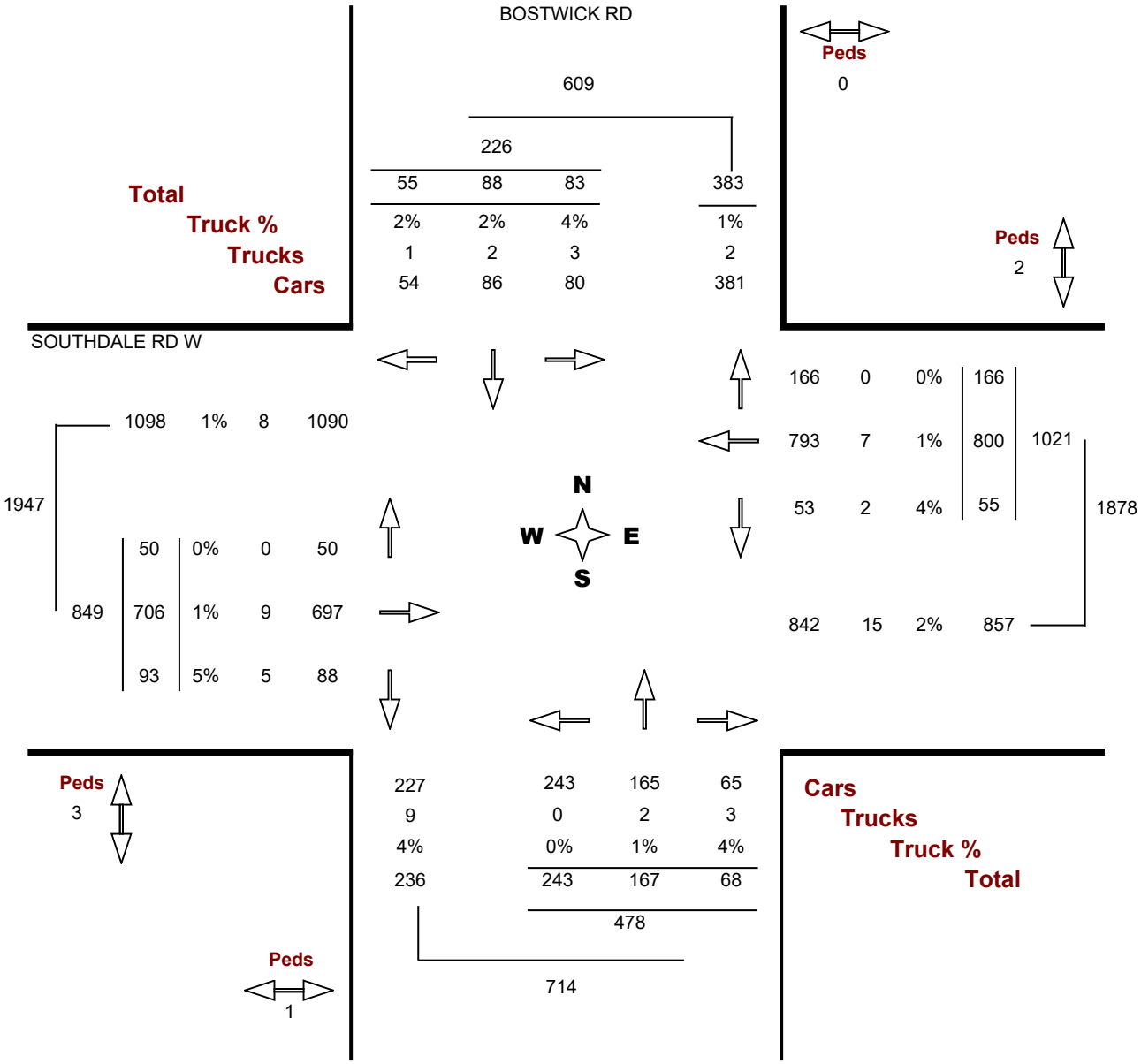
Turning Movements Report - AM Period

Location..... BOSTWICK RD @ SOUTHDALE RD W
Municipality..... LONDON
GeoID..... INT5739
Count Date..... Tuesday, 21 May, 2019 **Peak Hour.....** 08:00 AM — 09:00 AM



Turning Movements Report - PM Period

Location..... BOSTWICK RD @ SOUTHDALE RD W
Municipality..... LONDON
GeoID..... INT5739
Count Date..... Tuesday, 21 May, 2019 **Peak Hour.....** 04:45 PM — 05:45 PM



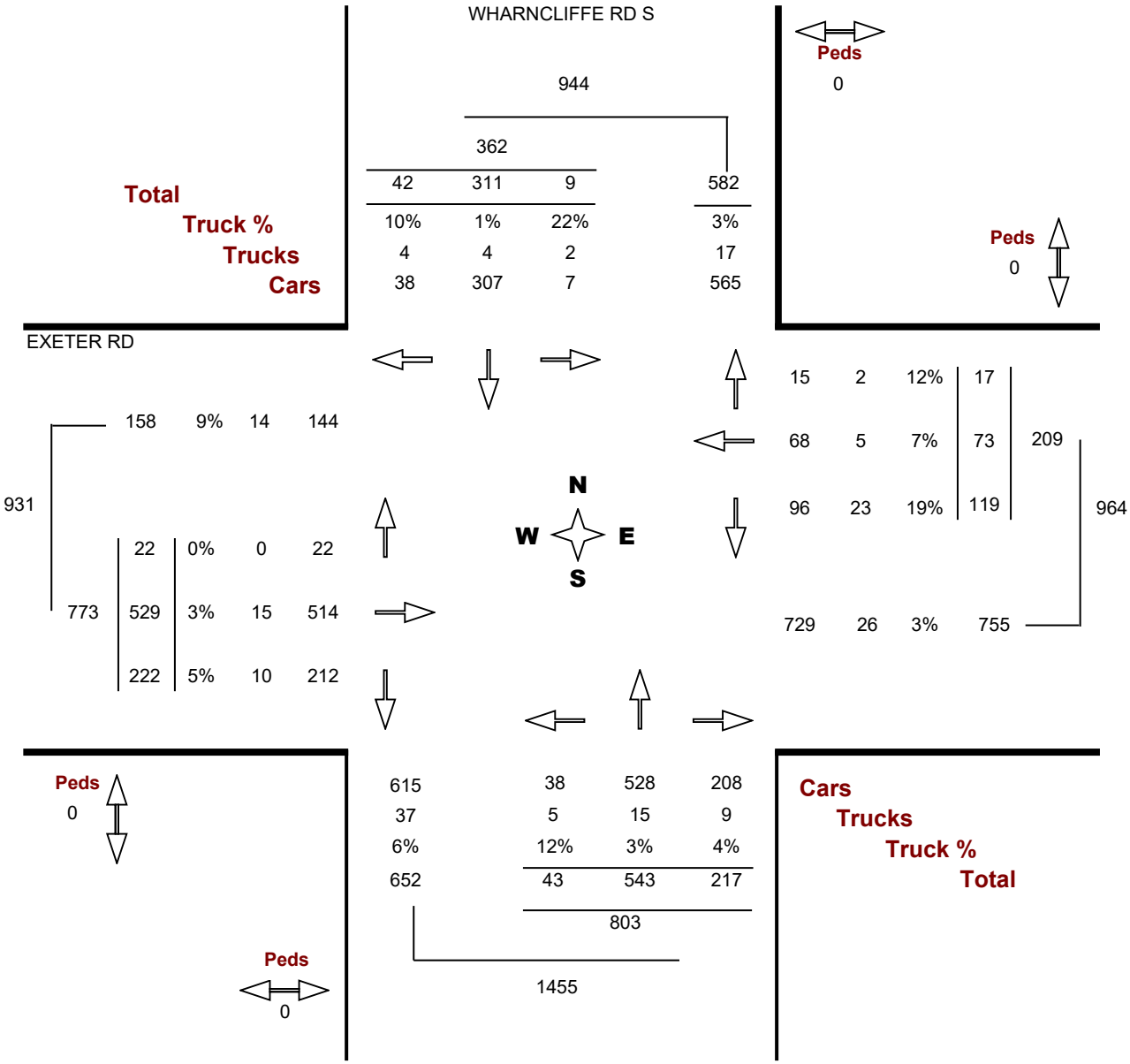
Turning Movements Report - AM Period

Location..... EXETER RD @ WHARNCLIFFE RD S

Municipality..... LONDON

GeoID..... INT6088

Count Date..... Tuesday, 31 October, 2017 **Peak Hour.....** 07:45 AM — 08:45 AM



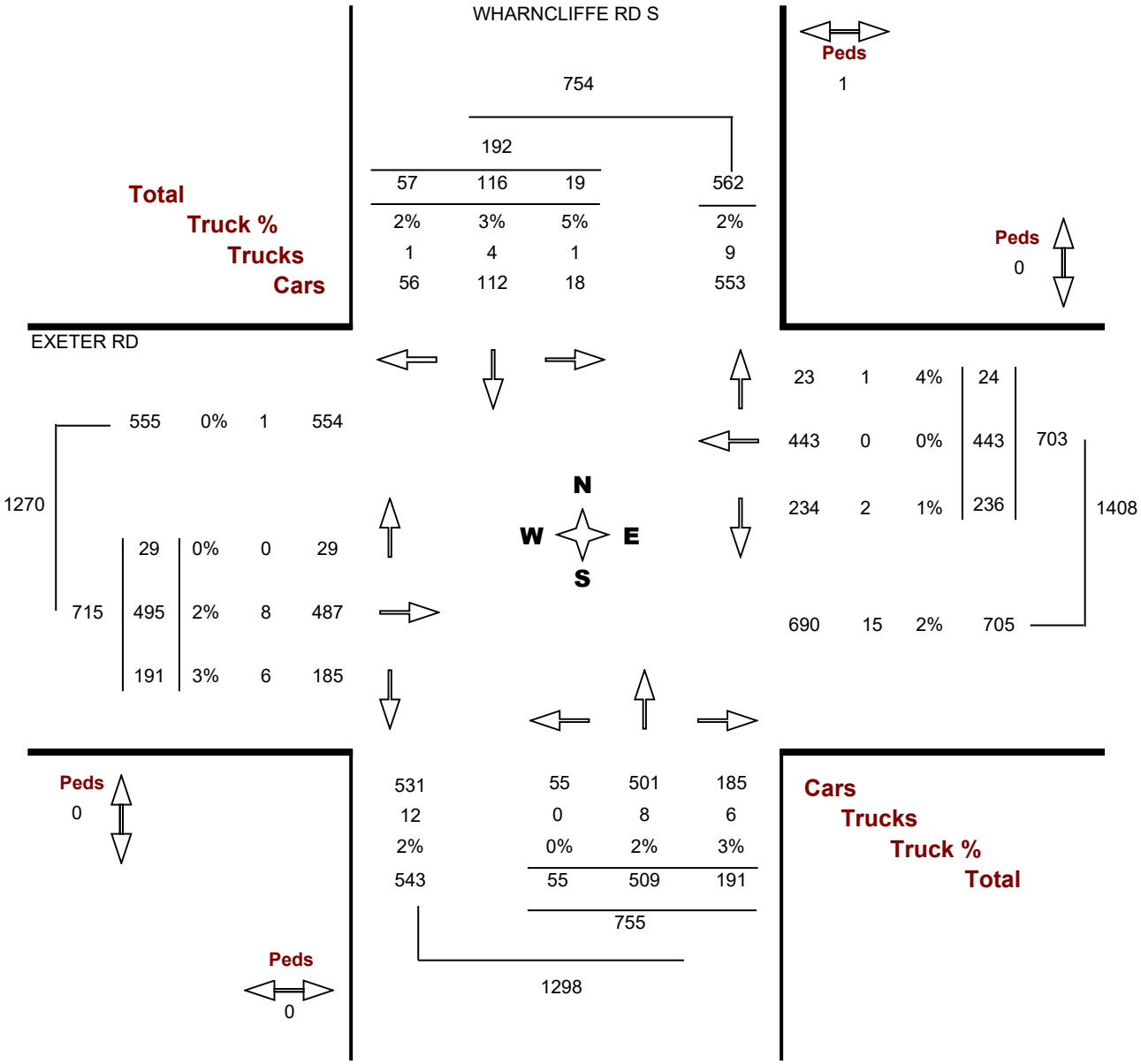
Turning Movements Report - PM Period

Location..... EXETER RD @ WHARNCLIFFE RD S

Municipality..... LONDON

GeoID..... INT6088

Count Date..... Tuesday, 31 October, 2017 **Peak Hour.....** 04:30 PM — 05:30 PM



Turning Movements Report - AM Period

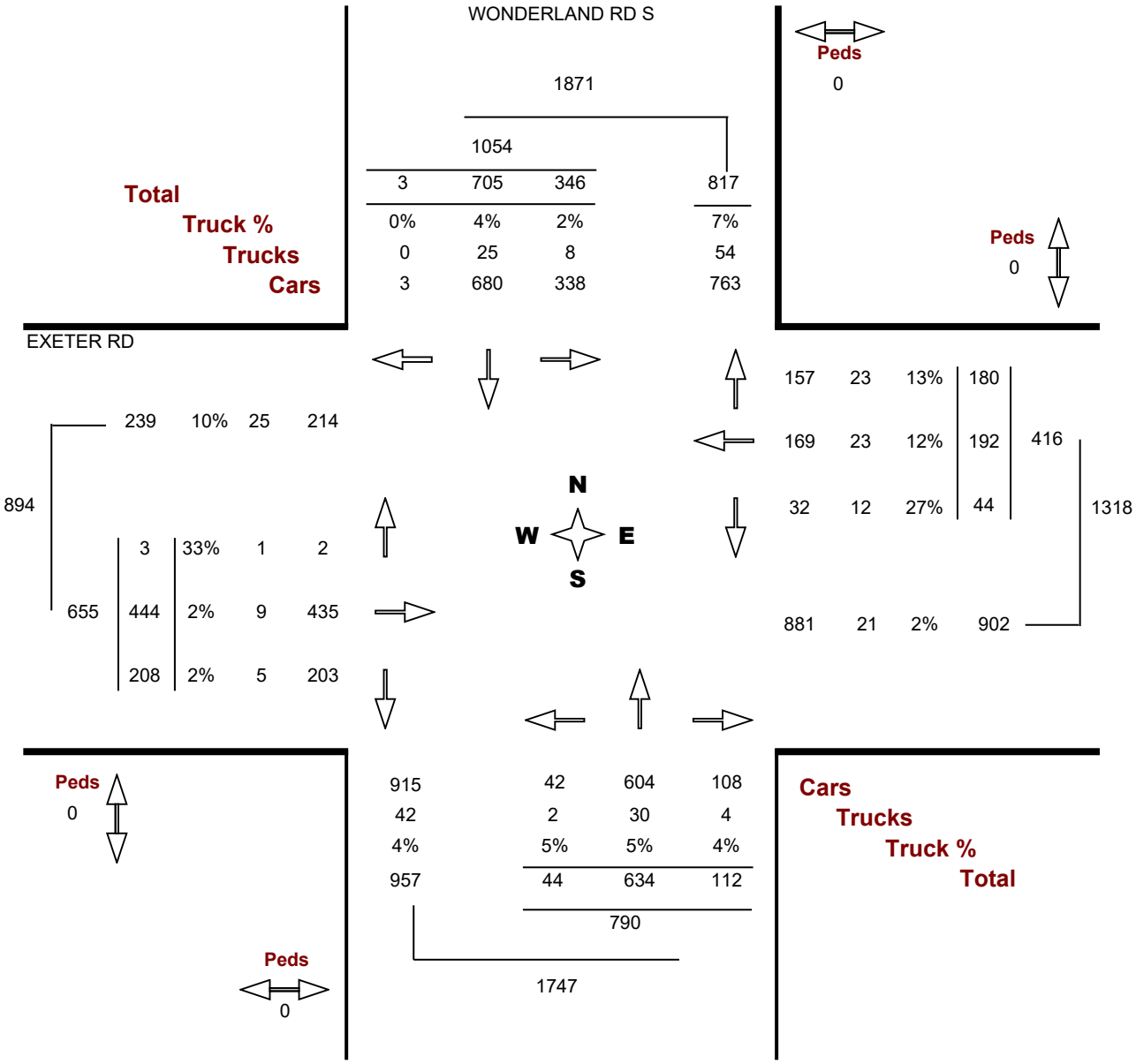
Location..... EXETER RD @ WONDERLAND RD S

Municipality..... LONDON

GeoID..... INT6084

Count Date..... Monday, 23 September, 2019

Peak Hour..... 07:30 AM — 08:30 AM



Turning Movements Report - PM Period

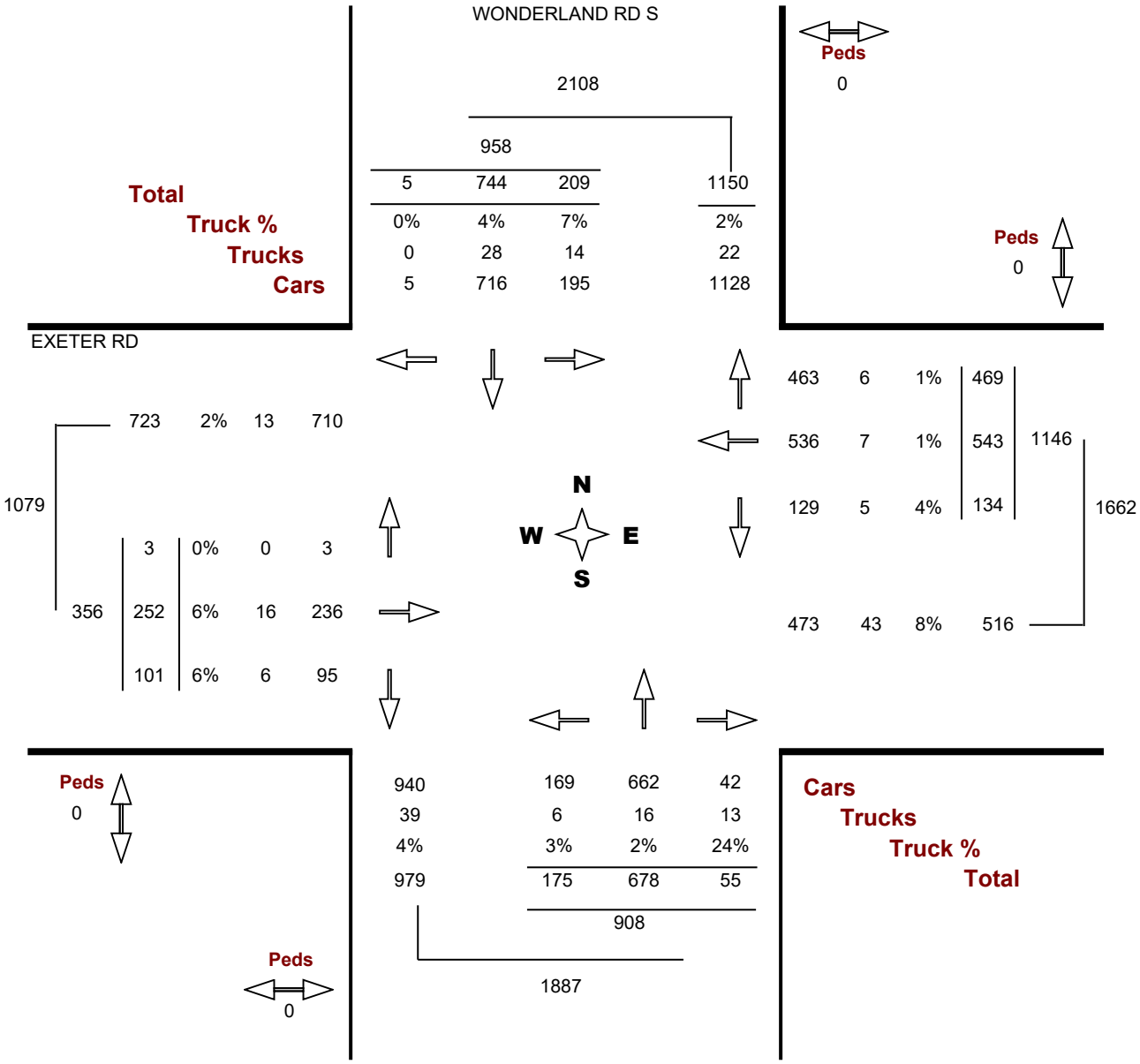
Location..... EXETER RD @ WONDERLAND RD S

Municipality..... LONDON

GeoID..... INT6084

Count Date..... Monday, 23 September, 2019

Peak Hour..... 04:30 PM — 05:30 PM



Turning Movements Report - AM Period

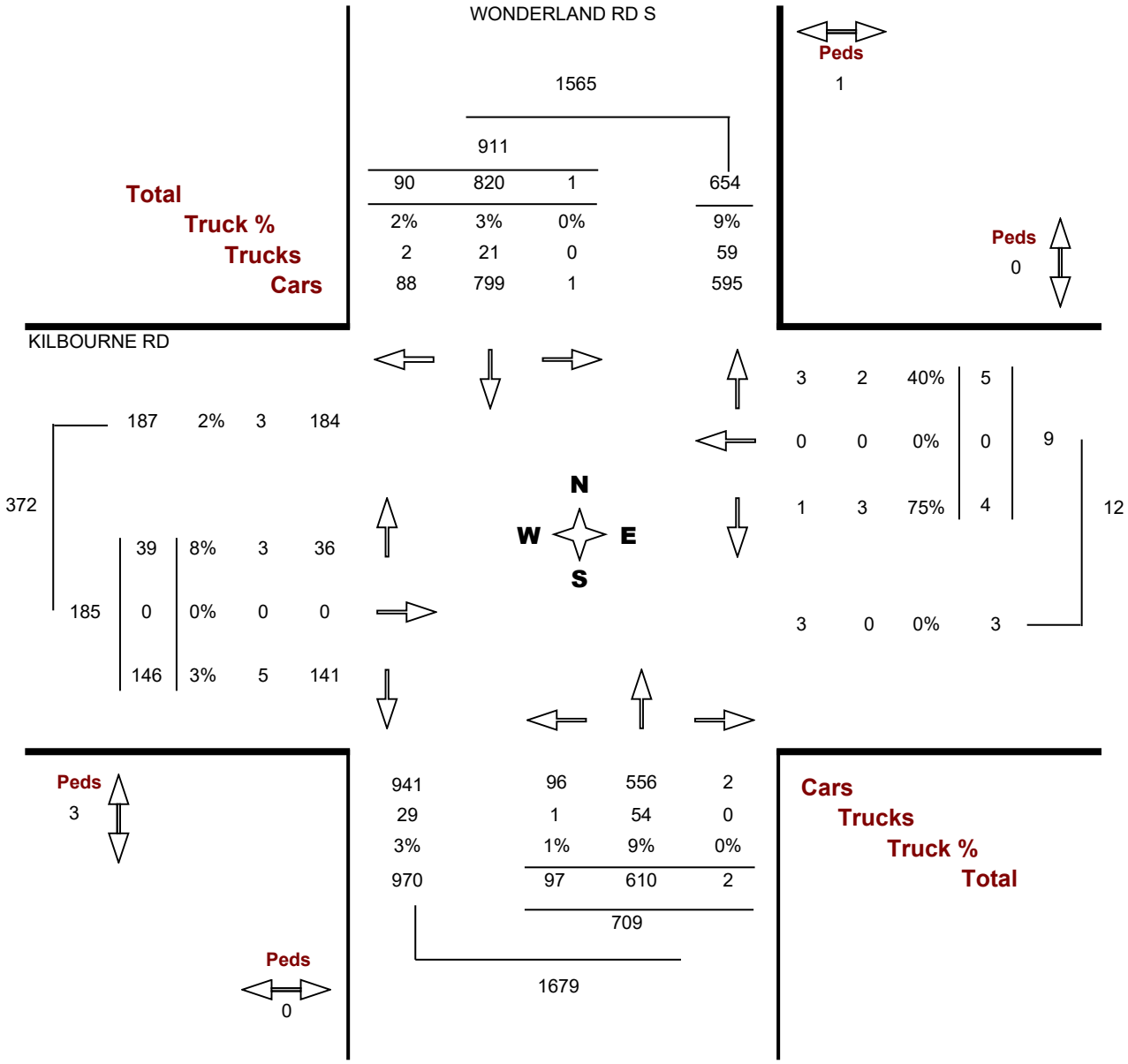
Location..... KILBOURNE RD @ WONDERLAND RD S

Municipality..... LONDON

GeoID..... INT7205

Count Date..... Wednesday, 02 October, 2019

Peak Hour..... 07:30 AM — 08:30 AM



Turning Movements Report - PM Period

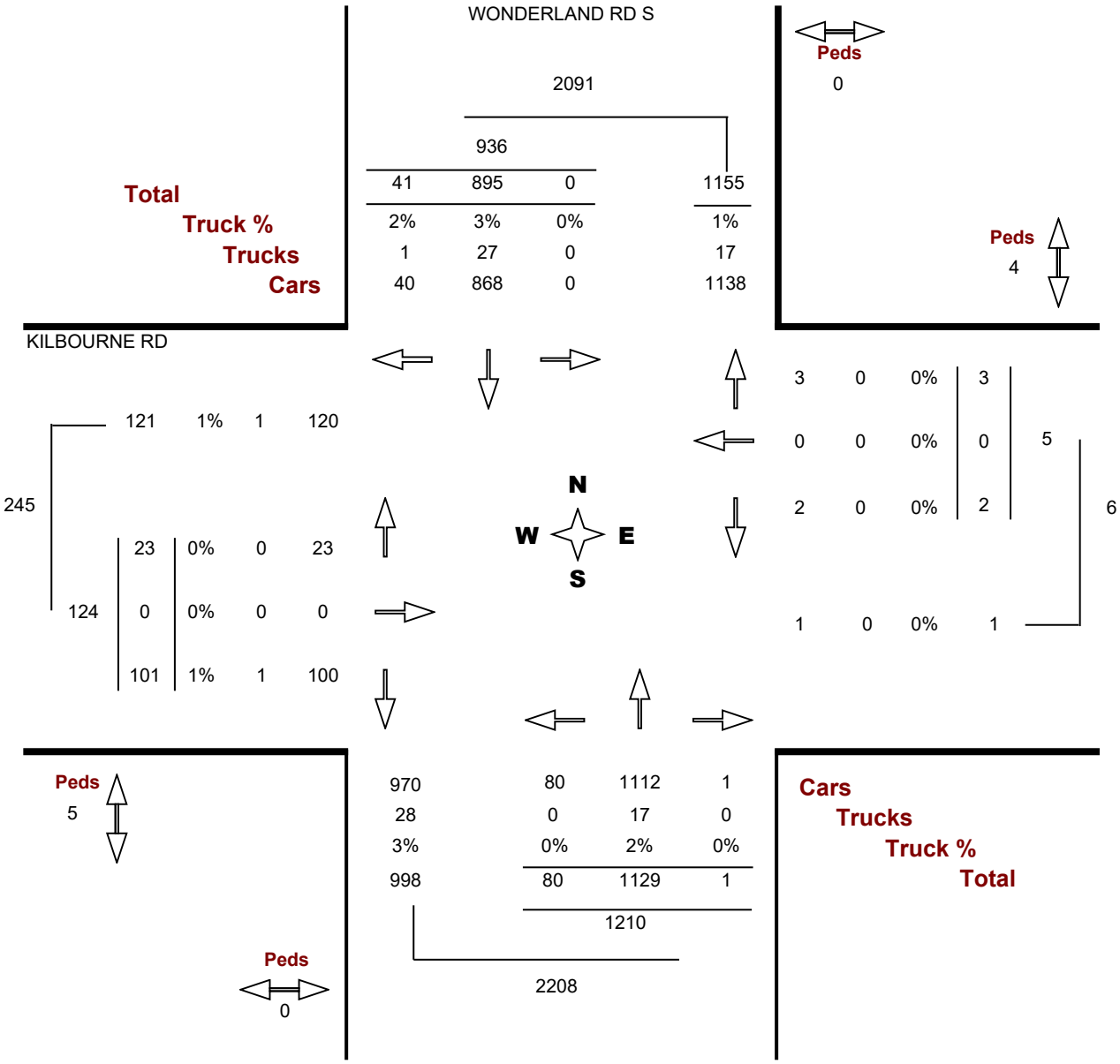
Location..... KILBOURNE RD @ WONDERLAND RD S

Municipality..... LONDON

GeoID..... INT7205

Count Date..... Wednesday, 02 October, 2019

Peak Hour..... 04:30 PM — 05:30 PM



Turning Movements Report - AM Period

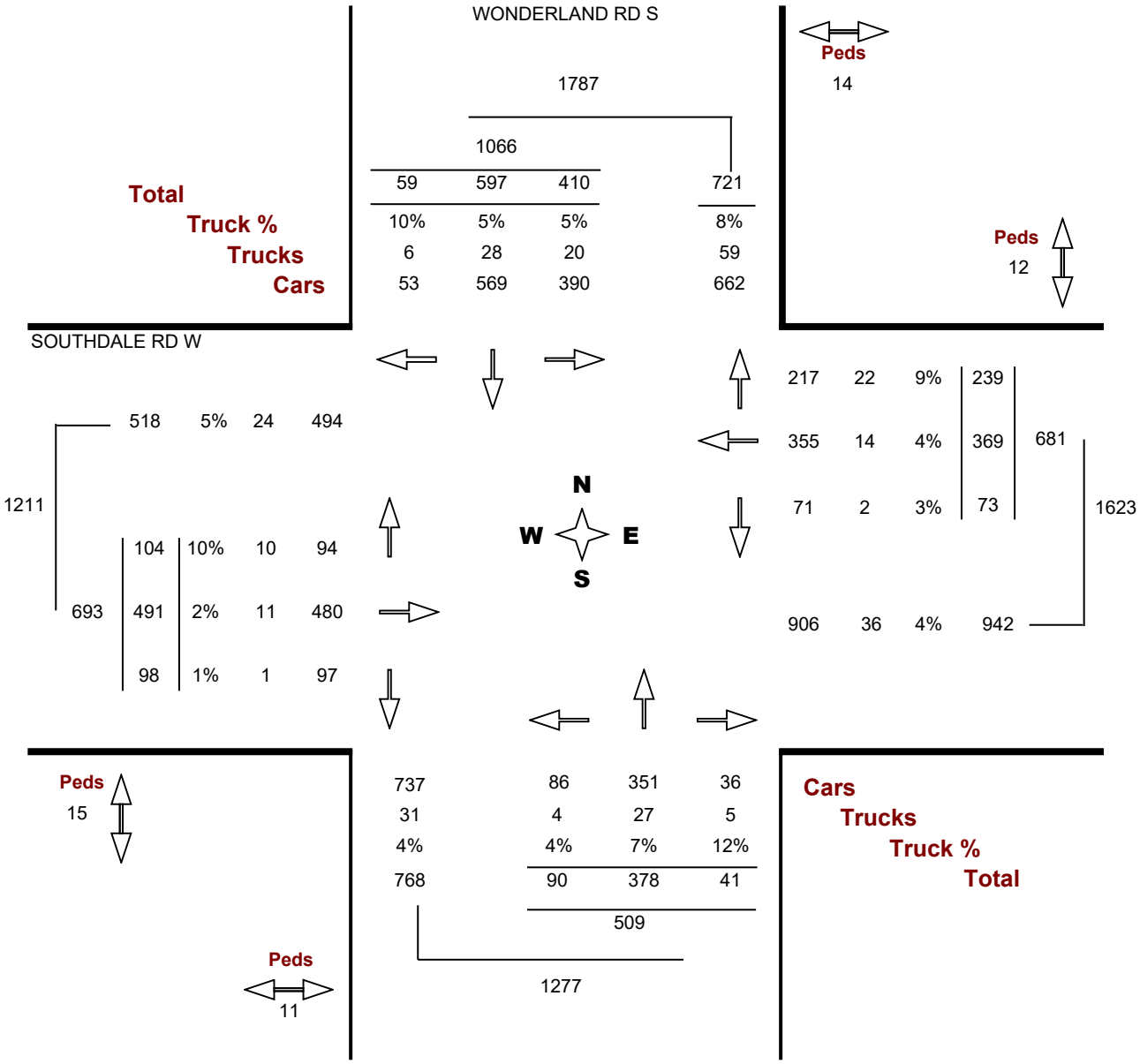
Location..... SOUTHDALE RD W @ WONDERLAND RD S

Municipality..... LONDON

GeoID..... INT5692

Count Date..... Wednesday, 10 October, 2018

Peak Hour..... 08:00 AM — 09:00 AM



Turning Movements Report - PM Period

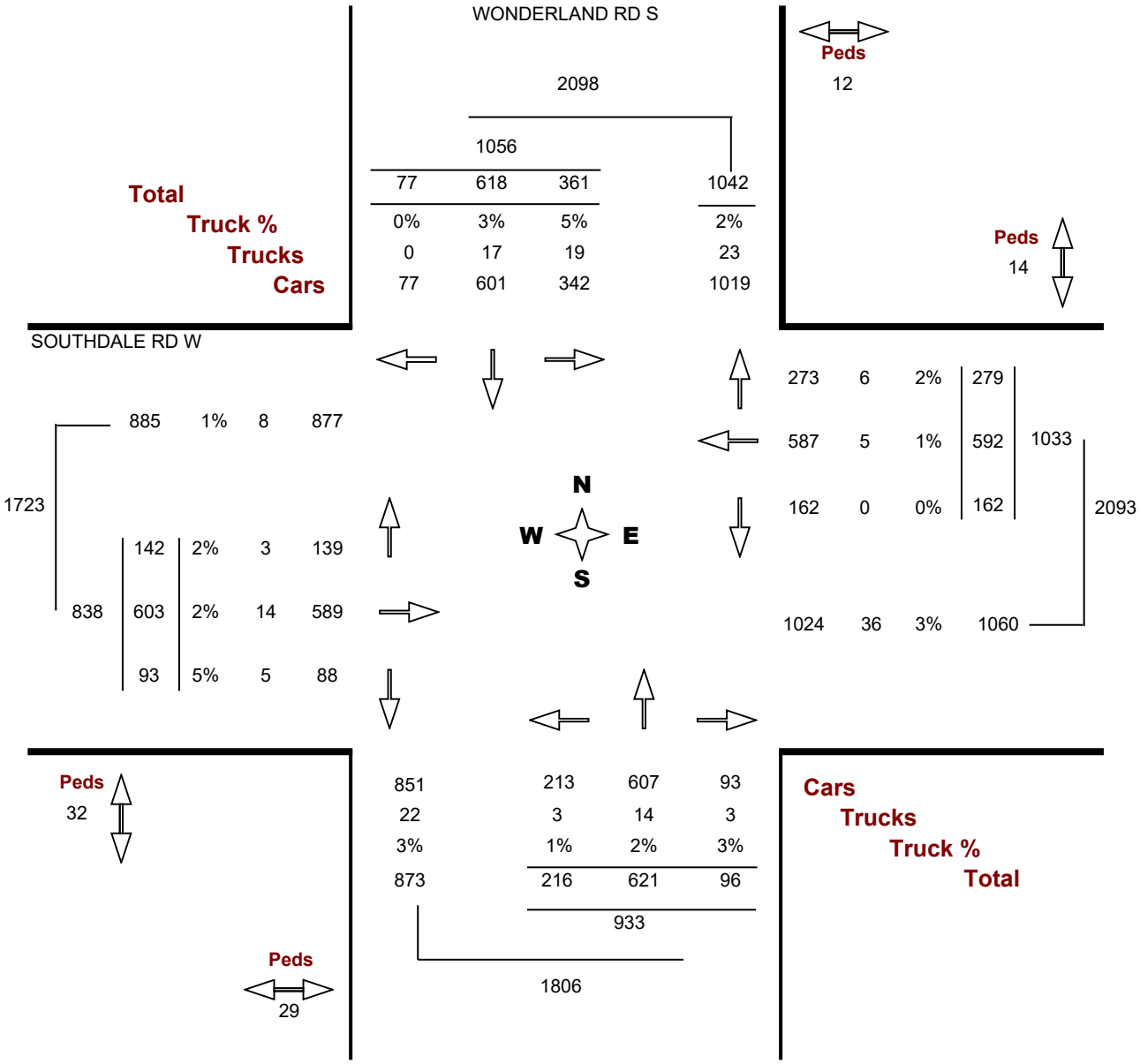
Location..... SOUTHDALE RD W @ WONDERLAND RD S

Municipality..... LONDON

GeoID..... INT5692

Count Date..... Wednesday, 10 October, 2018

Peak Hour..... 04:00 PM — 05:00 PM



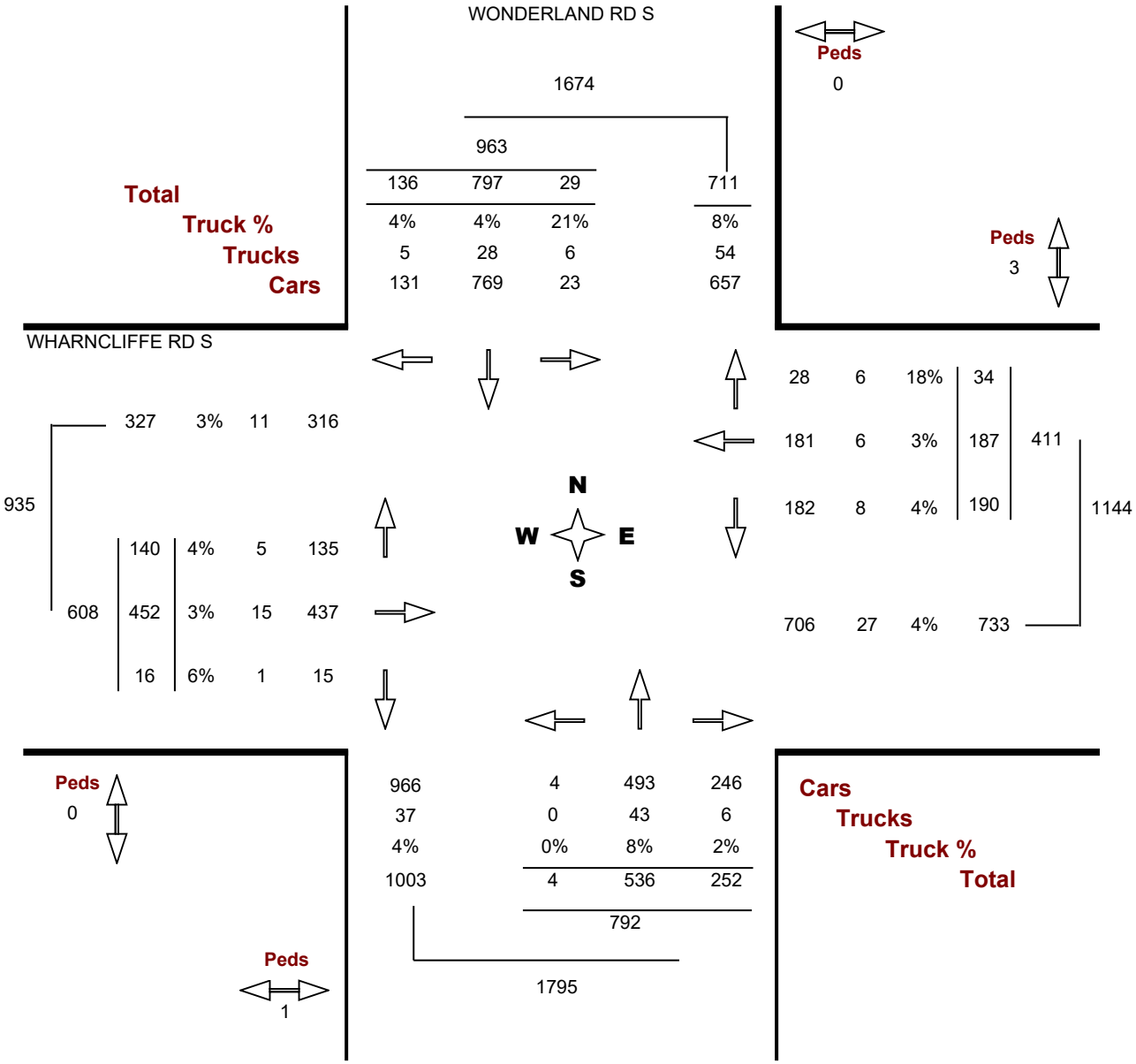
Turning Movements Report - AM Period

Location..... WHARNCLIFFE RD S @ WONDERLAND RD S

Municipality..... LONDON

GeoID..... INT6055

Count Date..... Tuesday, 01 October, 2019 **Peak Hour.....** 07:30 AM — 08:30 AM



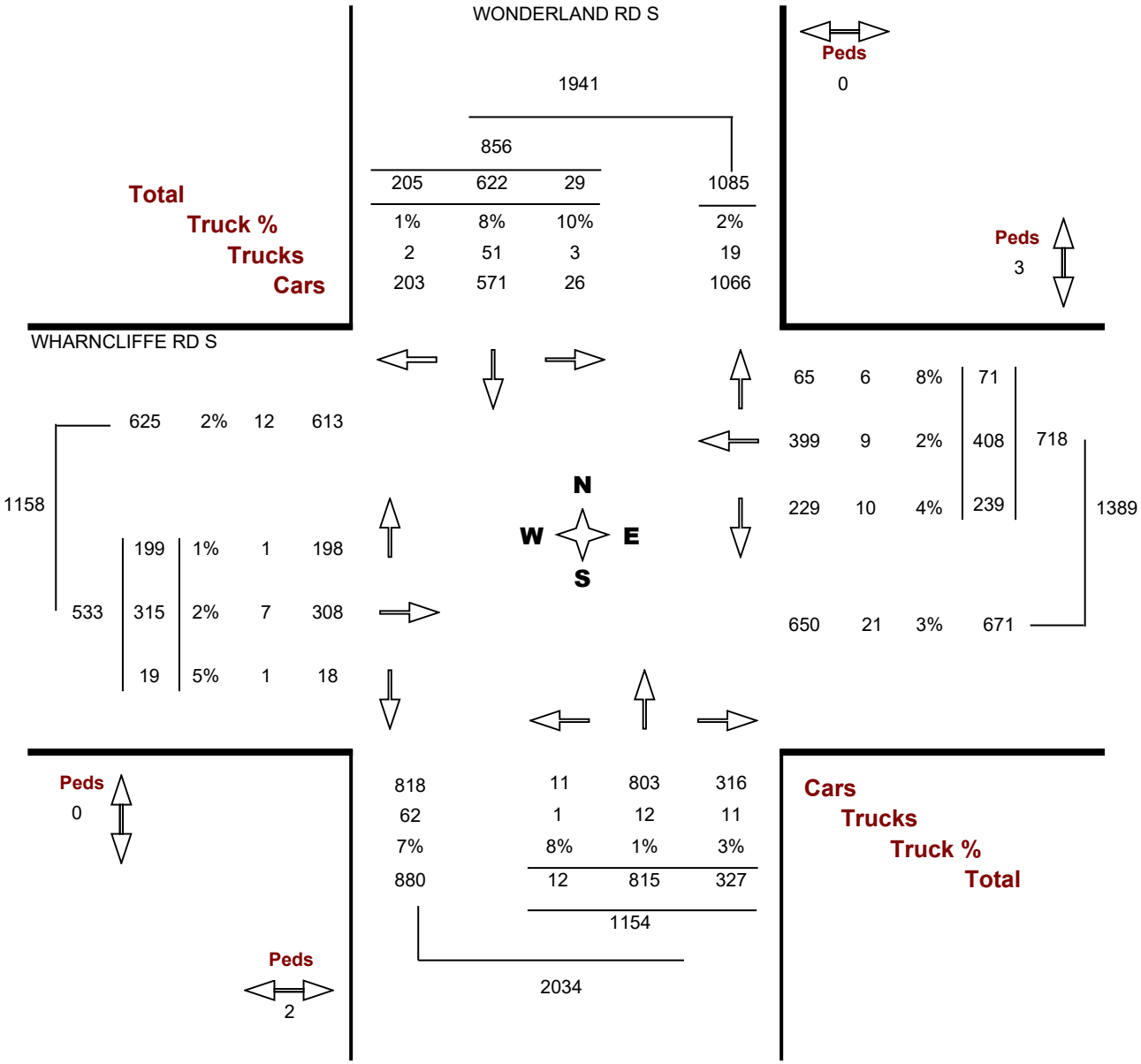
Turning Movements Report - PM Period

Location..... WHARNCLIFFE RD S @ WONDERLAND RD S

Municipality..... LONDON

GeoID..... INT6055

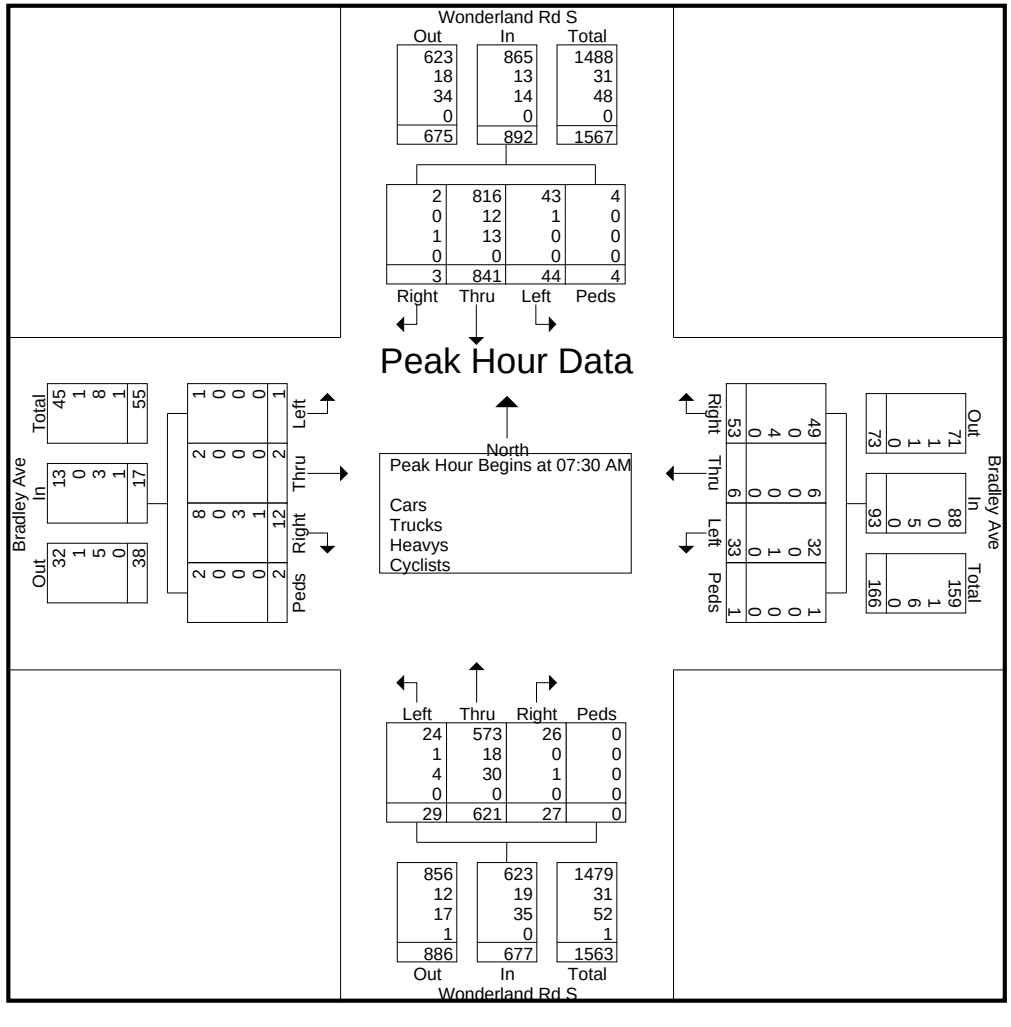
Count Date..... Tuesday, 01 October, 2019 **Peak Hour.....** 04:00 PM — 05:00 PM



Horizon Data Services Ltd

318 Simonston Blvd
Thornhill, ON L3T 4T5
"we always count...never estimated"

File Name : Wonderland Rd S at Bradley Ave
Site Code : 00000000
Start Date : 11/23/2021
Page No : 5



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Thornhill, ON L3T 4T5

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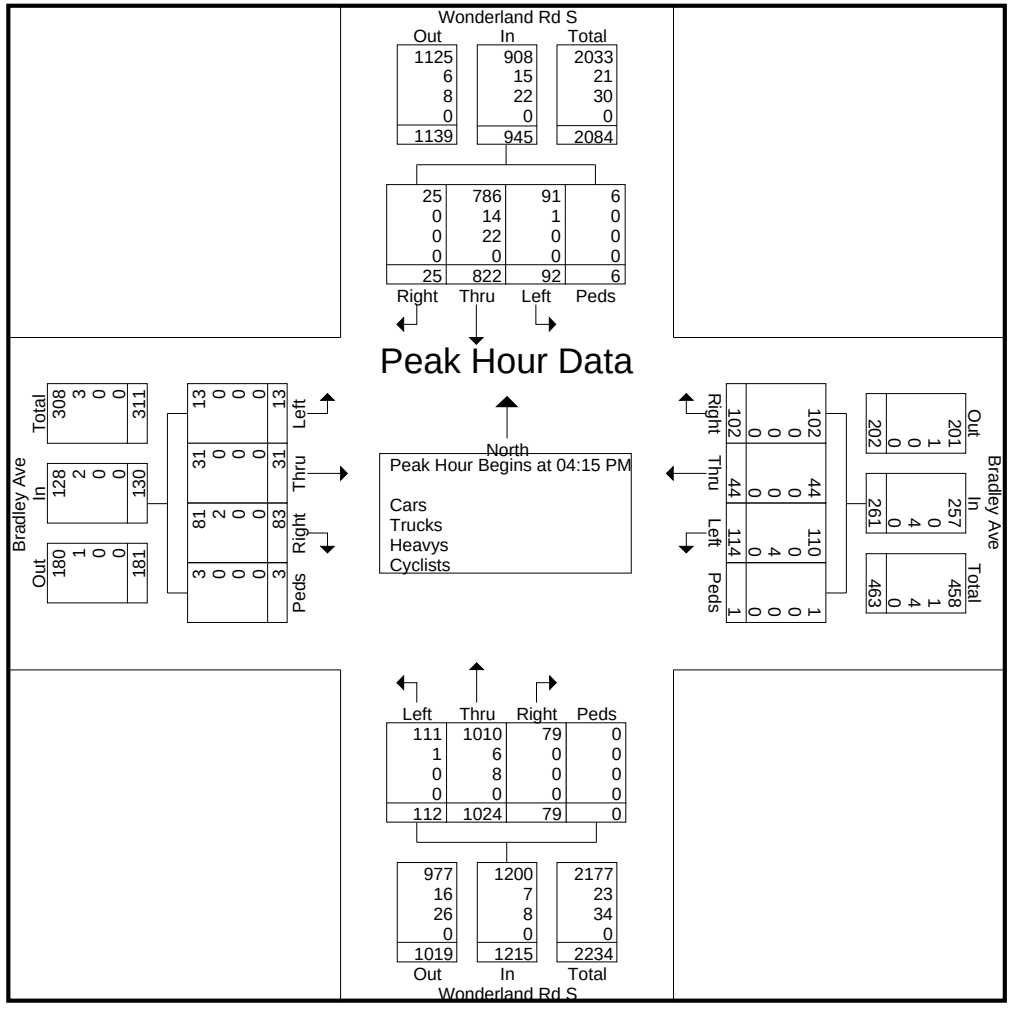
File Name : Wonderland Rd S at Bradley Ave
Site Code : 00000000
Start Date : 11/23/2021



Appendix D – Trip Generation Data

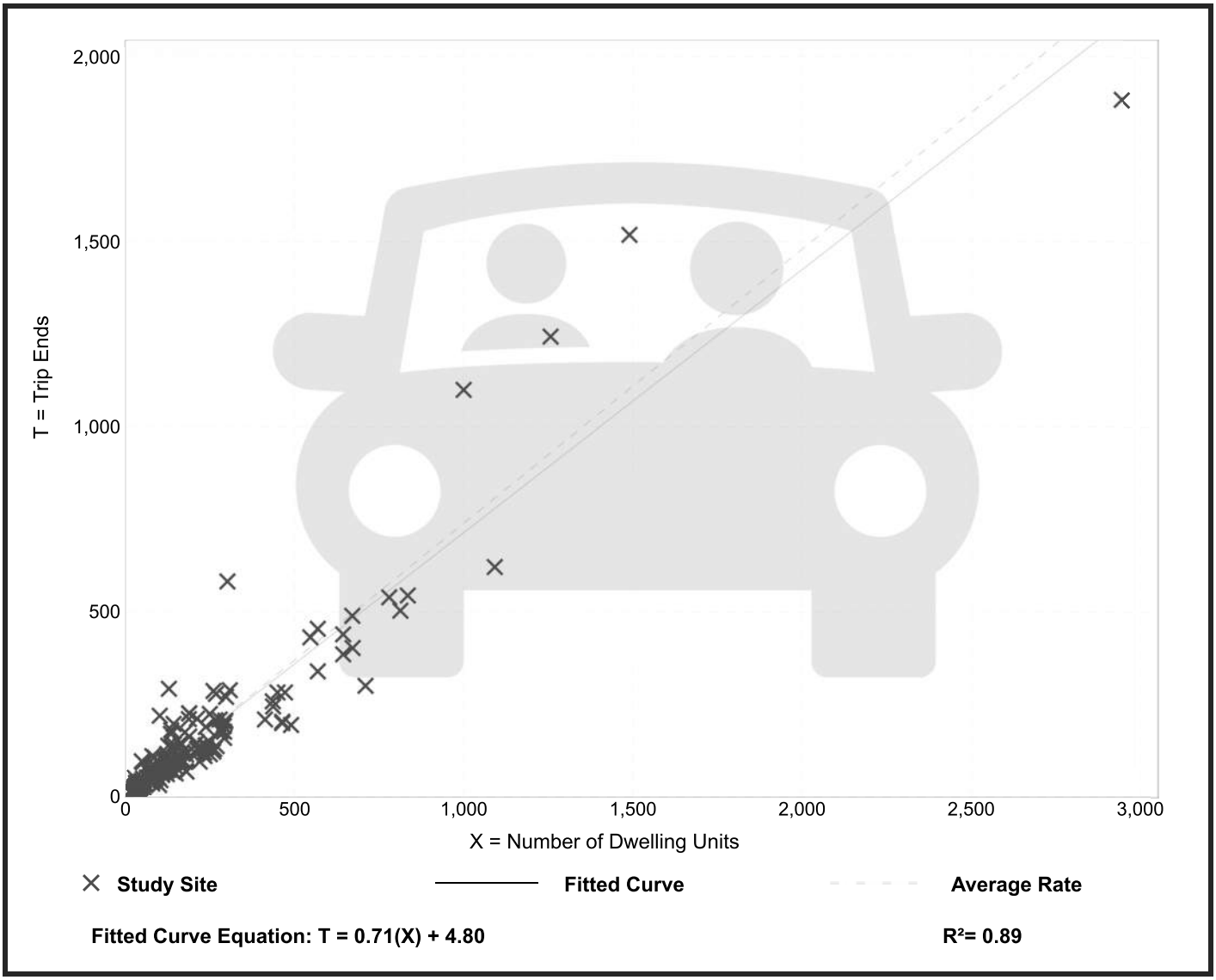
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	173
Avg. Num. of Dwelling Units:	219
Directional Distribution:	25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation



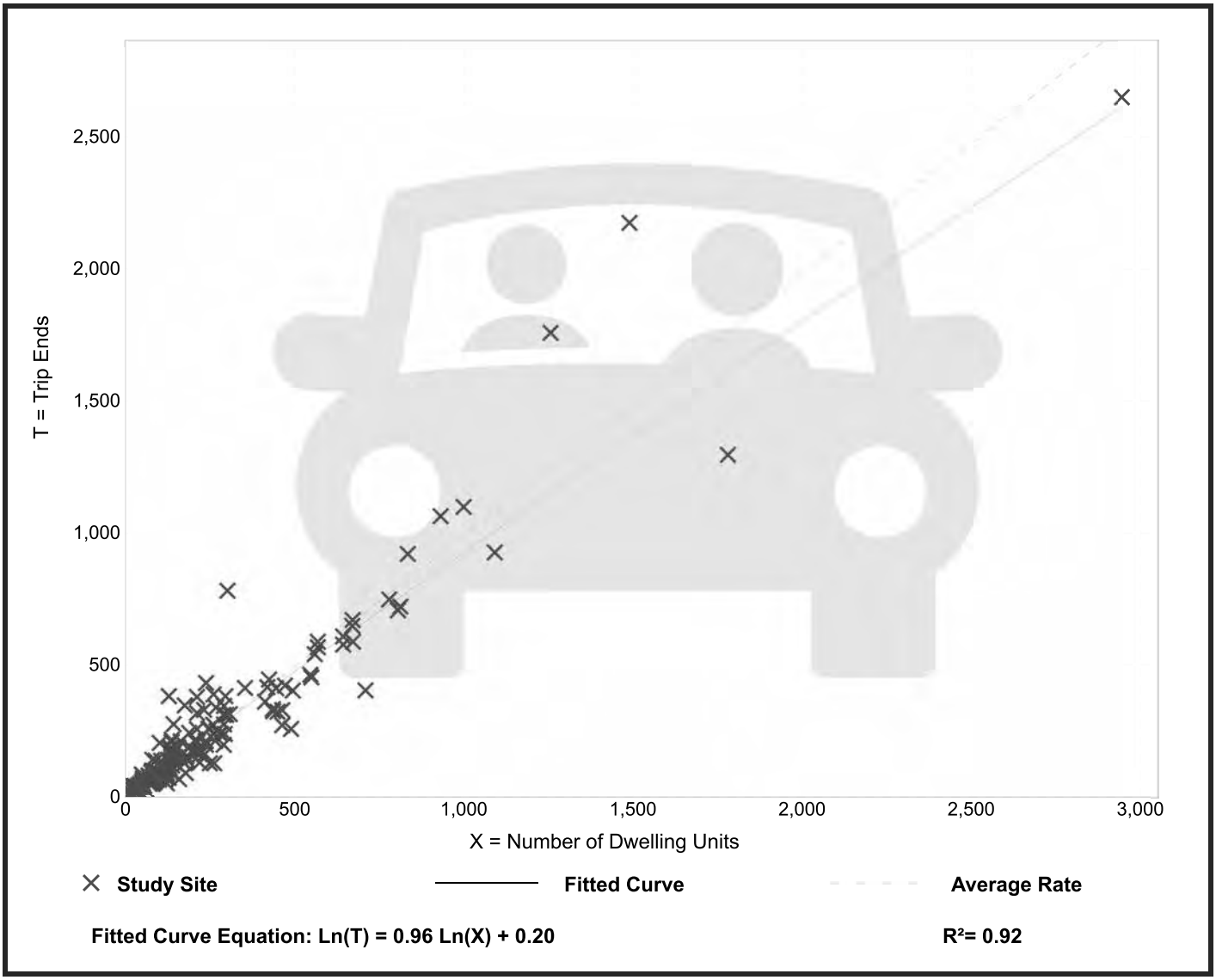
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	190
Avg. Num. of Dwelling Units:	242
Directional Distribution:	63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

Data Plot and Equation



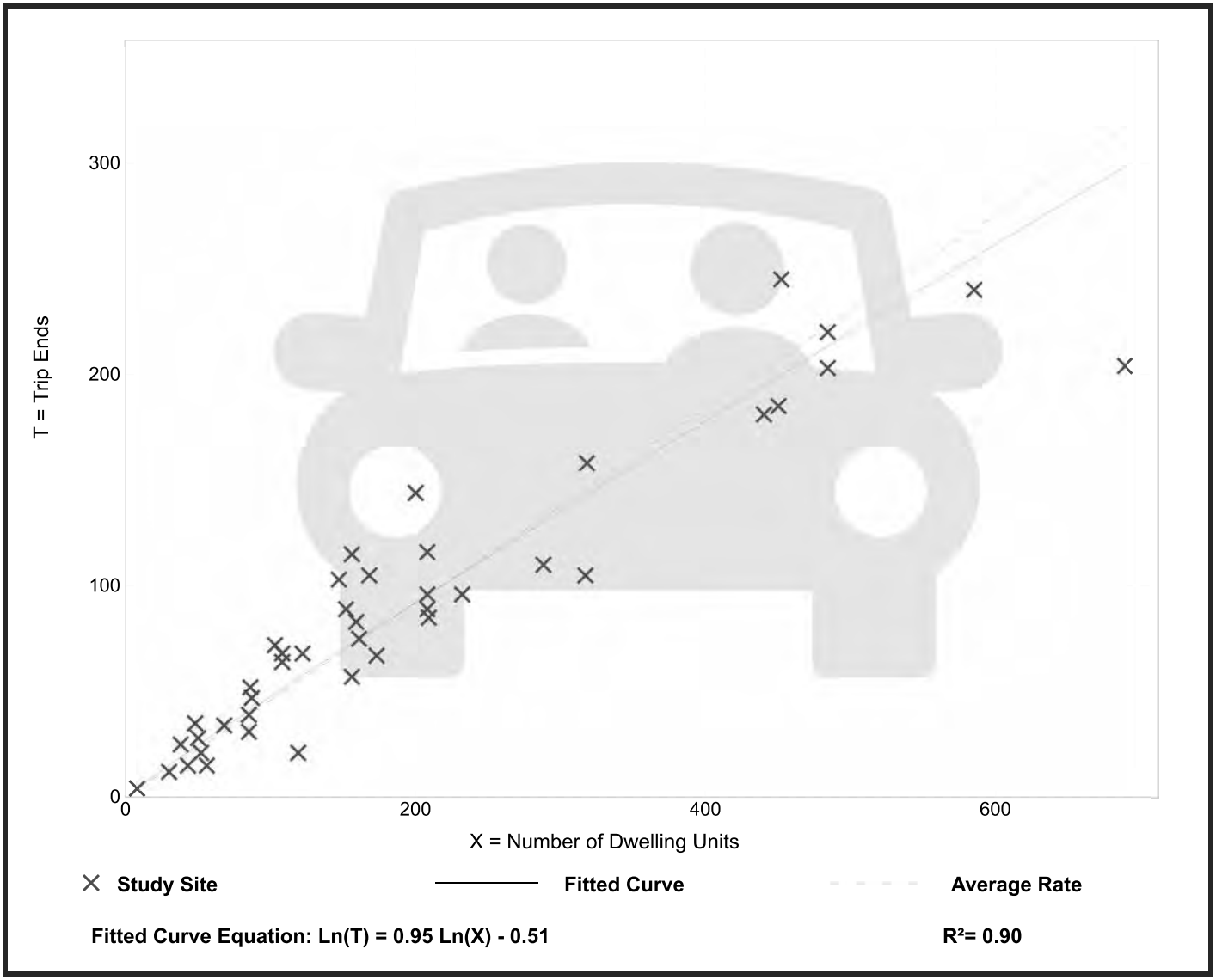
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	42
Avg. Num. of Dwelling Units:	199
Directional Distribution:	23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.18 - 0.74	0.12

Data Plot and Equation



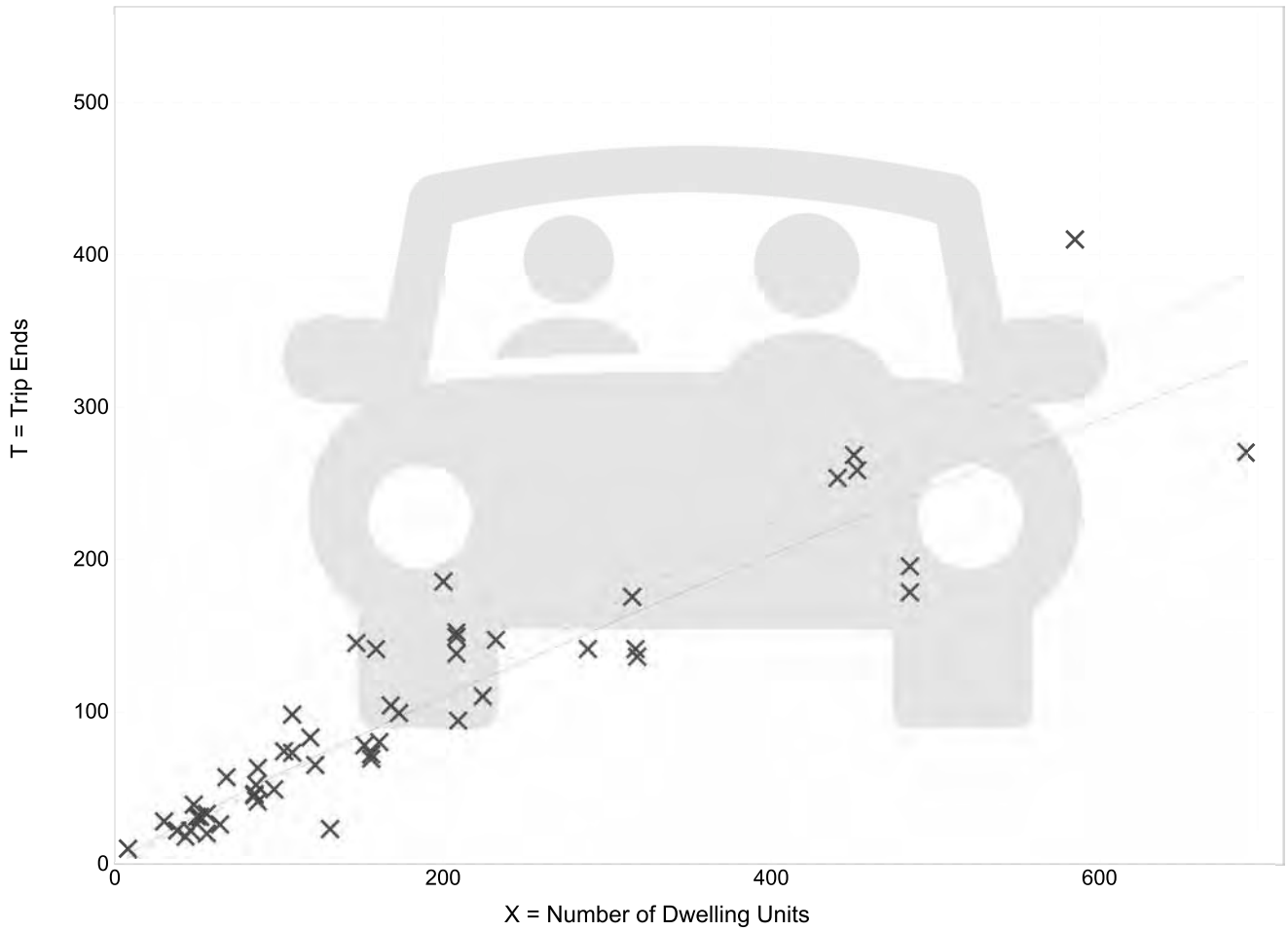
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	50
Avg. Num. of Dwelling Units:	187
Directional Distribution:	63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.56	0.18 - 1.25	0.16

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.89 Ln(X) - 0.02

R^2= 0.86

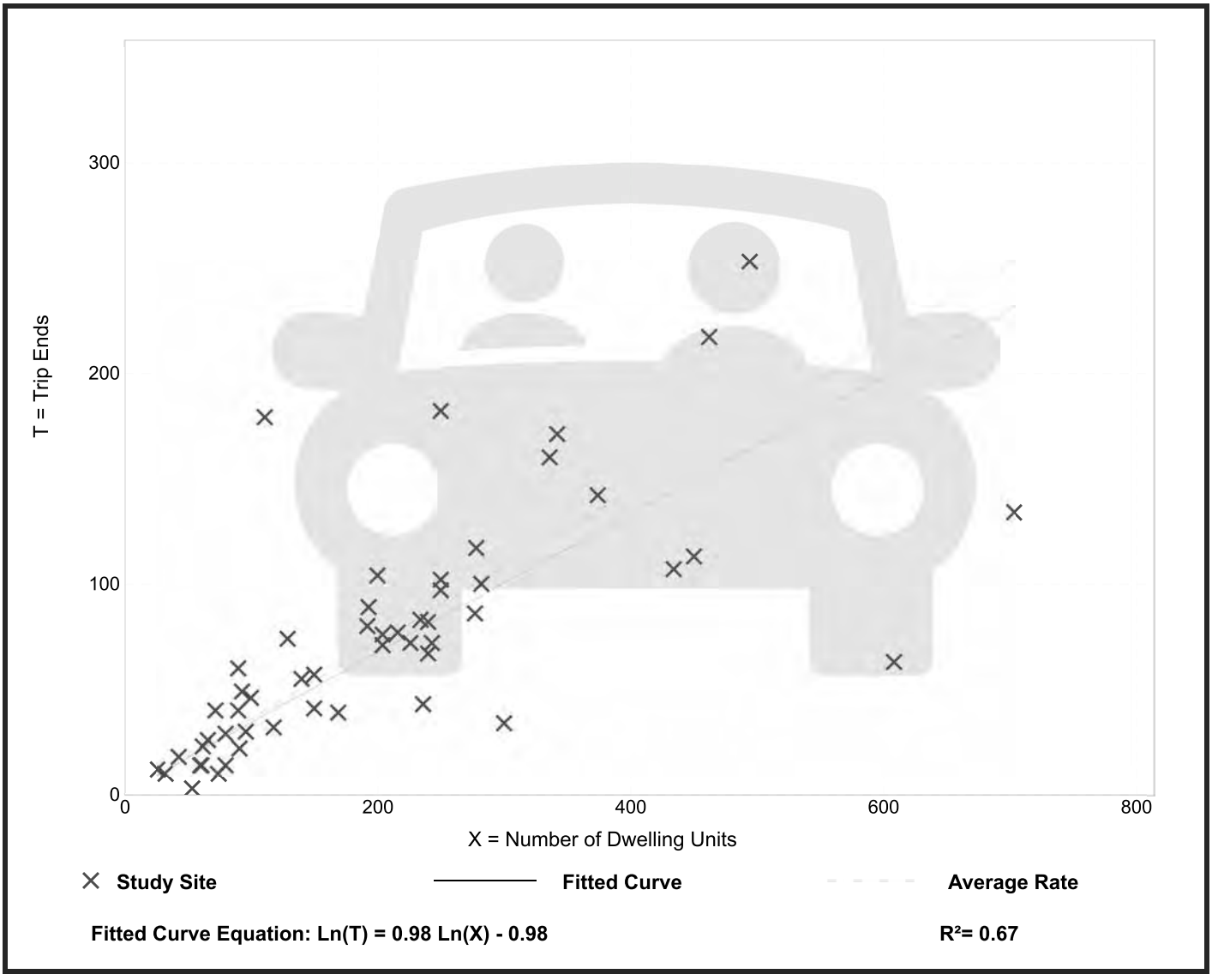
Multifamily Housing (Mid-Rise)
(221)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	53
Avg. Num. of Dwelling Units:	207
Directional Distribution:	26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.36	0.06 - 1.61	0.19

Data Plot and Equation



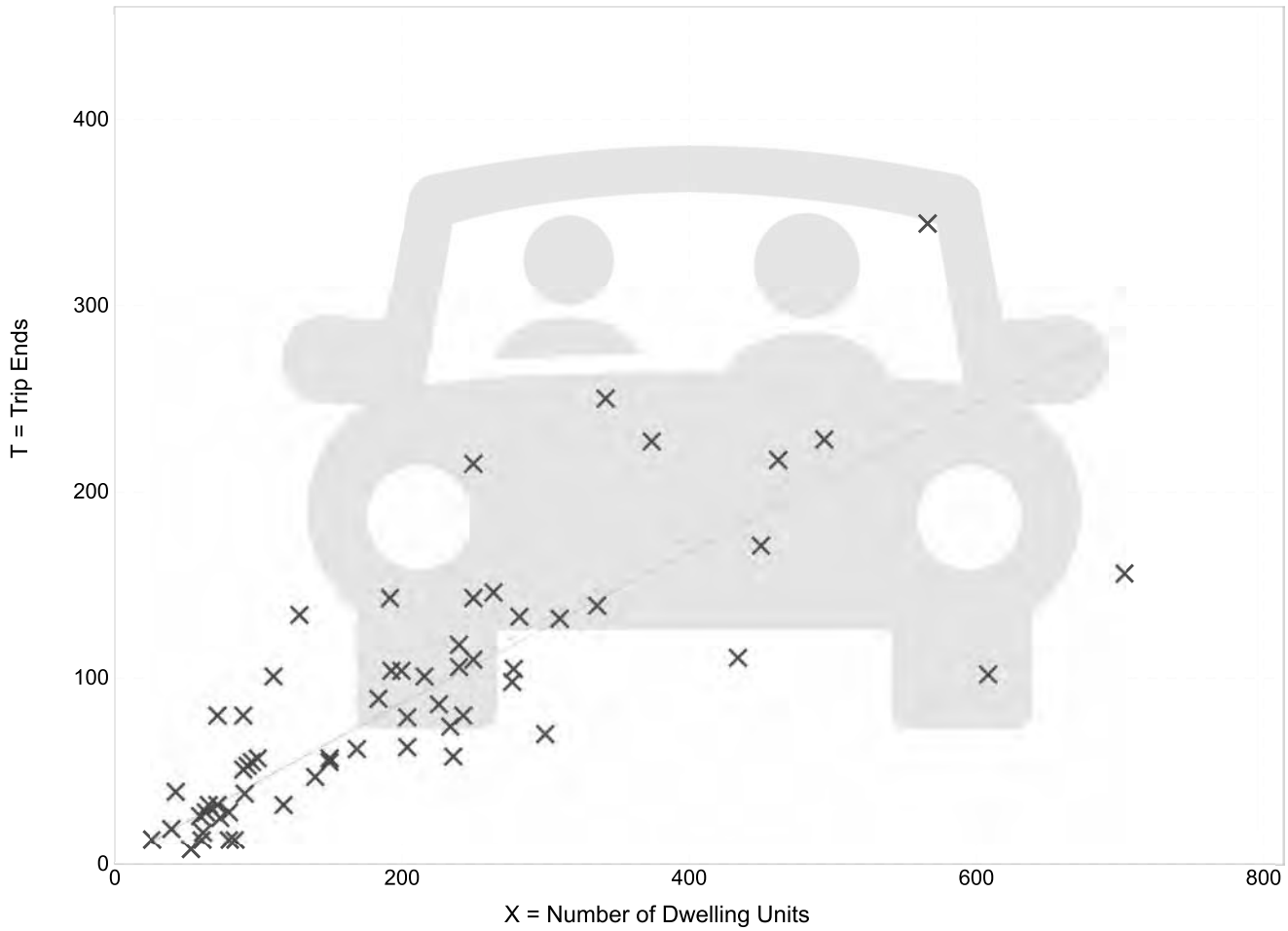
Multifamily Housing (Mid-Rise)
(221)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	60
Avg. Num. of Dwelling Units:	208
Directional Distribution:	61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.44	0.15 - 1.11	0.19

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.96 Ln(X) - 0.63

R^2= 0.72

Multifamily Housing (High-Rise)
(222)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	25
Avg. Num. of Dwelling Units:	372
Directional Distribution:	24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.31	0.18 - 0.48	0.08

Data Plot and Equation

Fitted Curve Equation: T = 0.28(X) + 12.86

R^2= 0.90

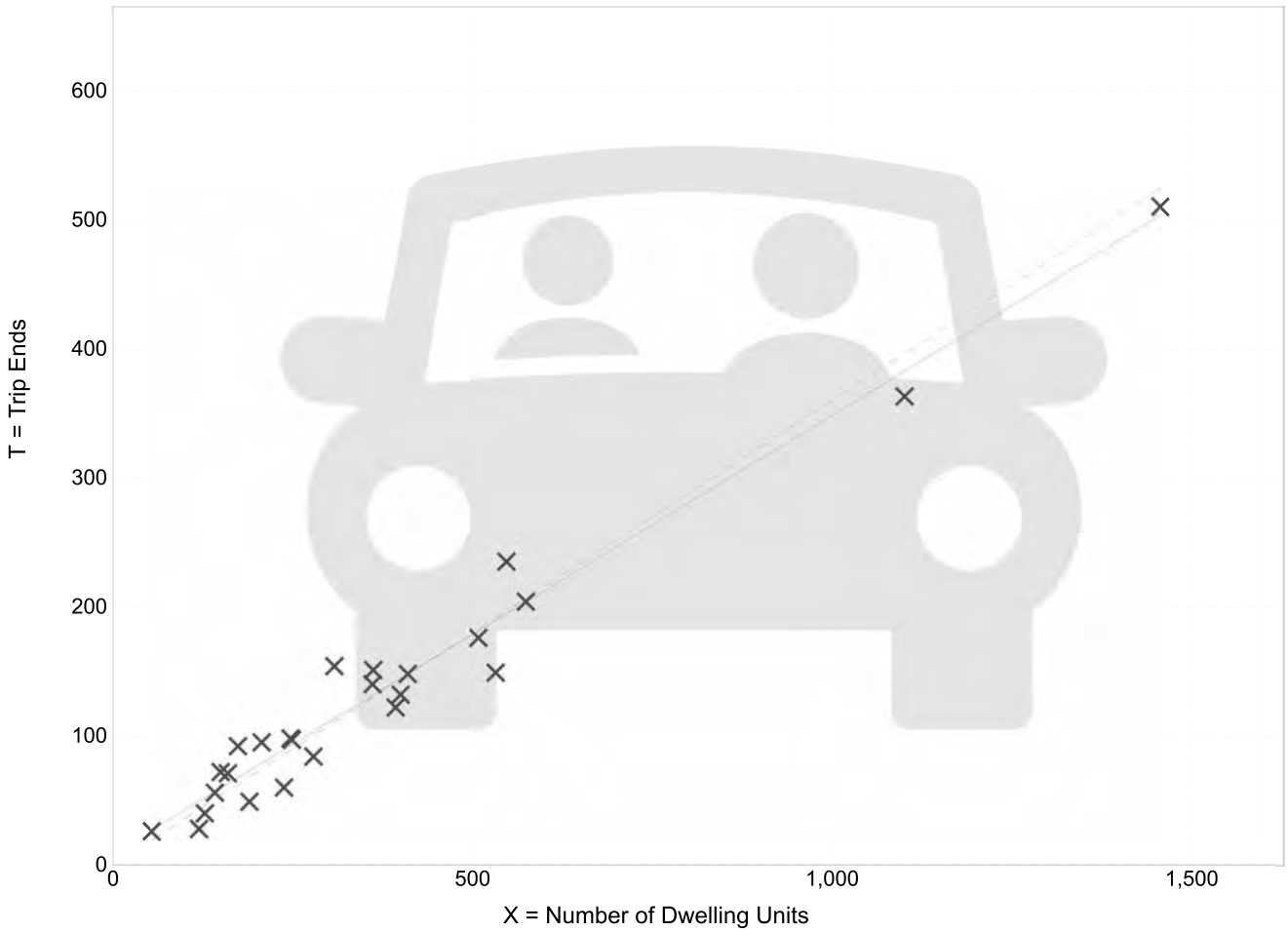
Multifamily Housing (High-Rise)
(222)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	25
Avg. Num. of Dwelling Units:	372
Directional Distribution:	61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.36	0.23 - 0.53	0.06

Data Plot and Equation



Fitted Curve Equation: T = 0.34(X) + 8.56

R^2= 0.96

Appendix E – Intersection Capacity Analysis

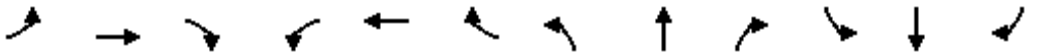
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	640	275	62	390	45	88	81	72	78	84	49
Future Volume (vph)	51	640	275	62	390	45	88	81	72	78	84	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		0.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98						
Frt		0.955				0.850		0.929			0.944	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	1774	0	1722	1812	1601	1674	1751	0	1807	1752	0
Flt Permitted	0.518			0.154			0.668			0.655		
Satd. Flow (perm)	956	1774	0	279	1812	1567	1177	1751	0	1246	1752	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49				49		76			51	
Link Speed (k/h)		70			70			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		56.8			22.3			45.0			3.6	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	1%	9%	6%	6%	2%	9%	1%	3%	1%	2%	6%
Adj. Flow (vph)	54	674	289	65	411	47	93	85	76	82	88	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	963	0	65	411	47	93	161	0	82	140	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	28.6	28.6		28.6	28.6	28.6	29.8	29.8		29.8	29.8	
Total Split (s)	36.0	36.0		36.0	36.0	36.0	26.0	26.0		26.0	26.0	
Total Split (%)	58.1%	58.1%		58.1%	58.1%	58.1%	41.9%	41.9%		41.9%	41.9%	
Maximum Green (s)	30.4	30.4		30.4	30.4	30.4	20.2	20.2		20.2	20.2	
Yellow Time (s)	3.9	3.9		3.9	3.9	3.9	3.8	3.8		3.8	3.8	
All-Red Time (s)	1.7	1.7		1.7	1.7	1.7	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6	5.6	5.8	5.8		5.8	5.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0		16.0	16.0	16.0	17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)	34.7	34.7		34.7	34.7	34.7	9.7	9.7		9.7	9.7	
Actuated g/C Ratio	0.67	0.67		0.67	0.67	0.67	0.19	0.19		0.19	0.19	
v/c Ratio	0.08	0.80		0.35	0.34	0.04	0.42	0.42		0.35	0.38	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	5.8	17.7		14.0	6.8	2.2	24.6	13.9		22.5	15.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	5.8	17.7		14.0	6.8	2.2	24.6	13.9		22.5	15.3	
LOS	A	B		B	A	A	C	B		C	B	
Approach Delay		17.0			7.3			17.8			18.0	
Approach LOS		B			A			B			B	
Queue Length 50th (m)	1.8	61.0		2.6	16.5	0.0	7.6	6.8		6.6	7.1	
Queue Length 95th (m)	6.4	#161.0		#14.7	37.5	3.2	18.1	19.0		16.1	18.6	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0			110.0		30.0	35.0			25.0		
Base Capacity (vph)	637	1199		185	1207	1061	458	727		484	712	
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	0.08	0.80		0.35	0.34	0.04	0.20	0.22		0.17	0.20	

Intersection Summary			
Area Type:	Other		
Cycle Length: 62			
Actuated Cycle Length: 52			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 14.7		Intersection LOS: B	
Intersection Capacity Utilization 80.4%		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.

Splits and Phases: 128: Bostwick Road/Farnham Road & Southdale Road West

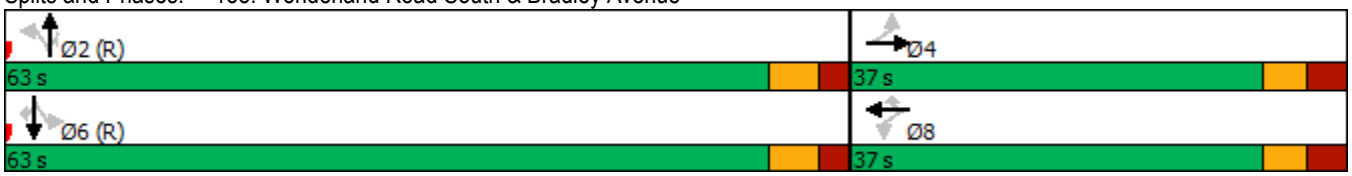


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	2	12	33	6	53	29	621	27	44	874	3
Future Volume (vph)	1	2	12	33	6	53	29	621	27	44	874	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00					0.98	1.00		0.98	1.00		0.98
Frt		0.870				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1563	0	1772	1921	1512	1601	3476	1570	1825	3579	1228
Flt Permitted	0.754			0.748			0.306			0.403		
Satd. Flow (perm)	1442	1563	0	1395	1921	1487	515	3476	1536	774	3579	1198
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				56			37			37
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	4					4	2		1	1		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	8%	3%	0%	8%	14%	5%	4%	0%	2%	33%
Adj. Flow (vph)	1	2	13	35	6	56	31	654	28	46	920	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	15	0	35	6	56	31	654	28	46	920	3
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.4	34.4		34.4	34.4	34.4	31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	37.0	37.0		37.0	37.0	37.0	63.0	63.0	63.0	63.0	63.0	63.0
Total Split (%)	37.0%	37.0%		37.0%	37.0%	37.0%	63.0%	63.0%	63.0%	63.0%	63.0%	63.0%
Maximum Green (s)	30.6	30.6		30.6	30.6	30.6	56.8	56.8	56.8	56.8	56.8	56.8
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	3.1	3.1		3.1	3.1	3.1	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4	6.4	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag												
Lead-Lag Optimize?												
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		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0	21.0	18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effct Green (s)	8.5	8.5		8.5	8.5	8.5	82.9	82.9	82.9	82.9	82.9	82.9
Actuated g/C Ratio	0.08	0.08		0.08	0.08	0.08	0.83	0.83	0.83	0.83	0.83	0.83
v/c Ratio	0.01	0.10		0.30	0.04	0.32	0.07	0.23	0.02	0.07	0.31	0.00

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	40.0	23.1		48.9	41.2	16.7	2.3	2.9	0.7	2.9	3.1	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	23.1		48.9	41.2	16.7	2.3	2.9	0.7	2.9	3.1	0.0
LOS	D	C		D	D	B	A	A	A	A	A	A
Approach Delay		24.2			29.8			2.7			3.0	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	0.2	0.4		6.5	1.1	0.0	1.6	29.9	0.6	1.5	20.0	0.0
Queue Length 95th (m)	1.8	6.3		15.6	4.8	11.1	1.5	11.3	0.4	4.4	31.4	0.0
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	441	487		426	587	493	426	2880	1279	641	2965	998
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.03		0.08	0.01	0.11	0.07	0.23	0.02	0.07	0.31	0.00

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 41 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.32			
Intersection Signal Delay: 4.6		Intersection LOS: A	
Intersection Capacity Utilization 56.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 158: Wonderland Road South & Bradley Avenue

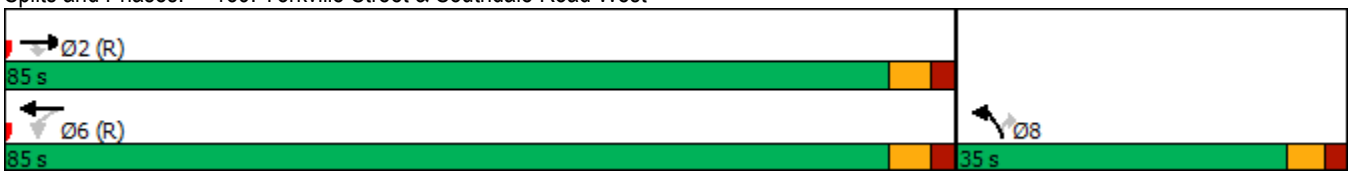


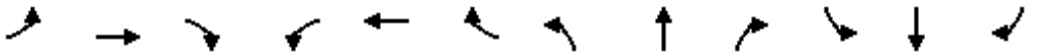
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	747	43	35	462	35	28
Future Volume (vph)	747	43	35	462	35	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1921	1633	1825	1921	1825	1633
Flt Permitted			0.338		0.950	
Satd. Flow (perm)	1921	1633	649	1921	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		31				29
Link Speed (k/h)	70			70	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	22.3			17.5	11.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	786	45	37	486	37	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	786	45	37	486	37	29
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	28.0	28.0	28.0	28.0	28.5	28.5
Total Split (s)	85.0	85.0	85.0	85.0	35.0	35.0
Total Split (%)	70.8%	70.8%	70.8%	70.8%	29.2%	29.2%
Maximum Green (s)	79.0	79.0	79.0	79.0	29.5	29.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	2.3	2.3	2.3	2.3	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0	15.0	15.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	103.9	103.9	103.9	103.9	8.3	8.3
Actuated g/C Ratio	0.87	0.87	0.87	0.87	0.07	0.07
v/c Ratio	0.47	0.03	0.07	0.29	0.30	0.21
Control Delay	3.6	1.0	3.9	6.1	58.7	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.6	1.0	3.9	6.1	58.7	21.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A	A	A	A	E	C
Approach Delay	3.5			5.9	42.2	
Approach LOS	A			A	D	
Queue Length 50th (m)	37.4	0.4	2.5	59.2	8.5	0.0
Queue Length 95th (m)	62.1	2.3	6.6	78.1	19.0	9.2
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)		40.0	55.0		45.0	
Base Capacity (vph)	1664	1418	562	1664	448	423
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	0.47	0.03	0.07	0.29	0.08	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 4 (3%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 6.2		Intersection LOS: A	
Intersection Capacity Utilization 54.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 159: Yorkville Street & Southdale Road West



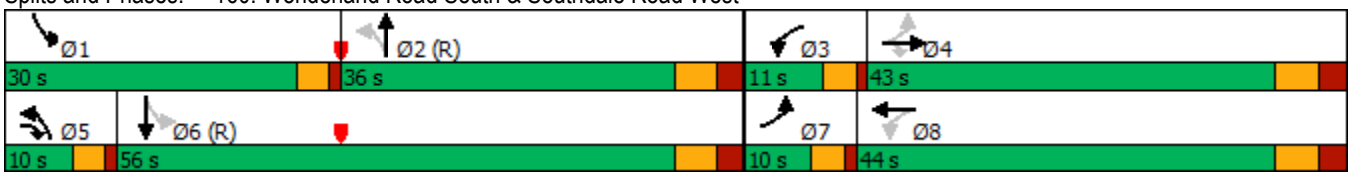


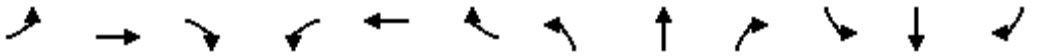
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	498	101	82	369	239	92	392	46	410	620	59
Future Volume (vph)	107	498	101	82	369	239	92	392	46	410	620	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.98	0.99	0.99		0.99	1.00		0.99	1.00	
Frt			0.850		0.941			0.984			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	3579	1617	1772	3206	0	1755	3331	0	1738	3408	0
Flt Permitted	0.183			0.293			0.380			0.392		
Satd. Flow (perm)	318	3579	1578	544	3206	0	697	3331	0	713	3408	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			106		129			10			10	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	14		11	11		14	15		12	12		15
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	10%	2%	1%	3%	4%	9%	4%	7%	12%	5%	5%	10%
Adj. Flow (vph)	113	524	106	86	388	252	97	413	48	432	653	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	113	524	106	86	640	0	97	461	0	432	715	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.5	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	10.0	43.0	10.0	11.0	44.0		10.0	36.0		30.0	56.0	
Total Split (%)	8.3%	35.8%	8.3%	9.2%	36.7%		8.3%	30.0%		25.0%	46.7%	
Maximum Green (s)	6.0	36.4	6.0	7.0	37.4		6.0	29.9		26.0	49.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	34.9	27.5	36.1	35.8	26.3		54.0	45.9		73.1	61.0	
Actuated g/C Ratio	0.29	0.23	0.30	0.30	0.22		0.45	0.38		0.61	0.51	
v/c Ratio	0.71	0.64	0.19	0.37	0.80		0.27	0.36		0.70	0.41	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	47.9	39.6	5.1	31.9	42.7		15.2	29.1		20.1	19.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	47.9	39.6	5.1	31.9	42.7		15.2	29.1		20.1	19.8	
LOS	D	D	A	C	D		B	C		C	B	
Approach Delay		36.0			41.4			26.7			19.9	
Approach LOS		D			D			C			B	
Queue Length 50th (m)	19.9	61.3	1.0	14.4	61.2		8.9	39.7		49.6	52.3	
Queue Length 95th (m)	#24.9	74.6	15.1	24.0	75.8		18.8	62.6		83.4	76.1	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	159	1085	550	234	1087		366	1281		656	1738	
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	0.71	0.48	0.19	0.37	0.59		0.27	0.36		0.66	0.41	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 29.8		Intersection LOS: C	
Intersection Capacity Utilization 91.6%		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.			

Splits and Phases: 160: Wonderland Road South & Southdale Road West



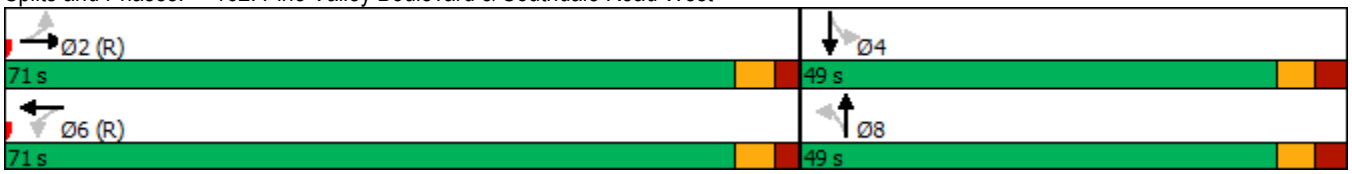


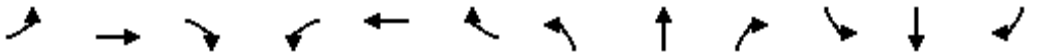
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	619	55	69	390	68	37	17	44	27	25	71
Future Volume (vph)	101	619	55	69	390	68	37	17	44	27	25	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	1.00		0.99	0.99		1.00	0.97	
Frt		0.988			0.978			0.892			0.889	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3566	0	1825	3365	0	1825	1697	0	1755	1593	0
Flt Permitted	0.476			0.382			0.679			0.715		
Satd. Flow (perm)	909	3566	0	733	3365	0	1287	1697	0	1319	1593	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			26			46			75	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	5		2	2		5	7		1	1		7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	6%	3%	0%	0%	0%	4%	0%	6%
Adj. Flow (vph)	106	652	58	73	411	72	39	18	46	28	26	75
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	710	0	73	483	0	39	64	0	28	101	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	71.0	71.0		71.0	71.0		49.0	49.0		49.0	49.0	
Total Split (%)	59.2%	59.2%		59.2%	59.2%		40.8%	40.8%		40.8%	40.8%	
Maximum Green (s)	65.1	65.1		65.1	65.1		42.6	42.6		42.6	42.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	98.3	98.3		98.3	98.3		9.4	9.4		9.4	9.4	
Actuated g/C Ratio	0.82	0.82		0.82	0.82		0.08	0.08		0.08	0.08	
v/c Ratio	0.14	0.24		0.12	0.17		0.39	0.37		0.27	0.52	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	4.9	4.5		1.9	1.4		62.9	26.8		57.7	27.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	4.9	4.5		1.9	1.4		62.9	26.8		57.7	27.8	
LOS	A	A		A	A		E	C		E	C	
Approach Delay		4.6			1.5			40.5			34.3	
Approach LOS		A			A			D			C	
Queue Length 50th (m)	5.6	21.5		1.2	3.6		8.9	4.0		6.4	5.9	
Queue Length 95th (m)	16.4	43.2		m4.2	10.0		19.6	17.0		15.3	22.4	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	744	2923		600	2761		456	632		468	613	
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	0.14	0.24		0.12	0.17		0.09	0.10		0.06	0.16	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 66 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 8.2		Intersection LOS: A	
Intersection Capacity Utilization 51.2%		ICU Level of Service A	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West



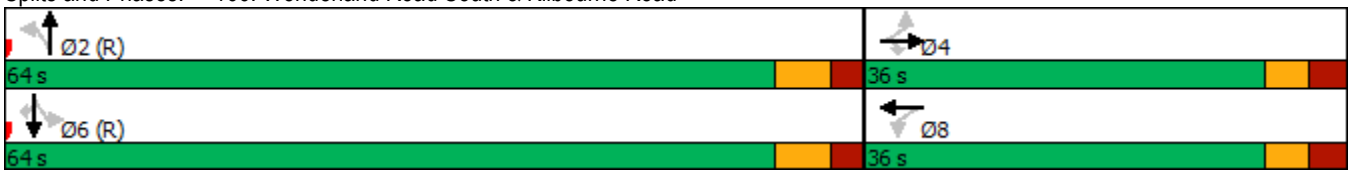


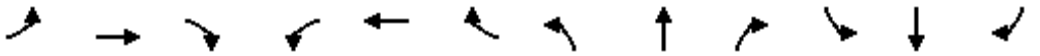
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	0	146	4	0	5	97	633	2	1	828	90
Future Volume (vph)	39	0	146	4	0	5	97	633	2	1	828	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00					0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	1921	1585	1043	1151	0	1807	3350	0	1825	3544	1601
Flt Permitted	0.754			0.757			0.322			0.398		
Satd. Flow (perm)	1340	1921	1585	831	1151	0	611	3350	0	765	3544	1558
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			145		239							95
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)	1					1	3					3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	8%	0%	3%	75%	0%	40%	1%	9%	0%	0%	3%	2%
Adj. Flow (vph)	41	0	154	4	0	5	102	666	2	1	872	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	0	154	4	5	0	102	668	0	1	872	95
Turn Type	Perm		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	33.3	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	36.0	36.0	36.0	36.0	36.0		64.0	64.0		64.0	64.0	64.0
Total Split (%)	36.0%	36.0%	36.0%	36.0%	36.0%		64.0%	64.0%		64.0%	64.0%	64.0%
Maximum Green (s)	29.7	29.7	29.7	29.7	29.7		57.3	57.3		57.3	57.3	57.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag												
Lead-Lag Optimize?												
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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effct Green (s)	9.0		9.0	9.0	9.0		78.0	78.0		78.0	78.0	78.0
Actuated g/C Ratio	0.09		0.09	0.09	0.09		0.78	0.78		0.78	0.78	0.78
v/c Ratio	0.34		0.56	0.05	0.02		0.21	0.26		0.00	0.32	0.08

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	49.7		16.8	41.5	0.0		5.2	4.4		3.0	3.5	0.8
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	49.7		16.8	41.5	0.0		5.2	4.4		3.0	3.5	0.8
LOS	D		B	D	A		A	A		A	A	A
Approach Delay		23.7			18.4			4.5			3.3	
Approach LOS		C			B			A			A	
Queue Length 50th (m)	7.6		1.6	0.7	0.0		3.0	12.1		0.0	18.9	0.0
Queue Length 95th (m)	17.4		18.9	3.9	0.0		13.1	29.5		m0.2	30.3	3.0
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0			115.0		160.0
Base Capacity (vph)	397		572	246	509		476	2613		597	2765	1236
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	0.10		0.27	0.02	0.01		0.21	0.26		0.00	0.32	0.08

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 37 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 5.9		Intersection LOS: A	
Intersection Capacity Utilization 54.0%		ICU Level of Service A	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road



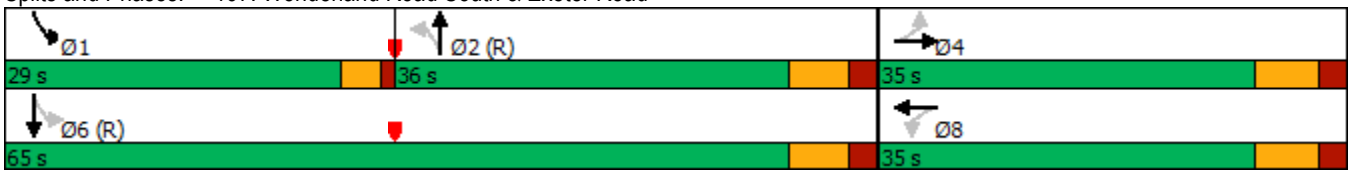


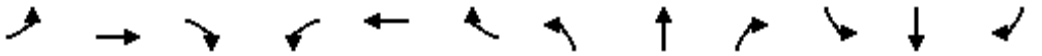
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	497	233	44	199	180	46	653	112	346	726	3
Future Volume (vph)	3	497	233	44	199	180	46	653	112	346	726	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.952			0.929			0.978			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1372	3407	0	1437	3015	0	1738	3405	0	1789	3507	0
Flt Permitted	0.460			0.157			0.361			0.219		
Satd. Flow (perm)	664	3407	0	237	3015	0	660	3405	0	412	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		77			189			20			1	
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	33%	2%	2%	27%	12%	13%	5%	5%	4%	2%	4%	0%
Adj. Flow (vph)	3	523	245	46	209	189	48	687	118	364	764	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	768	0	46	398	0	48	805	0	364	767	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		33.6	33.6		9.5	33.6	
Total Split (s)	35.0	35.0		35.0	35.0		36.0	36.0		29.0	65.0	
Total Split (%)	35.0%	35.0%		35.0%	35.0%		36.0%	36.0%		29.0%	65.0%	
Maximum Green (s)	28.0	28.0		28.0	28.0		29.4	29.4		25.0	58.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		4.4	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.6	6.6		4.0	6.6	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	25.4	25.4		25.4	25.4		39.4	39.4		63.6	61.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.39	0.39		0.64	0.61	
v/c Ratio	0.02	0.83		0.77	0.44		0.19	0.59		0.72	0.36	
Control Delay	45.3	55.1		100.9	17.0		26.8	27.6		28.0	6.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	45.3	55.1		100.9	17.0		26.8	27.6		28.0	6.3	
LOS	D	E		F	B		C	C		C	A	
Approach Delay		55.1			25.7			27.6			13.3	
Approach LOS		E			C			C			B	
Queue Length 50th (m)	0.0	75.9		8.1	16.6		6.2	64.7		24.6	18.6	
Queue Length 95th (m)	m0.0	m81.8		#27.9	29.4		16.9	96.2		60.3	22.9	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	185	1009		66	980		259	1353		606	2140	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.02	0.76		0.70	0.41		0.19	0.59		0.60	0.36	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 73 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 28.9		Intersection LOS: C	
Intersection Capacity Utilization 88.3%		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.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 197: Wonderland Road South & Exeter Road



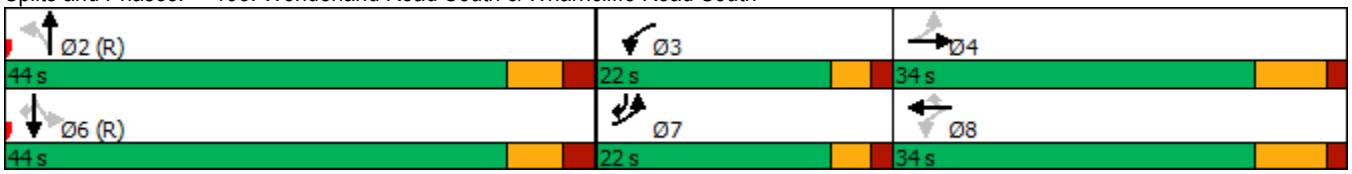


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	469	16	196	198	34	4	541	260	29	805	137
Future Volume (vph)	141	469	16	196	198	34	4	541	260	29	805	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				1.00		1.00		
Frt		0.995				0.850		0.951				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3521	0	1755	3544	1384	1825	3257	0	1508	3510	1570
Flt Permitted	0.621			0.264			0.262			0.264		
Satd. Flow (perm)	1147	3521	0	487	3544	1384	503	3257	0	419	3510	1570
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				89		93				144
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			1	1					3	3		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	3%	6%	4%	3%	18%	0%	8%	2%	21%	4%	4%
Adj. Flow (vph)	148	494	17	206	208	36	4	569	274	31	847	144
Shared Lane Traffic (%)												
Lane Group Flow (vph)	148	511	0	206	208	36	4	843	0	31	847	144
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	22.0	34.0		22.0	34.0	34.0	44.0	44.0		44.0	44.0	22.0
Total Split (%)	22.0%	34.0%		22.0%	34.0%	34.0%	44.0%	44.0%		44.0%	44.0%	22.0%
Maximum Green (s)	17.5	27.0		17.5	27.0	27.0	37.3	37.3		37.3	37.3	17.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	33.2	20.0		38.8	22.7	22.7	48.3	48.3		48.3	48.3	65.8
Actuated g/C Ratio	0.33	0.20		0.39	0.23	0.23	0.48	0.48		0.48	0.48	0.66
v/c Ratio	0.33	0.72		0.57	0.26	0.09	0.02	0.52		0.15	0.50	0.13

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	6.3	28.8		25.4	31.5	0.5	39.0	30.6		20.4	19.3	0.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	6.3	28.8		25.4	31.5	0.5	39.0	30.6		20.4	19.3	0.6
LOS	A	C		C	C	A	D	C		C	B	A
Approach Delay		23.7			26.3			30.7			16.7	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	2.2	50.3		26.4	17.5	0.0	0.5	56.9		2.0	54.7	0.1
Queue Length 95th (m)	1.7	68.6		36.1	25.1	0.0	m1.4	102.3		12.7	93.0	0.6
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	554	952		418	967	442	242	1621		202	1695	1177
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	0.27	0.54		0.49	0.22	0.08	0.02	0.52		0.15	0.50	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 53 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 23.7		Intersection LOS: C	
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: 198: Wonderland Road South & Wharncliffe Road South



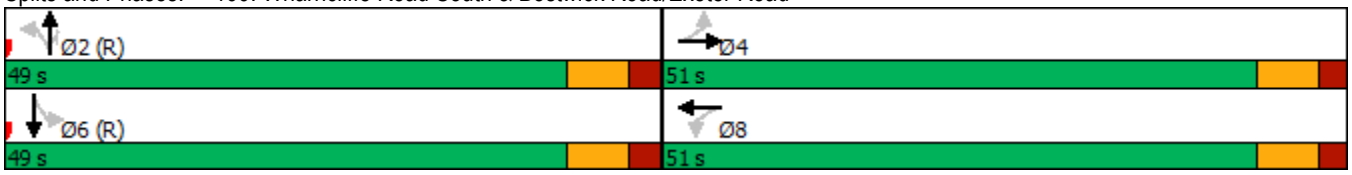
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	534	225	135	111	19	56	582	191	8	290	49
Future Volume (vph)	25	534	225	135	111	19	56	582	191	8	290	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.956			0.978				0.850		0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1773	0	1534	1744	0	1630	3544	1570	1496	3489	0
Flt Permitted	0.669			0.090			0.538			0.364		
Satd. Flow (perm)	1285	1773	0	145	1744	0	923	3544	1570	573	3489	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			11				201		24	
Link Speed (k/h)		70			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		11.0			14.1			20.8			18.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	5%	19%	7%	12%	12%	3%	4%	22%	1%	10%
Adj. Flow (vph)	26	562	237	142	117	20	59	613	201	8	305	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	799	0	142	137	0	59	613	201	8	357	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	33.8	33.8		33.8	33.8		27.2	27.2	27.2	27.2	27.2	
Total Split (s)	51.0	51.0		51.0	51.0		49.0	49.0	49.0	49.0	49.0	
Total Split (%)	51.0%	51.0%		51.0%	51.0%		49.0%	49.0%	49.0%	49.0%	49.0%	
Maximum Green (s)	44.2	44.2		44.2	44.2		41.8	41.8	41.8	41.8	41.8	
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		7.2	7.2	7.2	7.2	7.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		13.0	13.0	13.0	13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	44.2	44.2		44.2	44.2		41.8	41.8	41.8	41.8	41.8	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.42	0.42	0.42	0.42	0.42	
v/c Ratio	0.05	1.00		2.22	0.18		0.15	0.41	0.26	0.03	0.24	
Control Delay	16.3	60.4		614.3	12.3		19.5	21.5	3.6	28.5	30.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	16.3	60.4		614.3	12.3		19.5	21.5	3.6	28.5	30.4	
LOS	B	E		F	B		B	C	A	C	C	
Approach Delay		59.1			318.7			17.3			30.4	
Approach LOS		E			F			B			C	
Queue Length 50th (m)	2.8	~147.4		~46.4	10.5		7.0	43.0	0.0	1.3	31.1	
Queue Length 95th (m)	7.6	#229.7		#84.7	16.1		15.5	57.1	12.5	5.5	44.5	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0		90.0	80.0		
Base Capacity (vph)	567	798		64	776		385	1481	773	239	1472	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.05	1.00		2.22	0.18		0.15	0.41	0.26	0.03	0.24	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 74 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.22
Intersection Signal Delay: 69.9 Intersection LOS: E
Intersection Capacity Utilization 94.5% 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.

Splits and Phases: 199: Wharncliffe Road South & Bostwick Road/Exeter Road



Intersection	
Int Delay, s/veh	27.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	101	0	419	0	0	0	76	140	0	0	366	55
Future Vol, veh/h	101	0	419	0	0	0	76	140	0	0	366	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	2	0	0	0	5	6	0	0	2	4
Mvmt Flow	106	0	441	0	0	0	80	147	0	0	385	58

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	721	721	414	443	0	-	-	-	0
Stage 1	414	414	-	-	-	-	-	-	-
Stage 2	307	307	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.22	4.15	-	-	-	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.318	2.245	-	-	-	-	-
Pot Cap-1 Maneuver	397	356	638	1101	-	0	0	-	-
Stage 1	671	597	-	-	-	0	0	-	-
Stage 2	751	665	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	366	0	638	1101	-	-	-	-	-
Mov Cap-2 Maneuver	366	0	-	-	-	-	-	-	-
Stage 1	618	0	-	-	-	-	-	-	-
Stage 2	751	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	60.7	3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1101	-	558	-	-
HCM Lane V/C Ratio	0.073	-	0.981	-	-
HCM Control Delay (s)	8.5	0	60.7	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.2	-	13.7	-	-

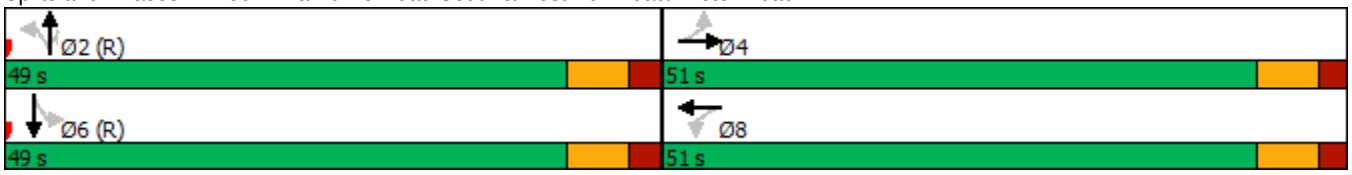
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	534	225	135	111	19	56	582	191	8	290	49
Future Volume (vph)	25	534	225	135	111	19	56	582	191	8	290	49
Ideal Flow (vphpl)	1900	1900	1900	2500	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.956			0.978				0.850		0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1773	0	2018	1744	0	1630	3544	1570	1496	3489	0
Flt Permitted	0.669			0.090			0.538			0.364		
Satd. Flow (perm)	1285	1773	0	191	1744	0	923	3544	1570	573	3489	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			11				201		24	
Link Speed (k/h)		70			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		11.0			14.1			20.8			18.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	5%	19%	7%	12%	12%	3%	4%	22%	1%	10%
Adj. Flow (vph)	26	562	237	142	117	20	59	613	201	8	305	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	799	0	142	137	0	59	613	201	8	357	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	33.8	33.8		33.8	33.8		27.2	27.2	27.2	27.2	27.2	
Total Split (s)	51.0	51.0		51.0	51.0		49.0	49.0	49.0	49.0	49.0	
Total Split (%)	51.0%	51.0%		51.0%	51.0%		49.0%	49.0%	49.0%	49.0%	49.0%	
Maximum Green (s)	44.2	44.2		44.2	44.2		41.8	41.8	41.8	41.8	41.8	
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		7.2	7.2	7.2	7.2	7.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		13.0	13.0	13.0	13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	44.2	44.2		44.2	44.2		41.8	41.8	41.8	41.8	41.8	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.42	0.42	0.42	0.42	0.42	
v/c Ratio	0.05	1.00		1.69	0.18		0.15	0.41	0.26	0.03	0.24	
Control Delay	16.3	60.4		379.5	12.3		19.5	21.5	3.6	28.5	30.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	16.3	60.4		379.5	12.3		19.5	21.5	3.6	28.5	30.4	
LOS	B	E		F	B		B	C	A	C	C	
Approach Delay		59.1			199.2			17.3			30.4	
Approach LOS		E			F			B			C	
Queue Length 50th (m)	2.8	~147.4		~42.1	10.5		7.0	43.0	0.0	1.3	31.1	
Queue Length 95th (m)	7.6	#229.7		#80.4	16.1		15.5	57.1	12.5	5.5	44.5	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0		90.0	80.0		
Base Capacity (vph)	567	798		84	776		385	1481	773	239	1472	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.05	1.00		1.69	0.18		0.15	0.41	0.26	0.03	0.24	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 74 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.69
Intersection Signal Delay: 55.7 Intersection LOS: E
Intersection Capacity Utilization 92.9% 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.

Splits and Phases: 199: Wharncliffe Road South & Bostwick Road/Exeter Road



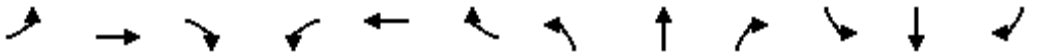
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	746	119	67	842	166	321	175	87	83	100	55
Future Volume (vph)	50	746	119	67	842	166	321	175	87	83	100	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		0.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00					1.00	0.99		1.00	0.99	
Frt		0.979				0.850		0.950			0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1847	0	1755	1902	1633	1825	1776	0	1755	1769	0
Flt Permitted	0.131			0.131			0.654			0.534		
Satd. Flow (perm)	252	1847	0	242	1902	1633	1253	1776	0	985	1769	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18				111		43			48	
Link Speed (k/h)		70			70			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		56.8			22.3			45.0			3.6	
Confl. Peds. (#/hr)			1	1			3		2	2		3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	5%	4%	1%	0%	0%	1%	4%	4%	2%	2%
Adj. Flow (vph)	53	785	125	71	886	175	338	184	92	87	105	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	910	0	71	886	175	338	276	0	87	163	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	28.6	28.6		28.6	28.6	28.6	29.8	29.8		29.8	29.8	
Total Split (s)	36.0	36.0		36.0	36.0	36.0	26.0	26.0		26.0	26.0	
Total Split (%)	58.1%	58.1%		58.1%	58.1%	58.1%	41.9%	41.9%		41.9%	41.9%	
Maximum Green (s)	30.4	30.4		30.4	30.4	30.4	20.2	20.2		20.2	20.2	
Yellow Time (s)	3.9	3.9		3.9	3.9	3.9	3.8	3.8		3.8	3.8	
All-Red Time (s)	1.7	1.7		1.7	1.7	1.7	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6	5.6	5.8	5.8		5.8	5.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0		16.0	16.0	16.0	17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)	30.5	30.5		30.5	30.5	30.5	18.8	18.8		18.8	18.8	
Actuated g/C Ratio	0.50	0.50		0.50	0.50	0.50	0.31	0.31		0.31	0.31	
v/c Ratio	0.42	0.97		0.59	0.93	0.20	0.87	0.48		0.29	0.28	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	23.1	41.6		37.3	33.6	4.5	45.1	17.2		18.6	12.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	23.1	41.6		37.3	33.6	4.5	45.1	17.2		18.6	12.6	
LOS	C	D		D	C	A	D	B		B	B	
Approach Delay		40.6			29.3			32.5			14.7	
Approach LOS		D			C			C			B	
Queue Length 50th (m)	3.7	94.6		5.5	89.9	3.6	35.0	20.3		7.2	9.3	
Queue Length 95th (m)	#16.7	#172.8		#24.4	#163.4	12.1	#75.2	38.7		17.1	21.3	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0			110.0		30.0	35.0			25.0		
Base Capacity (vph)	126	936		121	954	875	418	621		328	622	
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	0.42	0.97		0.59	0.93	0.20	0.81	0.44		0.27	0.26	

Intersection Summary			
Area Type:	Other		
Cycle Length: 62			
Actuated Cycle Length: 60.7			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 32.4		Intersection LOS: C	
Intersection Capacity Utilization 97.6%		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.

Splits and Phases: 128: Bostwick Road/Farnham Road & Southdale Road West

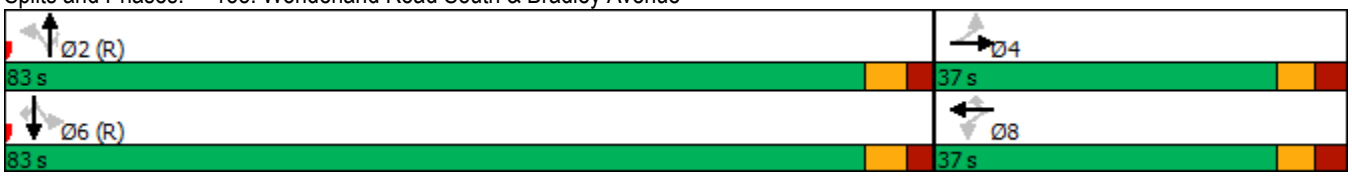


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	31	83	114	44	102	112	1024	79	92	822	25
Future Volume (vph)	13	31	83	114	44	102	112	1024	79	92	822	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99					0.98	1.00		0.98	1.00		0.97
Frt		0.891				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1712	0	1755	1921	1633	1484	3614	1142	1825	3544	1633
Flt Permitted	0.727			0.641			0.314			0.244		
Satd. Flow (perm)	1387	1712	0	1184	1921	1601	490	3614	1116	469	3544	1589
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		87				107			83			31
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	6					6	3		1	1		3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%	23%	1%	43%	0%	3%	0%
Adj. Flow (vph)	14	33	87	120	46	107	118	1078	83	97	865	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	120	0	120	46	107	118	1078	83	97	865	26
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.4	34.4		34.4	34.4	34.4	31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	37.0	37.0		37.0	37.0	37.0	83.0	83.0	83.0	83.0	83.0	83.0
Total Split (%)	30.8%	30.8%		30.8%	30.8%	30.8%	69.2%	69.2%	69.2%	69.2%	69.2%	69.2%
Maximum Green (s)	30.6	30.6		30.6	30.6	30.6	76.8	76.8	76.8	76.8	76.8	76.8
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	3.1	3.1		3.1	3.1	3.1	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4	6.4	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag												
Lead-Lag Optimize?												
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		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0	21.0	18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effct Green (s)	16.8	16.8		16.8	16.8	16.8	90.6	90.6	90.6	90.6	90.6	90.6
Actuated g/C Ratio	0.14	0.14		0.14	0.14	0.14	0.76	0.76	0.76	0.76	0.76	0.76
v/c Ratio	0.07	0.38		0.73	0.17	0.34	0.32	0.40	0.10	0.27	0.32	0.02

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	42.4	18.3		72.6	44.4	10.8	12.1	9.4	4.3	7.9	5.6	1.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	18.3		72.6	44.4	10.8	12.1	9.4	4.3	7.9	5.6	1.6
LOS	D	B		E	D	B	B	A	A	A	A	A
Approach Delay		20.9			43.6			9.3			5.7	
Approach LOS		C			D			A			A	
Queue Length 50th (m)	2.9	6.9		27.4	9.7	0.0	13.6	67.6	3.9	6.1	29.7	0.0
Queue Length 95th (m)	8.4	22.4		44.9	19.2	14.5	20.5	68.7	9.0	16.8	48.6	2.3
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	353	501		301	489	487	370	2729	862	354	2676	1207
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.24		0.40	0.09	0.22	0.32	0.40	0.10	0.27	0.32	0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 51 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 12.1		Intersection LOS: B	
Intersection Capacity Utilization 64.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 158: Wonderland Road South & Bradley Avenue



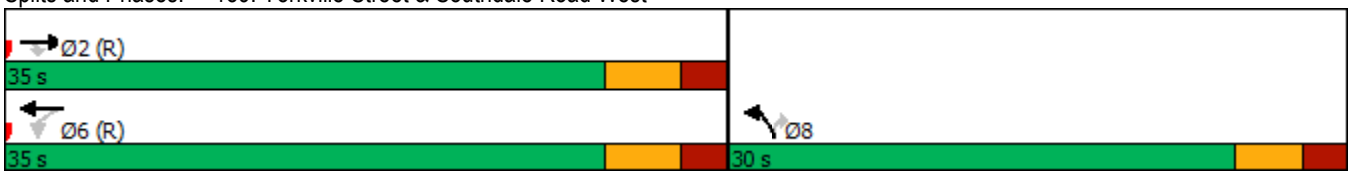
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	819	97	79	1005	69	56
Future Volume (vph)	819	97	79	1005	69	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1921	1633	1825	1921	1825	1633
Flt Permitted			0.262		0.950	
Satd. Flow (perm)	1921	1633	503	1921	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		74				59
Link Speed (k/h)	70			70	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	22.3			17.5	11.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	862	102	83	1058	73	59
Shared Lane Traffic (%)						
Lane Group Flow (vph)	862	102	83	1058	73	59
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	28.0	28.0	28.0	28.0	28.5	28.5
Total Split (s)	35.0	35.0	35.0	35.0	30.0	30.0
Total Split (%)	53.8%	53.8%	53.8%	53.8%	46.2%	46.2%
Maximum Green (s)	29.0	29.0	29.0	29.0	24.5	24.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	2.3	2.3	2.3	2.3	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	15.0	15.0	15.0	15.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	48.8	48.8	48.8	48.8	8.4	8.4
Actuated g/C Ratio	0.75	0.75	0.75	0.75	0.13	0.13
v/c Ratio	0.60	0.08	0.22	0.73	0.31	0.23
Control Delay	7.6	1.8	4.5	11.4	28.8	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.6	1.8	4.5	11.4	28.8	10.0

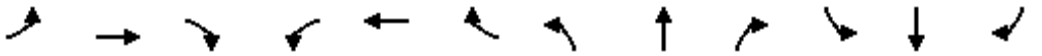
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A	A	A	B	C	A
Approach Delay	7.0			10.9	20.4	
Approach LOS	A			B	C	
Queue Length 50th (m)	44.7	0.8	1.8	73.8	8.2	0.0
Queue Length 95th (m)	88.7	4.8	m8.1	220.7	17.9	8.5
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)		40.0	55.0		45.0	
Base Capacity (vph)	1442	1245	377	1442	687	652
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	0.60	0.08	0.22	0.73	0.11	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 28 (43%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 9.8		Intersection LOS: A	
Intersection Capacity Utilization 69.4%		ICU Level of Service C	
Analysis Period (min) 15			

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

Splits and Phases: 159: Yorkville Street & Southdale Road West





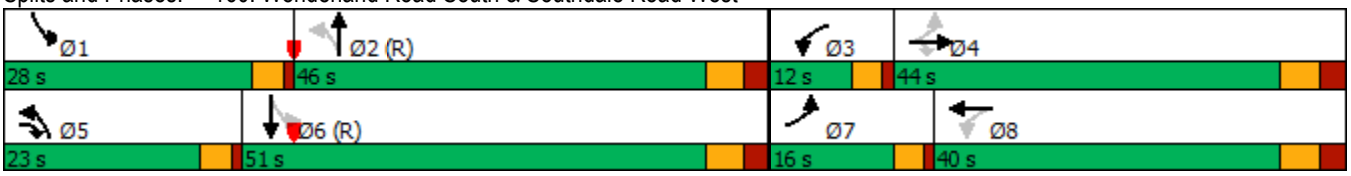
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	604	97	174	595	279	220	651	108	361	647	78
Future Volume (vph)	142	604	97	174	595	279	220	651	108	361	647	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.95	0.99	0.99		0.99	1.00		1.00	0.99	
Frt			0.850		0.952			0.979			0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3579	1555	1825	3401	0	1807	3483	0	1738	3478	0
Flt Permitted	0.109			0.272			0.291			0.158		
Satd. Flow (perm)	205	3579	1483	516	3401	0	547	3483	0	288	3478	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93		58			15			11	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	12		29	29		12	32		14	14		32
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	5%	0%	1%	2%	1%	2%	3%	5%	3%	0%
Adj. Flow (vph)	149	636	102	183	626	294	232	685	114	380	681	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	636	102	183	920	0	232	799	0	380	763	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.5	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	16.0	44.0	23.0	12.0	40.0		23.0	46.0		28.0	51.0	
Total Split (%)	12.3%	33.8%	17.7%	9.2%	30.8%		17.7%	35.4%		21.5%	39.2%	
Maximum Green (s)	12.0	37.4	19.0	8.0	33.4		19.0	39.9		24.0	44.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	50.8	36.8	53.8	44.0	33.4		57.9	41.4		70.6	50.1	
Actuated g/C Ratio	0.39	0.28	0.41	0.34	0.26		0.45	0.32		0.54	0.39	
v/c Ratio	0.68	0.63	0.15	0.72	1.00		0.61	0.71		0.92	0.57	

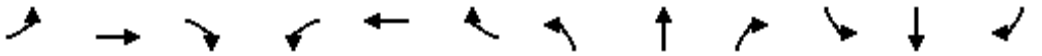
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	48.3	35.4	3.9	46.0	75.8		24.0	43.0		55.5	33.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	48.3	35.4	3.9	46.0	75.8		24.0	43.0		55.5	33.6	
LOS	D	D	A	D	E		C	D		E	C	
Approach Delay		33.9			70.9			38.7			40.9	
Approach LOS		C			E			D			D	
Queue Length 50th (m)	19.0	79.4	5.5	30.9	~119.1		30.4	94.9		66.9	79.5	
Queue Length 95th (m)	#42.6	73.6	3.1	#52.6	#164.3		45.8	118.2		#123.0	105.6	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	227	1029	728	255	916		447	1120		423	1348	
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	0.66	0.62	0.14	0.72	1.00		0.52	0.71		0.90	0.57	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 125 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 46.8 Intersection LOS: D
Intersection Capacity Utilization 95.3% 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.

Splits and Phases: 160: Wonderland Road South & Southdale Road West



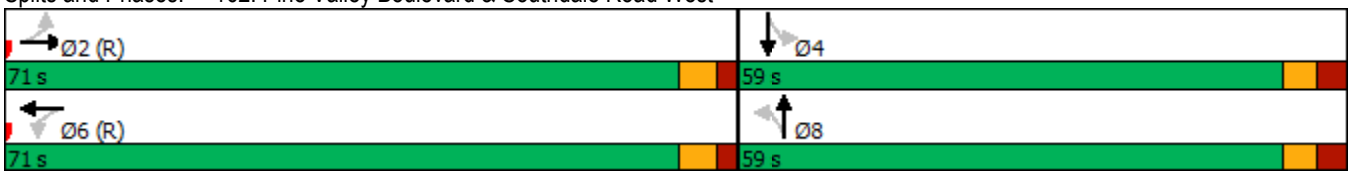


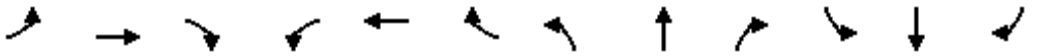
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	660	116	116	719	75	190	102	74	64	71	176
Future Volume (vph)	100	660	116	116	719	75	190	102	74	64	71	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98	0.99		0.99	0.99		0.99	0.97	
Frt		0.978			0.986			0.937			0.893	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3458	0	1825	3539	0	1825	1785	0	1825	1652	0
Flt Permitted	0.303			0.311			0.412			0.546		
Satd. Flow (perm)	576	3458	0	588	3539	0	782	1785	0	1042	1652	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			12			34			115	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	18		24	24		18	8		6	6		8
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	1%	0%	1%	1%	0%	0%	0%	0%	1%	1%
Adj. Flow (vph)	105	695	122	122	757	79	200	107	78	67	75	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	817	0	122	836	0	200	185	0	67	260	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	71.0	71.0		71.0	71.0		59.0	59.0		59.0	59.0	
Total Split (%)	54.6%	54.6%		54.6%	54.6%		45.4%	45.4%		45.4%	45.4%	
Maximum Green (s)	65.1	65.1		65.1	65.1		52.6	52.6		52.6	52.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	85.3	85.3		85.3	85.3		32.4	32.4		32.4	32.4	
Actuated g/C Ratio	0.66	0.66		0.66	0.66		0.25	0.25		0.25	0.25	
v/c Ratio	0.28	0.36		0.32	0.36		1.03	0.39		0.26	0.52	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	14.3	11.3		8.4	6.6		119.0	33.3		38.5	25.0	
Queue Delay	0.0	0.0		0.0	0.2		0.0	0.0		0.0	0.0	
Total Delay	14.3	11.3		8.4	6.7		119.0	33.3		38.5	25.0	
LOS	B	B		A	A		F	C		D	C	
Approach Delay		11.7			7.0			77.8			27.7	
Approach LOS		B			A			E			C	
Queue Length 50th (m)	6.7	26.5		7.0	25.2		~54.6	32.1		13.9	31.6	
Queue Length 95th (m)	31.7	81.7		m11.7	m36.1		#81.5	46.2		23.4	50.1	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	377	2276		385	2326		316	742		421	736	
Starvation Cap Reductn	0	0		0	660		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	0.28	0.36		0.32	0.50		0.63	0.25		0.16	0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 48 (37%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 21.8		Intersection LOS: C	
Intersection Capacity Utilization 76.8%		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.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West



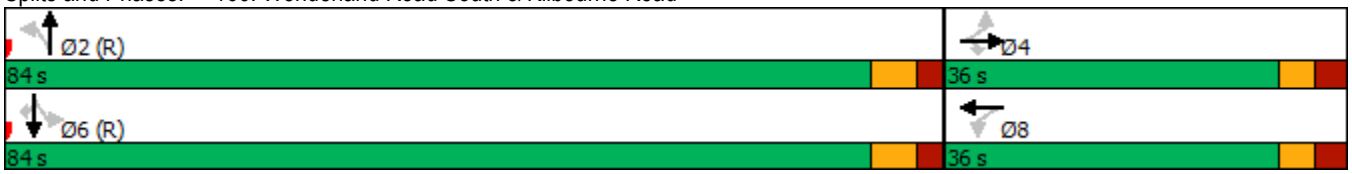


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	0	101	2	0	3	80	1189	1	0	978	41
Future Volume (vph)	23	0	101	2	0	3	80	1189	1	0	978	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00	1.00				0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1825	1921	1617	1825	1633	0	1825	3579	0	1921	3544	1601
Flt Permitted	0.756			0.757			0.272					
Satd. Flow (perm)	1452	1921	1617	1454	1633	0	521	3579	0	1921	3544	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			130		81							43
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)							5		4	4		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	3%	2%
Adj. Flow (vph)	24	0	106	2	0	3	84	1252	1	0	1029	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	0	106	2	3	0	84	1253	0	0	1029	43
Turn Type	Perm		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	33.3	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	36.0	36.0	36.0	36.0	36.0		84.0	84.0		84.0	84.0	84.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%		70.0%	70.0%		70.0%	70.0%	70.0%
Maximum Green (s)	29.7	29.7	29.7	29.7	29.7		77.3	77.3		77.3	77.3	77.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag												
Lead-Lag Optimize?												
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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effct Green (s)	8.0		8.0	8.0	8.0		99.0	99.0			99.0	99.0
Actuated g/C Ratio	0.07		0.07	0.07	0.07		0.82	0.82			0.82	0.82
v/c Ratio	0.25		0.46	0.02	0.02		0.20	0.42			0.35	0.03

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	59.0		11.9	51.5	0.0		4.2	4.3			2.5	0.5
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	59.0		11.9	51.5	0.0		4.2	4.3			2.5	0.5
LOS	E		B	D	A		A	A			A	A
Approach Delay		20.6			20.6			4.3			2.4	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	5.5		0.0	0.5	0.0		0.5	4.2			19.1	0.0
Queue Length 95th (m)	14.0		11.1	3.1	0.0		m11.0	68.4			26.7	1.2
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0					160.0
Base Capacity (vph)	359		498	359	465		429	2952			2923	1284
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	0.07		0.21	0.01	0.01		0.20	0.42			0.35	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.46			
Intersection Signal Delay: 4.4		Intersection LOS: A	
Intersection Capacity Utilization 63.1%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road



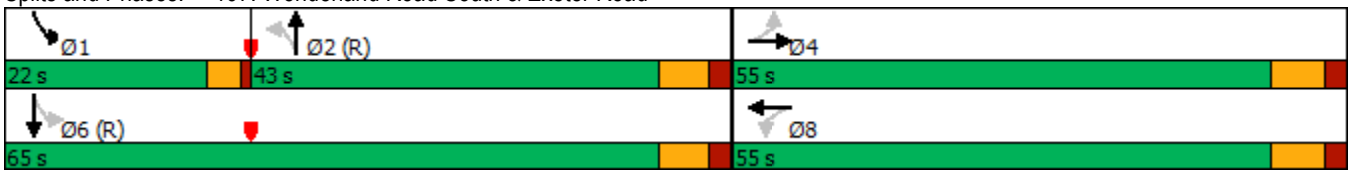
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	267	107	134	600	480	193	715	55	209	766	5
Future Volume (vph)	3	267	107	134	600	480	193	715	55	209	766	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.957			0.933			0.989			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3295	0	1755	3372	0	1772	3485	0	1706	3507	0
Flt Permitted	0.093			0.483			0.346			0.203		
Satd. Flow (perm)	179	3295	0	892	3372	0	645	3485	0	364	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		60			200			7			1	
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	6%	6%	4%	1%	1%	3%	2%	24%	7%	4%	0%
Adj. Flow (vph)	3	281	113	141	632	505	203	753	58	220	806	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	394	0	141	1137	0	203	811	0	220	811	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		33.6	33.6		9.5	33.6	
Total Split (s)	55.0	55.0		55.0	55.0		43.0	43.0		22.0	65.0	
Total Split (%)	45.8%	45.8%		45.8%	45.8%		35.8%	35.8%		18.3%	54.2%	
Maximum Green (s)	48.0	48.0		48.0	48.0		36.4	36.4		18.0	58.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		4.4	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.6	6.6		4.0	6.6	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	43.1	43.1		43.1	43.1		45.7	45.7		65.9	63.3	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.38	0.38		0.55	0.53	
v/c Ratio	0.05	0.32		0.44	0.85		0.83	0.61		0.62	0.44	
Control Delay	39.7	39.5		33.1	35.5		64.2	33.8		21.9	16.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

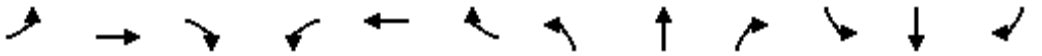
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	39.7	39.5		33.1	35.5		64.2	33.8		21.9	16.8	
LOS	D	D		C	D		E	C		C	B	
Approach Delay		39.5			35.3			39.9			17.9	
Approach LOS		D			D			D			B	
Queue Length 50th (m)	0.7	38.4		24.7	107.5		43.5	80.9		26.8	29.0	
Queue Length 95th (m)	m2.1	49.4		41.5	128.6		#98.1	113.5		27.9	34.4	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	71	1354		356	1468		245	1332		401	1851	
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	0.04	0.29		0.40	0.77		0.83	0.61		0.55	0.44	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 32.2 Intersection LOS: C
Intersection Capacity Utilization 92.5% 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: 197: Wonderland Road South & Exeter Road



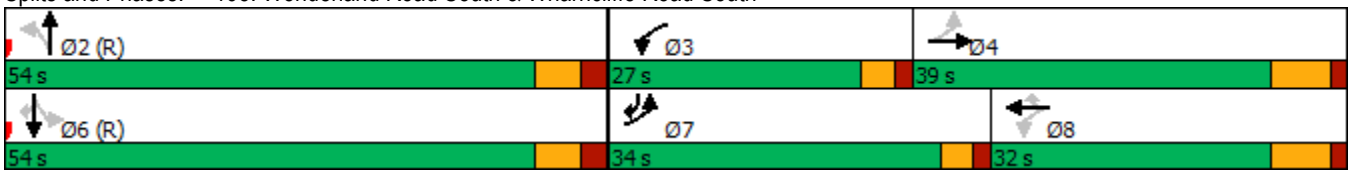


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	222	326	20	253	430	79	12	909	337	35	742	245
Future Volume (vph)	222	326	20	253	430	79	12	909	337	35	742	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				1.00				
Frt		0.991				0.850		0.959				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	3537	0	1755	3579	1512	1690	3432	0	1659	3380	1617
Flt Permitted	0.328			0.347			0.302			0.119		
Satd. Flow (perm)	624	3537	0	640	3579	1512	537	3432	0	208	3380	1617
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				115		52				59
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			2	2					3	3		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	2%	5%	4%	2%	8%	8%	1%	3%	10%	8%	1%
Adj. Flow (vph)	234	343	21	266	453	83	13	957	355	37	781	258
Shared Lane Traffic (%)												
Lane Group Flow (vph)	234	364	0	266	453	83	13	1312	0	37	781	258
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	34.0	39.0		27.0	32.0	32.0	54.0	54.0		54.0	54.0	34.0
Total Split (%)	28.3%	32.5%		22.5%	26.7%	26.7%	45.0%	45.0%		45.0%	45.0%	28.3%
Maximum Green (s)	29.5	32.0		22.5	25.0	25.0	47.3	47.3		47.3	47.3	29.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	37.6	18.3		41.9	20.5	20.5	64.5	64.5		64.5	64.5	88.0
Actuated g/C Ratio	0.31	0.15		0.35	0.17	0.17	0.54	0.54		0.54	0.54	0.73
v/c Ratio	0.65	0.67		0.67	0.74	0.24	0.05	0.70		0.33	0.43	0.21

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	21.6	39.2		35.8	54.8	4.5	28.7	32.3		24.1	14.3	2.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	21.6	39.2		35.8	54.8	4.5	28.7	32.3		24.1	14.3	2.4
LOS	C	D		D	D	A	C	C		C	B	A
Approach Delay		32.3			43.3			32.3			11.8	
Approach LOS		C			D			C			B	
Queue Length 50th (m)	28.7	43.4		46.2	53.9	0.0	1.7	128.6		3.9	47.3	9.7
Queue Length 95th (m)	11.7	56.2		60.3	68.6	6.5	m3.8	184.6		13.9	68.2	23.3
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	521	946		440	745	406	288	1869		111	1817	1366
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	0.45	0.38		0.60	0.61	0.20	0.05	0.70		0.33	0.43	0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 75 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 28.8		Intersection LOS: C	
Intersection Capacity Utilization 75.4%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 198: Wonderland Road South & Wharncliffe Road South

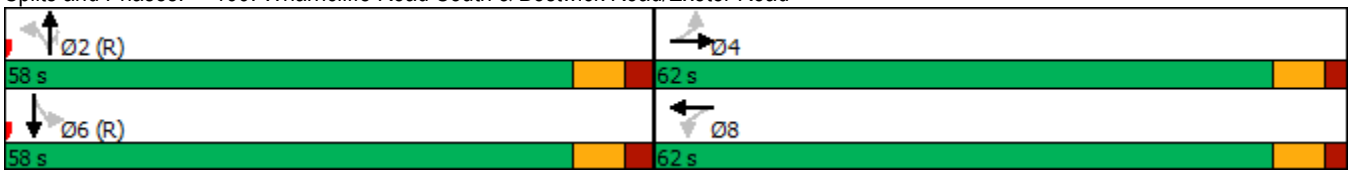


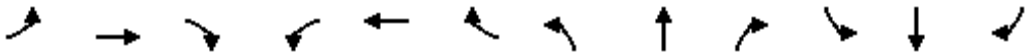
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	220	90	242	531	25	52	494	99	58	388	203
Future Volume (vph)	28	220	90	242	531	25	52	494	99	58	388	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00				1.00							
Frt		0.956			0.993				0.850		0.948	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1795	0	1807	1903	0	1825	3579	1585	1738	3371	0
Flt Permitted	0.149			0.437			0.377			0.435		
Satd. Flow (perm)	286	1795	0	831	1903	0	724	3579	1585	796	3371	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			3				104		99	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		9.6			14.1			20.8			18.2	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	3%	1%	0%	4%	0%	2%	3%	5%	3%	2%
Adj. Flow (vph)	29	232	95	255	559	26	55	520	104	61	408	214
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	327	0	255	585	0	55	520	104	61	622	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	33.8	33.8		33.8	33.8		27.2	27.2	27.2	27.2	27.2	
Total Split (s)	62.0	62.0		62.0	62.0		58.0	58.0	58.0	58.0	58.0	
Total Split (%)	51.7%	51.7%		51.7%	51.7%		48.3%	48.3%	48.3%	48.3%	48.3%	
Maximum Green (s)	55.2	55.2		55.2	55.2		50.8	50.8	50.8	50.8	50.8	
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		7.2	7.2	7.2	7.2	7.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		13.0	13.0	13.0	13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	44.5	44.5		44.5	44.5		61.5	61.5	61.5	61.5	61.5	
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.51	0.51	0.51	0.51	0.51	
v/c Ratio	0.28	0.48		0.83	0.83		0.15	0.28	0.12	0.15	0.35	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	30.8	28.1		44.3	36.0		19.9	18.5	4.1	41.3	37.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	30.8	28.1		44.3	36.0		19.9	18.5	4.1	41.3	37.7	
LOS	C	C		D	D		B	B	A	D	D	
Approach Delay		28.3			38.6			16.4			38.0	
Approach LOS		C			D			B			D	
Queue Length 50th (m)	4.7	53.8		63.7	145.2		6.7	35.8	0.0	12.4	60.8	
Queue Length 95th (m)	11.6	69.0		m81.4	m179.2		17.2	55.6	10.0	m22.2	79.5	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0		90.0	80.0		
Base Capacity (vph)	131	838		382	877		371	1835	863	408	1776	
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	0.22	0.39		0.67	0.67		0.15	0.28	0.12	0.15	0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 117 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 31.1		Intersection LOS: C	
Intersection Capacity Utilization 81.7%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 199: Wharncliffe Road South & Bostwick Road/Exeter Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	0	157	0	0	0	314	472	0	0	181	104
Future Volume (vph)	111	0	157	0	0	0	314	472	0	0	181	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.921									0.951	
Flt Protected		0.980						0.980				
Satd. Flow (prot)	0	1714	0	0	0	0	0	1883	0	0	1764	0
Flt Permitted		0.980						0.980				
Satd. Flow (perm)	0	1714	0	0	0	0	0	1883	0	0	1764	0
Link Speed (k/h)		70			60			70			70	
Link Distance (m)		1695.9			925.9			906.2			749.7	
Travel Time (s)		87.2			55.6			46.6			38.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	5%	1%
Adj. Flow (vph)	117	0	165	0	0	0	331	497	0	0	191	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	282	0	0	0	0	0	828	0	0	300	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 83.9%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	51.6

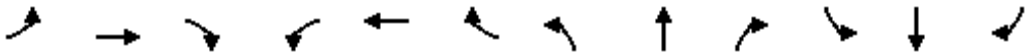
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	111	0	157	0	0	0	314	472	0	0	181	104
Future Vol, veh/h	111	0	157	0	0	0	314	472	0	0	181	104
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	2	0	0	0	0	0	0	0	5	1
Mvmt Flow	117	0	165	0	0	0	331	497	0	0	191	109

Major/Minor	Minor2				Major1			Major2		
Conflicting Flow All	1405	1405	246		300	0	-	-	-	0
Stage 1	246	246	-		-	-	-	-	-	-
Stage 2	1159	1159	-		-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.22		4.1	-	-	-	-	-
Critical Hdwy Stg 1	5.4	5.5	-		-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-		-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.318		2.2	-	-	-	-	-
Pot Cap-1 Maneuver	155	141	793		1273	-	0	0	-	-
Stage 1	800	706	-		-	-	0	0	-	-
Stage 2	301	272	-		-	-	0	0	-	-
Platoon blocked, %						-			-	-
Mov Cap-1 Maneuver	~ 99	0	793		1273	-	-	-	-	-
Mov Cap-2 Maneuver	~ 99	0	-		-	-	-	-	-	-
Stage 1	513	0	-		-	-	-	-	-	-
Stage 2	301	0	-		-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	247.4	3.5	0
HCM LOS	F		

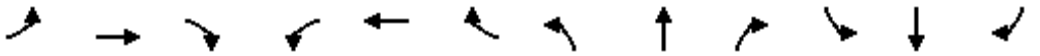
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1273	-	203	-	-
HCM Lane V/C Ratio	0.26	-	1.39	-	-
HCM Control Delay (s)	8.8	0	247.4	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	1	-	16.4	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	787	0	0	338	0
Future Volume (vph)	0	0	0	0	0	0	0	787	0	0	338	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	1921	0	0	1921	0	0	1921	0	0	1847	0
Flt Permitted												
Satd. Flow (perm)	0	1921	0	0	1921	0	0	1921	0	0	1847	0
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		226.1			576.5			512.0			62.9	
Travel Time (s)		16.3			41.5			26.3			3.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%
Adj. Flow (vph)	0	0	0	0	0	0	0	828	0	0	356	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	828	0	0	356	0
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 44.8%		ICU Level of Service A	
Analysis Period (min) 15			

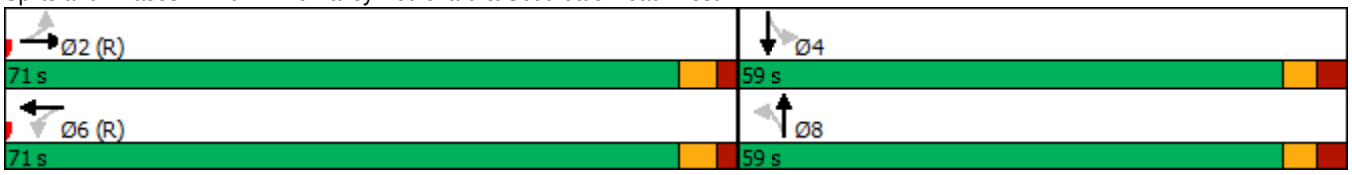


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	660	116	116	719	75	190	102	74	64	71	176
Future Volume (vph)	100	660	116	116	719	75	190	102	74	64	71	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1700	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98	0.99		0.99	0.99		0.99	0.97	
Frt		0.978			0.986			0.937			0.893	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3458	0	1825	3539	0	1633	1785	0	1825	1652	0
Flt Permitted	0.298			0.306			0.437			0.561		
Satd. Flow (perm)	566	3458	0	579	3539	0	743	1785	0	1071	1652	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			12			34			115	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	18		24	24		18	8		6	6		8
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	2%	1%	0%	1%	1%	0%	0%	0%	0%	1%	1%
Adj. Flow (vph)	105	695	122	122	757	79	200	107	78	67	75	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	817	0	122	836	0	200	185	0	67	260	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	71.0	71.0		71.0	71.0		59.0	59.0		59.0	59.0	
Total Split (%)	54.6%	54.6%		54.6%	54.6%		45.4%	45.4%		45.4%	45.4%	
Maximum Green (s)	65.1	65.1		65.1	65.1		52.6	52.6		52.6	52.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	82.3	82.3		82.3	82.3		35.4	35.4		35.4	35.4	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.27	0.27		0.27	0.27	
v/c Ratio	0.29	0.37		0.33	0.37		0.99	0.36		0.23	0.49	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	16.4	13.0		9.5	7.3		106.5	30.7		35.2	22.7	
Queue Delay	0.0	0.0		0.0	0.2		0.0	0.0		0.0	0.0	
Total Delay	16.4	13.0		9.5	7.5		106.5	30.7		35.2	22.7	
LOS	B	B		A	A		F	C		D	C	
Approach Delay		13.4			7.8			70.1			25.3	
Approach LOS		B			A			E			C	
Queue Length 50th (m)	6.8	26.9		7.4	26.4		51.1	31.0		13.3	30.4	
Queue Length 95th (m)	36.0	93.4		m12.0	m37.1		#79.2	43.9		22.1	47.4	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	358	2197		366	2245		300	742		433	736	
Starvation Cap Reductn	0	0		0	595		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	0.29	0.37		0.33	0.51		0.67	0.25		0.15	0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 48 (37%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 21.2		Intersection LOS: C	
Intersection Capacity Utilization 78.0%		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: 162: Pine Valley Boulevard & Southdale Road West

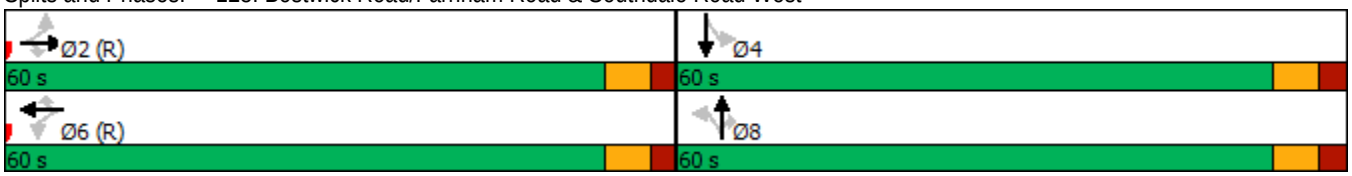


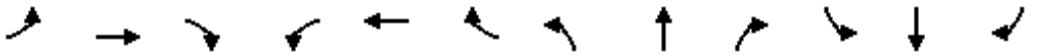
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	666	338	116	418	45	299	81	246	78	84	49
Future Volume (vph)	51	666	338	116	418	45	299	81	246	78	84	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		30.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98						
Frt			0.850			0.850			0.850		0.945	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3614	1498	1722	3444	1601	1674	1902	1585	1807	1755	0
Flt Permitted	0.503			0.366			0.672			0.704		
Satd. Flow (perm)	928	3614	1498	663	3444	1566	1184	1902	1585	1339	1755	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			258			45			153		31	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		66.3			26.0			45.0			3.6	
Confl. Peds. (#/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 (%)	4%	1%	9%	6%	6%	2%	9%	1%	3%	1%	2%	6%
Adj. Flow (vph)	51	666	338	116	418	45	299	81	246	78	84	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	666	338	116	418	45	299	81	246	78	133	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	34.5	34.5	34.5	34.5	34.5	34.5	37.7	37.7	37.7	37.7	37.7	
Total Split (s)	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	
Maximum Green (s)	53.5	53.5	53.5	53.5	53.5	53.5	53.3	53.3	53.3	53.3	53.3	
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.7	6.7	6.7	6.7	6.7	
Lead/Lag												
Lead-Lag Optimize?												
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	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0	24.0	24.0	24.0	24.0	24.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Act Effct Green (s)	69.4	69.4	69.4	69.4	69.4	69.4	37.4	37.4	37.4	37.4	37.4	
Actuated g/C Ratio	0.58	0.58	0.58	0.58	0.58	0.58	0.31	0.31	0.31	0.31	0.31	
v/c Ratio	0.10	0.32	0.35	0.30	0.21	0.05	0.81	0.14	0.41	0.19	0.23	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	15.2	15.1	5.3	14.3	10.1	3.1	54.1	27.3	12.6	28.3	21.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.2	15.1	5.3	14.3	10.1	3.1	54.1	27.3	12.6	28.3	21.9	
LOS	B	B	A	B	B	A	D	C	B	C	C	
Approach Delay		12.0			10.4			34.3			24.3	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	5.1	40.8	8.0	9.7	14.3	0.0	64.4	13.6	15.9	13.3	17.4	
Queue Length 95th (m)	14.2	66.4	29.4	32.9	38.4	5.4	84.4	21.3	31.2	21.4	27.5	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0		30.0	110.0		30.0	35.0			25.0		
Base Capacity (vph)	536	2089	975	383	1991	924	525	844	789	594	796	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.10	0.32	0.35	0.30	0.21	0.05	0.57	0.10	0.31	0.13	0.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 18 (15%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 18.3		Intersection LOS: B	
Intersection Capacity Utilization 75.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 128: Bostwick Road/Farnham Road & Southdale Road West



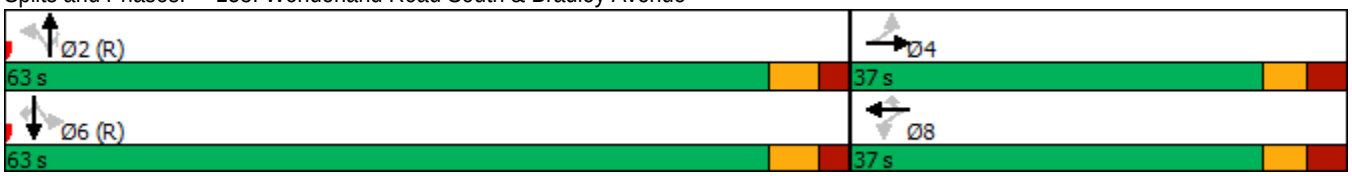


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	2	12	61	6	102	29	647	43	127	904	3
Future Volume (vph)	1	2	12	61	6	102	29	647	43	127	904	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00					0.98	1.00		0.98	1.00		0.98
Frt		0.871				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1566	0	1772	1921	1512	1601	3476	1570	1825	3579	1228
Flt Permitted	0.754			0.748			0.310			0.406		
Satd. Flow (perm)	1442	1566	0	1395	1921	1487	522	3476	1536	779	3579	1198
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				102			43			37
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	4					4	2		1	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%	0%	8%	14%	5%	4%	0%	2%	33%
Adj. Flow (vph)	1	2	12	61	6	102	29	647	43	127	904	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	14	0	61	6	102	29	647	43	127	904	3
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.4	34.4		34.4	34.4	34.4	31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	37.0	37.0		37.0	37.0	37.0	63.0	63.0	63.0	63.0	63.0	63.0
Total Split (%)	37.0%	37.0%		37.0%	37.0%	37.0%	63.0%	63.0%	63.0%	63.0%	63.0%	63.0%
Maximum Green (s)	30.6	30.6		30.6	30.6	30.6	56.8	56.8	56.8	56.8	56.8	56.8
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	3.1	3.1		3.1	3.1	3.1	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4	6.4	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag												
Lead-Lag Optimize?												
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		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0	21.0	18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effct Green (s)	10.0	10.0		10.0	10.0	10.0	81.3	81.3	81.3	81.3	81.3	81.3
Actuated g/C Ratio	0.10	0.10		0.10	0.10	0.10	0.81	0.81	0.81	0.81	0.81	0.81
v/c Ratio	0.01	0.08		0.44	0.03	0.42	0.07	0.23	0.03	0.20	0.31	0.00

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	38.0	22.2		51.2	38.8	13.9	2.8	3.0	1.2	4.2	3.6	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	22.2		51.2	38.8	13.9	2.8	3.0	1.2	4.2	3.6	0.0
LOS	D	C		D	D	B	A	A	A	A	A	A
Approach Delay		23.3			28.3			2.9			3.7	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	0.2	0.4		11.4	1.1	0.0	1.6	20.8	0.7	5.3	21.9	0.0
Queue Length 95th (m)	1.7	5.9		23.0	4.6	14.3	2.6	20.0	1.6	12.9	35.4	0.0
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	441	487		426	587	525	424	2825	1256	633	2908	980
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.03		0.14	0.01	0.19	0.07	0.23	0.03	0.20	0.31	0.00

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 41 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 5.7		Intersection LOS: A	
Intersection Capacity Utilization 58.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 158: Wonderland Road South & Bradley Avenue

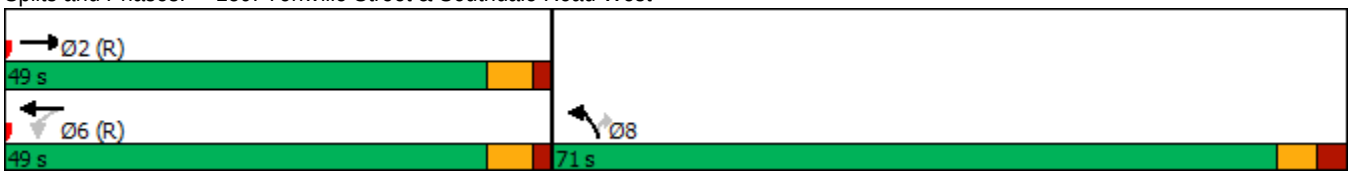


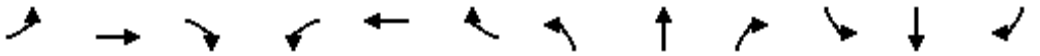
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	977	52	74	517	62	107
Future Volume (vph)	977	52	74	517	62	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.992					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3621	0	1825	3650	1825	1633
Flt Permitted			0.266		0.950	
Satd. Flow (perm)	3621	0	511	3650	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	5					27
Link Speed (k/h)	60			60	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	26.0			20.4	11.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	977	52	74	517	62	107
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1029	0	74	517	62	107
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	28.4		28.4	28.4	35.5	35.5
Total Split (s)	49.0		49.0	49.0	71.0	71.0
Total Split (%)	40.8%		40.8%	40.8%	59.2%	59.2%
Maximum Green (s)	43.0		43.0	43.0	64.5	64.5
Yellow Time (s)	4.1		4.1	4.1	3.6	3.6
All-Red Time (s)	1.9		1.9	1.9	2.9	2.9
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	22.0	22.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	95.8		95.8	95.8	11.7	11.7
Actuated g/C Ratio	0.80		0.80	0.80	0.10	0.10
v/c Ratio	0.36		0.18	0.18	0.35	0.58
Control Delay	5.9		2.4	1.4	54.6	50.7
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	5.9		2.4	1.4	54.6	50.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A		A	A	D	D
Approach Delay	5.9			1.5	52.1	
Approach LOS	A			A	D	
Queue Length 50th (m)	22.2		1.0	3.6	13.9	18.2
Queue Length 95th (m)	83.0		3.9	9.4	26.3	34.8
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)			55.0		45.0	
Base Capacity (vph)	2892		407	2914	980	890
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.36		0.18	0.18	0.06	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 4 (3%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 8.8		Intersection LOS: A	
Intersection Capacity Utilization 55.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 159: Yorkville Street & Southdale Road West



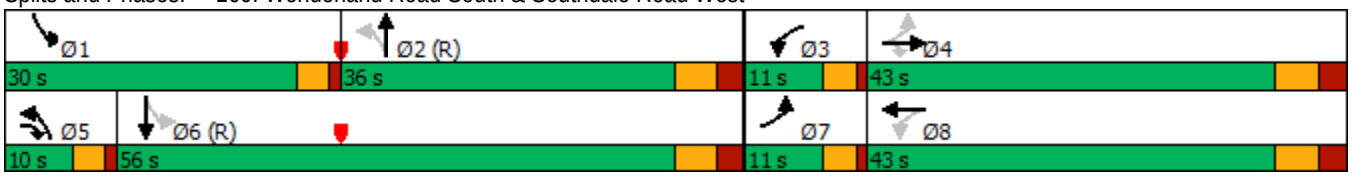


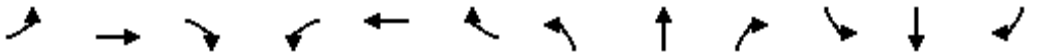
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	725	138	70	434	191	111	454	40	328	722	69
Future Volume (vph)	152	725	138	70	434	191	111	454	40	328	722	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.98	1.00	0.99		0.99	1.00		0.99	1.00	
Frt			0.850		0.954			0.988			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	3579	1617	1772	3272	0	1755	3350	0	1738	3408	0
Flt Permitted	0.223			0.183			0.343			0.364		
Satd. Flow (perm)	387	3579	1578	340	3272	0	630	3350	0	662	3408	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120		60			7			10	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	14		11	11		14	15		12	12		15
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%	2%	1%	3%	4%	9%	4%	7%	12%	5%	5%	10%
Adj. Flow (vph)	152	725	138	70	434	191	111	454	40	328	722	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	152	725	138	70	625	0	111	494	0	328	791	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.5	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	11.0	43.0	10.0	11.0	43.0		10.0	36.0		30.0	56.0	
Total Split (%)	9.2%	35.8%	8.3%	9.2%	35.8%		8.3%	30.0%		25.0%	46.7%	
Maximum Green (s)	7.0	36.4	6.0	7.0	36.4		6.0	29.9		26.0	49.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	40.2	32.0	40.6	39.2	29.8		52.6	44.5		68.6	56.5	
Actuated g/C Ratio	0.34	0.27	0.34	0.33	0.25		0.44	0.37		0.57	0.47	
v/c Ratio	0.75	0.76	0.22	0.37	0.73		0.33	0.40		0.61	0.49	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	51.8	45.2	14.9	29.2	42.0		18.6	31.1		19.9	23.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	51.8	45.2	14.9	29.2	42.0		18.6	31.1		19.9	23.8	
LOS	D	D	B	C	D		B	C		B	C	
Approach Delay		42.0			40.7			28.8			22.7	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	22.2	90.0	4.4	10.7	63.8		11.7	44.7		39.8	66.3	
Queue Length 95th (m)	#49.5	107.0	28.7	19.1	78.8		22.7	70.9		65.1	91.4	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	203	1085	614	194	1034		332	1245		612	1611	
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	0.75	0.67	0.22	0.36	0.60		0.33	0.40		0.54	0.49	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 33.1		Intersection LOS: C	
Intersection Capacity Utilization 89.6%		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: 160: Wonderland Road South & Southdale Road West



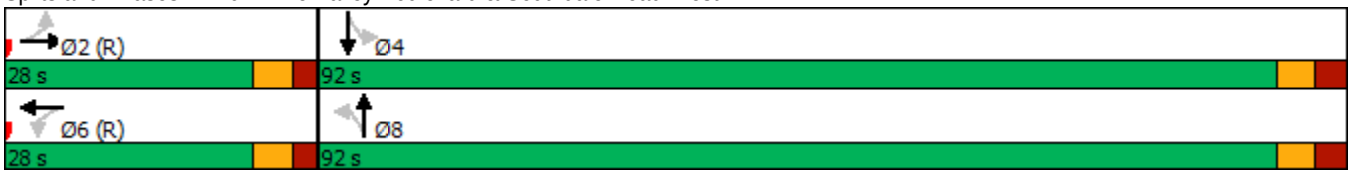


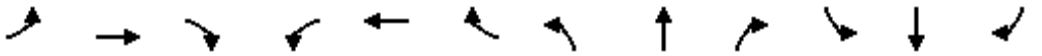
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	927	55	69	484	68	37	17	44	27	25	71
Future Volume (vph)	101	927	55	69	484	68	37	17	44	27	25	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00			1.00		0.99	0.99		1.00	0.98	
Frt		0.992			0.982			0.892			0.889	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3582	0	1825	3379	0	1825	1697	0	1755	1610	0
Flt Permitted	0.446			0.282			0.695			0.717		
Satd. Flow (perm)	853	3582	0	542	3379	0	1325	1697	0	1323	1610	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			11			1			29	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	5		2	2		5	7		1	1		7
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%	1%	0%	0%	6%	3%	0%	0%	0%	4%	0%	6%
Adj. Flow (vph)	101	927	55	69	484	68	37	17	44	27	25	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	982	0	69	552	0	37	61	0	27	96	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	28.0	28.0		28.0	28.0		92.0	92.0		92.0	92.0	
Total Split (%)	23.3%	23.3%		23.3%	23.3%		76.7%	76.7%		76.7%	76.7%	
Maximum Green (s)	22.1	22.1		22.1	22.1		85.6	85.6		85.6	85.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	96.9	96.9		96.9	96.9		10.8	10.8		10.8	10.8	
Actuated g/C Ratio	0.81	0.81		0.81	0.81		0.09	0.09		0.09	0.09	
v/c Ratio	0.15	0.34		0.16	0.20		0.31	0.40		0.23	0.56	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	5.9	6.9		5.3	3.9		56.4	57.0		53.5	48.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	5.9	6.9		5.3	3.9		56.4	57.0		53.5	48.2	
LOS	A	A		A	A		E	E		D	D	
Approach Delay		6.8			4.1			56.8			49.4	
Approach LOS		A			A			E			D	
Queue Length 50th (m)	6.7	39.4		2.3	9.4		8.3	13.6		6.0	15.3	
Queue Length 95th (m)	22.9	100.6		m10.1	29.2		18.3	26.0		14.6	31.2	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	688	2892		437	2729		945	1210		943	1156	
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	0.15	0.34		0.16	0.20		0.04	0.05		0.03	0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 66 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 11.2		Intersection LOS: B	
Intersection Capacity Utilization 59.7%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West



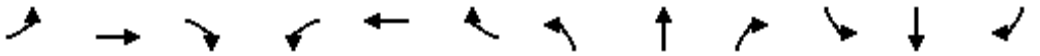


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	0	155	4	0	5	105	660	2	1	855	112
Future Volume (vph)	50	0	155	4	0	5	105	660	2	1	855	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00					0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	1921	1585	1043	1151	0	1807	3350	0	1825	3544	1601
Flt Permitted	0.754			0.757			0.327			0.400		
Satd. Flow (perm)	1340	1921	1585	831	1151	0	621	3350	0	768	3544	1558
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			151		243							112
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)	1					1	3					3
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 (%)	8%	0%	3%	75%	0%	40%	1%	9%	0%	0%	3%	2%
Adj. Flow (vph)	50	0	155	4	0	5	105	660	2	1	855	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	0	155	4	5	0	105	662	0	1	855	112
Turn Type	Perm		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	33.3	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	36.0	36.0	36.0	36.0	36.0		64.0	64.0		64.0	64.0	64.0
Total Split (%)	36.0%	36.0%	36.0%	36.0%	36.0%		64.0%	64.0%		64.0%	64.0%	64.0%
Maximum Green (s)	29.7	29.7	29.7	29.7	29.7		57.3	57.3		57.3	57.3	57.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag												
Lead-Lag Optimize?												
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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effct Green (s)	9.5		9.5	9.5	9.5		77.5	77.5		77.5	77.5	77.5
Actuated g/C Ratio	0.10		0.10	0.10	0.10		0.78	0.78		0.78	0.78	0.78
v/c Ratio	0.40		0.54	0.05	0.02		0.22	0.25		0.00	0.31	0.09

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	51.0		14.9	40.8	0.0		6.4	5.8		3.0	3.6	0.7
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	51.0		14.9	40.8	0.0		6.4	5.8		3.0	3.6	0.7
LOS	D		B	D	A		A	A		A	A	A
Approach Delay		23.7			18.1			5.8			3.2	
Approach LOS		C			B			A			A	
Queue Length 50th (m)	9.3		0.7	0.7	0.0		9.1	30.2		0.0	18.5	0.0
Queue Length 95th (m)	20.1		18.1	3.9	0.0		14.1	29.8		m0.1	29.3	3.1
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0			115.0		160.0
Base Capacity (vph)	397		576	246	512		481	2597		595	2747	1232
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	0.13		0.27	0.02	0.01		0.22	0.25		0.00	0.31	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 37 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 6.5		Intersection LOS: A	
Intersection Capacity Utilization 55.3%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road



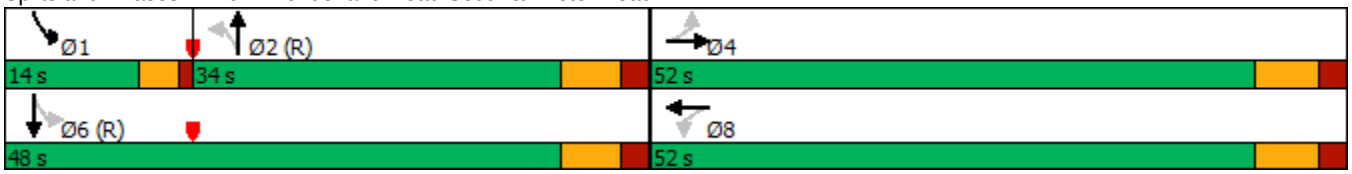
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	578	271	44	229	181	53	697	112	347	775	3
Future Volume (vph)	3	578	271	44	229	181	53	697	112	347	775	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.952			0.934			0.979			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1372	3407	0	1437	3032	0	1738	3408	0	1789	3507	0
Flt Permitted	0.470			0.159			0.357			0.230		
Satd. Flow (perm)	679	3407	0	241	3032	0	653	3408	0	433	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		91			181			18				
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
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 (%)	33%	2%	2%	27%	12%	13%	5%	5%	4%	2%	4%	0%
Adj. Flow (vph)	3	578	271	44	229	181	53	697	112	347	775	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	849	0	44	410	0	53	809	0	347	778	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		33.6	33.6		9.0	33.6	
Total Split (s)	52.0	52.0		52.0	52.0		34.0	34.0		14.0	48.0	
Total Split (%)	52.0%	52.0%		52.0%	52.0%		34.0%	34.0%		14.0%	48.0%	
Maximum Green (s)	45.0	45.0		45.0	45.0		27.4	27.4		10.0	41.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		4.4	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.6	6.6		4.0	6.6	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	30.5	30.5		30.5	30.5		41.9	41.9		58.5	55.9	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.42	0.42		0.58	0.56	
v/c Ratio	0.01	0.77		0.60	0.39		0.19	0.56		0.89	0.40	
Control Delay	26.7	35.9		62.7	15.0		23.5	24.5		49.6	9.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

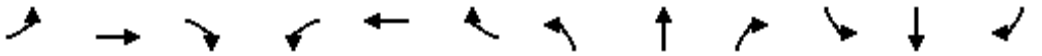
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	26.7	35.9		62.7	15.0		23.5	24.5		49.6	9.3	
LOS	C	D		E	B		C	C		D	A	
Approach Delay		35.9			19.6			24.5			21.7	
Approach LOS		D			B			C			C	
Queue Length 50th (m)	0.4	55.7		7.2	17.4		6.4	60.1		29.5	26.6	
Queue Length 95th (m)	m0.7	67.4		#21.2	26.5		17.2	89.2		#57.3	27.6	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	305	1583		108	1463		273	1439		389	1961	
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	0.01	0.54		0.41	0.28		0.19	0.56		0.89	0.40	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 73 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 25.8 Intersection LOS: C
Intersection Capacity Utilization 93.0% 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: 197: Wonderland Road South & Exeter Road



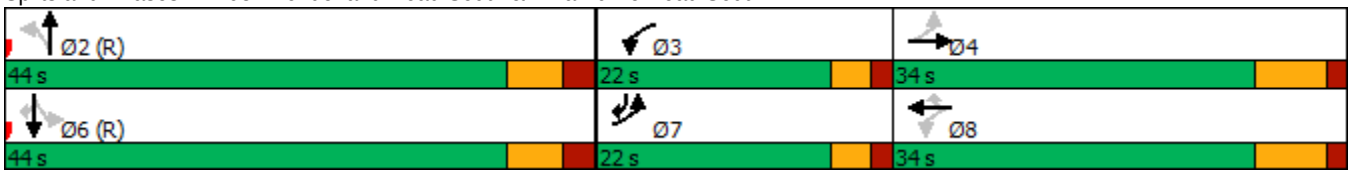


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	513	17	205	218	42	4	564	272	32	834	142
Future Volume (vph)	148	513	17	205	218	42	4	564	272	32	834	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				1.00		1.00		
Frt		0.995				0.850		0.951				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3521	0	1755	3544	1384	1825	3257	0	1508	3510	1570
Flt Permitted	0.615			0.253			0.267			0.266		
Satd. Flow (perm)	1136	3521	0	467	3544	1384	513	3257	0	422	3510	1570
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				89		93				142
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			1	1					3	3		
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 (%)	4%	3%	6%	4%	3%	18%	0%	8%	2%	21%	4%	4%
Adj. Flow (vph)	148	513	17	205	218	42	4	564	272	32	834	142
Shared Lane Traffic (%)												
Lane Group Flow (vph)	148	530	0	205	218	42	4	836	0	32	834	142
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	22.0	34.0		22.0	34.0	34.0	44.0	44.0		44.0	44.0	22.0
Total Split (%)	22.0%	34.0%		22.0%	34.0%	34.0%	44.0%	44.0%		44.0%	44.0%	22.0%
Maximum Green (s)	17.5	27.0		17.5	27.0	27.0	37.3	37.3		37.3	37.3	17.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	33.7	20.5		39.1	23.2	23.2	47.9	47.9		47.9	47.9	65.3
Actuated g/C Ratio	0.34	0.20		0.39	0.23	0.23	0.48	0.48		0.48	0.48	0.65
v/c Ratio	0.33	0.73		0.58	0.27	0.11	0.02	0.52		0.16	0.50	0.13

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	6.4	30.0		25.4	31.3	0.9	30.5	22.3		23.7	21.4	0.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	6.4	30.0		25.4	31.3	0.9	30.5	22.3		23.7	21.4	0.5
LOS	A	C		C	C	A	C	C		C	C	A
Approach Delay		24.9			26.0			22.3			18.6	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	1.3	57.5		26.0	18.3	0.0	0.3	34.9		2.2	54.4	0.1
Queue Length 95th (m)	m7.2	74.4		35.5	26.1	0.8	m1.4	80.1		14.1	99.1	0.5
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	558	952		415	970	443	245	1609		202	1682	1171
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	0.27	0.56		0.49	0.22	0.09	0.02	0.52		0.16	0.50	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 53 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 22.2		Intersection LOS: C	
Intersection Capacity Utilization 68.0%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 198: Wonderland Road South & Wharncliffe Road South

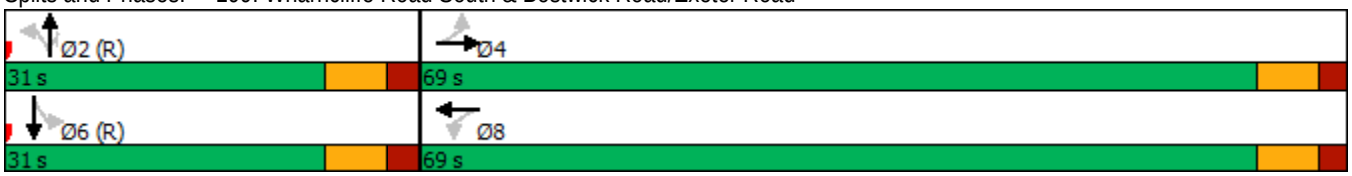


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	646	243	136	147	19	67	627	197	8	310	57
Future Volume (vph)	34	646	243	136	147	19	67	627	197	8	310	57
Ideal Flow (vphpl)	1900	1900	1900	2500	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.959			0.983				0.850		0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1779	0	2018	1756	0	1630	3544	1570	1496	3483	0
Flt Permitted	0.652			0.137			0.505			0.282		
Satd. Flow (perm)	1253	1779	0	291	1756	0	866	3544	1570	444	3483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			12				197		20	
Link Speed (k/h)		70			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		11.0			14.1			20.8			18.2	
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%	3%	5%	19%	7%	12%	12%	3%	4%	22%	1%	10%
Adj. Flow (vph)	34	646	243	136	147	19	67	627	197	8	310	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	889	0	136	166	0	67	627	197	8	367	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	33.8	33.8		33.8	33.8		27.2	27.2	27.2	27.2	27.2	
Total Split (s)	69.0	69.0		69.0	69.0		31.0	31.0	31.0	31.0	31.0	
Total Split (%)	69.0%	69.0%		69.0%	69.0%		31.0%	31.0%	31.0%	31.0%	31.0%	
Maximum Green (s)	62.2	62.2		62.2	62.2		23.8	23.8	23.8	23.8	23.8	
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		7.2	7.2	7.2	7.2	7.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		13.0	13.0	13.0	13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	58.0	58.0		58.0	58.0		28.0	28.0	28.0	28.0	28.0	
Actuated g/C Ratio	0.58	0.58		0.58	0.58		0.28	0.28	0.28	0.28	0.28	
v/c Ratio	0.05	0.85		0.80	0.16		0.28	0.63	0.34	0.07	0.37	
Control Delay	7.9	25.1		50.2	6.8		34.7	36.2	6.4	38.4	37.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	7.9	25.1		50.2	6.8		34.7	36.2	6.4	38.4	37.5	
LOS	A	C		D	A		C	D	A	D	D	
Approach Delay		24.5			26.4			29.5			37.5	
Approach LOS		C			C			C			D	
Queue Length 50th (m)	2.4	116.0		23.8	9.5		10.7	58.8	0.0	1.5	37.2	
Queue Length 95th (m)	6.0	171.0		#56.8	13.9		23.3	78.8	16.7	6.4	52.2	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0		90.0	80.0		
Base Capacity (vph)	779	1120		181	1096		242	990	580	123	988	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.04	0.79		0.75	0.15		0.28	0.63	0.34	0.07	0.37	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 74 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 28.5		Intersection LOS: C	
Intersection Capacity Utilization 101.1%		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.			

Splits and Phases: 199: Wharncliffe Road South & Bostwick Road/Exeter Road



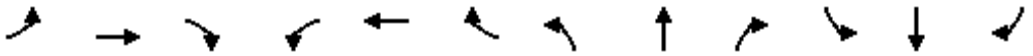
Intersection	
Int Delay, s/veh	81.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	143	0	419	0	0	0	76	442	0	0	483	67
Future Vol, veh/h	143	0	419	0	0	0	76	442	0	0	483	67
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	2	0	0	0	5	6	0	0	2	4
Mvmt Flow	143	0	419	0	0	0	76	442	0	0	483	67

Major/Minor	Minor2				Major1			Major2		
Conflicting Flow All	1111	1111	517		550	0	-	-	-	0
Stage 1	517	517	-		-	-	-	-	-	-
Stage 2	594	594	-		-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.22		4.15	-	-	-	-	-
Critical Hdwy Stg 1	5.4	5.5	-		-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-		-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.318		2.245	-	-	-	-	-
Pot Cap-1 Maneuver	233	211	558		1005	-	0	0	-	-
Stage 1	603	537	-		-	-	0	0	-	-
Stage 2	555	496	-		-	-	0	0	-	-
Platoon blocked, %						-			-	-
Mov Cap-1 Maneuver	210	0	558		1005	-	-	-	-	-
Mov Cap-2 Maneuver	210	0	-		-	-	-	-	-	-
Stage 1	543	0	-		-	-	-	-	-	-
Stage 2	555	0	-		-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	236	1.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1005	-	392	-	-
HCM Lane V/C Ratio	0.076	-	1.434	-	-
HCM Control Delay (s)	8.9	0	236	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.2	-	28.6	-	-

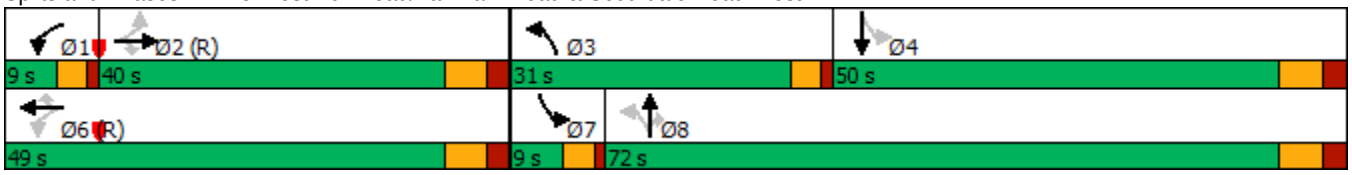


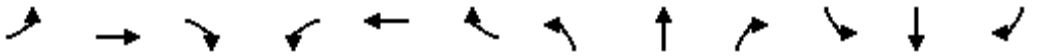
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	806	253	229	870	166	442	175	145	83	100	55
Future Volume (vph)	50	806	253	229	870	166	442	175	145	83	100	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		30.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98	1.00			1.00		0.99	1.00	0.99	
Frt			0.850			0.850			0.850		0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3614	1555	1755	3614	1633	1825	1902	1570	1755	1774	0
Flt Permitted	0.326			0.134			0.382			0.647		
Satd. Flow (perm)	626	3614	1521	247	3614	1633	732	1902	1547	1193	1774	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			132			98			145		23	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		66.3			26.0			45.0			3.6	
Confl. Peds. (#/hr)			1	1			3		2	2		3
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%	1%	5%	4%	1%	0%	0%	1%	4%	4%	2%	2%
Adj. Flow (vph)	50	806	253	229	870	166	442	175	145	83	100	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	806	253	229	870	166	442	175	145	83	155	0
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	2	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	34.5	34.5	34.5	9.0	34.5	34.5	9.0	37.7	37.7	9.0	37.7	
Total Split (s)	40.0	40.0	40.0	9.0	49.0	49.0	31.0	72.0	72.0	9.0	50.0	
Total Split (%)	30.8%	30.8%	30.8%	6.9%	37.7%	37.7%	23.8%	55.4%	55.4%	6.9%	38.5%	
Maximum Green (s)	33.5	33.5	33.5	5.0	42.5	42.5	27.0	65.3	65.3	5.0	43.3	
Yellow Time (s)	4.1	4.1	4.1	3.0	4.1	4.1	3.0	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.4	2.4	2.4	1.0	2.4	2.4	1.0	2.6	2.6	1.0	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	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	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		24.0	24.0		24.0	
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	
Act Effct Green (s)	38.2	38.2	38.2	73.4	70.9	70.9	48.6	36.9	36.9	23.0	15.3	
Actuated g/C Ratio	0.29	0.29	0.29	0.56	0.55	0.55	0.37	0.28	0.28	0.18	0.12	
v/c Ratio	0.27	0.76	0.47	0.49	0.44	0.18	0.89	0.32	0.27	0.36	0.68	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	39.8	47.1	20.3	36.1	16.0	7.2	54.6	37.5	6.1	34.3	61.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	39.8	47.1	20.3	36.1	16.0	7.2	54.6	37.5	6.1	34.3	61.0	
LOS	D	D	C	D	B	A	D	D	A	C	E	
Approach Delay		40.7			18.5			41.4			51.7	
Approach LOS		D			B			D			D	
Queue Length 50th (m)	9.5	95.0	23.3	35.1	41.2	4.0	92.5	35.4	0.0	13.8	32.9	
Queue Length 95th (m)	22.1	125.0	50.9	66.6	84.0	21.2	#126.4	51.4	14.1	23.1	53.1	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0		30.0	110.0		30.0	35.0			25.0		
Base Capacity (vph)	183	1061	539	472	1972	935	500	955	849	232	606	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.27	0.76	0.47	0.49	0.44	0.18	0.88	0.18	0.17	0.36	0.26	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 113 (87%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 33.3		Intersection LOS: C	
Intersection Capacity Utilization 88.5%		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: 128: Bostwick Road/Farnham Road & Southdale Road West



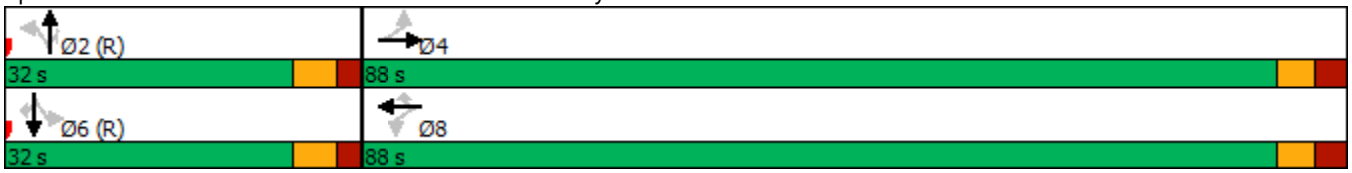


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	31	83	172	44	160	112	1078	125	166	845	25
Future Volume (vph)	13	31	83	172	44	160	112	1078	125	166	845	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99					0.98	1.00		0.98			0.97
Frt		0.891				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1712	0	1755	1921	1633	1484	3614	1142	1825	3544	1633
Flt Permitted	0.728			0.680			0.312			0.233		
Satd. Flow (perm)	1388	1712	0	1256	1921	1601	487	3614	1116	448	3544	1589
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				29			69			31
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	6					6	3		1	1		3
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%	0%	4%	0%	0%	23%	1%	43%	0%	3%	0%
Adj. Flow (vph)	13	31	83	172	44	160	112	1078	125	166	845	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	114	0	172	44	160	112	1078	125	166	845	25
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.4	34.4		34.4	34.4	34.4	31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	88.0	88.0		88.0	88.0	88.0	32.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	73.3%	73.3%		73.3%	73.3%	73.3%	26.7%	26.7%	26.7%	26.7%	26.7%	26.7%
Maximum Green (s)	81.6	81.6		81.6	81.6	81.6	25.8	25.8	25.8	25.8	25.8	25.8
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	3.1	3.1		3.1	3.1	3.1	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4	6.4	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag												
Lead-Lag Optimize?												
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		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0	21.0	18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effct Green (s)	23.3	23.3		23.3	23.3	23.3	84.1	84.1	84.1	84.1	84.1	84.1
Actuated g/C Ratio	0.19	0.19		0.19	0.19	0.19	0.70	0.70	0.70	0.70	0.70	0.70
v/c Ratio	0.05	0.34		0.71	0.12	0.48	0.33	0.43	0.16	0.53	0.34	0.02

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	35.1	40.8		59.6	37.0	38.0	7.1	4.8	1.8	18.7	8.4	2.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	40.8		59.6	37.0	38.0	7.1	4.8	1.8	18.7	8.4	2.4
LOS	D	D		E	D	D	A	A	A	B	A	A
Approach Delay		40.2			47.8			4.7			9.9	
Approach LOS		D			D			A			A	
Queue Length 50th (m)	2.5	22.6		38.4	8.7	27.6	4.1	20.6	0.8	16.4	36.3	0.0
Queue Length 95th (m)	7.1	35.0		55.5	16.7	42.9	9.4	32.8	3.3	50.8	63.0	2.8
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	943	1165		854	1306	1097	341	2533	802	313	2484	1123
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.10		0.20	0.03	0.15	0.33	0.43	0.16	0.53	0.34	0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 51 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 13.8		Intersection LOS: B	
Intersection Capacity Utilization 72.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 158: Wonderland Road South & Bradley Avenue



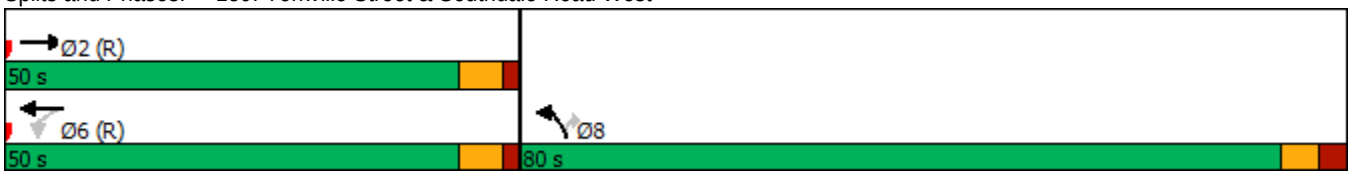
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	921	116	154	1171	93	104
Future Volume (vph)	921	116	154	1171	93	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.983					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3588	0	1825	3650	1825	1633
Flt Permitted			0.264		0.950	
Satd. Flow (perm)	3588	0	507	3650	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	11					27
Link Speed (k/h)	60			60	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	26.0			20.4	11.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	921	116	154	1171	93	104
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1037	0	154	1171	93	104
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	28.4		28.4	28.4	35.5	35.5
Total Split (s)	50.0		50.0	50.0	80.0	80.0
Total Split (%)	38.5%		38.5%	38.5%	61.5%	61.5%
Maximum Green (s)	44.0		44.0	44.0	73.5	73.5
Yellow Time (s)	4.1		4.1	4.1	3.6	3.6
All-Red Time (s)	1.9		1.9	1.9	2.9	2.9
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	22.0	22.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	105.2		105.2	105.2	12.3	12.3
Actuated g/C Ratio	0.81		0.81	0.81	0.09	0.09
v/c Ratio	0.36		0.38	0.40	0.54	0.58
Control Delay	1.5		9.8	6.5	67.1	54.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	1.5		9.8	6.5	67.1	54.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A		A	A	E	D
Approach Delay	1.5			6.8	60.2	
Approach LOS	A			A	E	
Queue Length 50th (m)	6.5		13.0	55.0	23.2	19.1
Queue Length 95th (m)	11.4		m41.7	115.9	38.9	36.3
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)			55.0		45.0	
Base Capacity (vph)	2906		410	2954	1031	935
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.36		0.38	0.40	0.09	0.11

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 28 (22%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 8.8		Intersection LOS: A	
Intersection Capacity Utilization 58.9%		ICU Level of Service B	
Analysis Period (min) 15			

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

Splits and Phases: 159: Yorkville Street & Southdale Road West

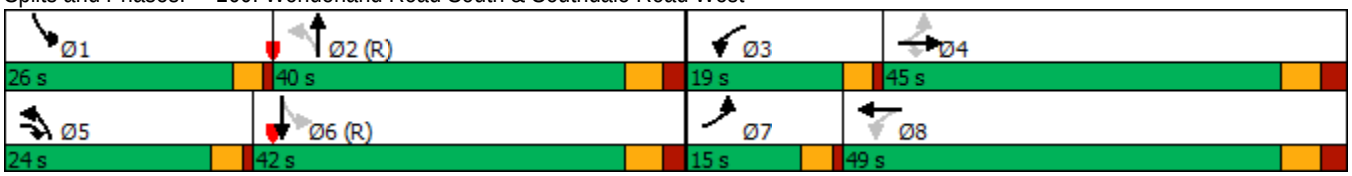


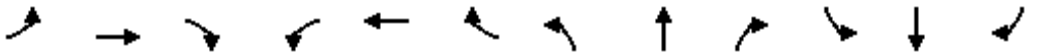
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	709	119	148	765	223	273	738	95	289	750	96
Future Volume (vph)	166	709	119	148	765	223	273	738	95	289	750	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.95	0.99	0.99		0.99	1.00		1.00	0.99	
Frt			0.850		0.966			0.983			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3579	1555	1825	3463	0	1807	3502	0	1738	3474	0
Flt Permitted	0.100			0.215			0.144			0.119		
Satd. Flow (perm)	188	3579	1483	409	3463	0	272	3502	0	217	3474	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			114		31			10			11	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	12		29	29		12	32		14	14		32
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	5%	0%	1%	2%	1%	2%	3%	5%	3%	0%
Adj. Flow (vph)	166	709	119	148	765	223	273	738	95	289	750	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	166	709	119	148	988	0	273	833	0	289	846	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.5	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	15.0	45.0	24.0	19.0	49.0		24.0	40.0		26.0	42.0	
Total Split (%)	11.5%	34.6%	18.5%	14.6%	37.7%		18.5%	30.8%		20.0%	32.3%	
Maximum Green (s)	11.0	38.4	20.0	15.0	42.4		20.0	33.9		22.0	35.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	53.4	39.9	60.4	55.0	40.7		57.6	37.6		62.0	39.8	
Actuated g/C Ratio	0.41	0.31	0.46	0.42	0.31		0.44	0.29		0.48	0.31	
v/c Ratio	0.79	0.65	0.16	0.49	0.89		0.82	0.82		0.86	0.79	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	69.4	22.5	1.2	27.1	52.4		48.4	50.9		54.3	48.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	69.4	22.5	1.2	27.1	52.4		48.4	50.9		54.3	48.0	
LOS	E	C	A	C	D		D	D		D	D	
Approach Delay		27.8			49.1			50.3			49.6	
Approach LOS		C			D			D			D	
Queue Length 50th (m)	26.9	72.4	0.0	21.8	121.1		46.3	108.0		53.8	107.9	
Queue Length 95th (m)	#63.4	39.4	1.7	35.2	148.3		#84.5	#143.3		#96.4	#140.2	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	212	1101	782	346	1150		360	1020		361	1071	
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	0.78	0.64	0.15	0.43	0.86		0.76	0.82		0.80	0.79	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 125 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 44.7		Intersection LOS: D	
Intersection Capacity Utilization 95.2%		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.			

Splits and Phases: 160: Wonderland Road South & Southdale Road West



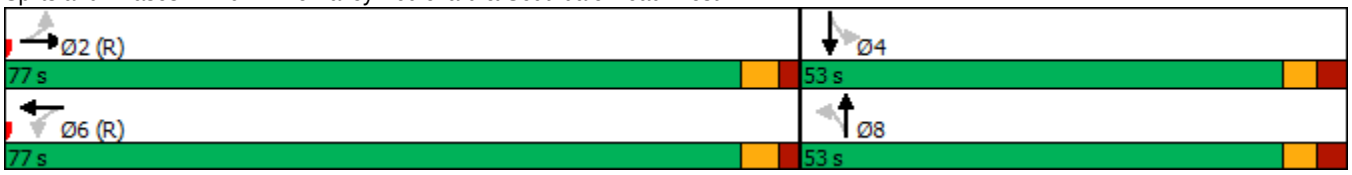


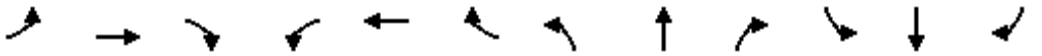
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	810	116	116	960	75	190	102	74	64	71	176
Future Volume (vph)	100	810	116	116	960	75	190	102	74	64	71	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1700	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99	0.99		0.99	0.99		0.99	0.98	
Frt		0.981			0.989			0.937			0.893	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3475	0	1825	3556	0	1633	1785	0	1825	1671	0
Flt Permitted	0.231			0.268			0.445			0.568		
Satd. Flow (perm)	441	3475	0	508	3556	0	760	1785	0	1084	1671	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			10			31			97	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	18		24	24		18	8		6	6		8
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%	1%	0%	1%	1%	0%	0%	0%	0%	1%	1%
Adj. Flow (vph)	100	810	116	116	960	75	190	102	74	64	71	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	926	0	116	1035	0	190	176	0	64	247	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	77.0	77.0		77.0	77.0		53.0	53.0		53.0	53.0	
Total Split (%)	59.2%	59.2%		59.2%	59.2%		40.8%	40.8%		40.8%	40.8%	
Maximum Green (s)	71.1	71.1		71.1	71.1		46.6	46.6		46.6	46.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	84.1	84.1		84.1	84.1		33.6	33.6		33.6	33.6	
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.26	0.26		0.26	0.26	
v/c Ratio	0.35	0.41		0.35	0.45		0.97	0.36		0.23	0.49	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	18.1	12.3		8.7	6.6		103.1	32.2		36.6	25.8	
Queue Delay	0.0	0.0		0.0	0.3		0.0	0.0		0.0	0.0	
Total Delay	18.1	12.3		8.7	6.9		103.1	32.2		36.6	25.8	
LOS	B	B		A	A		F	C		D	C	
Approach Delay		12.8			7.1			69.0			28.0	
Approach LOS		B			A			E			C	
Queue Length 50th (m)	19.3	96.7		6.3	29.6		48.2	30.2		12.9	32.1	
Queue Length 95th (m)	41.7	131.9		m9.4	40.5		#75.5	43.8		22.1	49.5	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	285	2254		328	2303		272	659		388	661	
Starvation Cap Reductn	0	0		0	562		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	0.35	0.41		0.35	0.59		0.70	0.27		0.16	0.37	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 48 (37%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 19.4	Intersection LOS: B
Intersection Capacity Utilization 84.2%	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.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West



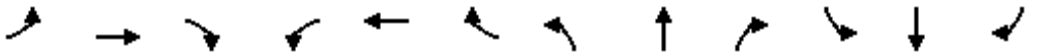


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	0	127	2	0	3	104	1230	1	0	1001	90
Future Volume (vph)	66	0	127	2	0	3	104	1230	1	0	1001	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor								1.00				0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1825	1921	1617	1825	1633	0	1825	3579	0	1921	3544	1601
Flt Permitted	0.756			0.757			0.274					
Satd. Flow (perm)	1452	1921	1617	1454	1633	0	526	3579	0	1921	3544	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			34		34							90
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)							5		4	4		5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	3%	2%
Adj. Flow (vph)	66	0	127	2	0	3	104	1230	1	0	1001	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	0	127	2	3	0	104	1231	0	0	1001	90
Turn Type	Perm		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	33.3	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	91.0	91.0	91.0	91.0	91.0		29.0	29.0		29.0	29.0	29.0
Total Split (%)	75.8%	75.8%	75.8%	75.8%	75.8%		24.2%	24.2%		24.2%	24.2%	24.2%
Maximum Green (s)	84.7	84.7	84.7	84.7	84.7		22.3	22.3		22.3	22.3	22.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag												
Lead-Lag Optimize?												
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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effct Green (s)	12.8		12.8	12.8	12.8		94.2	94.2			94.2	94.2
Actuated g/C Ratio	0.11		0.11	0.11	0.11		0.78	0.78			0.78	0.78
v/c Ratio	0.43		0.63	0.01	0.01		0.25	0.44			0.36	0.07

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	57.1		50.1	44.5	0.0		3.7	4.3			3.4	0.4
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	57.1		50.1	44.5	0.0		3.7	4.3			3.4	0.4
LOS	E		D	D	A		A	A			A	A
Approach Delay		52.5			17.8			4.3			3.1	
Approach LOS		D			B			A			A	
Queue Length 50th (m)	14.8		21.2	0.4	0.0		3.8	45.7			21.6	0.0
Queue Length 95th (m)	27.4		38.9	2.8	0.0		m6.6	44.3			34.7	1.8
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0					160.0
Base Capacity (vph)	1024		1151	1026	1162		412	2808			2781	1234
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	0.06		0.11	0.00	0.00		0.25	0.44			0.36	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 7.4		Intersection LOS: A	
Intersection Capacity Utilization 66.6%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road

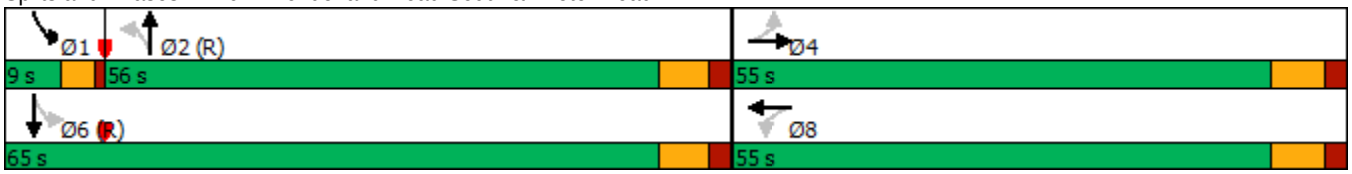


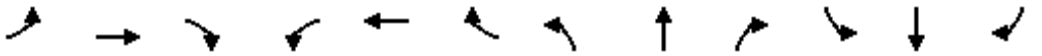
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	332	133	134	774	482	249	776	55	211	815	5
Future Volume (vph)	3	332	133	134	774	482	249	776	55	211	815	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.957			0.942			0.990			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3295	0	1755	3404	0	1772	3493	0	1706	3507	0
Flt Permitted	0.087			0.436			0.321			0.219		
Satd. Flow (perm)	167	3295	0	805	3404	0	599	3493	0	393	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		59			135			7			1	
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
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%	6%	6%	4%	1%	1%	3%	2%	24%	7%	4%	0%
Adj. Flow (vph)	3	332	133	134	774	482	249	776	55	211	815	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	465	0	134	1256	0	249	831	0	211	820	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		33.6	33.6		9.0	33.6	
Total Split (s)	55.0	55.0		55.0	55.0		56.0	56.0		9.0	65.0	
Total Split (%)	45.8%	45.8%		45.8%	45.8%		46.7%	46.7%		7.5%	54.2%	
Maximum Green (s)	48.0	48.0		48.0	48.0		49.4	49.4		5.0	58.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		4.4	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.6	6.6		4.0	6.6	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	46.2	46.2		46.2	46.2		51.2	51.2		62.8	60.2	
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.43	0.43		0.52	0.50	
v/c Ratio	0.05	0.36		0.43	0.90		0.98	0.56		0.81	0.47	
Control Delay	22.7	18.4		31.9	40.7		86.8	27.8		42.3	19.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	22.7	18.4		31.9	40.7		86.8	27.8		42.3	19.4	
LOS	C	B		C	D		F	C		D	B	
Approach Delay		18.4			39.8			41.4			24.1	
Approach LOS		B			D			D			C	
Queue Length 50th (m)	0.4	22.9		22.4	128.8		~59.2	77.6		34.7	79.0	
Queue Length 95th (m)	m1.2	35.5		40.6	159.8		#112.1	97.3		#72.1	109.2	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	66	1353		322	1442		255	1494		260	1760	
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	0.05	0.34		0.42	0.87		0.98	0.56		0.81	0.47	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 33.6		Intersection LOS: C	
Intersection Capacity Utilization 101.8%		ICU Level of Service G	
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: 197: Wonderland Road South & Exeter Road



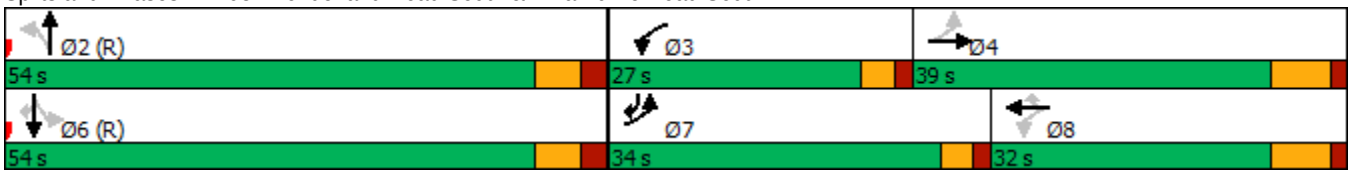


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	361	21	264	468	92	12	953	352	46	769	257
Future Volume (vph)	231	361	21	264	468	92	12	953	352	46	769	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				1.00				
Frt		0.992				0.850		0.960				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	3541	0	1755	3579	1512	1690	3436	0	1659	3380	1617
Flt Permitted	0.317			0.323			0.307			0.121		
Satd. Flow (perm)	603	3541	0	596	3579	1512	546	3436	0	211	3380	1617
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				115		52				54
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			2	2					3	3		
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 (%)	1%	2%	5%	4%	2%	8%	8%	1%	3%	10%	8%	1%
Adj. Flow (vph)	231	361	21	264	468	92	12	953	352	46	769	257
Shared Lane Traffic (%)												
Lane Group Flow (vph)	231	382	0	264	468	92	12	1305	0	46	769	257
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	34.0	39.0		27.0	32.0	32.0	54.0	54.0		54.0	54.0	34.0
Total Split (%)	28.3%	32.5%		22.5%	26.7%	26.7%	45.0%	45.0%		45.0%	45.0%	28.3%
Maximum Green (s)	29.5	32.0		22.5	25.0	25.0	47.3	47.3		47.3	47.3	29.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	37.6	18.6		42.2	20.9	20.9	64.4	64.4		64.4	64.4	87.6
Actuated g/C Ratio	0.31	0.16		0.35	0.17	0.17	0.54	0.54		0.54	0.54	0.73
v/c Ratio	0.65	0.69		0.68	0.75	0.26	0.04	0.70		0.41	0.42	0.22

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	18.3	34.4		36.2	55.0	5.9	27.9	35.4		39.7	22.0	5.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	18.3	34.4		36.2	55.0	5.9	27.9	35.4		39.7	22.0	5.0
LOS	B	C		D	D	A	C	D		D	C	A
Approach Delay		28.3			43.5			35.3			18.7	
Approach LOS		C			D			D			B	
Queue Length 50th (m)	10.7	45.7		45.7	55.7	0.0	1.8	152.1		7.8	70.1	11.1
Queue Length 95th (m)	m10.0	m59.1		60.1	70.8	8.7	m3.3	183.9		24.2	107.3	12.2
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	518	947		434	745	406	293	1869		113	1814	1364
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	0.45	0.40		0.61	0.63	0.23	0.04	0.70		0.41	0.42	0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 75 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 31.3		Intersection LOS: C	
Intersection Capacity Utilization 79.2%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 198: Wonderland Road South & Wharncliffe Road South

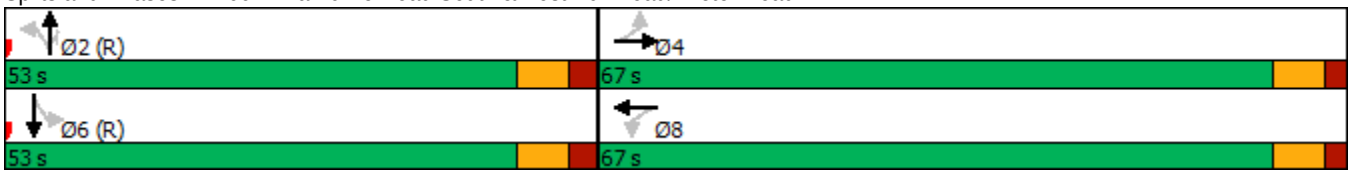


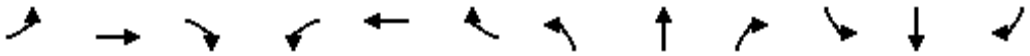
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	308	107	252	751	25	72	529	102	58	422	213
Future Volume (vph)	41	308	107	252	751	25	72	529	102	58	422	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					1.00							
Frt		0.961			0.995				0.850		0.950	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1805	0	1807	1908	0	1825	3579	1585	1738	3378	0
Flt Permitted	0.087			0.401			0.341			0.407		
Satd. Flow (perm)	167	1805	0	763	1908	0	655	3579	1585	745	3378	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			2				102		85	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		9.6			14.1			20.8			18.2	
Confl. Peds. (#/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%	2%	3%	1%	0%	4%	0%	2%	3%	5%	3%	2%
Adj. Flow (vph)	41	308	107	252	751	25	72	529	102	58	422	213
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	415	0	252	776	0	72	529	102	58	635	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	33.8	33.8		33.8	33.8		27.2	27.2	27.2	27.2	27.2	
Total Split (s)	67.0	67.0		67.0	67.0		53.0	53.0	53.0	53.0	53.0	
Total Split (%)	55.8%	55.8%		55.8%	55.8%		44.2%	44.2%	44.2%	44.2%	44.2%	
Maximum Green (s)	60.2	60.2		60.2	60.2		45.8	45.8	45.8	45.8	45.8	
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		7.2	7.2	7.2	7.2	7.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		13.0	13.0	13.0	13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	55.2	55.2		55.2	55.2		50.8	50.8	50.8	50.8	50.8	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.42	0.42	0.42	0.42	0.42	
v/c Ratio	0.54	0.49		0.72	0.88		0.26	0.35	0.14	0.18	0.43	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	50.3	22.9		18.6	22.0		27.9	25.2	5.1	49.1	48.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	50.3	22.9		18.6	22.0		27.9	25.2	5.1	49.1	48.5	
LOS	D	C		B	C		C	C	A	D	D	
Approach Delay		25.4			21.2			22.6			48.6	
Approach LOS		C			C			C			D	
Queue Length 50th (m)	6.5	60.8		23.3	138.0		11.2	45.1	0.0	12.9	70.0	
Queue Length 95th (m)	#23.1	83.6		m28.2	m154.8		24.0	61.6	10.9	m22.9	86.9	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0		90.0	80.0		
Base Capacity (vph)	83	915		382	958		277	1514	729	315	1478	
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	0.49	0.45		0.66	0.81		0.26	0.35	0.14	0.18	0.43	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 117 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 28.8		Intersection LOS: C	
Intersection Capacity Utilization 94.5%		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: 199: Wharncliffe Road South & Bostwick Road/Exeter Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	0	157	0	0	0	314	657	0	0	404	159
Future Volume (vph)	137	0	157	0	0	0	314	657	0	0	404	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.928									0.962	
Flt Protected		0.977						0.984				
Satd. Flow (prot)	0	1723	0	0	0	0	0	1890	0	0	1779	0
Flt Permitted		0.977						0.984				
Satd. Flow (perm)	0	1723	0	0	0	0	0	1890	0	0	1779	0
Link Speed (k/h)		70			60			70			70	
Link Distance (m)		1695.9			925.9			906.2			749.7	
Travel Time (s)		87.2			55.6			46.6			38.6	
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%	0%	2%	0%	0%	0%	0%	0%	0%	0%	5%	1%
Adj. Flow (vph)	137	0	157	0	0	0	314	657	0	0	404	159
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	294	0	0	0	0	0	971	0	0	563	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 110.1%		ICU Level of Service H	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	171.3

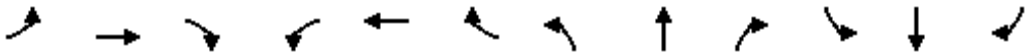
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	137	0	157	0	0	0	314	657	0	0	404	159
Future Vol, veh/h	137	0	157	0	0	0	314	657	0	0	404	159
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	2	0	0	0	0	0	0	0	5	1
Mvmt Flow	137	0	157	0	0	0	314	657	0	0	404	159

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	1769	1769	484			563	0	-	-	-	0
Stage 1	484	484	-			-	-	-	-	-	-
Stage 2	1285	1285	-			-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.22			4.1	-	-	-	-	-
Critical Hdwy Stg 1	5.4	5.5	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-			-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.318			2.2	-	-	-	-	-
Pot Cap-1 Maneuver	~ 93	84	583			1019	-	0	0	-	-
Stage 1	624	555	-			-	-	0	0	-	-
Stage 2	262	237	-			-	-	0	0	-	-
Platoon blocked, %							-			-	-
Mov Cap-1 Maneuver	~ 48	0	583			1019	-	-	-	-	-
Mov Cap-2 Maneuver	~ 48	0	-			-	-	-	-	-	-
Stage 1	321	0	-			-	-	-	-	-	-
Stage 2	262	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, $	1054.1	3.3	0
HCM LOS	F		

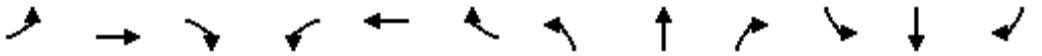
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1019	-	94	-	-
HCM Lane V/C Ratio	0.308	-	3.128	-	-
HCM Control Delay (s)	10.1	$	1054.1	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	1.3	-	28.8	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	1037	0	0	456	0
Future Volume (vph)	0	0	0	0	0	0	0	1037	0	0	456	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	1921	0	0	1921	0	0	1921	0	0	1847	0
Flt Permitted												
Satd. Flow (perm)	0	1921	0	0	1921	0	0	1921	0	0	1847	0
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		226.1			576.5			512.0			62.9	
Travel Time (s)		16.3			41.5			26.3			3.2	
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%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%
Adj. Flow (vph)	0	0	0	0	0	0	0	1037	0	0	456	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	1037	0	0	456	0
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 57.9%		ICU Level of Service B	
Analysis Period (min) 15			

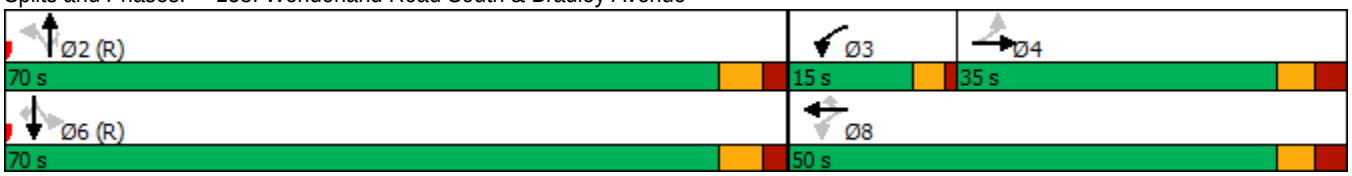


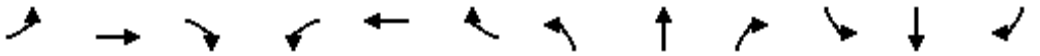
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	31	83	172	44	160	112	1078	125	166	845	25
Future Volume (vph)	13	31	83	172	44	160	112	1078	125	166	845	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99					0.98	1.00		0.98	1.00		0.97
Frt		0.891				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1712	0	1755	1921	1633	1484	3614	1142	1825	3544	1633
Flt Permitted	0.728			0.415			0.311			0.232		
Satd. Flow (perm)	1388	1712	0	767	1921	1601	485	3614	1116	446	3544	1589
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		83				73			116			67
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	6					6	3		1	1		3
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%	0%	4%	0%	0%	23%	1%	43%	0%	3%	0%
Adj. Flow (vph)	13	31	83	172	44	160	112	1078	125	166	845	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	114	0	172	44	160	112	1078	125	166	845	25
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.4	34.4		9.0	34.4	34.4	31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	35.0	35.0		15.0	50.0	50.0	70.0	70.0	70.0	70.0	70.0	70.0
Total Split (%)	29.2%	29.2%		12.5%	41.7%	41.7%	58.3%	58.3%	58.3%	58.3%	58.3%	58.3%
Maximum Green (s)	28.6	28.6		11.0	43.6	43.6	63.8	63.8	63.8	63.8	63.8	63.8
Yellow Time (s)	3.3	3.3		3.0	3.3	3.3	3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	3.1	3.1		1.0	3.1	3.1	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		4.0	6.4	6.4	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0			7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0			21.0	21.0	18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0			0	0	0	0	0	0	0	0
Act Effct Green (s)	8.9	8.9		26.2	23.8	23.8	83.6	83.6	83.6	83.6	83.6	83.6
Actuated g/C Ratio	0.07	0.07		0.22	0.20	0.20	0.70	0.70	0.70	0.70	0.70	0.70
v/c Ratio	0.13	0.56		0.67	0.12	0.43	0.33	0.43	0.15	0.54	0.34	0.02

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	53.0	28.7		54.1	39.2	25.7	11.3	10.6	3.2	17.4	7.9	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	28.7		54.1	39.2	25.7	11.3	10.6	3.2	17.4	7.9	0.0
LOS	D	C		D	D	C	B	B	A	B	A	A
Approach Delay		31.2			40.3			10.0			9.3	
Approach LOS		C			D			A			A	
Queue Length 50th (m)	3.0	7.1		35.8	8.7	17.7	13.1	70.9	6.1	16.4	36.1	0.0
Queue Length 95th (m)	9.0	24.2		54.1	17.9	36.2	15.3	53.4	6.7	43.3	53.5	0.0
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	330	471		257	697	628	338	2518	812	310	2470	1127
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.24		0.67	0.06	0.25	0.33	0.43	0.15	0.54	0.34	0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 51 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 14.6		Intersection LOS: B	
Intersection Capacity Utilization 72.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 158: Wonderland Road South & Bradley Avenue



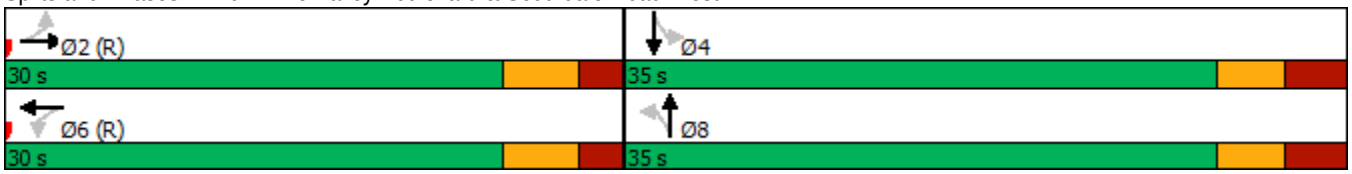


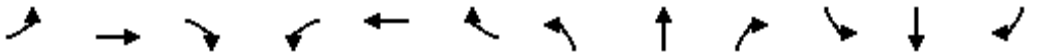
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	810	116	116	960	75	190	102	74	64	71	176
Future Volume (vph)	100	810	116	116	960	75	190	102	74	64	71	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1700	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		0.99	1.00		1.00	0.99		1.00	0.99	
Frt		0.981			0.989			0.937			0.893	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3491	0	1825	3562	0	1633	1788	0	1825	1677	0
Flt Permitted	0.222			0.264			0.565			0.646		
Satd. Flow (perm)	425	3491	0	503	3562	0	967	1788	0	1237	1677	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			14			49			29	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	18		24	24		18	8		6	6		8
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%	1%	0%	1%	1%	0%	0%	0%	0%	1%	1%
Adj. Flow (vph)	100	810	116	116	960	75	190	102	74	64	71	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	926	0	116	1035	0	190	176	0	64	247	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	30.0	30.0		30.0	30.0		35.0	35.0		35.0	35.0	
Total Split (%)	46.2%	46.2%		46.2%	46.2%		53.8%	53.8%		53.8%	53.8%	
Maximum Green (s)	24.1	24.1		24.1	24.1		28.6	28.6		28.6	28.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	35.3	35.3		35.3	35.3		17.4	17.4		17.4	17.4	
Actuated g/C Ratio	0.54	0.54		0.54	0.54		0.27	0.27		0.27	0.27	
v/c Ratio	0.43	0.49		0.43	0.53		0.73	0.34		0.19	0.52	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	22.2	12.2		21.1	17.0		37.2	13.6		17.1	20.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.2	12.2		21.1	17.0		37.2	13.6		17.1	20.4	
LOS	C	B		C	B		D	B		B	C	
Approach Delay		13.2			17.4			25.8			19.7	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	19.1	94.6		14.0	76.8		20.8	12.0		5.9	22.0	
Queue Length 95th (m)	22.0	114.0		m25.6	112.8		33.7	20.7		11.5	32.9	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	230	1906		272	1938		425	814		544	754	
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	0.43	0.49		0.43	0.53		0.45	0.22		0.12	0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 48 (74%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 17.2		Intersection LOS: B	
Intersection Capacity Utilization 84.2%		ICU Level of Service E	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West



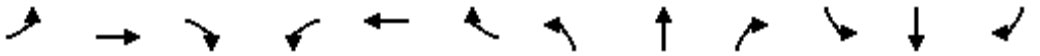


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	0	127	2	0	3	104	1230	1	0	1001	90
Future Volume (vph)	66	0	127	2	0	3	104	1230	1	0	1001	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00	1.00				0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1825	1921	1617	1825	1633	0	1825	3579	0	1921	3544	1601
Flt Permitted	0.588						0.271					
Satd. Flow (perm)	1130	1921	1617	1921	1633	0	519	3579	0	1921	3544	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			96		141							90
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)							5		4	4		5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	3%	2%
Adj. Flow (vph)	66	0	127	2	0	3	104	1230	1	0	1001	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	0	127	2	3	0	104	1231	0	0	1001	90
Turn Type	pm+pt		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	9.0	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	13.0	47.0	47.0	34.0	34.0		73.0	73.0		73.0	73.0	73.0
Total Split (%)	10.8%	39.2%	39.2%	28.3%	28.3%		60.8%	60.8%		60.8%	60.8%	60.8%
Maximum Green (s)	9.0	40.7	40.7	27.7	27.7		66.3	66.3		66.3	66.3	66.3
Yellow Time (s)	3.0	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
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)	4.0	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0		0	0	0
Act Effct Green (s)	12.7		10.4	7.0	7.0		96.6	96.6			96.6	96.6
Actuated g/C Ratio	0.11		0.09	0.06	0.06		0.80	0.80			0.80	0.80
v/c Ratio	0.38		0.56	0.02	0.01		0.25	0.43			0.35	0.07

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	54.3		25.1	53.5	0.0		8.2	6.8			3.1	0.5
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	54.3		25.1	53.5	0.0		8.2	6.8			3.1	0.5
LOS	D		C	D	A		A	A			A	A
Approach Delay		35.1			21.4			6.9			2.8	
Approach LOS		D			C			A			A	
Queue Length 50th (m)	15.0		7.1	0.5	0.0		6.7	42.5			17.7	0.0
Queue Length 95th (m)	26.0		23.6	3.2	0.0		m20.0	99.2			37.8	m1.9
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0					160.0
Base Capacity (vph)	178		611	443	485		417	2879			2851	1263
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	0.37		0.21	0.00	0.01		0.25	0.43			0.35	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 7.3		Intersection LOS: A	
Intersection Capacity Utilization 66.6%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road

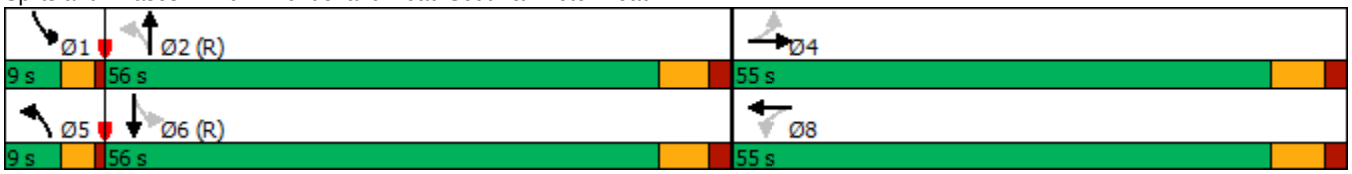


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	332	133	134	774	482	249	776	55	211	815	5
Future Volume (vph)	3	332	133	134	774	482	249	776	55	211	815	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.957			0.942			0.990			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3295	0	1755	3404	0	1772	3493	0	1706	3507	0
Flt Permitted	0.087			0.436			0.226			0.245		
Satd. Flow (perm)	167	3295	0	805	3404	0	422	3493	0	440	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		59			135			7			1	
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
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%	6%	6%	4%	1%	1%	3%	2%	24%	7%	4%	0%
Adj. Flow (vph)	3	332	133	134	774	482	249	776	55	211	815	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	465	0	134	1256	0	249	831	0	211	820	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		9.0	33.6		9.0	33.6	
Total Split (s)	55.0	55.0		55.0	55.0		9.0	56.0		9.0	56.0	
Total Split (%)	45.8%	45.8%		45.8%	45.8%		7.5%	46.7%		7.5%	46.7%	
Maximum Green (s)	48.0	48.0		48.0	48.0		5.0	49.4		5.0	49.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		3.0	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		1.0	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		4.0	6.6		4.0	6.6	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	46.2	46.2		46.2	46.2		59.9	51.2		57.0	49.4	
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.50	0.43		0.48	0.41	
v/c Ratio	0.05	0.36		0.43	0.90		0.87	0.56		0.81	0.57	
Control Delay	22.7	18.3		31.9	40.7		53.8	27.8		39.6	24.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	22.7	18.3		31.9	40.7		53.8	27.8		39.6	24.7	
LOS	C	B		C	D		D	C		D	C	
Approach Delay		18.4			39.8			33.8			27.7	
Approach LOS		B			D			C			C	
Queue Length 50th (m)	0.4	22.7		22.4	128.8		32.5	77.6		27.5	84.4	
Queue Length 95th (m)	m1.2	35.5		40.6	159.8		#76.2	97.3		#57.7	100.7	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	66	1353		322	1442		287	1494		261	1444	
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	0.05	0.34		0.42	0.87		0.87	0.56		0.81	0.57	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 32.5		Intersection LOS: C	
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: 197: Wonderland Road South & Exeter Road

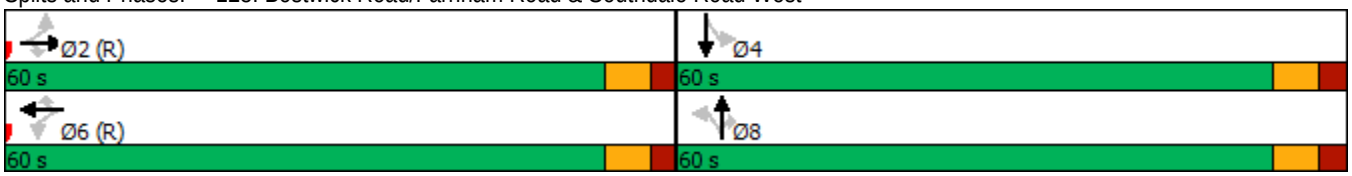


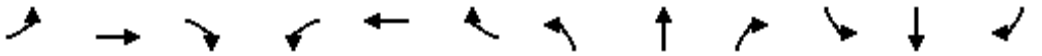
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	669	341	116	427	45	310	81	247	78	84	49
Future Volume (vph)	51	669	341	116	427	45	310	81	247	78	84	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		30.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98						
Frt			0.850			0.850			0.850		0.945	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3614	1498	1722	3444	1601	1674	1902	1585	1807	1755	0
Flt Permitted	0.497			0.362			0.672			0.704		
Satd. Flow (perm)	917	3614	1498	656	3444	1566	1184	1902	1585	1339	1755	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			259			45			151		31	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		66.3			26.0			45.0			3.6	
Confl. Peds. (#/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 (%)	4%	1%	9%	6%	6%	2%	9%	1%	3%	1%	2%	6%
Adj. Flow (vph)	51	669	341	116	427	45	310	81	247	78	84	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	669	341	116	427	45	310	81	247	78	133	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	34.5	34.5	34.5	34.5	34.5	34.5	37.7	37.7	37.7	37.7	37.7	
Total Split (s)	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	
Maximum Green (s)	53.5	53.5	53.5	53.5	53.5	53.5	53.3	53.3	53.3	53.3	53.3	
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.7	6.7	6.7	6.7	6.7	
Lead/Lag												
Lead-Lag Optimize?												
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	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0	24.0	24.0	24.0	24.0	24.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Act Effct Green (s)	68.3	68.3	68.3	68.3	68.3	68.3	38.5	38.5	38.5	38.5	38.5	
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57	0.57	0.32	0.32	0.32	0.32	0.32	
v/c Ratio	0.10	0.33	0.35	0.31	0.22	0.05	0.82	0.13	0.40	0.18	0.23	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	15.8	15.7	5.6	13.1	9.2	2.6	53.7	26.5	12.5	27.4	21.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.8	15.7	5.6	13.1	9.2	2.6	53.7	26.5	12.5	27.4	21.3	
LOS	B	B	A	B	A	A	D	C	B	C	C	
Approach Delay		12.5			9.5			34.3			23.6	
Approach LOS		B			A			C			C	
Queue Length 50th (m)	5.3	42.0	8.4	6.6	11.5	0.0	66.6	13.4	16.2	13.1	17.2	
Queue Length 95th (m)	14.5	68.0	30.3	29.4	34.4	3.9	86.8	20.9	31.4	21.0	27.0	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0		30.0	110.0		30.0	35.0			25.0		
Base Capacity (vph)	521	2056	964	373	1960	910	525	844	787	594	796	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.10	0.33	0.35	0.31	0.22	0.05	0.59	0.10	0.31	0.13	0.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 18 (15%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 18.3		Intersection LOS: B	
Intersection Capacity Utilization 75.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 128: Bostwick Road/Farnham Road & Southdale Road West



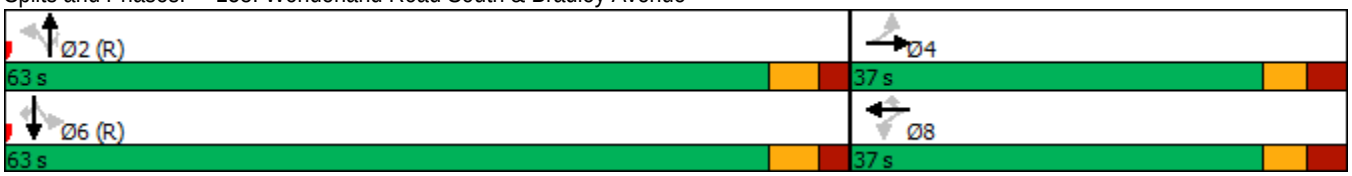


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	2	12	61	6	103	29	657	43	129	918	3
Future Volume (vph)	1	2	12	61	6	103	29	657	43	129	918	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00					0.98	1.00		0.98	1.00		0.99
Frt		0.871				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1566	0	1772	1921	1512	1601	3476	1570	1825	3579	1228
Flt Permitted	0.754			0.748			0.305			0.402		
Satd. Flow (perm)	1442	1566	0	1395	1921	1487	514	3476	1536	772	3579	1210
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				103			43			37
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	4					4	2		1	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%	0%	8%	14%	5%	4%	0%	2%	33%
Adj. Flow (vph)	1	2	12	61	6	103	29	657	43	129	918	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	14	0	61	6	103	29	657	43	129	918	3
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.4	34.4		34.4	34.4	34.4	31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	37.0	37.0		37.0	37.0	37.0	63.0	63.0	63.0	63.0	63.0	63.0
Total Split (%)	37.0%	37.0%		37.0%	37.0%	37.0%	63.0%	63.0%	63.0%	63.0%	63.0%	63.0%
Maximum Green (s)	30.6	30.6		30.6	30.6	30.6	56.8	56.8	56.8	56.8	56.8	56.8
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	3.1	3.1		3.1	3.1	3.1	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4	6.4	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag												
Lead-Lag Optimize?												
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		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0	21.0	18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effct Green (s)	10.0	10.0		10.0	10.0	10.0	81.3	81.3	81.3	81.3	81.3	81.3
Actuated g/C Ratio	0.10	0.10		0.10	0.10	0.10	0.81	0.81	0.81	0.81	0.81	0.81
v/c Ratio	0.01	0.08		0.44	0.03	0.43	0.07	0.23	0.03	0.21	0.32	0.00

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	38.0	22.2		51.2	38.8	13.9	2.9	3.3	1.0	4.3	3.6	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	22.2		51.2	38.8	13.9	2.9	3.3	1.0	4.3	3.6	0.0
LOS	D	C		D	D	B	A	A	A	A	A	A
Approach Delay		23.3			28.2			3.2			3.7	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	0.2	0.4		11.4	1.1	0.0	1.5	28.1	1.1	5.3	22.4	0.0
Queue Length 95th (m)	1.7	5.9		23.0	4.6	14.3	2.5	20.1	1.1	13.2	36.2	0.0
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	441	487		426	587	526	418	2825	1256	627	2908	990
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.03		0.14	0.01	0.20	0.07	0.23	0.03	0.21	0.32	0.00

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 41 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 5.8		Intersection LOS: A	
Intersection Capacity Utilization 58.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 158: Wonderland Road South & Bradley Avenue

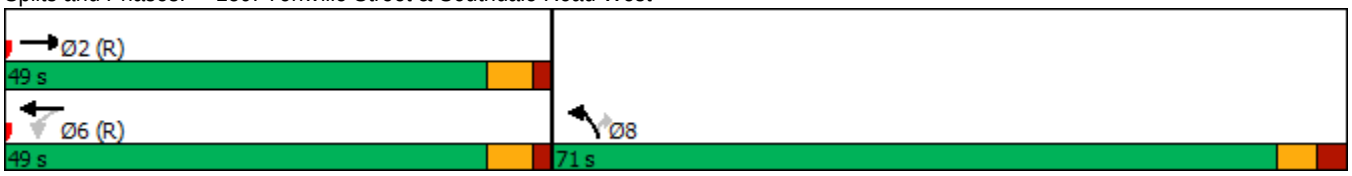


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	978	54	106	517	71	207
Future Volume (vph)	978	54	106	517	71	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.992					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3621	0	1825	3650	1825	1633
Flt Permitted			0.253		0.950	
Satd. Flow (perm)	3621	0	486	3650	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	5					27
Link Speed (k/h)	60			60	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	26.0			20.4	11.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	978	54	106	517	71	207
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1032	0	106	517	71	207
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	28.4		28.4	28.4	35.5	35.5
Total Split (s)	49.0		49.0	49.0	71.0	71.0
Total Split (%)	40.8%		40.8%	40.8%	59.2%	59.2%
Maximum Green (s)	43.0		43.0	43.0	64.5	64.5
Yellow Time (s)	4.1		4.1	4.1	3.6	3.6
All-Red Time (s)	1.9		1.9	1.9	2.9	2.9
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	22.0	22.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	88.1		88.1	88.1	19.4	19.4
Actuated g/C Ratio	0.73		0.73	0.73	0.16	0.16
v/c Ratio	0.39		0.30	0.19	0.24	0.72
Control Delay	9.8		4.8	2.2	43.6	55.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	9.8		4.8	2.2	43.6	55.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A		A	A	D	D
Approach Delay	9.8			2.6	52.1	
Approach LOS	A			A	D	
Queue Length 50th (m)	32.1		2.1	5.1	14.8	40.8
Queue Length 95th (m)	99.8		5.6	10.6	25.9	61.4
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)			55.0		45.0	
Base Capacity (vph)	2659		356	2679	980	890
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.39		0.30	0.19	0.07	0.23

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 4 (3%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 13.6		Intersection LOS: B	
Intersection Capacity Utilization 55.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 159: Yorkville Street & Southdale Road West

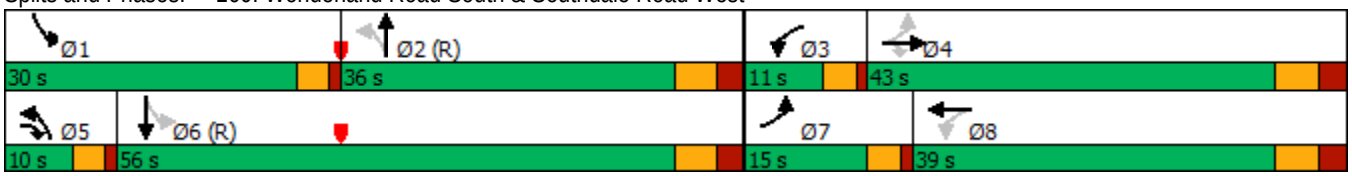


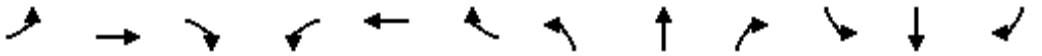
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	778	145	70	451	191	113	461	40	328	732	80
Future Volume (vph)	189	778	145	70	451	191	113	461	40	328	732	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.98	1.00	0.99		0.99	1.00		0.99	1.00	
Frt			0.850		0.955			0.988			0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	3579	1617	1772	3278	0	1755	3351	0	1738	3398	0
Flt Permitted	0.175			0.190			0.328			0.351		
Satd. Flow (perm)	304	3579	1578	353	3278	0	602	3351	0	639	3398	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			118		53			7			12	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	14		11	11		14	15		12	12		15
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%	2%	1%	3%	4%	9%	4%	7%	12%	5%	5%	10%
Adj. Flow (vph)	189	778	145	70	451	191	113	461	40	328	732	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	189	778	145	70	642	0	113	501	0	328	812	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.5	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	15.0	43.0	10.0	11.0	39.0		10.0	36.0		30.0	56.0	
Total Split (%)	12.5%	35.8%	8.3%	9.2%	32.5%		8.3%	30.0%		25.0%	46.7%	
Maximum Green (s)	11.0	36.4	6.0	7.0	32.4		6.0	29.9		26.0	49.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	45.3	33.9	42.5	37.1	27.7		50.3	42.2		66.7	54.6	
Actuated g/C Ratio	0.38	0.28	0.35	0.31	0.23		0.42	0.35		0.56	0.46	
v/c Ratio	0.79	0.77	0.23	0.37	0.81		0.36	0.42		0.63	0.52	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	50.7	45.1	14.6	28.9	48.1		20.0	32.7		21.3	25.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	50.7	45.1	14.6	28.9	48.1		20.0	32.7		21.3	25.2	
LOS	D	D	B	C	D		C	C		C	C	
Approach Delay		42.1			46.2			30.4			24.1	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	25.7	91.9	4.3	10.4	68.9		12.4	46.8		41.3	70.6	
Queue Length 95th (m)	#60.5	111.0	30.5	19.1	86.5		23.1	72.0		65.1	94.2	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	238	1085	636	192	923		310	1183		593	1553	
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	0.79	0.72	0.23	0.36	0.70		0.36	0.42		0.55	0.52	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 35.2		Intersection LOS: D	
Intersection Capacity Utilization 91.9%		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.			

Splits and Phases: 160: Wonderland Road South & Southdale Road West



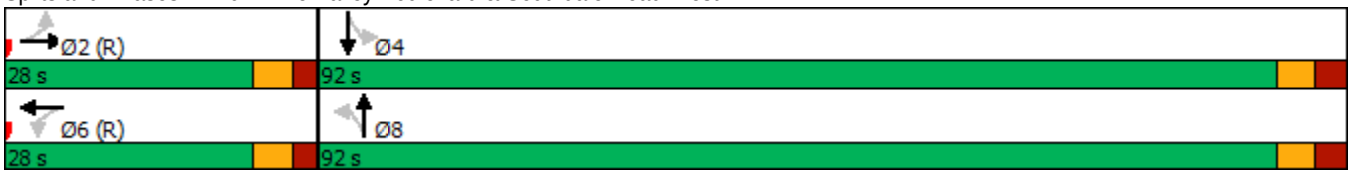


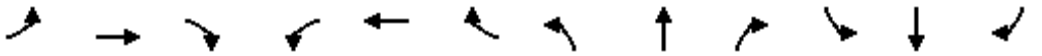
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	1025	59	69	515	68	38	17	44	27	25	71
Future Volume (vph)	101	1025	59	69	515	68	38	17	44	27	25	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00			1.00		0.99	0.99		1.00	0.98	
Frt		0.992			0.983			0.892			0.889	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3582	0	1825	3383	0	1825	1697	0	1755	1610	0
Flt Permitted	0.432			0.250			0.695			0.717		
Satd. Flow (perm)	827	3582	0	480	3383	0	1325	1697	0	1323	1610	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			10						23	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	5		2	2		5	7		1	1		7
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%	1%	0%	0%	6%	3%	0%	0%	0%	4%	0%	6%
Adj. Flow (vph)	101	1025	59	69	515	68	38	17	44	27	25	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	1084	0	69	583	0	38	61	0	27	96	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	28.0	28.0		28.0	28.0		92.0	92.0		92.0	92.0	
Total Split (%)	23.3%	23.3%		23.3%	23.3%		76.7%	76.7%		76.7%	76.7%	
Maximum Green (s)	22.1	22.1		22.1	22.1		85.6	85.6		85.6	85.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	96.4	96.4		96.4	96.4		11.3	11.3		11.3	11.3	
Actuated g/C Ratio	0.80	0.80		0.80	0.80		0.09	0.09		0.09	0.09	
v/c Ratio	0.15	0.38		0.18	0.21		0.31	0.38		0.22	0.56	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	3.4	5.1		8.7	6.7		55.6	56.8		52.7	51.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	3.4	5.1		8.7	6.7		55.6	56.8		52.7	51.0	
LOS	A	A		A	A		E	E		D	D	
Approach Delay		4.9			6.9			56.3			51.4	
Approach LOS		A			A			E			D	
Queue Length 50th (m)	6.2	41.2		4.7	21.8		8.5	13.8		6.0	16.6	
Queue Length 95th (m)	10.3	113.1		m12.5	42.7		18.7	26.1		14.5	32.5	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	664	2879		385	2720		945	1210		943	1155	
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	0.15	0.38		0.18	0.21		0.04	0.05		0.03	0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 66 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 10.8		Intersection LOS: B	
Intersection Capacity Utilization 62.5%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West



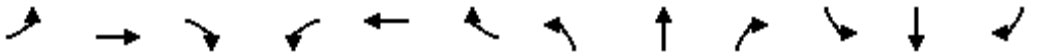


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	0	181	4	0	5	113	670	2	1	867	112
Future Volume (vph)	50	0	181	4	0	5	113	670	2	1	867	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00					0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	1921	1585	1043	1151	0	1807	3350	0	1825	3544	1601
Flt Permitted	0.754			0.757			0.323			0.396		
Satd. Flow (perm)	1340	1921	1585	831	1151	0	613	3350	0	761	3544	1558
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			147		237							112
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)	1					1	3					3
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 (%)	8%	0%	3%	75%	0%	40%	1%	9%	0%	0%	3%	2%
Adj. Flow (vph)	50	0	181	4	0	5	113	670	2	1	867	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	0	181	4	5	0	113	672	0	1	867	112
Turn Type	Perm		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	33.3	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	36.0	36.0	36.0	36.0	36.0		64.0	64.0		64.0	64.0	64.0
Total Split (%)	36.0%	36.0%	36.0%	36.0%	36.0%		64.0%	64.0%		64.0%	64.0%	64.0%
Maximum Green (s)	29.7	29.7	29.7	29.7	29.7		57.3	57.3		57.3	57.3	57.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag												
Lead-Lag Optimize?												
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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effct Green (s)	9.8		9.8	9.8	9.8		77.2	77.2		77.2	77.2	77.2
Actuated g/C Ratio	0.10		0.10	0.10	0.10		0.77	0.77		0.77	0.77	0.77
v/c Ratio	0.38		0.63	0.05	0.02		0.24	0.26		0.00	0.32	0.09

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	49.5		21.2	39.8	0.0		6.4	5.3		3.0	3.7	0.8
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	49.5		21.2	39.8	0.0		6.4	5.3		3.0	3.7	0.8
LOS	D		C	D	A		A	A		A	A	A
Approach Delay		27.3			17.7			5.5			3.4	
Approach LOS		C			B			A			A	
Queue Length 50th (m)	9.3		6.2	0.7	0.0		7.6	23.8		0.0	19.0	0.0
Queue Length 95th (m)	19.6		25.4	3.8	0.0		19.9	38.1		m0.2	32.4	3.4
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0			115.0		160.0
Base Capacity (vph)	397		574	246	508		472	2585		586	2734	1227
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	0.13		0.32	0.02	0.01		0.24	0.26		0.00	0.32	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 37 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 7.0		Intersection LOS: A	
Intersection Capacity Utilization 57.1%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road



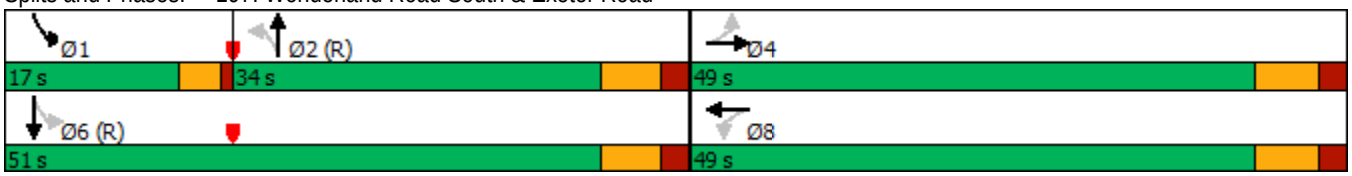
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	597	276	44	235	186	54	728	112	361	812	3
Future Volume (vph)	3	597	276	44	235	186	54	728	112	361	812	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.953			0.934			0.980			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1372	3410	0	1437	3032	0	1738	3411	0	1789	3507	0
Flt Permitted	0.462			0.150			0.344			0.198		
Satd. Flow (perm)	667	3410	0	227	3032	0	629	3411	0	373	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		94			186			17				
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
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 (%)	33%	2%	2%	27%	12%	13%	5%	5%	4%	2%	4%	0%
Adj. Flow (vph)	3	597	276	44	235	186	54	728	112	361	812	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	873	0	44	421	0	54	840	0	361	815	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		33.6	33.6		9.0	33.6	
Total Split (s)	49.0	49.0		49.0	49.0		34.0	34.0		17.0	51.0	
Total Split (%)	49.0%	49.0%		49.0%	49.0%		34.0%	34.0%		17.0%	51.0%	
Maximum Green (s)	42.0	42.0		42.0	42.0		27.4	27.4		13.0	44.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		4.4	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.6	6.6		4.0	6.6	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	31.0	31.0		31.0	31.0		38.4	38.4		58.0	55.4	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.38	0.38		0.58	0.55	
v/c Ratio	0.01	0.78		0.63	0.39		0.22	0.64		0.90	0.42	
Control Delay	20.7	32.6		67.3	14.9		26.8	28.4		54.9	9.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	20.7	32.6		67.3	14.9		26.8	28.4		54.9	9.4	
LOS	C	C		E	B		C	C		D	A	
Approach Delay		32.6			19.8			28.3			23.4	
Approach LOS		C			B			C			C	
Queue Length 50th (m)	0.4	72.5		7.3	17.8		6.9	67.2		38.6	27.6	
Queue Length 95th (m)	2.2	84.2		#22.0	27.0		18.6	99.2		#100.1	28.8	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	280	1486		95	1381		241	1320		400	1942	
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	0.01	0.59		0.46	0.30		0.22	0.64		0.90	0.42	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 73 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 26.5 Intersection LOS: C
Intersection Capacity Utilization 94.9% 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.

Splits and Phases: 197: Wonderland Road South & Exeter Road

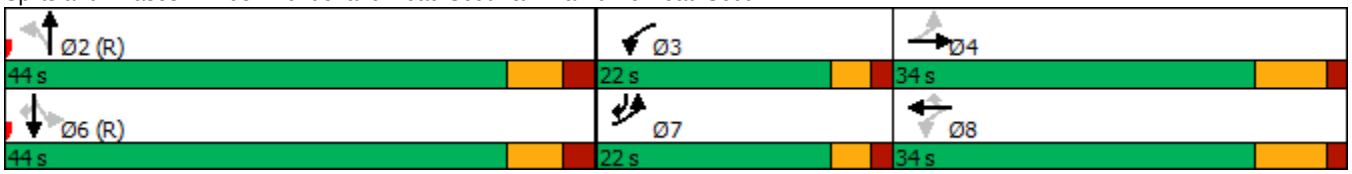


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	537	18	214	228	42	4	579	283	34	865	150
Future Volume (vph)	153	537	18	214	228	42	4	579	283	34	865	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				0.99		1.00		
Frt		0.995				0.850		0.951				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3521	0	1755	3544	1384	1825	3257	0	1508	3510	1570
Flt Permitted	0.610			0.240			0.249			0.251		
Satd. Flow (perm)	1127	3521	0	443	3544	1384	478	3257	0	398	3510	1570
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				89		95				150
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			1	1					3	3		
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 (%)	4%	3%	6%	4%	3%	18%	0%	8%	2%	21%	4%	4%
Adj. Flow (vph)	153	537	18	214	228	42	4	579	283	34	865	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	555	0	214	228	42	4	862	0	34	865	150
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	22.0	34.0		22.0	34.0	34.0	44.0	44.0		44.0	44.0	22.0
Total Split (%)	22.0%	34.0%		22.0%	34.0%	34.0%	44.0%	44.0%		44.0%	44.0%	22.0%
Maximum Green (s)	17.5	27.0		17.5	27.0	27.0	37.3	37.3		37.3	37.3	17.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	34.5	21.1		40.0	23.9	23.9	47.0	47.0		47.0	47.0	64.6
Actuated g/C Ratio	0.34	0.21		0.40	0.24	0.24	0.47	0.47		0.47	0.47	0.65
v/c Ratio	0.33	0.74		0.60	0.27	0.11	0.02	0.54		0.18	0.52	0.14

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	19.6	42.9		25.6	30.8	0.9	34.8	27.8		24.9	22.5	0.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	19.6	42.9		25.6	30.8	0.9	34.8	27.8		24.9	22.5	0.6
LOS	B	D		C	C	A	C	C		C	C	A
Approach Delay		37.8			25.9			27.8			19.4	
Approach LOS		D			C			C			B	
Queue Length 50th (m)	18.4	53.2		26.8	19.0	0.0	0.4	48.7		2.5	60.3	0.0
Queue Length 95th (m)	26.6	66.2		36.3	26.7	0.8	m1.4	94.0		14.8	104.6	0.6
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	564	952		414	976	445	225	1582		187	1651	1161
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	0.27	0.58		0.52	0.23	0.09	0.02	0.54		0.18	0.52	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 53 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 27.0		Intersection LOS: C	
Intersection Capacity Utilization 70.8%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 198: Wonderland Road South & Wharncliffe Road South

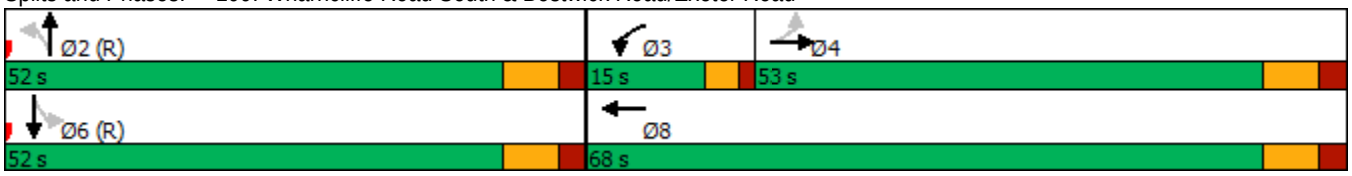


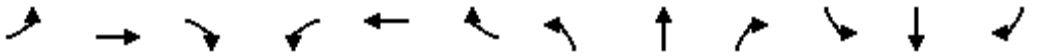
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	670	249	136	154	19	69	657	198	8	329	57
Future Volume (vph)	35	670	249	136	154	19	69	657	198	8	329	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.959			0.984			0.965			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3381	0	2975	3340	0	1630	4903	0	1496	3489	0
Flt Permitted	0.643			0.950			0.513			0.277		
Satd. Flow (perm)	1235	3381	0	2975	3340	0	880	4903	0	436	3489	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		51			16			72			19	
Link Speed (k/h)		60			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		12.8			14.1			20.8			18.2	
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%	3%	5%	19%	7%	12%	12%	3%	4%	22%	1%	10%
Adj. Flow (vph)	35	670	249	136	154	19	69	657	198	8	329	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	919	0	136	173	0	69	855	0	8	386	0
Turn Type	Perm	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4						2			6		
Detector Phase	4	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	52.7	52.7		9.5	52.7		51.6	51.6		51.6	51.6	
Total Split (s)	53.0	53.0		15.0	68.0		52.0	52.0		52.0	52.0	
Total Split (%)	44.2%	44.2%		12.5%	56.7%		43.3%	43.3%		43.3%	43.3%	
Maximum Green (s)	45.3	45.3		10.5	60.3		44.4	44.4		44.4	44.4	
Yellow Time (s)	5.0	5.0		3.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.7	2.7		1.5	2.7		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.7	7.7		4.5	7.7		7.6	7.6		7.6	7.6	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	38.0	38.0			38.0		37.0	37.0		37.0	37.0	
Pedestrian Calls (#/hr)	0	0			0		0	0		0	0	
Act Effct Green (s)	38.7	38.7		9.7	52.9		51.8	51.8		51.8	51.8	
Actuated g/C Ratio	0.32	0.32		0.08	0.44		0.43	0.43		0.43	0.43	
v/c Ratio	0.09	0.82		0.56	0.12		0.18	0.40		0.04	0.25	
Control Delay	26.8	41.5		62.4	17.0		25.1	22.8		24.2	22.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	26.8	41.5		62.4	17.0		25.1	22.8		24.2	22.3	
LOS	C	D		E	B		C	C		C	C	
Approach Delay		40.9			37.0			23.0			22.4	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	5.7	98.7		16.0	10.9		10.0	46.0		1.1	28.9	
Queue Length 95th (m)	12.3	113.8		26.3	15.8		22.4	62.8		4.7	44.0	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0			80.0		
Base Capacity (vph)	466	1308		260	1686		379	2158		188	1517	
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	0.08	0.70		0.52	0.10		0.18	0.40		0.04	0.25	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 74 (62%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 31.2		Intersection LOS: C	
Intersection Capacity Utilization 76.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 199: Wharncliffe Road South & Bostwick Road/Exeter Road



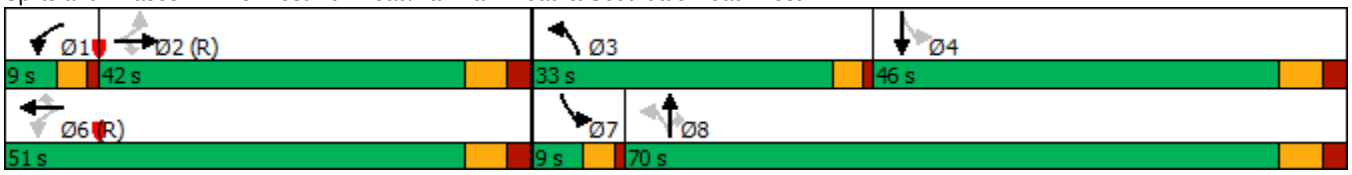


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	814	264	231	875	166	449	175	146	83	100	55
Future Volume (vph)	50	814	264	231	875	166	449	175	146	83	100	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		30.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.99	1.00			1.00		0.99	1.00	0.99	
Frt			0.850			0.850			0.850		0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3614	1555	1755	3614	1633	1825	1902	1570	1755	1774	0
Flt Permitted	0.324			0.122			0.382			0.647		
Satd. Flow (perm)	622	3614	1534	225	3614	1633	732	1902	1547	1193	1774	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			132			98			146		22	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		66.3			26.0			45.0			3.6	
Confl. Peds. (#/hr)			1	1			3		2	2		3
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%	1%	5%	4%	1%	0%	0%	1%	4%	4%	2%	2%
Adj. Flow (vph)	50	814	264	231	875	166	449	175	146	83	100	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	814	264	231	875	166	449	175	146	83	155	0
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	2	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	34.5	34.5	34.5	9.0	34.5	34.5	9.0	37.7	37.7	9.0	37.7	
Total Split (s)	42.0	42.0	42.0	9.0	51.0	51.0	33.0	70.0	70.0	9.0	46.0	
Total Split (%)	32.3%	32.3%	32.3%	6.9%	39.2%	39.2%	25.4%	53.8%	53.8%	6.9%	35.4%	
Maximum Green (s)	35.5	35.5	35.5	5.0	44.5	44.5	29.0	63.3	63.3	5.0	39.3	
Yellow Time (s)	4.1	4.1	4.1	3.0	4.1	4.1	3.0	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.4	2.4	2.4	1.0	2.4	2.4	1.0	2.6	2.6	1.0	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	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	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		24.0	24.0		24.0	
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	
Act Effct Green (s)	37.1	37.1	37.1	71.8	69.3	69.3	50.2	38.5	38.5	23.0	15.3	
Actuated g/C Ratio	0.29	0.29	0.29	0.55	0.53	0.53	0.39	0.30	0.30	0.18	0.12	
v/c Ratio	0.28	0.79	0.50	0.51	0.45	0.18	0.86	0.31	0.26	0.36	0.68	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	41.4	49.3	22.2	34.4	28.0	15.7	49.5	35.9	5.8	33.3	61.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.4	49.3	22.2	34.4	28.0	15.7	49.5	35.9	5.8	33.3	61.5	
LOS	D	D	C	C	C	B	D	D	A	C	E	
Approach Delay		42.6			27.6			38.1			51.6	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	9.7	98.7	26.5	40.6	75.1	11.4	91.8	34.5	0.0	13.4	33.1	
Queue Length 95th (m)	22.3	127.7	54.9	63.9	129.8	30.2	#117.5	50.1	14.0	22.4	53.3	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0		30.0	110.0		30.0	35.0			25.0		
Base Capacity (vph)	177	1032	532	455	1925	915	526	926	828	232	551	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.28	0.79	0.50	0.51	0.45	0.18	0.85	0.19	0.18	0.36	0.28	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 113 (87%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 36.6		Intersection LOS: D	
Intersection Capacity Utilization 89.0%		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: 128: Bostwick Road/Farnham Road & Southdale Road West

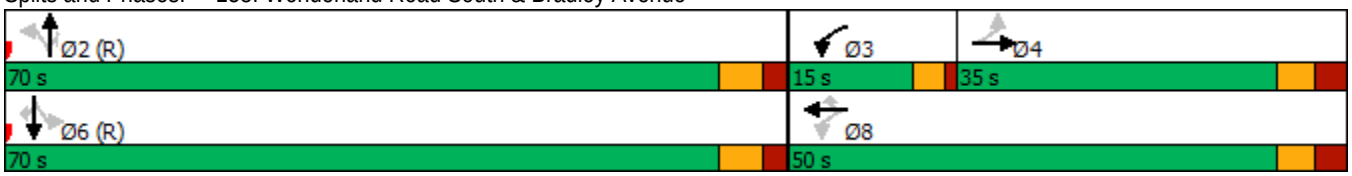


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	31	83	172	44	162	112	1095	125	167	859	25
Future Volume (vph)	13	31	83	172	44	162	112	1095	125	167	859	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99					0.98	1.00		0.98	1.00		0.98
Frt		0.891				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1712	0	1755	1921	1633	1484	3614	1142	1825	3544	1633
Flt Permitted	0.728			0.415			0.306			0.227		
Satd. Flow (perm)	1388	1712	0	767	1921	1601	477	3614	1116	436	3544	1606
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		83				69			115			67
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	6					6	3		1	1		3
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%	0%	4%	0%	0%	23%	1%	43%	0%	3%	0%
Adj. Flow (vph)	13	31	83	172	44	162	112	1095	125	167	859	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	114	0	172	44	162	112	1095	125	167	859	25
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.4	34.4		9.0	34.4	34.4	31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	35.0	35.0		15.0	50.0	50.0	70.0	70.0	70.0	70.0	70.0	70.0
Total Split (%)	29.2%	29.2%		12.5%	41.7%	41.7%	58.3%	58.3%	58.3%	58.3%	58.3%	58.3%
Maximum Green (s)	28.6	28.6		11.0	43.6	43.6	63.8	63.8	63.8	63.8	63.8	63.8
Yellow Time (s)	3.3	3.3		3.0	3.3	3.3	3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	3.1	3.1		1.0	3.1	3.1	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		4.0	6.4	6.4	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0			7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0			21.0	21.0	18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0			0	0	0	0	0	0	0	0
Act Effct Green (s)	8.9	8.9		26.2	23.8	23.8	83.6	83.6	83.6	83.6	83.6	83.6
Actuated g/C Ratio	0.07	0.07		0.22	0.20	0.20	0.70	0.70	0.70	0.70	0.70	0.70
v/c Ratio	0.13	0.56		0.67	0.12	0.44	0.34	0.43	0.15	0.55	0.35	0.02

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	53.0	28.7		54.1	39.2	27.2	10.6	9.7	2.9	18.2	8.0	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	28.7		54.1	39.2	27.2	10.6	9.7	2.9	18.2	8.0	0.0
LOS	D	C		D	D	C	B	A	A	B	A	A
Approach Delay		31.2			40.8			9.2			9.4	
Approach LOS		C			D			A			A	
Queue Length 50th (m)	3.0	7.1		35.8	8.7	19.0	11.5	66.0	5.2	16.8	36.8	0.0
Queue Length 95th (m)	9.0	24.2		54.1	17.9	37.6	14.6	50.9	6.2	45.0	54.5	0.0
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	330	471		257	697	625	332	2518	812	303	2470	1139
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.24		0.67	0.06	0.26	0.34	0.43	0.15	0.55	0.35	0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 51 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 14.4		Intersection LOS: B	
Intersection Capacity Utilization 72.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 158: Wonderland Road South & Bradley Avenue

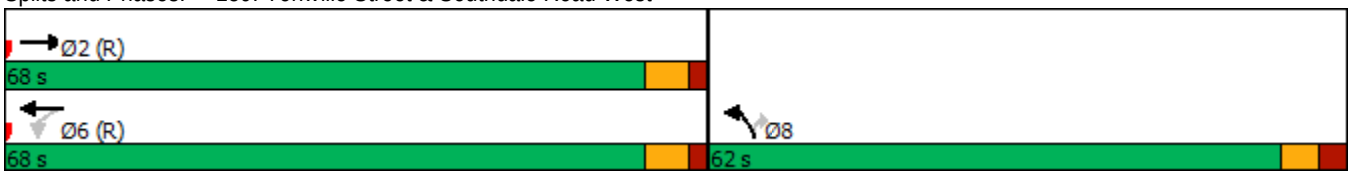


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	922	125	248	1173	98	163
Future Volume (vph)	922	125	248	1173	98	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.982					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3584	0	1825	3650	1825	1633
Flt Permitted			0.260		0.950	
Satd. Flow (perm)	3584	0	499	3650	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	16					83
Link Speed (k/h)	60			60	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	26.0			20.4	11.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	922	125	248	1173	98	163
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1047	0	248	1173	98	163
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	28.4		28.4	28.4	35.5	35.5
Total Split (s)	68.0		68.0	68.0	62.0	62.0
Total Split (%)	52.3%		52.3%	52.3%	47.7%	47.7%
Maximum Green (s)	62.0		62.0	62.0	55.5	55.5
Yellow Time (s)	4.1		4.1	4.1	3.6	3.6
All-Red Time (s)	1.9		1.9	1.9	2.9	2.9
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	22.0	22.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	104.5		104.5	104.5	13.0	13.0
Actuated g/C Ratio	0.80		0.80	0.80	0.10	0.10
v/c Ratio	0.36		0.62	0.40	0.54	0.68
Control Delay	1.3		13.9	3.3	65.3	41.9
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	1.3		13.9	3.3	65.3	41.9

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A		B	A	E	D
Approach Delay	1.3			5.1	50.7	
Approach LOS	A			A	D	
Queue Length 50th (m)	4.4		39.0	27.1	24.4	19.8
Queue Length 95th (m)	6.0		65.0	30.1	40.3	41.4
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)			55.0		45.0	
Base Capacity (vph)	2882		400	2932	779	744
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.36		0.62	0.40	0.13	0.22

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 28 (22%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 8.0		Intersection LOS: A	
Intersection Capacity Utilization 64.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 159: Yorkville Street & Southdale Road West



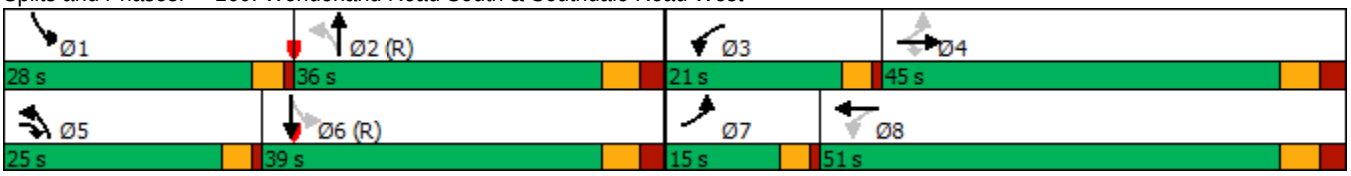
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	188	741	123	148	816	223	279	748	95	289	760	132
Future Volume (vph)	188	741	123	148	816	223	279	748	95	289	760	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.95	0.99	0.99		0.99	1.00			0.99	
Frt			0.850		0.968			0.983			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3579	1555	1825	3471	0	1807	3502	0	1738	3453	0
Flt Permitted	0.095			0.210			0.115			0.108		
Satd. Flow (perm)	179	3579	1483	400	3471	0	217	3502	0	198	3453	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			116		29			10			15	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	12		29	29		12	32		14	14		32
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	5%	0%	1%	2%	1%	2%	3%	5%	3%	0%
Adj. Flow (vph)	188	741	123	148	816	223	279	748	95	289	760	132
Shared Lane Traffic (%)												
Lane Group Flow (vph)	188	741	123	148	1039	0	279	843	0	289	892	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.5	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	15.0	45.0	25.0	21.0	51.0		25.0	36.0		28.0	39.0	
Total Split (%)	11.5%	34.6%	19.2%	16.2%	39.2%		19.2%	27.7%		21.5%	30.0%	
Maximum Green (s)	11.0	38.4	21.0	17.0	44.4		21.0	29.9		24.0	32.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	55.5	41.9	63.0	56.8	42.6		55.5	34.9		60.1	37.2	
Actuated g/C Ratio	0.43	0.32	0.48	0.44	0.33		0.43	0.27		0.46	0.29	
v/c Ratio	0.89	0.64	0.16	0.49	0.90		0.87	0.89		0.86	0.89	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	82.0	24.9	4.0	25.8	51.5		60.9	58.5		56.4	56.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	82.0	24.9	4.0	25.8	51.5		60.9	58.5		56.4	56.8	
LOS	F	C	A	C	D		E	E		E	E	
Approach Delay		32.7			48.3			59.1			56.7	
Approach LOS		C			D			E			E	
Queue Length 50th (m)	33.5	55.0	0.1	21.1	127.3		53.7	112.9		56.7	~120.9	
Queue Length 95th (m)	#77.5	90.3	12.6	34.2	155.1		#97.1	#161.6		#94.6	#165.2	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	212	1154	816	371	1204		352	946		377	998	
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	0.89	0.64	0.15	0.40	0.86		0.79	0.89		0.77	0.89	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 125 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 49.5 Intersection LOS: D
Intersection Capacity Utilization 98.7% 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.

Splits and Phases: 160: Wonderland Road South & Southdale Road West

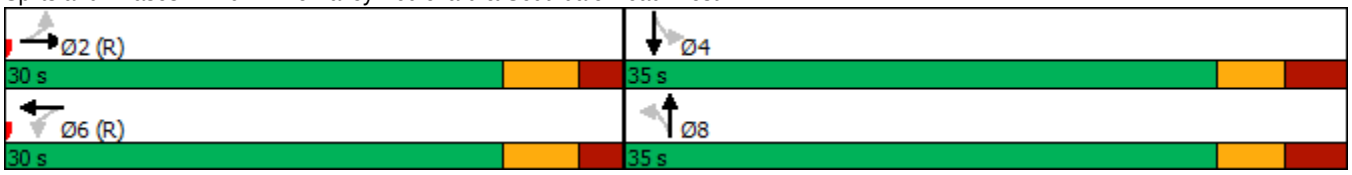


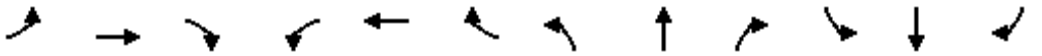
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	868	118	116	1052	75	194	102	74	64	71	176
Future Volume (vph)	100	868	118	116	1052	75	194	102	74	64	71	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		0.99	1.00		1.00	0.99		1.00	0.99	
Frt		0.982			0.990			0.937			0.893	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3495	0	1825	3567	0	1825	1788	0	1825	1677	0
Flt Permitted	0.195			0.245			0.557			0.646		
Satd. Flow (perm)	373	3495	0	467	3567	0	1066	1788	0	1237	1677	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			13			39			20	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	18		24	24		18	8		6	6		8
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%	1%	0%	1%	1%	0%	0%	0%	0%	1%	1%
Adj. Flow (vph)	100	868	118	116	1052	75	194	102	74	64	71	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	986	0	116	1127	0	194	176	0	64	247	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	30.0	30.0		30.0	30.0		35.0	35.0		35.0	35.0	
Total Split (%)	46.2%	46.2%		46.2%	46.2%		53.8%	53.8%		53.8%	53.8%	
Maximum Green (s)	24.1	24.1		24.1	24.1		28.6	28.6		28.6	28.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	36.3	36.3		36.3	36.3		16.4	16.4		16.4	16.4	
Actuated g/C Ratio	0.56	0.56		0.56	0.56		0.25	0.25		0.25	0.25	
v/c Ratio	0.48	0.50		0.45	0.56		0.72	0.37		0.20	0.56	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	23.6	10.5		18.7	14.7		36.3	15.9		18.2	23.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	23.6	10.5		18.7	14.7		36.3	15.9		18.2	23.2	
LOS	C	B		B	B		D	B		B	C	
Approach Delay		11.7			15.0			26.6			22.2	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	17.7	96.0		12.0	72.2		21.4	13.4		6.1	23.7	
Queue Length 95th (m)	#25.0	121.7		m22.0	m112.0		34.8	22.8		12.1	35.5	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	207	1961		260	1995		469	808		544	749	
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	0.48	0.50		0.45	0.56		0.41	0.22		0.12	0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 48 (74%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 16.0		Intersection LOS: B	
Intersection Capacity Utilization 85.7%		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.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West



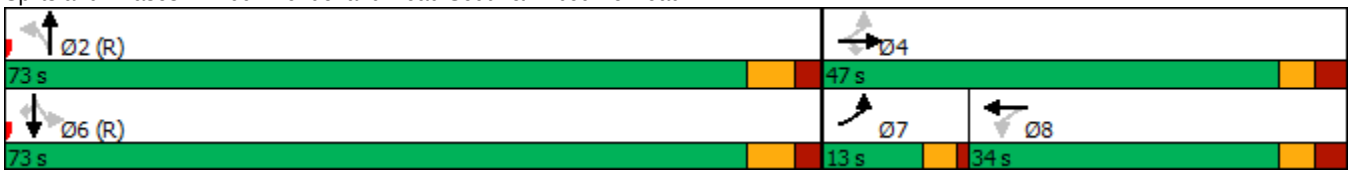


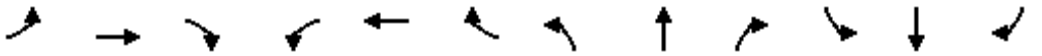
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	0	142	2	0	3	128	1248	1	0	1016	90
Future Volume (vph)	66	0	142	2	0	3	128	1248	1	0	1016	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00	1.00				0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1825	1921	1617	1825	1633	0	1825	3579	0	1921	3544	1601
Flt Permitted	0.588						0.265					
Satd. Flow (perm)	1130	1921	1617	1921	1633	0	508	3579	0	1921	3544	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93		139							90
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)							5		4	4		5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	3%	2%
Adj. Flow (vph)	66	0	142	2	0	3	128	1248	1	0	1016	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	0	142	2	3	0	128	1249	0	0	1016	90
Turn Type	pm+pt		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	9.0	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	13.0	47.0	47.0	34.0	34.0		73.0	73.0		73.0	73.0	73.0
Total Split (%)	10.8%	39.2%	39.2%	28.3%	28.3%		60.8%	60.8%		60.8%	60.8%	60.8%
Maximum Green (s)	9.0	40.7	40.7	27.7	27.7		66.3	66.3		66.3	66.3	66.3
Yellow Time (s)	3.0	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
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)	4.0	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0		0	0	0
Act Effct Green (s)	13.3		11.0	7.0	7.0		96.0	96.0			96.0	96.0
Actuated g/C Ratio	0.11		0.09	0.06	0.06		0.80	0.80			0.80	0.80
v/c Ratio	0.36		0.61	0.02	0.01		0.32	0.44			0.36	0.07

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	53.0		30.8	53.5	0.0		9.6	7.3			3.2	0.5
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	53.0		30.8	53.5	0.0		9.6	7.3			3.2	0.5
LOS	D		C	D	A		A	A			A	A
Approach Delay		37.8			21.4			7.5			3.0	
Approach LOS		D			C			A			A	
Queue Length 50th (m)	14.8		11.2	0.5	0.0		9.0	46.6			19.8	0.0
Queue Length 95th (m)	26.0		28.8	3.2	0.0		m26.6	113.6			38.5	m2.1
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0					160.0
Base Capacity (vph)	186		609	443	483		406	2862			2834	1256
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	0.35		0.23	0.00	0.01		0.32	0.44			0.36	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 8.0		Intersection LOS: A	
Intersection Capacity Utilization 67.1%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road



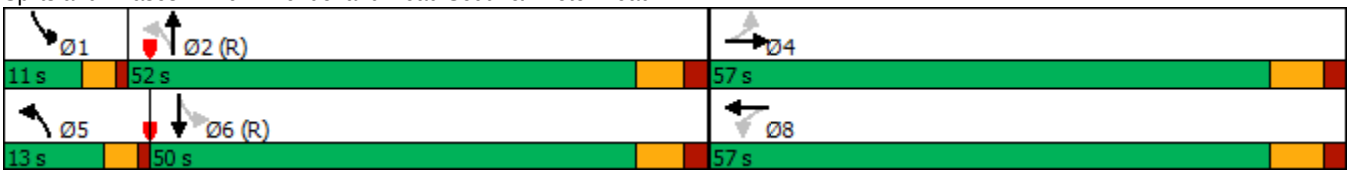


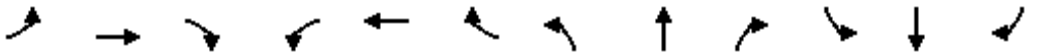
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	344	136	134	793	496	254	812	55	220	852	5
Future Volume (vph)	3	344	136	134	793	496	254	812	55	220	852	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.957			0.942			0.990			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3295	0	1755	3404	0	1772	3495	0	1706	3507	0
Flt Permitted	0.084			0.430			0.173			0.221		
Satd. Flow (perm)	161	3295	0	794	3404	0	323	3495	0	397	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		60			140			7			1	
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
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%	6%	6%	4%	1%	1%	3%	2%	24%	7%	4%	0%
Adj. Flow (vph)	3	344	136	134	793	496	254	812	55	220	852	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	480	0	134	1289	0	254	867	0	220	857	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		9.0	33.6		9.0	33.6	
Total Split (s)	57.0	57.0		57.0	57.0		13.0	52.0		11.0	50.0	
Total Split (%)	47.5%	47.5%		47.5%	47.5%		10.8%	43.3%		9.2%	41.7%	
Maximum Green (s)	50.0	50.0		50.0	50.0		9.0	45.4		7.0	43.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		3.0	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		1.0	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		4.0	6.6		4.0	6.6	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	47.8	47.8		47.8	47.8		60.0	47.6		53.4	43.8	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.50	0.40		0.44	0.36	
v/c Ratio	0.05	0.36		0.42	0.89		0.87	0.62		0.87	0.67	
Control Delay	11.7	9.9		30.4	38.9		51.4	31.7		49.9	33.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	11.7	9.9		30.4	38.9		51.4	31.7		49.9	33.6	
LOS	B	A		C	D		D	C		D	C	
Approach Delay		9.9			38.1			36.2			36.9	
Approach LOS		A			D			D			D	
Queue Length 50th (m)	0.2	16.8		21.8	130.1		34.5	87.1		33.2	100.4	
Queue Length 95th (m)	m0.9	23.0		39.6	160.8		#79.3	108.7		#69.9	124.6	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	67	1407		330	1500		291	1389		252	1281	
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	0.04	0.34		0.41	0.86		0.87	0.62		0.87	0.67	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 34.0		Intersection LOS: C	
Intersection Capacity Utilization 101.9%		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: 197: Wonderland Road South & Exeter Road



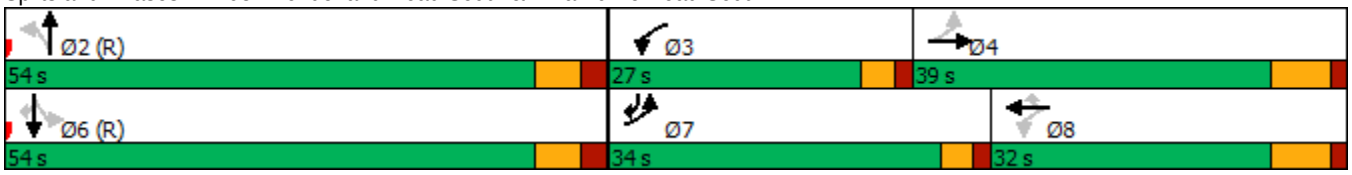


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	377	22	276	489	94	13	984	367	47	791	264
Future Volume (vph)	239	377	22	276	489	94	13	984	367	47	791	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				1.00				
Frt		0.992				0.850		0.959				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	3541	0	1755	3579	1512	1690	3432	0	1659	3380	1617
Flt Permitted	0.301			0.308			0.295			0.105		
Satd. Flow (perm)	573	3541	0	568	3579	1512	525	3432	0	183	3380	1617
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				115		53				47
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			2	2					3	3		
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 (%)	1%	2%	5%	4%	2%	8%	8%	1%	3%	10%	8%	1%
Adj. Flow (vph)	239	377	22	276	489	94	13	984	367	47	791	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	399	0	276	489	94	13	1351	0	47	791	264
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	34.0	39.0		27.0	32.0	32.0	54.0	54.0		54.0	54.0	34.0
Total Split (%)	28.3%	32.5%		22.5%	26.7%	26.7%	45.0%	45.0%		45.0%	45.0%	28.3%
Maximum Green (s)	29.5	32.0		22.5	25.0	25.0	47.3	47.3		47.3	47.3	29.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	38.5	19.2		43.3	21.6	21.6	63.4	63.4		63.4	63.4	86.9
Actuated g/C Ratio	0.32	0.16		0.36	0.18	0.18	0.53	0.53		0.53	0.53	0.72
v/c Ratio	0.67	0.70		0.70	0.76	0.26	0.05	0.73		0.49	0.44	0.22

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	25.2	43.2		36.6	54.7	6.2	28.7	36.1		35.5	14.1	4.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	25.2	43.2		36.6	54.7	6.2	28.7	36.1		35.5	14.1	4.5
LOS	C	D		D	D	A	C	D		D	B	A
Approach Delay		36.5			43.6			36.1			12.7	
Approach LOS		D			D			D			B	
Queue Length 50th (m)	41.9	47.4		46.8	57.6	0.0	2.1	156.7		5.7	47.4	15.7
Queue Length 95th (m)	59.4	61.6		62.6	74.0	9.3	m3.4	183.4		#27.6	66.8	23.4
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	519	947		433	745	406	277	1839		96	1786	1350
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	0.46	0.42		0.64	0.66	0.23	0.05	0.73		0.49	0.44	0.20

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 75 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 31.3		Intersection LOS: C	
Intersection Capacity Utilization 81.2%		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: 198: Wonderland Road South & Wharncliffe Road South

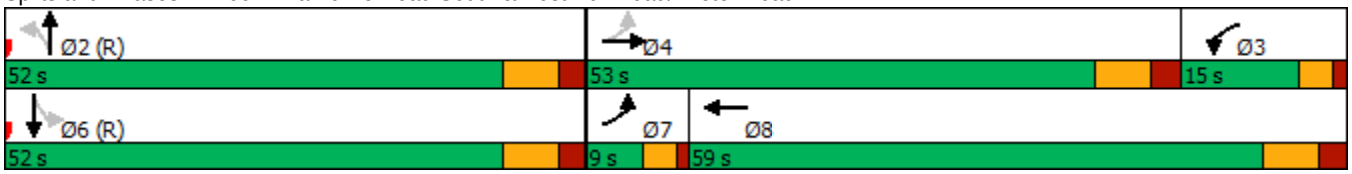


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	322	111	253	773	25	78	557	103	58	444	214
Future Volume (vph)	42	322	111	253	773	25	78	557	103	58	444	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Ped Bike Factor	1.00				1.00							
Frt		0.962			0.995			0.977			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3434	0	3506	3626	0	1825	5016	0	1738	3381	0
Flt Permitted	0.258			0.950			0.362			0.381		
Satd. Flow (perm)	496	3434	0	3506	3626	0	695	5016	0	697	3381	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			3			35			77	
Link Speed (k/h)		60			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		12.8			14.1			20.8			18.2	
Confl. Peds. (#/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%	2%	3%	1%	0%	4%	0%	2%	3%	5%	3%	2%
Adj. Flow (vph)	42	322	111	253	773	25	78	557	103	58	444	214
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	433	0	253	798	0	78	660	0	58	658	0
Turn Type	pm+pt	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4						2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	9.0	52.7		9.5	52.7		51.6	51.6		51.6	51.6	
Total Split (s)	9.0	53.0		15.0	59.0		52.0	52.0		52.0	52.0	
Total Split (%)	7.5%	44.2%		12.5%	49.2%		43.3%	43.3%		43.3%	43.3%	
Maximum Green (s)	5.0	45.3		10.5	51.3		44.4	44.4		44.4	44.4	
Yellow Time (s)	3.0	5.0		3.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	2.7		1.5	2.7		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7		4.5	7.7		7.6	7.6		7.6	7.6	
Lead/Lag	Lead	Lead		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		38.0			38.0		37.0	37.0		37.0	37.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	23.2	19.5		17.7	34.5		63.0	63.0		63.0	63.0	
Actuated g/C Ratio	0.19	0.16		0.15	0.29		0.52	0.52		0.52	0.52	
v/c Ratio	0.28	0.73		0.49	0.77		0.21	0.25		0.16	0.36	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	42.8	49.6		34.4	26.4		19.7	16.0		36.9	36.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	42.8	49.6		34.4	26.4		19.7	16.0		36.9	36.7	
LOS	D	D		C	C		B	B		D	D	
Approach Delay		49.0			28.3			16.4			36.7	
Approach LOS		D			C			B			D	
Queue Length 50th (m)	8.3	46.2		26.0	74.5		9.8	29.0		12.1	67.9	
Queue Length 95th (m)	17.0	59.8		m30.6	m74.5		22.5	41.9		m20.5	89.4	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0			80.0		
Base Capacity (vph)	151	1324		517	1551		365	2650		366	1812	
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	0.28	0.33		0.49	0.51		0.21	0.25		0.16	0.36	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 117 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 30.7		Intersection LOS: C	
Intersection Capacity Utilization 74.2%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 199: Wharncliffe Road South & Bostwick Road/Exeter Road

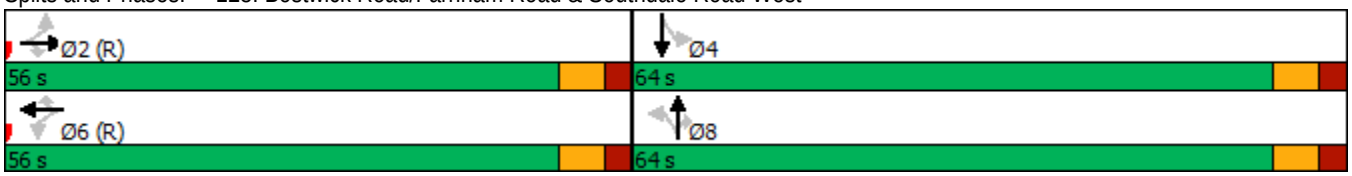


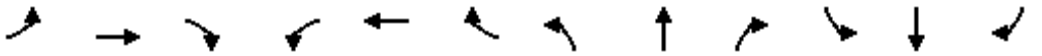
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	559	339	85	345	36	306	90	186	62	100	49
Future Volume (vph)	51	559	339	85	345	36	306	90	186	62	100	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		30.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98						
Frt			0.850			0.850			0.850		0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3614	1498	1722	3444	1601	1674	1902	1585	1807	1768	0
Flt Permitted	0.545			0.418			0.652			0.699		
Satd. Flow (perm)	1005	3614	1498	758	3444	1566	1149	1902	1585	1330	1768	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			291			36			184		28	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		66.3			26.0			45.0			3.6	
Confl. Peds. (#/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 (%)	4%	1%	9%	6%	6%	2%	9%	1%	3%	1%	2%	6%
Adj. Flow (vph)	51	559	339	85	345	36	306	90	186	62	100	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	559	339	85	345	36	306	90	186	62	149	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	34.5	34.5	34.5	34.5	34.5	34.5	37.7	37.7	37.7	37.7	37.7	
Total Split (s)	56.0	56.0	56.0	56.0	56.0	56.0	64.0	64.0	64.0	64.0	64.0	
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%	53.3%	
Maximum Green (s)	49.5	49.5	49.5	49.5	49.5	49.5	57.3	57.3	57.3	57.3	57.3	
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.7	6.7	6.7	6.7	6.7	
Lead/Lag												
Lead-Lag Optimize?												
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	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0	24.0	24.0	24.0	24.0	24.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Act Effct Green (s)	67.8	67.8	67.8	67.8	67.8	67.8	39.0	39.0	39.0	39.0	39.0	
Actuated g/C Ratio	0.56	0.56	0.56	0.56	0.56	0.56	0.32	0.32	0.32	0.32	0.32	
v/c Ratio	0.09	0.27	0.35	0.20	0.18	0.04	0.82	0.15	0.29	0.14	0.25	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	16.1	15.5	4.5	14.9	12.5	4.2	53.8	26.3	4.4	26.0	22.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	16.1	15.5	4.5	14.9	12.5	4.2	53.8	26.3	4.4	26.0	22.7	
LOS	B	B	A	B	B	A	D	C	A	C	C	
Approach Delay		11.6			12.3			33.8			23.7	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	5.3	34.3	4.9	6.0	12.7	0.0	65.7	14.9	0.3	10.2	20.5	
Queue Length 95th (m)	14.7	57.2	24.5	21.5	33.8	3.8	85.0	22.3	12.9	17.1	30.1	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0		30.0	110.0		30.0	35.0			25.0		
Base Capacity (vph)	567	2040	972	427	1944	899	548	908	852	635	858	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.09	0.27	0.35	0.20	0.18	0.04	0.56	0.10	0.22	0.10	0.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 18 (15%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 18.7		Intersection LOS: B	
Intersection Capacity Utilization 76.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 128: Bostwick Road/Farnham Road & Southdale Road West



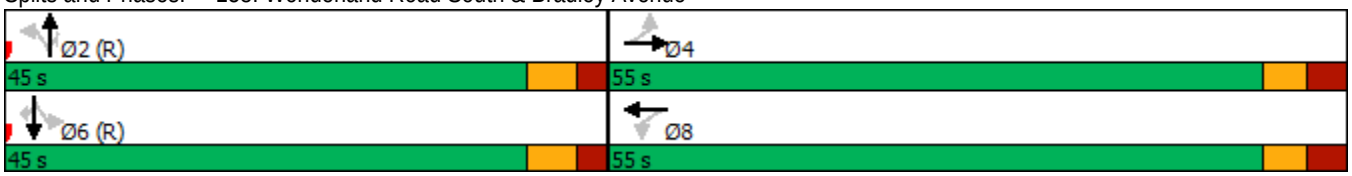


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	195	69	61	106	101	59	638	43	126	897	15
Future Volume (vph)	27	195	69	61	106	101	59	638	43	126	897	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00		0.99	1.00		0.99
Frt		0.961			0.927				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3436	0	1772	3231	0	1601	3476	1570	1825	3579	1228
Flt Permitted	0.622			0.542			0.307			0.410		
Satd. Flow (perm)	1191	3436	0	1011	3231	0	517	3476	1549	787	3579	1210
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48			101				43			37
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	4					4	2		1	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%	0%	8%	14%	5%	4%	0%	2%	33%
Adj. Flow (vph)	27	195	69	61	106	101	59	638	43	126	897	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	264	0	61	207	0	59	638	43	126	897	15
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.4	34.4		34.4	34.4		31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	55.0	55.0		55.0	55.0		45.0	45.0	45.0	45.0	45.0	45.0
Total Split (%)	55.0%	55.0%		55.0%	55.0%		45.0%	45.0%	45.0%	45.0%	45.0%	45.0%
Maximum Green (s)	48.6	48.6		48.6	48.6		38.8	38.8	38.8	38.8	38.8	38.8
Yellow Time (s)	3.3	3.3		3.3	3.3		3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	3.1	3.1		3.1	3.1		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag												
Lead-Lag Optimize?												
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		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	12.0	12.0		12.0	12.0		75.4	75.4	75.4	75.4	75.4	75.4
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.75	0.75	0.75	0.75	0.75	0.75
v/c Ratio	0.19	0.58		0.50	0.43		0.15	0.24	0.04	0.21	0.33	0.02

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	41.1	38.6		54.7	23.0		2.3	1.6	0.1	5.1	4.7	0.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	38.6		54.7	23.0		2.3	1.6	0.1	5.1	4.7	0.4
LOS	D	D		D	C		A	A	A	A	A	A
Approach Delay		38.8			30.2			1.6			4.7	
Approach LOS		D			C			A			A	
Queue Length 50th (m)	4.8	21.0		11.3	10.0		0.9	5.2	0.0	5.9	24.4	0.0
Queue Length 95th (m)	12.2	32.0		23.1	19.6		2.3	8.2	0.2	14.3	39.6	0.5
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	578	1694		491	1622		389	2619	1178	593	2697	921
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	0.05	0.16		0.12	0.13		0.15	0.24	0.04	0.21	0.33	0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 41 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 10.9		Intersection LOS: B	
Intersection Capacity Utilization 66.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 158: Wonderland Road South & Bradley Avenue

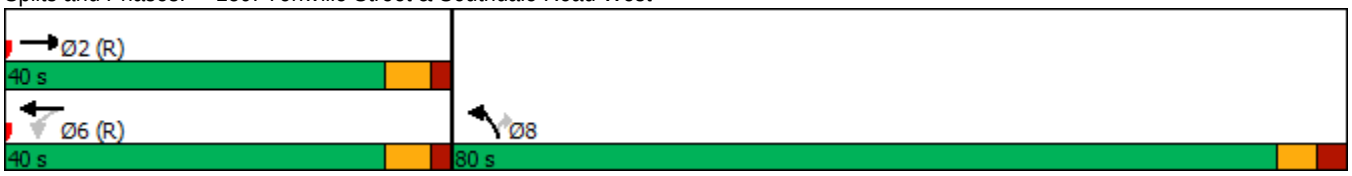


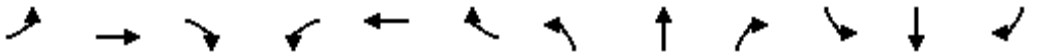
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	795	44	77	404	64	136
Future Volume (vph)	795	44	77	404	64	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.992					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3621	0	1825	3650	1825	1633
Flt Permitted			0.327		0.950	
Satd. Flow (perm)	3621	0	628	3650	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	5					24
Link Speed (k/h)	60			60	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	26.0			20.4	11.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	795	44	77	404	64	136
Shared Lane Traffic (%)						
Lane Group Flow (vph)	839	0	77	404	64	136
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	28.4		28.4	28.4	35.5	35.5
Total Split (s)	40.0		40.0	40.0	80.0	80.0
Total Split (%)	33.3%		33.3%	33.3%	66.7%	66.7%
Maximum Green (s)	34.0		34.0	34.0	73.5	73.5
Yellow Time (s)	4.1		4.1	4.1	3.6	3.6
All-Red Time (s)	1.9		1.9	1.9	2.9	2.9
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	22.0	22.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	93.5		93.5	93.5	14.0	14.0
Actuated g/C Ratio	0.78		0.78	0.78	0.12	0.12
v/c Ratio	0.30		0.16	0.14	0.30	0.64
Control Delay	8.9		2.8	1.9	50.3	54.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	8.9		2.8	1.9	50.3	54.6

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A		A	A	D	D
Approach Delay	8.9			2.1	53.3	
Approach LOS	A			A	D	
Queue Length 50th (m)	22.2		1.6	4.2	14.0	25.5
Queue Length 95th (m)	94.3		5.0	9.6	25.8	43.6
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)			55.0		45.0	
Base Capacity (vph)	2822		489	2844	1117	1009
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.30		0.16	0.14	0.06	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 4 (3%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 12.6		Intersection LOS: B	
Intersection Capacity Utilization 50.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 159: Yorkville Street & Southdale Road West



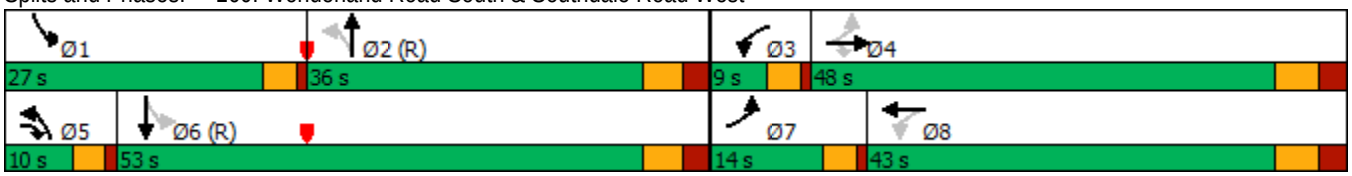


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	591	108	70	352	191	83	493	40	328	753	68
Future Volume (vph)	161	591	108	70	352	191	83	493	40	328	753	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.98	0.99	0.99		0.99	1.00		0.99	1.00	
Frt			0.850		0.947			0.989			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	3579	1617	1772	3237	0	1755	3355	0	1738	3413	0
Flt Permitted	0.203			0.320			0.326			0.357		
Satd. Flow (perm)	352	3579	1578	594	3237	0	599	3355	0	650	3413	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			108		87			7			9	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	14		11	11		14	15		12	12		15
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%	2%	1%	3%	4%	9%	4%	7%	12%	5%	5%	10%
Adj. Flow (vph)	161	591	108	70	352	191	83	493	40	328	753	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	591	108	70	543	0	83	533	0	328	821	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.0	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	14.0	48.0	10.0	9.0	43.0		10.0	36.0		27.0	53.0	
Total Split (%)	11.7%	40.0%	8.3%	7.5%	35.8%		8.3%	30.0%		22.5%	44.2%	
Maximum Green (s)	10.0	41.4	6.0	5.0	36.4		6.0	29.9		23.0	46.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	40.0	30.2	38.8	31.0	23.4		57.2	49.1		72.0	59.9	
Actuated g/C Ratio	0.33	0.25	0.32	0.26	0.20		0.48	0.41		0.60	0.50	
v/c Ratio	0.71	0.66	0.18	0.35	0.78		0.24	0.39		0.61	0.48	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	51.6	46.3	14.5	31.7	45.8		14.7	27.5		17.9	21.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	51.6	46.3	14.5	31.7	45.8		14.7	27.5		17.9	21.5	
LOS	D	D	B	C	D		B	C		B	C	
Approach Delay		43.3			44.2			25.8			20.5	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	23.2	70.0	1.4	11.4	54.3		7.8	45.1		36.0	64.4	
Queue Length 95th (m)	#54.7	85.4	26.4	20.0	68.6		16.9	71.5		61.5	91.3	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	226	1234	585	202	1042		343	1377		598	1709	
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	0.71	0.48	0.18	0.35	0.52		0.24	0.39		0.55	0.48	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 32.0		Intersection LOS: C	
Intersection Capacity Utilization 88.7%		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: 160: Wonderland Road South & Southdale Road West

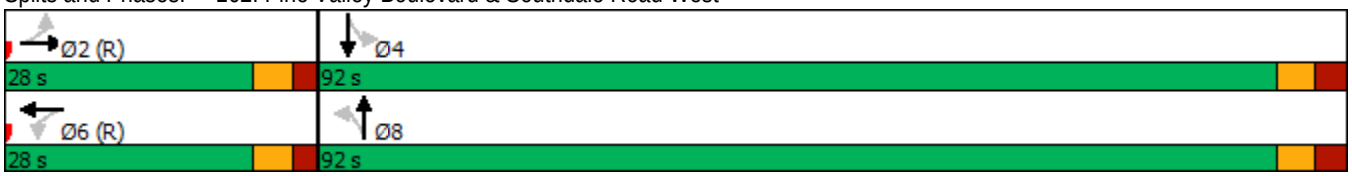


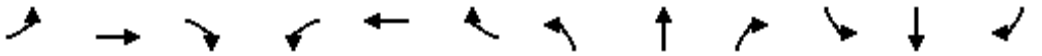
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	776	57	69	377	68	38	17	44	27	25	71
Future Volume (vph)	101	776	57	69	377	68	38	17	44	27	25	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00			0.99		0.99	0.99		1.00	0.98	
Frt		0.990			0.977			0.892			0.889	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3574	0	1825	3362	0	1825	1697	0	1755	1610	0
Flt Permitted	0.494			0.334			0.695			0.717		
Satd. Flow (perm)	943	3574	0	642	3362	0	1325	1697	0	1323	1610	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			15			3			66	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	5		2	2		5	7		1	1		7
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%	1%	0%	0%	6%	3%	0%	0%	0%	4%	0%	6%
Adj. Flow (vph)	101	776	57	69	377	68	38	17	44	27	25	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	833	0	69	445	0	38	61	0	27	96	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	28.0	28.0		28.0	28.0		92.0	92.0		92.0	92.0	
Total Split (%)	23.3%	23.3%		23.3%	23.3%		76.7%	76.7%		76.7%	76.7%	
Maximum Green (s)	22.1	22.1		22.1	22.1		85.6	85.6		85.6	85.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	97.8	97.8		97.8	97.8		9.9	9.9		9.9	9.9	
Actuated g/C Ratio	0.82	0.82		0.82	0.82		0.08	0.08		0.08	0.08	
v/c Ratio	0.13	0.29		0.13	0.16		0.35	0.43		0.25	0.50	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	7.5	7.7		5.0	3.8		60.0	58.4		56.1	29.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.5	7.7		5.0	3.8		60.0	58.4		56.1	29.0	
LOS	A	A		A	A		E	E		E	C	
Approach Delay		7.7			4.0			59.0			34.9	
Approach LOS		A			A			E			C	
Queue Length 50th (m)	5.6	27.2		3.3	11.3		8.6	13.3		6.1	6.7	
Queue Length 95th (m)	30.7	98.8		11.5	23.7		19.3	26.2		15.0	22.7	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	768	2915		523	2743		945	1211		943	1167	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.13	0.29		0.13	0.16		0.04	0.05		0.03	0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 66 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 11.6		Intersection LOS: B	
Intersection Capacity Utilization 55.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West



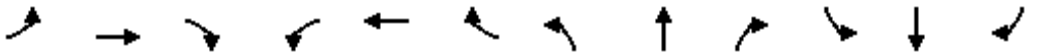


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	0	155	4	0	5	105	682	2	1	902	112
Future Volume (vph)	50	0	155	4	0	5	105	682	2	1	902	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00					0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	1921	1585	1043	1151	0	1807	3350	0	1825	3544	1601
Flt Permitted	0.754			0.757			0.310			0.392		
Satd. Flow (perm)	1340	1921	1585	831	1151	0	589	3350	0	753	3544	1558
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			135		231							112
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)	1					1	3					3
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 (%)	8%	0%	3%	75%	0%	40%	1%	9%	0%	0%	3%	2%
Adj. Flow (vph)	50	0	155	4	0	5	105	682	2	1	902	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	0	155	4	5	0	105	684	0	1	902	112
Turn Type	Perm		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	33.3	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	36.0	36.0	36.0	36.0	36.0		64.0	64.0		64.0	64.0	64.0
Total Split (%)	36.0%	36.0%	36.0%	36.0%	36.0%		64.0%	64.0%		64.0%	64.0%	64.0%
Maximum Green (s)	29.7	29.7	29.7	29.7	29.7		57.3	57.3		57.3	57.3	57.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag												
Lead-Lag Optimize?												
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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effct Green (s)	9.5		9.5	9.5	9.5		77.5	77.5		77.5	77.5	77.5
Actuated g/C Ratio	0.10		0.10	0.10	0.10		0.78	0.78		0.78	0.78	0.78
v/c Ratio	0.39		0.57	0.05	0.02		0.23	0.26		0.00	0.33	0.09

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	50.8		18.7	40.5	0.0		6.3	5.3		3.0	3.2	0.6
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	50.8		18.7	40.5	0.0		6.3	5.3		3.0	3.2	0.6
LOS	D		B	D	A		A	A		A	A	A
Approach Delay		26.5			18.0			5.5			2.9	
Approach LOS		C			B			A			A	
Queue Length 50th (m)	9.3		3.6	0.7	0.0		6.9	24.2		0.0	18.5	0.0
Queue Length 95th (m)	20.0		21.2	3.9	0.0		18.4	37.5		m0.1	24.4	2.3
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0			115.0		160.0
Base Capacity (vph)	397		565	246	504		456	2595		583	2745	1232
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	0.13		0.27	0.02	0.01		0.23	0.26		0.00	0.33	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 37 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 6.4		Intersection LOS: A	
Intersection Capacity Utilization 56.6%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road

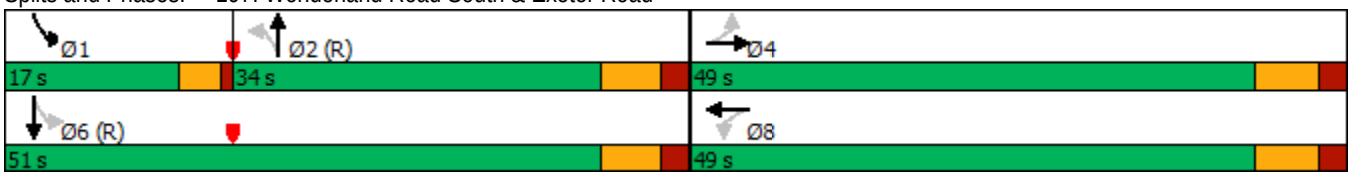


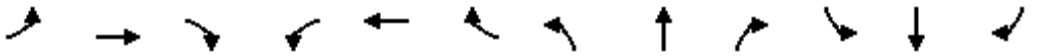
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	581	275	44	230	182	54	751	112	350	849	3
Future Volume (vph)	3	581	275	44	230	182	54	751	112	350	849	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.952			0.934			0.981			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1372	3407	0	1437	3032	0	1738	3414	0	1789	3507	0
Flt Permitted	0.469			0.156			0.332			0.190		
Satd. Flow (perm)	677	3407	0	236	3032	0	607	3414	0	358	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		86			182			16				
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
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 (%)	33%	2%	2%	27%	12%	13%	5%	5%	4%	2%	4%	0%
Adj. Flow (vph)	3	581	275	44	230	182	54	751	112	350	849	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	856	0	44	412	0	54	863	0	350	852	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		33.6	33.6		9.0	33.6	
Total Split (s)	49.0	49.0		49.0	49.0		34.0	34.0		17.0	51.0	
Total Split (%)	49.0%	49.0%		49.0%	49.0%		34.0%	34.0%		17.0%	51.0%	
Maximum Green (s)	42.0	42.0		42.0	42.0		27.4	27.4		13.0	44.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		4.4	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.6	6.6		4.0	6.6	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	30.6	30.6		30.6	30.6		38.8	38.8		58.4	55.8	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.39	0.39		0.58	0.56	
v/c Ratio	0.01	0.78		0.61	0.39		0.23	0.65		0.89	0.44	
Control Delay	21.0	33.1		64.2	15.0		26.8	28.5		53.9	7.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	21.0	33.1		64.2	15.0		26.8	28.5		53.9	7.6	
LOS	C	C		E	B		C	C		D	A	
Approach Delay		33.1			19.7			28.4			21.1	
Approach LOS		C			B			C			C	
Queue Length 50th (m)	0.4	71.6		7.2	17.5		6.9	69.4		39.2	22.6	
Queue Length 95th (m)	2.2	83.1		#21.5	26.4		18.6	102.3		#96.4	28.2	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	284	1480		99	1379		235	1335		395	1957	
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	0.01	0.58		0.44	0.30		0.23	0.65		0.89	0.44	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 73 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 25.9		Intersection LOS: C	
Intersection Capacity Utilization 94.9%		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.			

Splits and Phases: 197: Wonderland Road South & Exeter Road



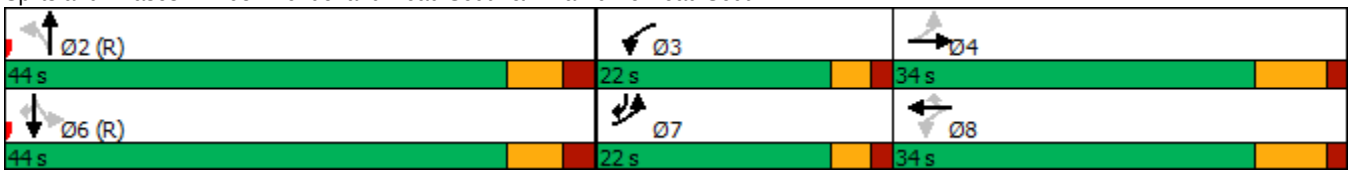


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	557	18	222	236	46	5	577	295	39	869	152
Future Volume (vph)	155	557	18	222	236	46	5	577	295	39	869	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				0.99		1.00		
Frt		0.995				0.850		0.949				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3521	0	1755	3544	1384	1825	3252	0	1508	3510	1570
Flt Permitted	0.605			0.229			0.243			0.242		
Satd. Flow (perm)	1118	3521	0	423	3544	1384	467	3252	0	384	3510	1570
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				89		103				152
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			1	1					3	3		
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 (%)	4%	3%	6%	4%	3%	18%	0%	8%	2%	21%	4%	4%
Adj. Flow (vph)	155	557	18	222	236	46	5	577	295	39	869	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	155	575	0	222	236	46	5	872	0	39	869	152
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	22.0	34.0		22.0	34.0	34.0	44.0	44.0		44.0	44.0	22.0
Total Split (%)	22.0%	34.0%		22.0%	34.0%	34.0%	44.0%	44.0%		44.0%	44.0%	22.0%
Maximum Green (s)	17.5	27.0		17.5	27.0	27.0	37.3	37.3		37.3	37.3	17.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	35.2	21.9		41.2	24.9	24.9	46.1	46.1		46.1	46.1	63.6
Actuated g/C Ratio	0.35	0.22		0.41	0.25	0.25	0.46	0.46		0.46	0.46	0.64
v/c Ratio	0.34	0.75		0.62	0.27	0.11	0.02	0.56		0.22	0.54	0.14

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	19.1	42.3		25.6	30.1	1.5	36.2	28.0		18.3	16.6	0.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	19.1	42.3		25.6	30.1	1.5	36.2	28.0		18.3	16.6	0.7
LOS	B	D		C	C	A	D	C		B	B	A
Approach Delay		37.4			25.5			28.0			14.4	
Approach LOS		D			C			C			B	
Queue Length 50th (m)	18.2	54.4		27.2	19.2	0.0	0.5	49.0		2.5	52.8	0.2
Queue Length 95th (m)	26.4	68.4		37.1	27.3	1.8	m1.6	93.8		11.8	72.8	0.4
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	571	952		413	986	449	215	1554		177	1617	1148
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	0.27	0.60		0.54	0.24	0.10	0.02	0.56		0.22	0.54	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 53 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 25.2		Intersection LOS: C	
Intersection Capacity Utilization 76.0%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 198: Wonderland Road South & Wharncliffe Road South

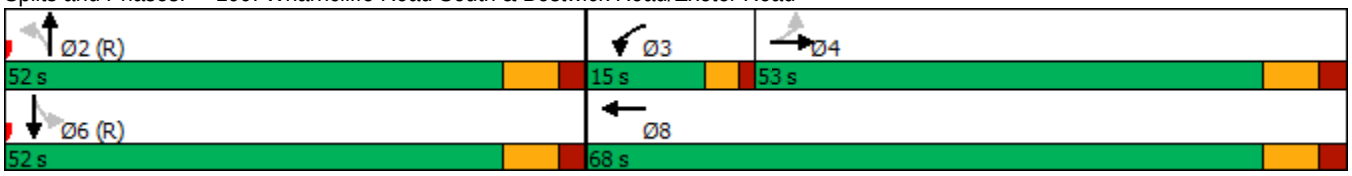


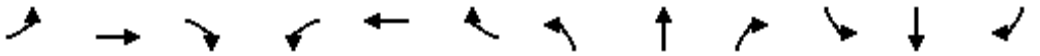
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	653	248	136	148	19	68	683	198	8	342	56
Future Volume (vph)	34	653	248	136	148	19	68	683	198	8	342	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.959			0.983			0.966			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3380	0	2975	3336	0	1630	4908	0	1496	3494	0
Flt Permitted	0.646			0.950			0.505			0.268		
Satd. Flow (perm)	1241	3380	0	2975	3336	0	866	4908	0	422	3494	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			17			69			17	
Link Speed (k/h)		60			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		12.8			14.1			20.8			18.2	
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%	3%	5%	19%	7%	12%	12%	3%	4%	22%	1%	10%
Adj. Flow (vph)	34	653	248	136	148	19	68	683	198	8	342	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	901	0	136	167	0	68	881	0	8	398	0
Turn Type	Perm	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4						2			6		
Detector Phase	4	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	52.7	52.7		9.5	52.7		51.6	51.6		51.6	51.6	
Total Split (s)	53.0	53.0		15.0	68.0		52.0	52.0		52.0	52.0	
Total Split (%)	44.2%	44.2%		12.5%	56.7%		43.3%	43.3%		43.3%	43.3%	
Maximum Green (s)	45.3	45.3		10.5	60.3		44.4	44.4		44.4	44.4	
Yellow Time (s)	5.0	5.0		3.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.7	2.7		1.5	2.7		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.7	7.7		4.5	7.7		7.6	7.6		7.6	7.6	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	38.0	38.0			38.0		37.0	37.0		37.0	37.0	
Pedestrian Calls (#/hr)	0	0			0		0	0		0	0	
Act Effct Green (s)	38.0	38.0		9.7	52.2		52.5	52.5		52.5	52.5	
Actuated g/C Ratio	0.32	0.32		0.08	0.44		0.44	0.44		0.44	0.44	
v/c Ratio	0.09	0.82		0.56	0.11		0.18	0.40		0.04	0.26	
Control Delay	27.0	41.6		62.4	17.0		24.9	22.7		24.1	22.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	27.0	41.6		62.4	17.0		24.9	22.7		24.1	22.2	
LOS	C	D		E	B		C	C		C	C	
Approach Delay		41.1			37.4			22.9			22.3	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	5.6	96.6		16.0	10.5		9.8	47.6		1.1	29.8	
Queue Length 95th (m)	12.1	110.5		26.3	15.3		22.1	65.3		4.7	45.5	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0			80.0		
Base Capacity (vph)	468	1308		260	1684		378	2186		184	1538	
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	0.07	0.69		0.52	0.10		0.18	0.40		0.04	0.26	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 74 (62%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 31.0		Intersection LOS: C	
Intersection Capacity Utilization 76.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 199: Wharncliffe Road South & Bostwick Road/Exeter Road



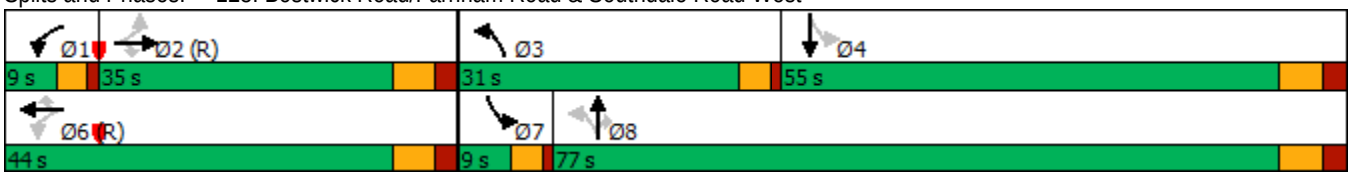


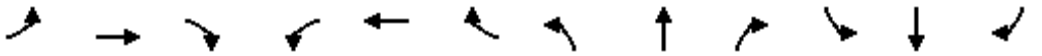
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	679	264	165	742	133	449	208	90	66	117	55
Future Volume (vph)	50	679	264	165	742	133	449	208	90	66	117	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		30.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.99	1.00			1.00		0.99	1.00	0.99	
Frt			0.850			0.850			0.850		0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3614	1555	1755	3614	1633	1825	1902	1570	1755	1784	0
Flt Permitted	0.370			0.246			0.370			0.628		
Satd. Flow (perm)	711	3614	1534	454	3614	1633	709	1902	1547	1158	1784	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			132			98			97		21	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		66.3			26.0			45.0			3.6	
Confl. Peds. (#/hr)			1	1			3		2	2		3
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%	1%	5%	4%	1%	0%	0%	1%	4%	4%	2%	2%
Adj. Flow (vph)	50	679	264	165	742	133	449	208	90	66	117	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	679	264	165	742	133	449	208	90	66	172	0
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	2	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	34.5	34.5	34.5	9.0	34.5	34.5	9.0	37.7	37.7	9.0	37.7	
Total Split (s)	35.0	35.0	35.0	9.0	44.0	44.0	31.0	77.0	77.0	9.0	55.0	
Total Split (%)	26.9%	26.9%	26.9%	6.9%	33.8%	33.8%	23.8%	59.2%	59.2%	6.9%	42.3%	
Maximum Green (s)	28.5	28.5	28.5	5.0	37.5	37.5	27.0	70.3	70.3	5.0	48.3	
Yellow Time (s)	4.1	4.1	4.1	3.0	4.1	4.1	3.0	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.4	2.4	2.4	1.0	2.4	2.4	1.0	2.6	2.6	1.0	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	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	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		24.0	24.0		24.0	
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	
Act Effct Green (s)	46.1	46.1	46.1	72.0	69.5	69.5	50.0	40.1	40.1	24.3	16.6	
Actuated g/C Ratio	0.35	0.35	0.35	0.55	0.53	0.53	0.38	0.31	0.31	0.19	0.13	
v/c Ratio	0.20	0.53	0.42	0.37	0.38	0.14	0.89	0.35	0.17	0.28	0.70	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	33.2	35.7	18.2	23.1	22.4	10.9	54.1	36.4	5.6	30.2	62.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	33.2	35.7	18.2	23.1	22.4	10.9	54.1	36.4	5.6	30.2	62.0	
LOS	C	D	B	C	C	B	D	D	A	C	E	
Approach Delay		30.9			21.0			43.3			53.2	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	8.6	70.3	23.5	23.7	57.2	7.5	92.8	42.1	0.0	10.7	37.6	
Queue Length 95th (m)	20.5	97.7	51.7	40.8	76.0	20.7	#126.6	59.2	10.0	18.6	58.3	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0		30.0	110.0		30.0	35.0			25.0		
Base Capacity (vph)	251	1280	628	445	1931	918	504	1028	881	239	676	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.20	0.53	0.42	0.37	0.38	0.14	0.89	0.20	0.10	0.28	0.25	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 113 (87%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 32.3		Intersection LOS: C	
Intersection Capacity Utilization 86.2%		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: 128: Bostwick Road/Farnham Road & Southdale Road West



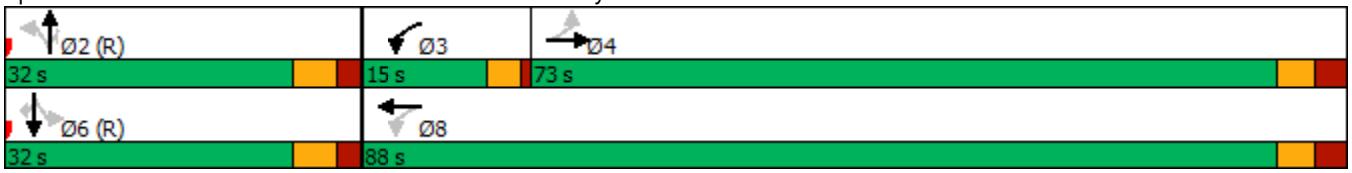


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	206	126	172	254	159	195	1050	125	165	843	43
Future Volume (vph)	43	206	126	172	254	159	195	1050	125	165	843	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00		0.99			0.98
Frt		0.943			0.942				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3442	0	1755	3413	0	1484	3614	1142	1825	3544	1633
Flt Permitted	0.510			0.260			0.305			0.232		
Satd. Flow (perm)	976	3442	0	480	3413	0	476	3614	1127	446	3544	1606
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		126			1				71			67
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	6					6	3		1	1		3
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%	0%	4%	0%	0%	23%	1%	43%	0%	3%	0%
Adj. Flow (vph)	43	206	126	172	254	159	195	1050	125	165	843	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	332	0	172	413	0	195	1050	125	165	843	43
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.4	34.4		9.0	34.4		31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	73.0	73.0		15.0	88.0		32.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	60.8%	60.8%		12.5%	73.3%		26.7%	26.7%	26.7%	26.7%	26.7%	26.7%
Maximum Green (s)	66.6	66.6		11.0	81.6		25.8	25.8	25.8	25.8	25.8	25.8
Yellow Time (s)	3.3	3.3		3.0	3.3		3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	3.1	3.1		1.0	3.1		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		4.0	6.4		6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	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		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0			7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0			21.0		18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0			0		0	0	0	0	0	0
Act Effct Green (s)	13.2	13.2		30.4	28.0		79.4	79.4	79.4	79.4	79.4	79.4
Actuated g/C Ratio	0.11	0.11		0.25	0.23		0.66	0.66	0.66	0.66	0.66	0.66
v/c Ratio	0.40	0.68		0.73	0.52		0.62	0.44	0.16	0.56	0.36	0.04

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	59.6	38.3		54.9	41.9		24.0	9.0	5.0	21.4	10.0	1.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.6	38.3		54.9	41.9		24.0	9.0	5.0	21.4	10.0	1.0
LOS	E	D		D	D		C	A	A	C	A	A
Approach Delay		40.8			45.7			10.8			11.4	
Approach LOS		D			D			B			B	
Queue Length 50th (m)	9.6	24.6		33.7	44.7		8.5	23.3	0.4	19.2	42.4	0.0
Queue Length 95th (m)	20.4	38.0		50.4	56.6		58.1	88.2	16.4	49.8	62.0	2.2
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	541	1966		238	2321		314	2391	769	295	2344	1085
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	0.08	0.17		0.72	0.18		0.62	0.44	0.16	0.56	0.36	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 51 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 20.3		Intersection LOS: C	
Intersection Capacity Utilization 79.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 158: Wonderland Road South & Bradley Avenue

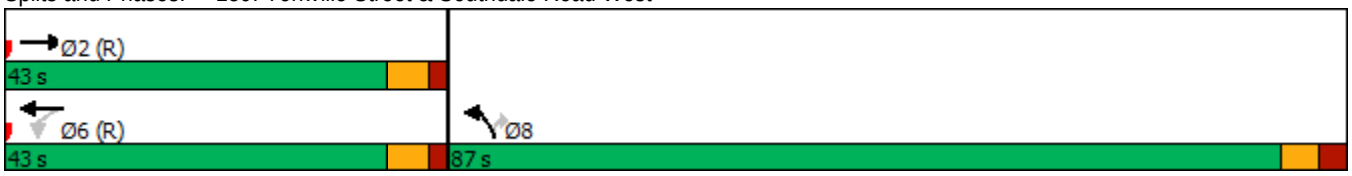


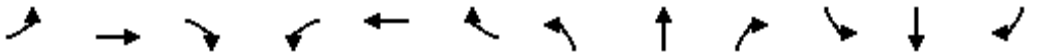
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	733	98	177	960	79	117
Future Volume (vph)	733	98	177	960	79	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.982					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3584	0	1825	3650	1825	1633
Flt Permitted			0.332		0.950	
Satd. Flow (perm)	3584	0	638	3650	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	11					34
Link Speed (k/h)	60			60	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	26.0			20.4	11.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	733	98	177	960	79	117
Shared Lane Traffic (%)						
Lane Group Flow (vph)	831	0	177	960	79	117
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	28.4		28.4	28.4	35.5	35.5
Total Split (s)	43.0		43.0	43.0	87.0	87.0
Total Split (%)	33.1%		33.1%	33.1%	66.9%	66.9%
Maximum Green (s)	37.0		37.0	37.0	80.5	80.5
Yellow Time (s)	4.1		4.1	4.1	3.6	3.6
All-Red Time (s)	1.9		1.9	1.9	2.9	2.9
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	22.0	22.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	105.0		105.0	105.0	12.5	12.5
Actuated g/C Ratio	0.81		0.81	0.81	0.10	0.10
v/c Ratio	0.29		0.34	0.33	0.45	0.63
Control Delay	1.0		4.3	2.4	62.5	53.7
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	1.0		4.3	2.4	62.5	53.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A		A	A	E	D
Approach Delay	1.0			2.7	57.2	
Approach LOS	A			A	E	
Queue Length 50th (m)	4.3		4.6	12.3	19.5	20.6
Queue Length 95th (m)	6.9		20.5	35.8	33.7	38.8
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)			55.0		45.0	
Base Capacity (vph)	2898		515	2949	1130	1024
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.29		0.34	0.33	0.07	0.11

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 28 (22%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 7.0		Intersection LOS: A	
Intersection Capacity Utilization 54.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 159: Yorkville Street & Southdale Road West



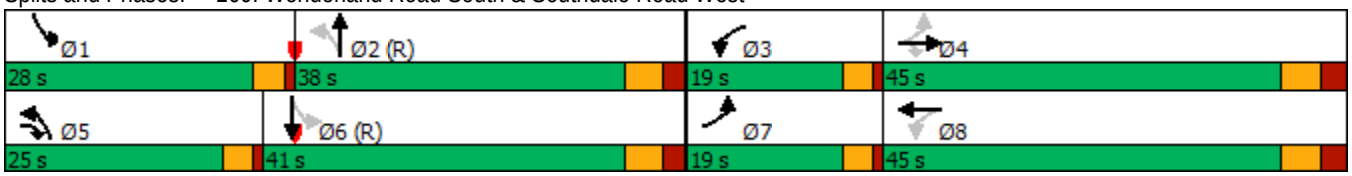


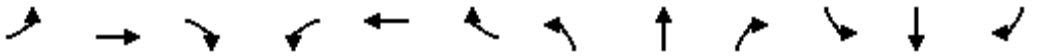
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	569	93	148	619	223	215	788	95	289	787	110
Future Volume (vph)	155	569	93	148	619	223	215	788	95	289	787	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.95	0.99	0.99		0.99	1.00			0.99	
Frt			0.850		0.960			0.984			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3579	1555	1825	3436	0	1807	3506	0	1738	3469	0
Flt Permitted	0.110			0.302			0.171			0.108		
Satd. Flow (perm)	207	3579	1483	573	3436	0	323	3506	0	198	3469	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93		40			9			12	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	12		29	29		12	32		14	14		32
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	5%	0%	1%	2%	1%	2%	3%	5%	3%	0%
Adj. Flow (vph)	155	569	93	148	619	223	215	788	95	289	787	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	155	569	93	148	842	0	215	883	0	289	897	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.5	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	19.0	45.0	25.0	19.0	45.0		25.0	38.0		28.0	41.0	
Total Split (%)	14.6%	34.6%	19.2%	14.6%	34.6%		19.2%	29.2%		21.5%	31.5%	
Maximum Green (s)	15.0	38.4	21.0	15.0	38.4		21.0	31.9		24.0	34.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	52.2	36.5	54.5	50.1	35.5		57.4	39.9		66.7	45.4	
Actuated g/C Ratio	0.40	0.28	0.42	0.39	0.27		0.44	0.31		0.51	0.35	
v/c Ratio	0.64	0.57	0.14	0.44	0.87		0.68	0.82		0.83	0.74	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	54.4	25.2	2.4	26.8	53.3		32.4	49.7		50.6	42.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	54.4	25.2	2.4	26.8	53.3		32.4	49.7		50.6	42.7	
LOS	D	C	A	C	D		C	D		D	D	
Approach Delay		28.2			49.3			46.3			44.6	
Approach LOS		C			D			D			D	
Queue Length 50th (m)	22.4	54.6	0.1	22.7	102.3		30.6	114.3		53.1	107.4	
Queue Length 95th (m)	46.6	45.8	0.6	35.2	125.4		52.4	#165.6		#92.9	#158.8	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	267	1068	747	377	1043		395	1082		385	1219	
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	0.58	0.53	0.12	0.39	0.81		0.54	0.82		0.75	0.74	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 125 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 42.9		Intersection LOS: D	
Intersection Capacity Utilization 92.1%		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.			

Splits and Phases: 160: Wonderland Road South & Southdale Road West



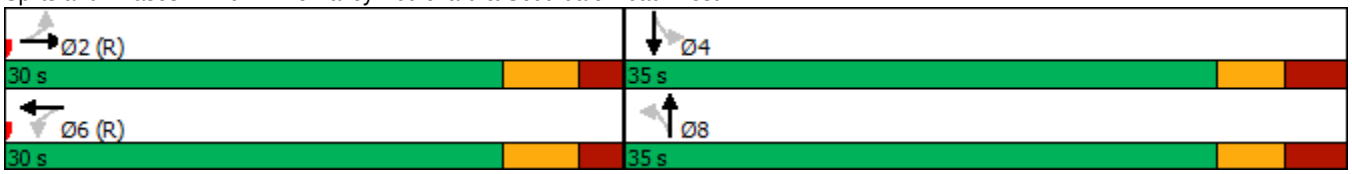


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	640	117	116	779	75	192	102	74	64	71	176
Future Volume (vph)	100	640	117	116	779	75	192	102	74	64	71	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99	1.00		1.00	0.99		1.00	0.99	
Frt		0.977			0.987			0.937			0.893	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3472	0	1825	3553	0	1825	1788	0	1825	1677	0
Flt Permitted	0.298			0.342			0.556			0.646		
Satd. Flow (perm)	569	3472	0	650	3553	0	1064	1788	0	1237	1677	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			18			72			57	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	18		24	24		18	8		6	6		8
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%	1%	0%	1%	1%	0%	0%	0%	0%	1%	1%
Adj. Flow (vph)	100	640	117	116	779	75	192	102	74	64	71	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	757	0	116	854	0	192	176	0	64	247	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	30.0	30.0		30.0	30.0		35.0	35.0		35.0	35.0	
Total Split (%)	46.2%	46.2%		46.2%	46.2%		53.8%	53.8%		53.8%	53.8%	
Maximum Green (s)	24.1	24.1		24.1	24.1		28.6	28.6		28.6	28.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	36.4	36.4		36.4	36.4		16.3	16.3		16.3	16.3	
Actuated g/C Ratio	0.56	0.56		0.56	0.56		0.25	0.25		0.25	0.25	
v/c Ratio	0.31	0.39		0.32	0.43		0.72	0.35		0.21	0.53	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	19.9	16.5		16.3	14.1		36.5	12.5		18.4	19.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.9	16.5		16.3	14.1		36.5	12.5		18.4	19.0	
LOS	B	B		B	B		D	B		B	B	
Approach Delay		16.9			14.4			25.0			18.9	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	18.3	74.6		12.6	56.8		21.2	10.0		6.1	19.4	
Queue Length 95th (m)	34.8	93.4		m26.7	90.1		34.5	19.5		12.1	31.5	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	318	1959		364	1996		468	827		544	769	
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	0.31	0.39		0.32	0.43		0.41	0.21		0.12	0.32	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 48 (74%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 17.4		Intersection LOS: B	
Intersection Capacity Utilization 78.1%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West

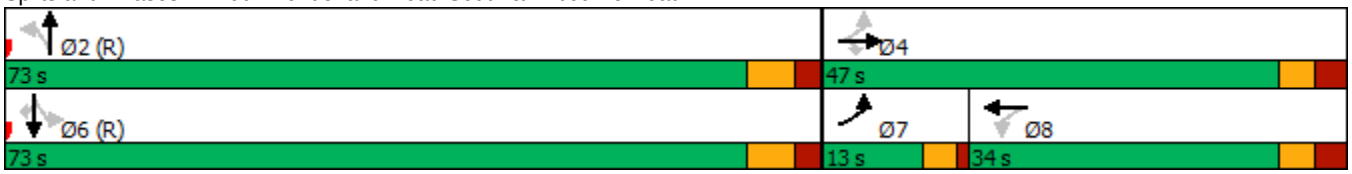


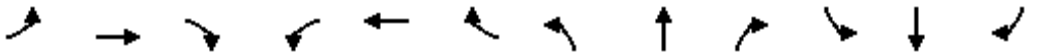
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	0	127	2	0	3	104	1289	1	0	1047	90
Future Volume (vph)	66	0	127	2	0	3	104	1289	1	0	1047	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00	1.00				0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1825	1921	1617	1825	1633	0	1825	3579	0	1921	3544	1601
Flt Permitted	0.588						0.256					
Satd. Flow (perm)	1130	1921	1617	1921	1633	0	491	3579	0	1921	3544	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			86		134							90
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)							5		4	4		5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	3%	2%
Adj. Flow (vph)	66	0	127	2	0	3	104	1289	1	0	1047	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	0	127	2	3	0	104	1290	0	0	1047	90
Turn Type	pm+pt		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	9.0	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	13.0	47.0	47.0	34.0	34.0		73.0	73.0		73.0	73.0	73.0
Total Split (%)	10.8%	39.2%	39.2%	28.3%	28.3%		60.8%	60.8%		60.8%	60.8%	60.8%
Maximum Green (s)	9.0	40.7	40.7	27.7	27.7		66.3	66.3		66.3	66.3	66.3
Yellow Time (s)	3.0	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
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)	4.0	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0		0	0	0
Act Effct Green (s)	13.0		10.7	7.0	7.0		96.3	96.3			96.3	96.3
Actuated g/C Ratio	0.11		0.09	0.06	0.06		0.80	0.80			0.80	0.80
v/c Ratio	0.37		0.57	0.02	0.01		0.26	0.45			0.37	0.07

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	53.6		28.9	53.5	0.0		8.9	7.4			2.9	0.6
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	53.6		28.9	53.5	0.0		8.9	7.4			2.9	0.6
LOS	D		C	D	A		A	A			A	A
Approach Delay		37.3			21.4			7.6			2.7	
Approach LOS		D			C			A			A	
Queue Length 50th (m)	14.9		9.4	0.5	0.0		7.2	48.3			21.5	0.4
Queue Length 95th (m)	26.0		26.1	3.2	0.0		m20.2	121.7			37.8	m1.0
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0					160.0
Base Capacity (vph)	182		605	443	480		393	2870			2843	1259
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	0.36		0.21	0.00	0.01		0.26	0.45			0.37	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 7.7		Intersection LOS: A	
Intersection Capacity Utilization 68.2%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road



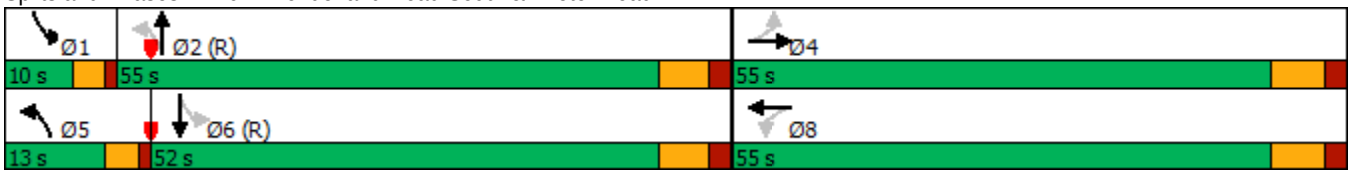


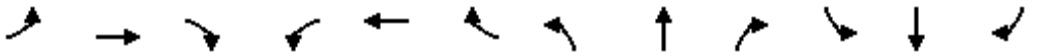
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	332	135	134	775	485	252	848	55	213	888	5
Future Volume (vph)	3	332	135	134	775	485	252	848	55	213	888	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.957			0.942			0.991			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3295	0	1755	3404	0	1772	3500	0	1706	3507	0
Flt Permitted	0.087			0.435			0.168			0.218		
Satd. Flow (perm)	167	3295	0	804	3404	0	313	3500	0	391	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		61			136			7			1	
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
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%	6%	6%	4%	1%	1%	3%	2%	24%	7%	4%	0%
Adj. Flow (vph)	3	332	135	134	775	485	252	848	55	213	888	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	467	0	134	1260	0	252	903	0	213	893	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		9.0	33.6		9.0	33.6	
Total Split (s)	55.0	55.0		55.0	55.0		13.0	55.0		10.0	52.0	
Total Split (%)	45.8%	45.8%		45.8%	45.8%		10.8%	45.8%		8.3%	43.3%	
Maximum Green (s)	48.0	48.0		48.0	48.0		9.0	48.4		6.0	45.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		3.0	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		1.0	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		4.0	6.6		4.0	6.6	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	46.2	46.2		46.2	46.2		62.2	50.2		54.4	45.8	
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.52	0.42		0.45	0.38	
v/c Ratio	0.05	0.36		0.43	0.90		0.88	0.62		0.88	0.67	
Control Delay	13.3	10.9		31.9	40.8		51.0	29.8		53.2	34.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	13.3	10.9		31.9	40.8		51.0	29.8		53.2	34.1	
LOS	B	B		C	D		D	C		D	C	
Approach Delay		10.9			39.9			34.4			37.8	
Approach LOS		B			D			C			D	
Queue Length 50th (m)	0.2	16.8		22.4	129.4		32.9	88.0		37.4	102.3	
Queue Length 95th (m)	m1.0	23.3		40.6	160.6		#75.6	109.5		#66.1	127.6	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	66	1354		321	1443		287	1466		242	1339	
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	0.05	0.34		0.42	0.87		0.88	0.62		0.88	0.67	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 34.5		Intersection LOS: C	
Intersection Capacity Utilization 102.0%		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: 197: Wonderland Road South & Exeter Road



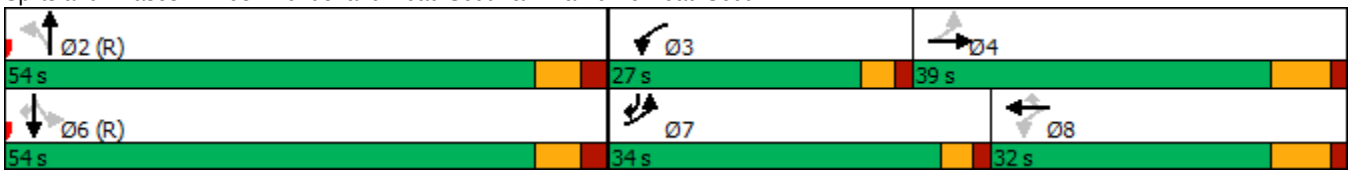


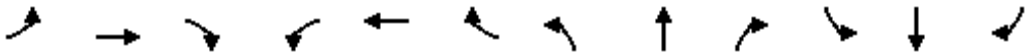
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	391	23	287	507	101	14	991	382	53	797	268
Future Volume (vph)	243	391	23	287	507	101	14	991	382	53	797	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				1.00				
Frt		0.992				0.850		0.958				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	3541	0	1755	3579	1512	1690	3428	0	1659	3380	1617
Flt Permitted	0.285			0.293			0.291			0.097		
Satd. Flow (perm)	542	3541	0	540	3579	1512	518	3428	0	169	3380	1617
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				115		55				41
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			2	2					3	3		
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 (%)	1%	2%	5%	4%	2%	8%	8%	1%	3%	10%	8%	1%
Adj. Flow (vph)	243	391	23	287	507	101	14	991	382	53	797	268
Shared Lane Traffic (%)												
Lane Group Flow (vph)	243	414	0	287	507	101	14	1373	0	53	797	268
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	34.0	39.0		27.0	32.0	32.0	54.0	54.0		54.0	54.0	34.0
Total Split (%)	28.3%	32.5%		22.5%	26.7%	26.7%	45.0%	45.0%		45.0%	45.0%	28.3%
Maximum Green (s)	29.5	32.0		22.5	25.0	25.0	47.3	47.3		47.3	47.3	29.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	39.1	19.5		44.1	22.0	22.0	62.7	62.7		62.7	62.7	86.5
Actuated g/C Ratio	0.33	0.16		0.37	0.18	0.18	0.52	0.52		0.52	0.52	0.72
v/c Ratio	0.68	0.71		0.72	0.77	0.27	0.05	0.76		0.60	0.45	0.23

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	25.3	43.6		37.3	54.9	7.4	28.5	36.4		52.4	15.8	4.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	25.3	43.6		37.3	54.9	7.4	28.5	36.4		52.4	15.8	4.9
LOS	C	D		D	D	A	C	D		D	B	A
Approach Delay		36.8			43.9			36.4			15.0	
Approach LOS		D			D			D			B	
Queue Length 50th (m)	42.1	49.3		48.6	59.7	0.0	2.2	156.3		10.0	73.2	14.7
Queue Length 95th (m)	60.6	63.8		64.1	76.9	11.3	m3.7	183.3		#27.9	100.6	21.5
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	519	947		430	745	406	270	1816		88	1764	1339
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	0.47	0.44		0.67	0.68	0.25	0.05	0.76		0.60	0.45	0.20

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 75 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 32.2		Intersection LOS: C	
Intersection Capacity Utilization 87.2%		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.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 198: Wonderland Road South & Wharncliffe Road South



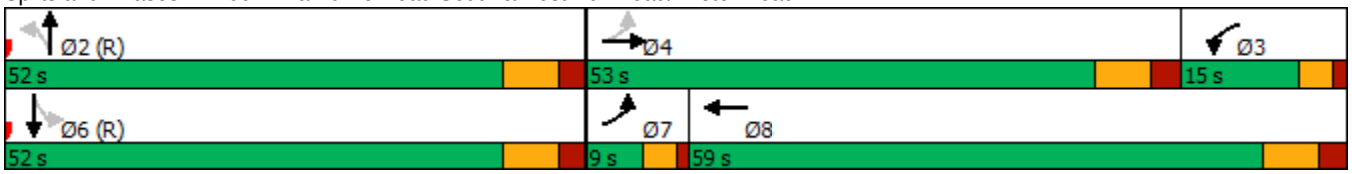


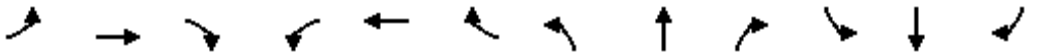
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	309	109	253	754	25	77	579	103	58	462	212
Future Volume (vph)	41	309	109	253	754	25	77	579	103	58	462	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Ped Bike Factor	1.00				1.00							
Frt		0.961			0.995			0.977			0.953	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3430	0	3506	3626	0	1825	5016	0	1738	3388	0
Flt Permitted	0.268			0.950			0.355			0.371		
Satd. Flow (perm)	515	3430	0	3506	3626	0	682	5016	0	679	3388	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			3			33			71	
Link Speed (k/h)		60			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		12.8			14.1			20.8			18.2	
Confl. Peds. (#/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%	2%	3%	1%	0%	4%	0%	2%	3%	5%	3%	2%
Adj. Flow (vph)	41	309	109	253	754	25	77	579	103	58	462	212
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	418	0	253	779	0	77	682	0	58	674	0
Turn Type	pm+pt	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4						2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	9.0	52.7		9.5	52.7		51.6	51.6		51.6	51.6	
Total Split (s)	9.0	53.0		15.0	59.0		52.0	52.0		52.0	52.0	
Total Split (%)	7.5%	44.2%		12.5%	49.2%		43.3%	43.3%		43.3%	43.3%	
Maximum Green (s)	5.0	45.3		10.5	51.3		44.4	44.4		44.4	44.4	
Yellow Time (s)	3.0	5.0		3.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	2.7		1.5	2.7		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7		4.5	7.7		7.6	7.6		7.6	7.6	
Lead/Lag	Lead	Lead		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		38.0			38.0		37.0	37.0		37.0	37.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	22.6	18.9		17.6	33.8		63.7	63.7		63.7	63.7	
Actuated g/C Ratio	0.19	0.16		0.15	0.28		0.53	0.53		0.53	0.53	
v/c Ratio	0.27	0.72		0.49	0.76		0.21	0.25		0.16	0.37	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	43.1	49.6		33.6	26.1		19.3	15.8		37.4	37.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	43.1	49.6		33.6	26.1		19.3	15.8		37.4	37.8	
LOS	D	D		C	C		B	B		D	D	
Approach Delay		49.0			28.0			16.1			37.8	
Approach LOS		D			C			B			D	
Queue Length 50th (m)	8.1	44.3		25.0	68.0		9.5	29.9		0.0	77.0	
Queue Length 95th (m)	16.9	57.9		m29.5	m66.6		22.0	43.0		m22.2	97.0	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0			80.0		
Base Capacity (vph)	151	1324		515	1551		361	2677		360	1831	
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	0.27	0.32		0.49	0.50		0.21	0.25		0.16	0.37	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 117 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 30.6		Intersection LOS: C	
Intersection Capacity Utilization 74.1%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 199: Wharncliffe Road South & Bostwick Road/Exeter Road



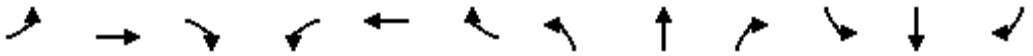


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	206	126	172	254	159	195	1050	125	165	843	43
Future Volume (vph)	43	206	126	172	254	159	195	1050	125	165	843	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00		0.99	1.00		0.98
Frt		0.943			0.942				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3442	0	1755	3413	0	1484	3614	1142	1825	3544	1633
Flt Permitted	0.432			0.290			0.301			0.227		
Satd. Flow (perm)	827	3442	0	536	3413	0	470	3614	1127	436	3544	1606
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		101			108				117			67
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	6					6	3		1	1		3
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%	0%	4%	0%	0%	23%	1%	43%	0%	3%	0%
Adj. Flow (vph)	43	206	126	172	254	159	195	1050	125	165	843	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	332	0	172	413	0	195	1050	125	165	843	43
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	9.0	34.4		9.0	34.4		31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	16.0	35.0		16.0	35.0		69.0	69.0	69.0	69.0	69.0	69.0
Total Split (%)	13.3%	29.2%		13.3%	29.2%		57.5%	57.5%	57.5%	57.5%	57.5%	57.5%
Maximum Green (s)	12.0	28.6		12.0	28.6		62.8	62.8	62.8	62.8	62.8	62.8
Yellow Time (s)	3.0	3.3		3.0	3.3		3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	1.0	3.1		1.0	3.1		2.4	2.4	2.4	2.4	2.4	2.4
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)	4.0	6.4		4.0	6.4		6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	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		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		21.0			21.0		18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	0
Act Effct Green (s)	24.0	14.0		31.6	19.9		77.8	77.8	77.8	77.8	77.8	77.8
Actuated g/C Ratio	0.20	0.12		0.26	0.17		0.65	0.65	0.65	0.65	0.65	0.65
v/c Ratio	0.19	0.68		0.67	0.63		0.64	0.45	0.16	0.59	0.37	0.04

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	33.3	41.8		48.2	38.9		25.3	11.6	3.3	24.1	10.8	1.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.3	41.8		48.2	38.9		25.3	11.6	3.3	24.1	10.8	1.1
LOS	C	D		D	D		C	B	A	C	B	A
Approach Delay		40.8			41.6			12.8			12.5	
Approach LOS		D			D			B			B	
Queue Length 50th (m)	7.6	27.7		33.0	36.2		39.0	61.8	4.7	20.3	44.4	0.0
Queue Length 95th (m)	15.5	40.6		49.0	50.8		#74.8	48.4	5.7	54.2	65.5	2.3
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	295	897		262	895		304	2343	771	282	2297	1064
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	0.15	0.37		0.66	0.46		0.64	0.45	0.16	0.59	0.37	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 51 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 20.8		Intersection LOS: C	
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.			

Splits and Phases: 158: Wonderland Road South & Bradley Avenue

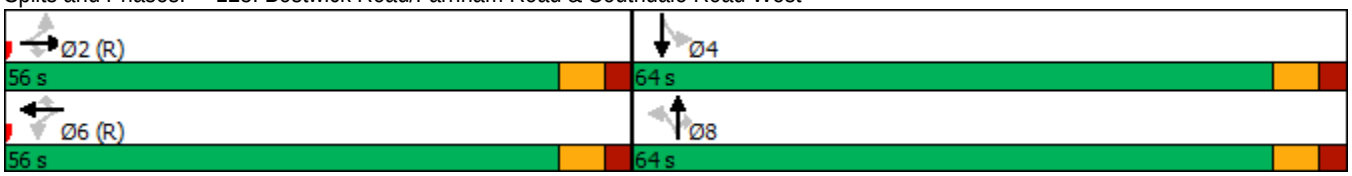


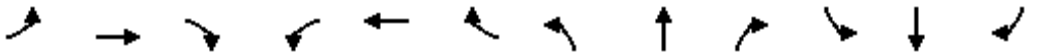
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	559	339	85	345	36	306	90	186	62	100	49
Future Volume (vph)	51	559	339	85	345	36	306	90	186	62	100	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		30.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98						
Frt			0.850			0.850			0.850		0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3614	1498	1722	3444	1601	1674	1902	1585	1807	1768	0
Flt Permitted	0.545			0.418			0.652			0.699		
Satd. Flow (perm)	1005	3614	1498	758	3444	1566	1149	1902	1585	1330	1768	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			291			36			184		28	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		66.3			26.0			45.0			3.6	
Confl. Peds. (#/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 (%)	4%	1%	9%	6%	6%	2%	9%	1%	3%	1%	2%	6%
Adj. Flow (vph)	51	559	339	85	345	36	306	90	186	62	100	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	559	339	85	345	36	306	90	186	62	149	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	34.5	34.5	34.5	34.5	34.5	34.5	37.7	37.7	37.7	37.7	37.7	
Total Split (s)	56.0	56.0	56.0	56.0	56.0	56.0	64.0	64.0	64.0	64.0	64.0	
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%	53.3%	
Maximum Green (s)	49.5	49.5	49.5	49.5	49.5	49.5	57.3	57.3	57.3	57.3	57.3	
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.7	6.7	6.7	6.7	6.7	
Lead/Lag												
Lead-Lag Optimize?												
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	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0	24.0	24.0	24.0	24.0	24.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Act Effct Green (s)	67.8	67.8	67.8	67.8	67.8	67.8	39.0	39.0	39.0	39.0	39.0	
Actuated g/C Ratio	0.56	0.56	0.56	0.56	0.56	0.56	0.32	0.32	0.32	0.32	0.32	
v/c Ratio	0.09	0.27	0.35	0.20	0.18	0.04	0.82	0.15	0.29	0.14	0.25	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	16.1	15.5	4.5	15.0	12.5	4.2	53.8	26.3	4.4	26.0	22.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	16.1	15.5	4.5	15.0	12.5	4.2	53.8	26.3	4.4	26.0	22.7	
LOS	B	B	A	B	B	A	D	C	A	C	C	
Approach Delay		11.6			12.3			33.8			23.7	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	5.3	34.3	4.9	6.0	12.7	0.0	65.7	14.9	0.3	10.2	20.5	
Queue Length 95th (m)	14.7	57.2	24.5	21.5	33.8	3.8	85.0	22.3	12.9	17.1	30.1	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0		30.0	110.0		30.0	35.0			25.0		
Base Capacity (vph)	567	2040	972	427	1944	899	548	908	852	635	858	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.09	0.27	0.35	0.20	0.18	0.04	0.56	0.10	0.22	0.10	0.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 18 (15%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 18.8		Intersection LOS: B	
Intersection Capacity Utilization 76.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 128: Bostwick Road/Farnham Road & Southdale Road West



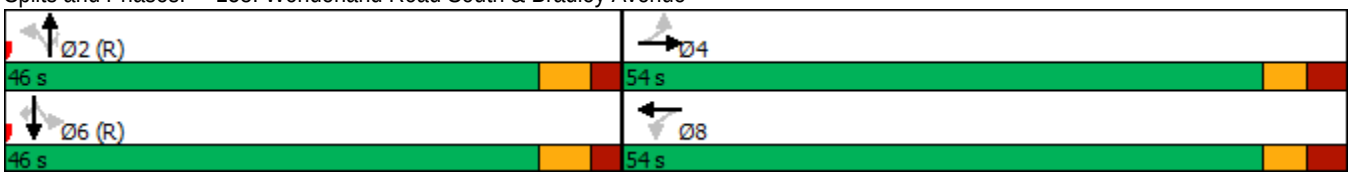


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	195	69	61	106	101	59	654	43	126	919	15
Future Volume (vph)	27	195	69	61	106	101	59	654	43	126	919	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00		0.99	1.00		0.99
Frt		0.961			0.927				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3436	0	1772	3231	0	1601	3476	1570	1825	3579	1228
Flt Permitted	0.622			0.542			0.299			0.403		
Satd. Flow (perm)	1191	3436	0	1011	3231	0	504	3476	1549	774	3579	1210
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48			101				43			37
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	4					4	2		1	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%	0%	8%	14%	5%	4%	0%	2%	33%
Adj. Flow (vph)	27	195	69	61	106	101	59	654	43	126	919	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	264	0	61	207	0	59	654	43	126	919	15
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.4	34.4		34.4	34.4		31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	54.0	54.0		54.0	54.0		46.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	54.0%	54.0%		54.0%	54.0%		46.0%	46.0%	46.0%	46.0%	46.0%	46.0%
Maximum Green (s)	47.6	47.6		47.6	47.6		39.8	39.8	39.8	39.8	39.8	39.8
Yellow Time (s)	3.3	3.3		3.3	3.3		3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	3.1	3.1		3.1	3.1		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag												
Lead-Lag Optimize?												
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		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	12.0	12.0		12.0	12.0		75.4	75.4	75.4	75.4	75.4	75.4
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.75	0.75	0.75	0.75	0.75	0.75
v/c Ratio	0.19	0.58		0.50	0.43		0.16	0.25	0.04	0.22	0.34	0.02

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	41.1	38.6		54.7	23.0		2.4	1.6	0.1	5.2	4.8	0.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	38.6		54.7	23.0		2.4	1.6	0.1	5.2	4.8	0.4
LOS	D	D		D	C		A	A	A	A	A	A
Approach Delay		38.8			30.2			1.6			4.8	
Approach LOS		D			C			A			A	
Queue Length 50th (m)	4.8	21.0		11.3	10.0		0.9	4.9	0.0	5.8	25.3	0.0
Queue Length 95th (m)	12.2	32.0		23.1	19.6		2.4	8.5	0.2	14.4	40.7	0.5
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	566	1660		481	1590		379	2619	1178	583	2697	921
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	0.05	0.16		0.13	0.13		0.16	0.25	0.04	0.22	0.34	0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 41 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 10.8		Intersection LOS: B	
Intersection Capacity Utilization 66.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 158: Wonderland Road South & Bradley Avenue

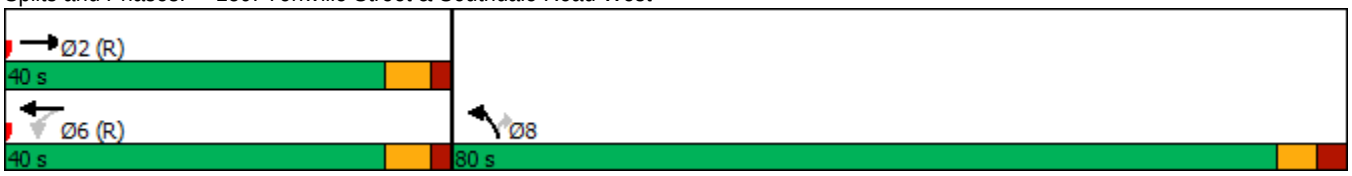


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	795	44	77	404	64	136
Future Volume (vph)	795	44	77	404	64	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.992					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3621	0	1825	3650	1825	1633
Flt Permitted			0.327		0.950	
Satd. Flow (perm)	3621	0	628	3650	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	5					24
Link Speed (k/h)	60			60	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	26.0			20.4	11.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	795	44	77	404	64	136
Shared Lane Traffic (%)						
Lane Group Flow (vph)	839	0	77	404	64	136
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	28.4		28.4	28.4	35.5	35.5
Total Split (s)	40.0		40.0	40.0	80.0	80.0
Total Split (%)	33.3%		33.3%	33.3%	66.7%	66.7%
Maximum Green (s)	34.0		34.0	34.0	73.5	73.5
Yellow Time (s)	4.1		4.1	4.1	3.6	3.6
All-Red Time (s)	1.9		1.9	1.9	2.9	2.9
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	22.0	22.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	93.5		93.5	93.5	14.0	14.0
Actuated g/C Ratio	0.78		0.78	0.78	0.12	0.12
v/c Ratio	0.30		0.16	0.14	0.30	0.64
Control Delay	8.9		2.8	1.9	50.3	54.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	8.9		2.8	1.9	50.3	54.6

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A		A	A	D	D
Approach Delay	8.9			2.1	53.3	
Approach LOS	A			A	D	
Queue Length 50th (m)	22.2		1.6	4.2	14.0	25.5
Queue Length 95th (m)	94.3		5.0	9.6	25.8	43.6
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)			55.0		45.0	
Base Capacity (vph)	2822		489	2844	1117	1009
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.30		0.16	0.14	0.06	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 4 (3%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 12.6		Intersection LOS: B	
Intersection Capacity Utilization 50.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 159: Yorkville Street & Southdale Road West



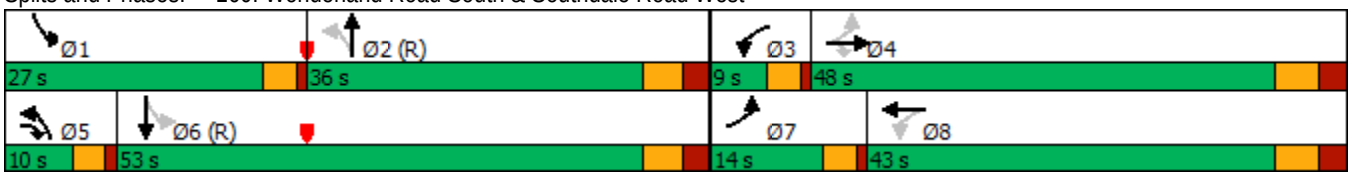
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	591	108	70	352	191	83	503	40	328	769	68
Future Volume (vph)	161	591	108	70	352	191	83	503	40	328	769	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.98	0.99	0.99		0.99	1.00		0.99	1.00	
Frt			0.850		0.947			0.989			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	3579	1617	1772	3237	0	1755	3356	0	1738	3413	0
Flt Permitted	0.203			0.320			0.317			0.351		
Satd. Flow (perm)	352	3579	1578	594	3237	0	582	3356	0	639	3413	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			108		87			6			9	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	14		11	11		14	15		12	12		15
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%	2%	1%	3%	4%	9%	4%	7%	12%	5%	5%	10%
Adj. Flow (vph)	161	591	108	70	352	191	83	503	40	328	769	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	591	108	70	543	0	83	543	0	328	837	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.0	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	14.0	48.0	10.0	9.0	43.0		10.0	36.0		27.0	53.0	
Total Split (%)	11.7%	40.0%	8.3%	7.5%	35.8%		8.3%	30.0%		22.5%	44.2%	
Maximum Green (s)	10.0	41.4	6.0	5.0	36.4		6.0	29.9		23.0	46.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	40.0	30.2	38.8	31.0	23.4		57.2	49.1		72.0	59.9	
Actuated g/C Ratio	0.33	0.25	0.32	0.26	0.20		0.48	0.41		0.60	0.50	
v/c Ratio	0.71	0.66	0.18	0.35	0.78		0.25	0.39		0.61	0.49	

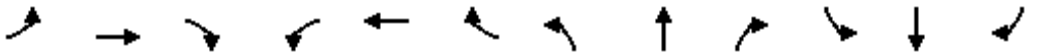
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	51.6	46.3	14.5	31.7	45.8		14.8	27.7		18.1	21.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	51.6	46.3	14.5	31.7	45.8		14.8	27.7		18.1	21.7	
LOS	D	D	B	C	D		B	C		B	C	
Approach Delay		43.3			44.2			26.0			20.7	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	23.2	70.0	1.4	11.4	54.3		7.8	46.2		36.0	66.1	
Queue Length 95th (m)	#54.7	85.4	26.4	20.0	68.6		16.9	73.1		61.5	93.6	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	226	1234	585	202	1042		336	1377		594	1709	
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	0.71	0.48	0.18	0.35	0.52		0.25	0.39		0.55	0.49	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 32.1 Intersection LOS: C
Intersection Capacity Utilization 88.7% 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: 160: Wonderland Road South & Southdale Road West



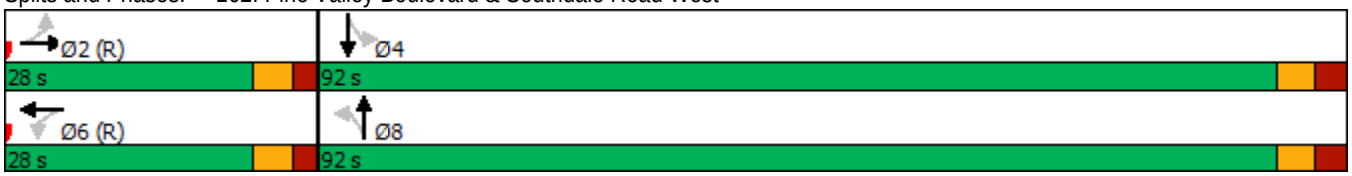


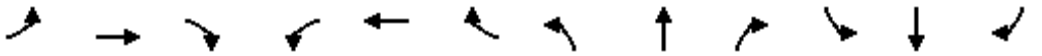
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	776	57	69	377	68	38	17	44	27	25	71
Future Volume (vph)	101	776	57	69	377	68	38	17	44	27	25	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00			0.99		0.99	0.99		1.00	0.98	
Frt		0.990			0.977			0.892			0.889	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3574	0	1825	3362	0	1825	1697	0	1755	1610	0
Flt Permitted	0.494			0.334			0.695			0.717		
Satd. Flow (perm)	943	3574	0	642	3362	0	1325	1697	0	1323	1610	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			15			3			66	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	5		2	2		5	7		1	1		7
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%	1%	0%	0%	6%	3%	0%	0%	0%	4%	0%	6%
Adj. Flow (vph)	101	776	57	69	377	68	38	17	44	27	25	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	833	0	69	445	0	38	61	0	27	96	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	28.0	28.0		28.0	28.0		92.0	92.0		92.0	92.0	
Total Split (%)	23.3%	23.3%		23.3%	23.3%		76.7%	76.7%		76.7%	76.7%	
Maximum Green (s)	22.1	22.1		22.1	22.1		85.6	85.6		85.6	85.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	97.8	97.8		97.8	97.8		9.9	9.9		9.9	9.9	
Actuated g/C Ratio	0.82	0.82		0.82	0.82		0.08	0.08		0.08	0.08	
v/c Ratio	0.13	0.29		0.13	0.16		0.35	0.43		0.25	0.50	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	7.5	7.7		5.0	3.8		60.0	58.4		56.1	29.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.5	7.7		5.0	3.8		60.0	58.4		56.1	29.0	
LOS	A	A		A	A		E	E		E	C	
Approach Delay		7.7			4.0			59.0			34.9	
Approach LOS		A			A			E			C	
Queue Length 50th (m)	5.6	27.2		3.3	11.3		8.6	13.3		6.1	6.7	
Queue Length 95th (m)	30.7	98.8		11.5	23.7		19.3	26.2		15.0	22.7	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	768	2915		523	2743		945	1211		943	1167	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.13	0.29		0.13	0.16		0.04	0.05		0.03	0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 66 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 11.6		Intersection LOS: B	
Intersection Capacity Utilization 55.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West



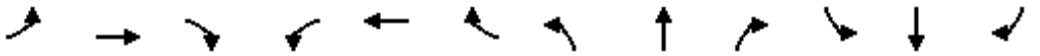


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	0	155	4	0	5	105	697	2	1	923	112
Future Volume (vph)	50	0	155	4	0	5	105	697	2	1	923	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00					0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	1921	1585	1043	1151	0	1807	3350	0	1825	3544	1601
Flt Permitted	0.754			0.757			0.303			0.386		
Satd. Flow (perm)	1340	1921	1585	831	1151	0	575	3350	0	742	3544	1558
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			128		223							112
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)	1					1	3					3
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 (%)	8%	0%	3%	75%	0%	40%	1%	9%	0%	0%	3%	2%
Adj. Flow (vph)	50	0	155	4	0	5	105	697	2	1	923	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	0	155	4	5	0	105	699	0	1	923	112
Turn Type	Perm		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	33.3	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	36.0	36.0	36.0	36.0	36.0		64.0	64.0		64.0	64.0	64.0
Total Split (%)	36.0%	36.0%	36.0%	36.0%	36.0%		64.0%	64.0%		64.0%	64.0%	64.0%
Maximum Green (s)	29.7	29.7	29.7	29.7	29.7		57.3	57.3		57.3	57.3	57.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag												
Lead-Lag Optimize?												
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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effct Green (s)	9.6		9.6	9.6	9.6		77.4	77.4		77.4	77.4	77.4
Actuated g/C Ratio	0.10		0.10	0.10	0.10		0.77	0.77		0.77	0.77	0.77
v/c Ratio	0.39		0.58	0.05	0.02		0.24	0.27		0.00	0.34	0.09

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	50.4		20.3	40.2	0.0		6.7	5.3		3.0	3.3	0.6
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	50.4		20.3	40.2	0.0		6.7	5.3		3.0	3.3	0.6
LOS	D		C	D	A		A	A		A	A	A
Approach Delay		27.6			17.9			5.5			3.0	
Approach LOS		C			B			A			A	
Queue Length 50th (m)	9.3		4.9	0.7	0.0		4.3	16.7		0.0	19.1	0.0
Queue Length 95th (m)	19.9		22.6	3.8	0.0		m19.3	42.5		m0.2	26.1	2.4
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0			115.0		160.0
Base Capacity (vph)	397		560	246	498		444	2592		574	2742	1230
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	0.13		0.28	0.02	0.01		0.24	0.27		0.00	0.34	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 37 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 6.5		Intersection LOS: A	
Intersection Capacity Utilization 57.2%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road

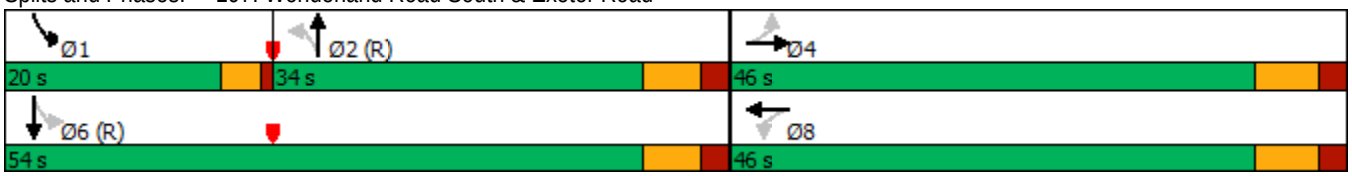


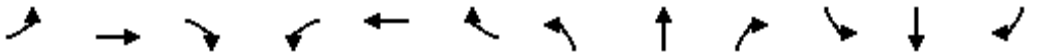
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	581	275	44	230	182	54	800	112	350	903	3
Future Volume (vph)	3	581	275	44	230	182	54	800	112	350	903	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.952			0.934			0.982				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1372	3407	0	1437	3032	0	1738	3418	0	1789	3510	0
Flt Permitted	0.467			0.152			0.315			0.155		
Satd. Flow (perm)	675	3407	0	230	3032	0	576	3418	0	292	3510	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		87			182			15				
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
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 (%)	33%	2%	2%	27%	12%	13%	5%	5%	4%	2%	4%	0%
Adj. Flow (vph)	3	581	275	44	230	182	54	800	112	350	903	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	856	0	44	412	0	54	912	0	350	906	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		33.6	33.6		9.0	33.6	
Total Split (s)	46.0	46.0		46.0	46.0		34.0	34.0		20.0	54.0	
Total Split (%)	46.0%	46.0%		46.0%	46.0%		34.0%	34.0%		20.0%	54.0%	
Maximum Green (s)	39.0	39.0		39.0	39.0		27.4	27.4		16.0	47.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		4.4	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.6	6.6		4.0	6.6	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	30.2	30.2		30.2	30.2		36.4	36.4		58.8	56.2	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.36	0.36		0.59	0.56	
v/c Ratio	0.01	0.79		0.64	0.40		0.26	0.73		0.86	0.46	
Control Delay	21.3	33.6		69.1	15.2		29.7	32.6		54.3	7.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	21.3	33.6		69.1	15.2		29.7	32.6		54.3	7.9	
LOS	C	C		E	B		C	C		D	A	
Approach Delay		33.6			20.4			32.5			20.8	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	0.4	71.9		7.3	17.6		7.3	78.5		46.1	24.5	
Queue Length 95th (m)	2.2	83.9		#22.2	26.7		19.6	#125.4		#97.6	32.0	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	263	1381		89	1293		209	1255		410	1971	
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	0.01	0.62		0.49	0.32		0.26	0.73		0.85	0.46	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 73 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 27.1		Intersection LOS: C	
Intersection Capacity Utilization 96.3%		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.			

Splits and Phases: 197: Wonderland Road South & Exeter Road



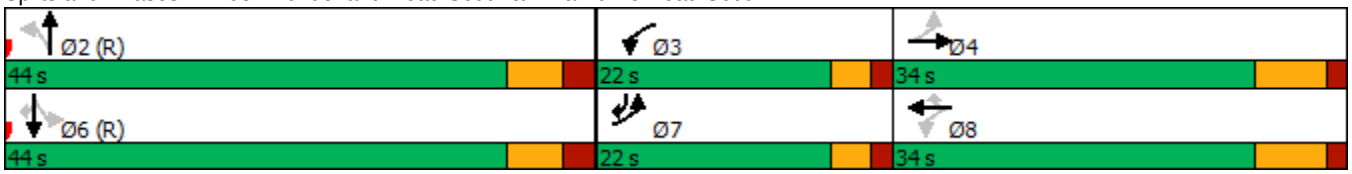


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	592	19	237	251	47	5	590	315	39	890	155
Future Volume (vph)	158	592	19	237	251	47	5	590	315	39	890	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				0.99		1.00		
Frt		0.995				0.850		0.948				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3521	0	1755	3544	1384	1825	3250	0	1508	3510	1570
Flt Permitted	0.596			0.208			0.229			0.223		
Satd. Flow (perm)	1101	3521	0	384	3544	1384	440	3250	0	354	3510	1570
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				89		112				155
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			1	1					3	3		
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 (%)	4%	3%	6%	4%	3%	18%	0%	8%	2%	21%	4%	4%
Adj. Flow (vph)	158	592	19	237	251	47	5	590	315	39	890	155
Shared Lane Traffic (%)												
Lane Group Flow (vph)	158	611	0	237	251	47	5	905	0	39	890	155
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	22.0	34.0		22.0	34.0	34.0	44.0	44.0		44.0	44.0	22.0
Total Split (%)	22.0%	34.0%		22.0%	34.0%	34.0%	44.0%	44.0%		44.0%	44.0%	22.0%
Maximum Green (s)	17.5	27.0		17.5	27.0	27.0	37.3	37.3		37.3	37.3	17.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	36.0	22.6		42.7	26.0	26.0	45.0	45.0		45.0	45.0	62.5
Actuated g/C Ratio	0.36	0.23		0.43	0.26	0.26	0.45	0.45		0.45	0.45	0.62
v/c Ratio	0.34	0.77		0.66	0.27	0.11	0.03	0.59		0.25	0.56	0.15

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	18.5	42.6		26.5	29.4	1.6	41.0	33.5		19.8	17.6	0.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	18.5	42.6		26.5	29.4	1.6	41.0	33.5		19.8	17.6	0.8
LOS	B	D		C	C	A	D	C		B	B	A
Approach Delay		37.6			25.7			33.5			15.2	
Approach LOS		D			C			C			B	
Queue Length 50th (m)	18.1	57.8		28.6	20.1	0.0	0.7	61.0		3.3	57.6	0.3
Queue Length 95th (m)	26.7	73.0		39.2	28.6	2.0	m1.7	103.4		12.3	75.3	0.4
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	577	952		407	997	453	198	1522		159	1578	1133
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	0.27	0.64		0.58	0.25	0.10	0.03	0.59		0.25	0.56	0.14

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 53 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 27.2		Intersection LOS: C	
Intersection Capacity Utilization 77.8%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 198: Wonderland Road South & Wharncliffe Road South

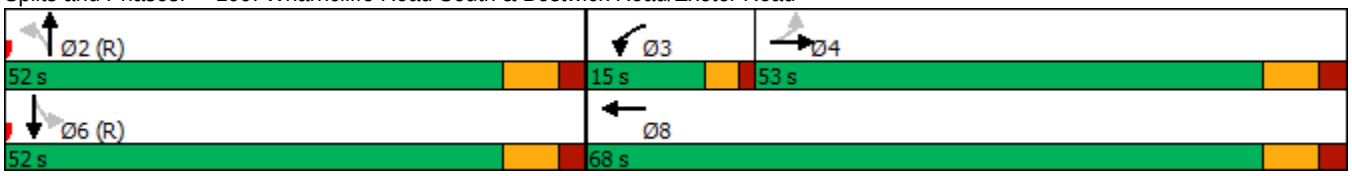


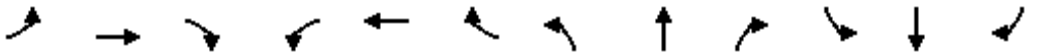
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	653	248	136	148	19	68	726	198	8	363	56
Future Volume (vph)	34	653	248	136	148	19	68	726	198	8	363	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.959			0.983			0.968			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3380	0	2975	3336	0	1630	4919	0	1496	3500	0
Flt Permitted	0.646			0.950			0.489			0.251		
Satd. Flow (perm)	1241	3380	0	2975	3336	0	839	4919	0	395	3500	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			17			65			16	
Link Speed (k/h)		60			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		12.8			14.1			20.8			18.2	
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%	3%	5%	19%	7%	12%	12%	3%	4%	22%	1%	10%
Adj. Flow (vph)	34	653	248	136	148	19	68	726	198	8	363	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	901	0	136	167	0	68	924	0	8	419	0
Turn Type	Perm	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4						2			6		
Detector Phase	4	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	52.7	52.7		9.5	52.7		51.6	51.6		51.6	51.6	
Total Split (s)	53.0	53.0		15.0	68.0		52.0	52.0		52.0	52.0	
Total Split (%)	44.2%	44.2%		12.5%	56.7%		43.3%	43.3%		43.3%	43.3%	
Maximum Green (s)	45.3	45.3		10.5	60.3		44.4	44.4		44.4	44.4	
Yellow Time (s)	5.0	5.0		3.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.7	2.7		1.5	2.7		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.7	7.7		4.5	7.7		7.6	7.6		7.6	7.6	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	38.0	38.0			38.0		37.0	37.0		37.0	37.0	
Pedestrian Calls (#/hr)	0	0			0		0	0		0	0	
Act Effct Green (s)	38.0	38.0		9.7	52.2		52.5	52.5		52.5	52.5	
Actuated g/C Ratio	0.32	0.32		0.08	0.44		0.44	0.44		0.44	0.44	
v/c Ratio	0.09	0.82		0.56	0.11		0.19	0.42		0.05	0.27	
Control Delay	27.0	41.6		62.4	17.0		25.1	23.2		24.4	22.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	27.0	41.6		62.4	17.0		25.1	23.2		24.4	22.5	
LOS	C	D		E	B		C	C		C	C	
Approach Delay		41.1			37.4			23.3			22.5	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	5.6	96.6		16.0	10.5		9.8	50.8		1.1	31.7	
Queue Length 95th (m)	12.1	110.5		26.3	15.3		22.2	69.4		4.8	48.1	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0			80.0		
Base Capacity (vph)	468	1308		260	1684		366	2188		172	1540	
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	0.07	0.69		0.52	0.10		0.19	0.42		0.05	0.27	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 74 (62%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 31.1		Intersection LOS: C	
Intersection Capacity Utilization 77.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 199: Wharncliffe Road South & Bostwick Road/Exeter Road



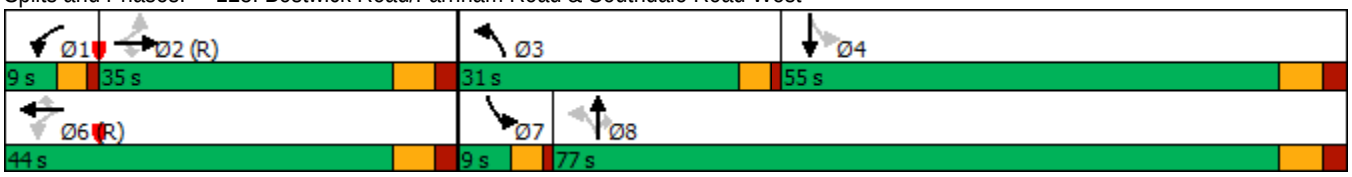


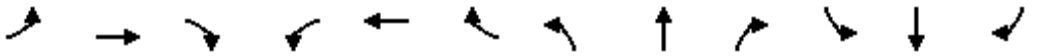
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	679	264	165	742	133	449	208	90	66	117	55
Future Volume (vph)	50	679	264	165	742	133	449	208	90	66	117	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		30.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.99	1.00			1.00		0.99	1.00	0.99	
Frt			0.850			0.850			0.850		0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3614	1555	1755	3614	1633	1825	1902	1570	1755	1784	0
Flt Permitted	0.370			0.246			0.370			0.628		
Satd. Flow (perm)	711	3614	1534	454	3614	1633	709	1902	1547	1158	1784	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			132			98			97		21	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		66.3			26.0			45.0			3.6	
Confl. Peds. (#/hr)			1	1			3		2	2		3
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%	1%	5%	4%	1%	0%	0%	1%	4%	4%	2%	2%
Adj. Flow (vph)	50	679	264	165	742	133	449	208	90	66	117	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	679	264	165	742	133	449	208	90	66	172	0
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	2	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	34.5	34.5	34.5	9.0	34.5	34.5	9.0	37.7	37.7	9.0	37.7	
Total Split (s)	35.0	35.0	35.0	9.0	44.0	44.0	31.0	77.0	77.0	9.0	55.0	
Total Split (%)	26.9%	26.9%	26.9%	6.9%	33.8%	33.8%	23.8%	59.2%	59.2%	6.9%	42.3%	
Maximum Green (s)	28.5	28.5	28.5	5.0	37.5	37.5	27.0	70.3	70.3	5.0	48.3	
Yellow Time (s)	4.1	4.1	4.1	3.0	4.1	4.1	3.0	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.4	2.4	2.4	1.0	2.4	2.4	1.0	2.6	2.6	1.0	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	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	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		24.0	24.0		24.0	
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	
Act Effct Green (s)	46.1	46.1	46.1	72.0	69.5	69.5	50.0	40.1	40.1	24.3	16.6	
Actuated g/C Ratio	0.35	0.35	0.35	0.55	0.53	0.53	0.38	0.31	0.31	0.19	0.13	
v/c Ratio	0.20	0.53	0.42	0.37	0.38	0.14	0.89	0.35	0.17	0.28	0.70	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	33.2	35.7	18.2	23.0	22.4	10.9	54.1	36.4	5.6	30.2	62.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	33.2	35.7	18.2	23.0	22.4	10.9	54.1	36.4	5.6	30.2	62.0	
LOS	C	D	B	C	C	B	D	D	A	C	E	
Approach Delay		30.9			21.0			43.3			53.2	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	8.6	70.3	23.5	23.6	57.0	7.5	92.8	42.1	0.0	10.7	37.6	
Queue Length 95th (m)	20.5	97.7	51.7	40.8	76.0	20.7	#126.6	59.2	10.0	18.6	58.3	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0		30.0	110.0		30.0	35.0			25.0		
Base Capacity (vph)	251	1280	628	445	1931	918	504	1028	881	239	676	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.20	0.53	0.42	0.37	0.38	0.14	0.89	0.20	0.10	0.28	0.25	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 113 (87%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 32.3		Intersection LOS: C	
Intersection Capacity Utilization 86.2%		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: 128: Bostwick Road/Farnham Road & Southdale Road West





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	206	126	172	254	159	195	1075	125	165	864	43
Future Volume (vph)	43	206	126	172	254	159	195	1075	125	165	864	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00		0.99	1.00		0.98
Frt		0.943			0.942				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3442	0	1755	3413	0	1484	3614	1142	1825	3544	1633
Flt Permitted	0.432			0.290			0.292			0.219		
Satd. Flow (perm)	827	3442	0	536	3413	0	456	3614	1127	421	3544	1606
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		101			108				114			67
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	6					6	3		1	1		3
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%	0%	4%	0%	0%	23%	1%	43%	0%	3%	0%
Adj. Flow (vph)	43	206	126	172	254	159	195	1075	125	165	864	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	332	0	172	413	0	195	1075	125	165	864	43
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	9.0	34.4		9.0	34.4		31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	16.0	35.0		16.0	35.0		69.0	69.0	69.0	69.0	69.0	69.0
Total Split (%)	13.3%	29.2%		13.3%	29.2%		57.5%	57.5%	57.5%	57.5%	57.5%	57.5%
Maximum Green (s)	12.0	28.6		12.0	28.6		62.8	62.8	62.8	62.8	62.8	62.8
Yellow Time (s)	3.0	3.3		3.0	3.3		3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	1.0	3.1		1.0	3.1		2.4	2.4	2.4	2.4	2.4	2.4
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)	4.0	6.4		4.0	6.4		6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	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		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		21.0			21.0		18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	0
Act Effct Green (s)	24.0	14.0		31.6	19.9		77.8	77.8	77.8	77.8	77.8	77.8
Actuated g/C Ratio	0.20	0.12		0.26	0.17		0.65	0.65	0.65	0.65	0.65	0.65
v/c Ratio	0.19	0.68		0.67	0.63		0.66	0.46	0.16	0.61	0.38	0.04

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	33.3	41.8		48.2	38.9		19.8	6.2	1.4	25.7	10.9	1.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.3	41.8		48.2	38.9		19.8	6.2	1.4	25.7	10.9	1.1
LOS	C	D		D	D		B	A	A	C	B	A
Approach Delay		40.8			41.6			7.7			12.8	
Approach LOS		D			D			A			B	
Queue Length 50th (m)	7.6	27.7		33.0	36.2		13.4	38.2	1.5	20.8	46.0	0.0
Queue Length 95th (m)	15.5	40.6		49.0	50.8		#76.1	38.4	2.0	#58.5	67.4	2.3
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	295	897		262	895		295	2343	770	272	2297	1064
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	0.15	0.37		0.66	0.46		0.66	0.46	0.16	0.61	0.38	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 51 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 18.7		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.			

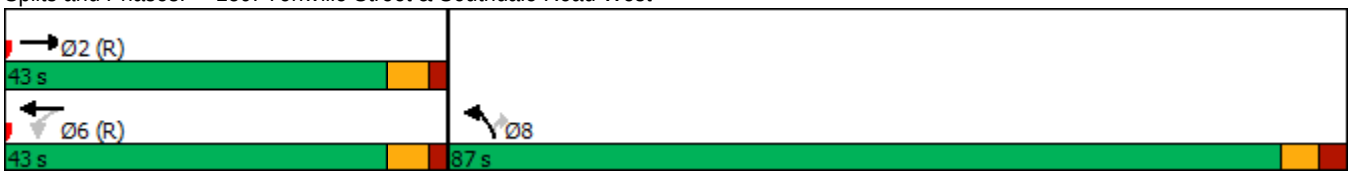
Splits and Phases: 158: Wonderland Road South & Bradley Avenue

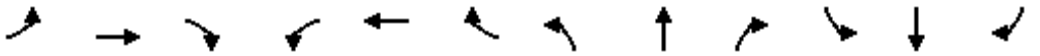
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	733	98	177	960	79	117
Future Volume (vph)	733	98	177	960	79	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.982					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3584	0	1825	3650	1825	1633
Flt Permitted			0.332		0.950	
Satd. Flow (perm)	3584	0	638	3650	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	11					34
Link Speed (k/h)	60			60	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	26.0			20.4	11.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	733	98	177	960	79	117
Shared Lane Traffic (%)						
Lane Group Flow (vph)	831	0	177	960	79	117
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	28.4		28.4	28.4	35.5	35.5
Total Split (s)	43.0		43.0	43.0	87.0	87.0
Total Split (%)	33.1%		33.1%	33.1%	66.9%	66.9%
Maximum Green (s)	37.0		37.0	37.0	80.5	80.5
Yellow Time (s)	4.1		4.1	4.1	3.6	3.6
All-Red Time (s)	1.9		1.9	1.9	2.9	2.9
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	22.0	22.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	105.0		105.0	105.0	12.5	12.5
Actuated g/C Ratio	0.81		0.81	0.81	0.10	0.10
v/c Ratio	0.29		0.34	0.33	0.45	0.63
Control Delay	1.0		4.2	2.4	62.5	53.7
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	1.0		4.2	2.4	62.5	53.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A		A	A	E	D
Approach Delay	1.0			2.7	57.2	
Approach LOS	A			A	E	
Queue Length 50th (m)	4.3		4.6	12.3	19.5	20.6
Queue Length 95th (m)	6.9		20.3	35.6	33.7	38.8
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)			55.0		45.0	
Base Capacity (vph)	2898		515	2949	1130	1024
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.29		0.34	0.33	0.07	0.11

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 28 (22%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 7.0		Intersection LOS: A	
Intersection Capacity Utilization 54.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 159: Yorkville Street & Southdale Road West



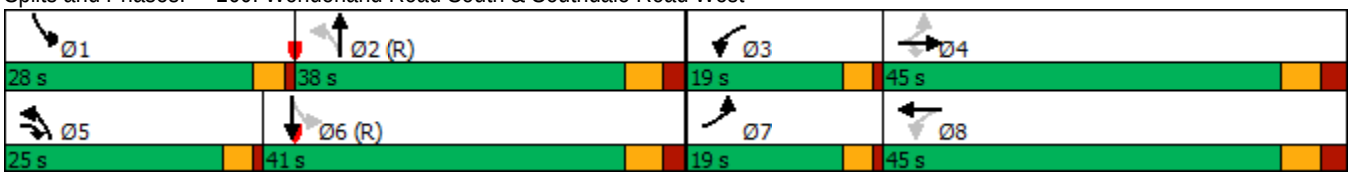


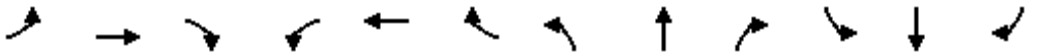
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	569	93	148	619	223	215	805	95	289	804	110
Future Volume (vph)	155	569	93	148	619	223	215	805	95	289	804	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.95	0.99	0.99		0.99	1.00			0.99	
Frt			0.850		0.960			0.984			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3579	1555	1825	3436	0	1807	3506	0	1738	3469	0
Flt Permitted	0.110			0.302			0.162			0.100		
Satd. Flow (perm)	207	3579	1483	573	3436	0	306	3506	0	183	3469	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93		40			9			11	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	12		29	29		12	32		14	14		32
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	5%	0%	1%	2%	1%	2%	3%	5%	3%	0%
Adj. Flow (vph)	155	569	93	148	619	223	215	805	95	289	804	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	155	569	93	148	842	0	215	900	0	289	914	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.5	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	19.0	45.0	25.0	19.0	45.0		25.0	38.0		28.0	41.0	
Total Split (%)	14.6%	34.6%	19.2%	14.6%	34.6%		19.2%	29.2%		21.5%	31.5%	
Maximum Green (s)	15.0	38.4	21.0	15.0	38.4		21.0	31.9		24.0	34.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	52.2	36.5	54.5	50.1	35.5		57.4	39.9		66.7	45.4	
Actuated g/C Ratio	0.40	0.28	0.42	0.39	0.27		0.44	0.31		0.51	0.35	
v/c Ratio	0.64	0.57	0.14	0.44	0.87		0.69	0.83		0.84	0.75	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	54.4	25.2	2.4	26.8	53.3		34.0	50.6		53.6	43.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	54.4	25.2	2.4	26.8	53.3		34.0	50.6		53.6	43.2	
LOS	D	C	A	C	D		C	D		D	D	
Approach Delay		28.2			49.3			47.4			45.7	
Approach LOS		C			D			D			D	
Queue Length 50th (m)	22.4	54.6	0.1	22.7	102.3		30.6	117.2		54.8	110.4	
Queue Length 95th (m)	46.6	45.8	0.6	35.2	125.4		54.3	#170.7		#95.3	#164.1	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	267	1068	747	377	1043		389	1082		380	1219	
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	0.58	0.53	0.12	0.39	0.81		0.55	0.83		0.76	0.75	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 125 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 43.5		Intersection LOS: D	
Intersection Capacity Utilization 92.5%		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.			

Splits and Phases: 160: Wonderland Road South & Southdale Road West



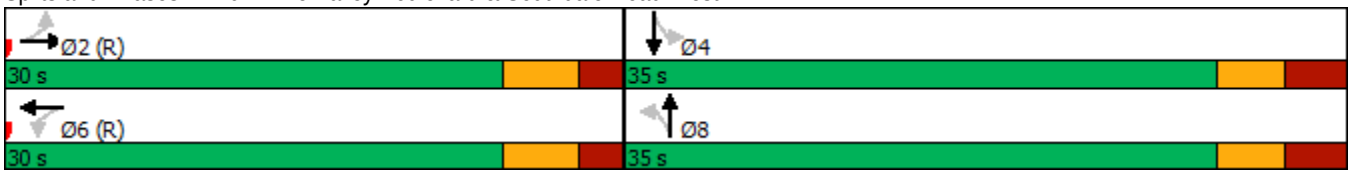


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	640	117	116	779	75	192	102	74	64	71	176
Future Volume (vph)	100	640	117	116	779	75	192	102	74	64	71	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99	1.00		1.00	0.99		1.00	0.99	
Frt		0.977			0.987			0.937			0.893	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3472	0	1825	3553	0	1825	1788	0	1825	1677	0
Flt Permitted	0.298			0.342			0.556			0.646		
Satd. Flow (perm)	569	3472	0	650	3553	0	1064	1788	0	1237	1677	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			18			72			57	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	18		24	24		18	8		6	6		8
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%	1%	0%	1%	1%	0%	0%	0%	0%	1%	1%
Adj. Flow (vph)	100	640	117	116	779	75	192	102	74	64	71	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	757	0	116	854	0	192	176	0	64	247	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	30.0	30.0		30.0	30.0		35.0	35.0		35.0	35.0	
Total Split (%)	46.2%	46.2%		46.2%	46.2%		53.8%	53.8%		53.8%	53.8%	
Maximum Green (s)	24.1	24.1		24.1	24.1		28.6	28.6		28.6	28.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	36.4	36.4		36.4	36.4		16.3	16.3		16.3	16.3	
Actuated g/C Ratio	0.56	0.56		0.56	0.56		0.25	0.25		0.25	0.25	
v/c Ratio	0.31	0.39		0.32	0.43		0.72	0.35		0.21	0.53	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	19.9	16.5		16.2	14.1		36.5	12.5		18.4	19.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.9	16.5		16.2	14.1		36.5	12.5		18.4	19.0	
LOS	B	B		B	B		D	B		B	B	
Approach Delay		16.9			14.4			25.0			18.9	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	18.3	74.6		12.6	56.8		21.2	10.0		6.1	19.4	
Queue Length 95th (m)	34.8	93.4		m26.7	90.6		34.5	19.5		12.1	31.5	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	318	1959		364	1996		468	827		544	769	
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	0.31	0.39		0.32	0.43		0.41	0.21		0.12	0.32	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 48 (74%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 17.4		Intersection LOS: B	
Intersection Capacity Utilization 78.1%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West

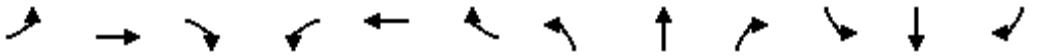


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	0	127	2	0	3	104	1318	1	0	1071	90
Future Volume (vph)	66	0	127	2	0	3	104	1318	1	0	1071	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00	1.00				0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1825	1921	1617	1825	1633	0	1825	3579	0	1921	3544	1601
Flt Permitted	0.588						0.249					
Satd. Flow (perm)	1130	1921	1617	1921	1633	0	477	3579	0	1921	3544	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			81		131							90
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)							5		4	4		5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	3%	2%
Adj. Flow (vph)	66	0	127	2	0	3	104	1318	1	0	1071	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	0	127	2	3	0	104	1319	0	0	1071	90
Turn Type	pm+pt		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	9.0	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	13.0	47.0	47.0	34.0	34.0		73.0	73.0		73.0	73.0	73.0
Total Split (%)	10.8%	39.2%	39.2%	28.3%	28.3%		60.8%	60.8%		60.8%	60.8%	60.8%
Maximum Green (s)	9.0	40.7	40.7	27.7	27.7		66.3	66.3		66.3	66.3	66.3
Yellow Time (s)	3.0	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
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)	4.0	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0		0	0	0
Act Effct Green (s)	13.2		10.9	7.0	7.0		96.1	96.1			96.1	96.1
Actuated g/C Ratio	0.11		0.09	0.06	0.06		0.80	0.80			0.80	0.80
v/c Ratio	0.36		0.58	0.02	0.01		0.27	0.46			0.38	0.07

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	53.2		30.8	53.5	0.0		8.8	7.7			3.0	0.4
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	53.2		30.8	53.5	0.0		8.8	7.7			3.0	0.4
LOS	D		C	D	A		A	A			A	A
Approach Delay		38.5			21.4			7.7			2.8	
Approach LOS		D			C			A			A	
Queue Length 50th (m)	14.9		10.5	0.5	0.0		7.4	50.7			19.3	0.0
Queue Length 95th (m)	26.0		27.2	3.2	0.0		m20.5	122.5			38.6	m1.7
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0					160.0
Base Capacity (vph)	184		601	443	477		381	2866			2838	1257
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	0.36		0.21	0.00	0.01		0.27	0.46			0.38	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 7.9		Intersection LOS: A	
Intersection Capacity Utilization 69.0%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road

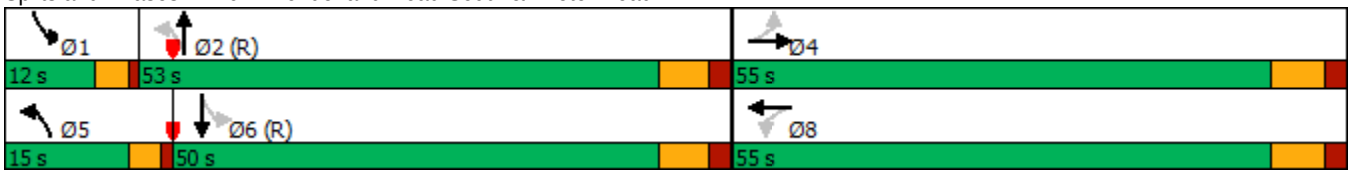


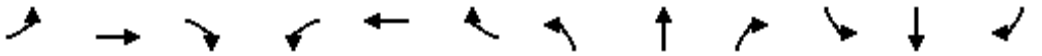
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	332	135	134	775	485	252	902	55	213	945	5
Future Volume (vph)	3	332	135	134	775	485	252	902	55	213	945	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.957			0.942			0.991			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3295	0	1755	3404	0	1772	3503	0	1706	3507	0
Flt Permitted	0.087			0.435			0.135			0.182		
Satd. Flow (perm)	167	3295	0	804	3404	0	252	3503	0	327	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		61			136			6				
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
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%	6%	6%	4%	1%	1%	3%	2%	24%	7%	4%	0%
Adj. Flow (vph)	3	332	135	134	775	485	252	902	55	213	945	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	467	0	134	1260	0	252	957	0	213	950	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		9.0	33.6		9.0	33.6	
Total Split (s)	55.0	55.0		55.0	55.0		15.0	53.0		12.0	50.0	
Total Split (%)	45.8%	45.8%		45.8%	45.8%		12.5%	44.2%		10.0%	41.7%	
Maximum Green (s)	48.0	48.0		48.0	48.0		11.0	46.4		8.0	43.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		3.0	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		1.0	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		4.0	6.6		4.0	6.6	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	46.2	46.2		46.2	46.2		62.2	48.2		54.7	44.1	
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.52	0.40		0.46	0.37	
v/c Ratio	0.05	0.36		0.43	0.90		0.89	0.68		0.88	0.74	
Control Delay	13.0	10.5		31.9	40.8		53.7	32.8		49.6	32.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	13.0	10.5		31.9	40.8		53.7	32.8		49.6	32.2	
LOS	B	B		C	D		D	C		D	C	
Approach Delay		10.5			39.9			37.2			35.3	
Approach LOS		B			D			D			D	
Queue Length 50th (m)	0.2	16.9		22.4	129.4		33.5	98.2		16.5	115.3	
Queue Length 95th (m)	m0.9	23.7		40.6	160.6		#84.1	121.6		m#44.7	m118.7	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	66	1354		321	1443		283	1409		241	1288	
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	0.05	0.34		0.42	0.87		0.89	0.68		0.88	0.74	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 34.6		Intersection LOS: C	
Intersection Capacity Utilization 103.5%		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: 197: Wonderland Road South & Exeter Road



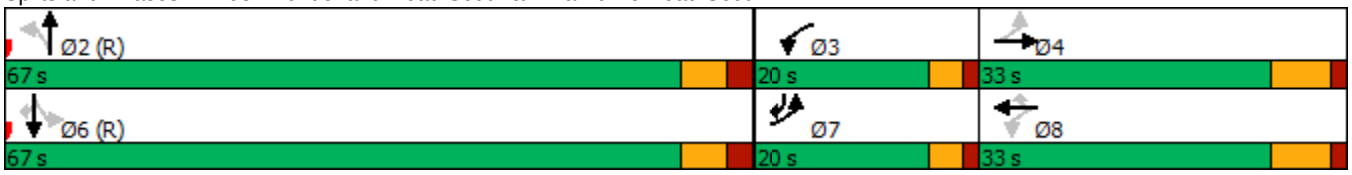


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	415	24	306	539	103	14	1014	408	54	816	274
Future Volume (vph)	248	415	24	306	539	103	14	1014	408	54	816	274
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				1.00				
Frt		0.992				0.850		0.957				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	3541	0	1755	3579	1512	1690	3423	0	1659	3380	1617
Flt Permitted	0.240			0.326			0.285			0.090		
Satd. Flow (perm)	457	3541	0	601	3579	1512	507	3423	0	157	3380	1617
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				87		72				38
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			2	2					3	3		
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 (%)	1%	2%	5%	4%	2%	8%	8%	1%	3%	10%	8%	1%
Adj. Flow (vph)	248	415	24	306	539	103	14	1014	408	54	816	274
Shared Lane Traffic (%)												
Lane Group Flow (vph)	248	439	0	306	539	103	14	1422	0	54	816	274
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	20.0	33.0		20.0	33.0	33.0	67.0	67.0		67.0	67.0	20.0
Total Split (%)	16.7%	27.5%		16.7%	27.5%	27.5%	55.8%	55.8%		55.8%	55.8%	16.7%
Maximum Green (s)	15.5	26.0		15.5	26.0	26.0	60.3	60.3		60.3	60.3	15.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	39.8	22.4		41.1	23.1	23.1	63.9	63.9		63.9	63.9	85.4
Actuated g/C Ratio	0.33	0.19		0.34	0.19	0.19	0.53	0.53		0.53	0.53	0.71
v/c Ratio	0.78	0.66		0.86	0.78	0.29	0.05	0.77		0.65	0.45	0.24

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	38.0	43.6		53.5	54.6	13.1	20.4	24.5		53.6	13.2	7.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	38.0	43.6		53.5	54.6	13.1	20.4	24.5		53.6	13.2	7.4
LOS	D	D		D	D	B	C	C		D	B	A
Approach Delay		41.6			49.7			24.4			13.7	
Approach LOS		D			D			C			B	
Queue Length 50th (m)	46.7	53.6		52.9	63.5	3.1	1.6	114.9		7.2	47.9	22.5
Queue Length 95th (m)	#72.1	71.0		#78.3	81.0	17.4	m2.6	144.3		#33.3	61.0	30.1
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	328	770		354	775	395	269	1855		83	1799	1170
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	0.76	0.57		0.86	0.70	0.26	0.05	0.77		0.65	0.45	0.23

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 75 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 30.0		Intersection LOS: C	
Intersection Capacity Utilization 89.7%		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.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 198: Wonderland Road South & Wharncliffe Road South

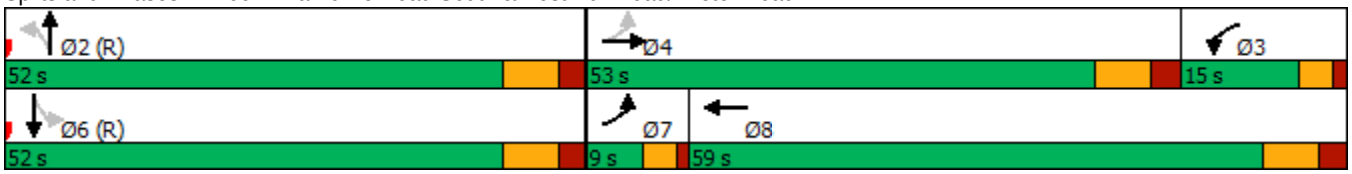


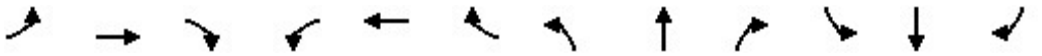
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	309	109	253	754	25	77	616	103	58	491	212
Future Volume (vph)	41	309	109	253	754	25	77	616	103	58	491	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Ped Bike Factor	1.00				1.00							
Frt		0.961			0.995			0.979			0.955	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3430	0	3506	3626	0	1825	5027	0	1738	3394	0
Flt Permitted	0.268			0.950			0.340			0.354		
Satd. Flow (perm)	515	3430	0	3506	3626	0	653	5027	0	648	3394	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			3			31			64	
Link Speed (k/h)		60			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		12.8			14.1			20.8			18.2	
Confl. Peds. (#/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%	2%	3%	1%	0%	4%	0%	2%	3%	5%	3%	2%
Adj. Flow (vph)	41	309	109	253	754	25	77	616	103	58	491	212
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	418	0	253	779	0	77	719	0	58	703	0
Turn Type	pm+pt	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4						2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	9.0	52.7		9.5	52.7		51.6	51.6		51.6	51.6	
Total Split (s)	9.0	53.0		15.0	59.0		52.0	52.0		52.0	52.0	
Total Split (%)	7.5%	44.2%		12.5%	49.2%		43.3%	43.3%		43.3%	43.3%	
Maximum Green (s)	5.0	45.3		10.5	51.3		44.4	44.4		44.4	44.4	
Yellow Time (s)	3.0	5.0		3.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	2.7		1.5	2.7		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7		4.5	7.7		7.6	7.6		7.6	7.6	
Lead/Lag	Lead	Lead		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		38.0			38.0		37.0	37.0		37.0	37.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	22.6	18.9		17.6	33.8		63.7	63.7		63.7	63.7	
Actuated g/C Ratio	0.19	0.16		0.15	0.28		0.53	0.53		0.53	0.53	
v/c Ratio	0.27	0.72		0.49	0.76		0.22	0.27		0.17	0.38	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	43.1	49.6		34.8	26.6		19.6	16.0		29.1	28.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	43.1	49.6		34.8	26.6		19.6	16.0		29.1	28.6	
LOS	D	D		C	C		B	B		C	C	
Approach Delay		49.0			28.7			16.3			28.7	
Approach LOS		D			C			B			C	
Queue Length 50th (m)	8.1	44.3		25.8	71.7		9.6	32.0		0.0	70.5	
Queue Length 95th (m)	16.9	57.9		m30.5	m72.1		22.2	45.8		m0.0	88.9	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0			80.0		
Base Capacity (vph)	151	1324		515	1551		346	2682		343	1831	
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	0.27	0.32		0.49	0.50		0.22	0.27		0.17	0.38	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 117 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 28.5		Intersection LOS: C	
Intersection Capacity Utilization 74.9%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 199: Wharncliffe Road South & Bostwick Road/Exeter Road



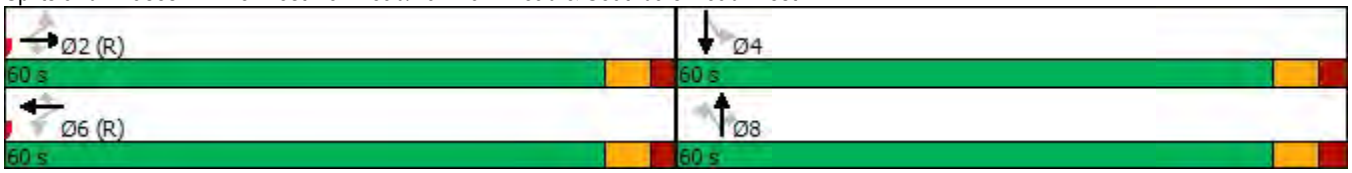


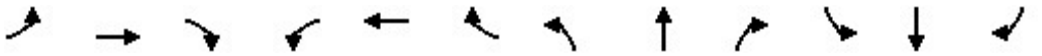
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	667	340	124	420	45	305	81	271	78	84	49
Future Volume (vph)	51	667	340	124	420	45	305	81	271	78	84	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		30.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98						
Frt			0.850			0.850			0.850		0.945	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3614	1498	1722	3444	1601	1674	1902	1585	1807	1755	0
Flt Permitted	0.501			0.364			0.672			0.704		
Satd. Flow (perm)	924	3614	1498	660	3444	1566	1184	1902	1585	1339	1755	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			259			45			152		31	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		66.3			26.0			45.0			3.6	
Confl. Peds. (#/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 (%)	4%	1%	9%	6%	6%	2%	9%	1%	3%	1%	2%	6%
Adj. Flow (vph)	51	667	340	124	420	45	305	81	271	78	84	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	667	340	124	420	45	305	81	271	78	133	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	34.5	34.5	34.5	34.5	34.5	34.5	37.7	37.7	37.7	37.7	37.7	
Total Split (s)	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	
Maximum Green (s)	53.5	53.5	53.5	53.5	53.5	53.5	53.3	53.3	53.3	53.3	53.3	
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.7	6.7	6.7	6.7	6.7	
Lead/Lag												
Lead-Lag Optimize?												
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	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0	24.0	24.0	24.0	24.0	24.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Act Effct Green (s)	68.6	68.6	68.6	68.6	68.6	68.6	38.2	38.2	38.2	38.2	38.2	
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57	0.57	0.32	0.32	0.32	0.32	0.32	
v/c Ratio	0.10	0.32	0.35	0.33	0.21	0.05	0.81	0.13	0.45	0.18	0.23	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	15.6	15.5	5.5	14.1	9.7	2.8	53.4	26.7	14.3	27.7	21.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.6	15.5	5.5	14.1	9.7	2.8	53.4	26.7	14.3	27.7	21.5	
LOS	B	B	A	B	A	A	D	C	B	C	C	
Approach Delay		12.3			10.1			34.0			23.8	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	5.2	41.4	8.3	9.2	12.0	0.0	65.6	13.5	20.6	13.2	17.3	
Queue Length 95th (m)	14.4	67.4	29.8	32.7	36.1	4.5	85.5	21.1	36.8	21.2	27.2	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0		30.0	110.0		30.0	35.0			25.0		
Base Capacity (vph)	528	2067	967	377	1970	914	525	844	788	594	796	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.10	0.32	0.35	0.33	0.21	0.05	0.58	0.10	0.34	0.13	0.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 18 (15%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 18.4		Intersection LOS: B	
Intersection Capacity Utilization 75.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 128: Bostwick Road/Farnham Road & Southdale Road West



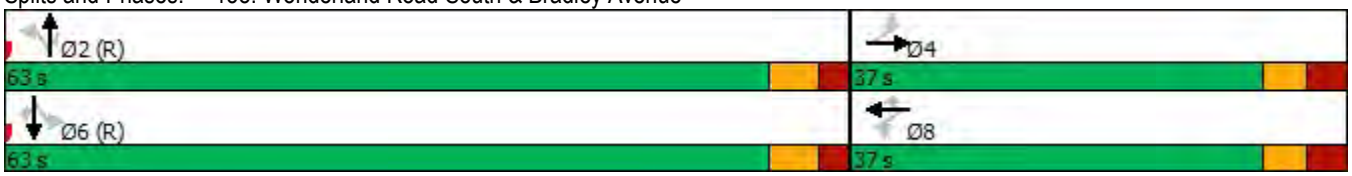


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	2	12	61	6	102	29	650	43	127	913	3
Future Volume (vph)	1	2	12	61	6	102	29	650	43	127	913	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00					0.98	1.00		0.98	1.00		0.98
Frt		0.871				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1566	0	1772	1921	1512	1601	3476	1570	1825	3579	1228
Flt Permitted	0.754			0.748			0.306			0.405		
Satd. Flow (perm)	1442	1566	0	1395	1921	1487	515	3476	1536	777	3579	1198
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				102			43			37
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	4					4	2		1	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%	0%	8%	14%	5%	4%	0%	2%	33%
Adj. Flow (vph)	1	2	12	61	6	102	29	650	43	127	913	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	14	0	61	6	102	29	650	43	127	913	3
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.4	34.4		34.4	34.4	34.4	31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	37.0	37.0		37.0	37.0	37.0	63.0	63.0	63.0	63.0	63.0	63.0
Total Split (%)	37.0%	37.0%		37.0%	37.0%	37.0%	63.0%	63.0%	63.0%	63.0%	63.0%	63.0%
Maximum Green (s)	30.6	30.6		30.6	30.6	30.6	56.8	56.8	56.8	56.8	56.8	56.8
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	3.1	3.1		3.1	3.1	3.1	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4	6.4	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag												
Lead-Lag Optimize?												
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		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0	21.0	18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effct Green (s)	10.0	10.0		10.0	10.0	10.0	81.3	81.3	81.3	81.3	81.3	81.3
Actuated g/C Ratio	0.10	0.10		0.10	0.10	0.10	0.81	0.81	0.81	0.81	0.81	0.81
v/c Ratio	0.01	0.08		0.44	0.03	0.42	0.07	0.23	0.03	0.20	0.31	0.00

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	38.0	22.2		51.2	38.8	13.9	2.8	3.1	1.2	4.2	3.6	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	22.2		51.2	38.8	13.9	2.8	3.1	1.2	4.2	3.6	0.0
LOS	D	C		D	D	B	A	A	A	A	A	A
Approach Delay		23.3			28.3			3.0			3.7	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	0.2	0.4		11.4	1.1	0.0	1.6	23.0	0.9	5.3	22.2	0.0
Queue Length 95th (m)	1.7	5.9		23.0	4.6	14.3	2.4	19.4	1.5	12.9	35.8	0.0
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	441	487		426	587	525	418	2825	1256	631	2908	980
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.03		0.14	0.01	0.19	0.07	0.23	0.03	0.20	0.31	0.00

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 41 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 5.7		Intersection LOS: A	
Intersection Capacity Utilization 58.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 158: Wonderland Road South & Bradley Avenue

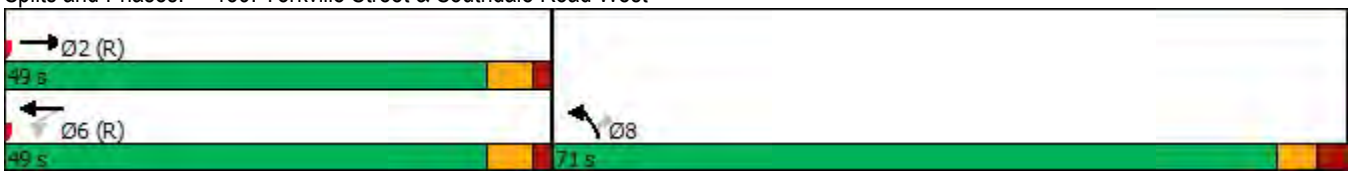


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1002	53	81	525	64	127
Future Volume (vph)	1002	53	81	525	64	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.992					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3621	0	1825	3650	1825	1633
Flt Permitted			0.256		0.950	
Satd. Flow (perm)	3621	0	492	3650	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	5					25
Link Speed (k/h)	60			60	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	26.0			20.4	11.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1002	53	81	525	64	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1055	0	81	525	64	127
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	28.4		28.4	28.4	35.5	35.5
Total Split (s)	49.0		49.0	49.0	71.0	71.0
Total Split (%)	40.8%		40.8%	40.8%	59.2%	59.2%
Maximum Green (s)	43.0		43.0	43.0	64.5	64.5
Yellow Time (s)	4.1		4.1	4.1	3.6	3.6
All-Red Time (s)	1.9		1.9	1.9	2.9	2.9
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	22.0	22.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	94.3		94.3	94.3	13.2	13.2
Actuated g/C Ratio	0.79		0.79	0.79	0.11	0.11
v/c Ratio	0.37		0.21	0.18	0.32	0.63
Control Delay	6.7		3.0	1.6	51.8	53.9
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	6.7		3.0	1.6	51.8	53.9

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A		A	A	D	D
Approach Delay	6.7			1.7	53.2	
Approach LOS	A			A	D	
Queue Length 50th (m)	24.4		1.2	4.1	14.1	23.2
Queue Length 95th (m)	89.5		4.5	10.3	26.1	41.0
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)			55.0		45.0	
Base Capacity (vph)	2847		386	2868	980	889
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.37		0.21	0.18	0.07	0.14

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 4 (3%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 9.9		Intersection LOS: A	
Intersection Capacity Utilization 56.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 159: Yorkville Street & Southdale Road West



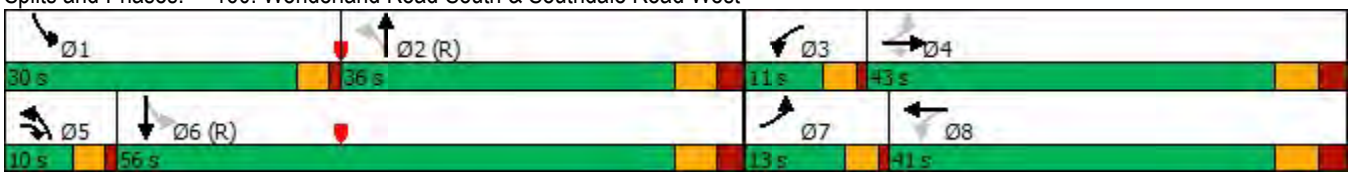
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	741	150	70	439	191	115	454	40	328	722	74
Future Volume (vph)	169	741	150	70	439	191	115	454	40	328	722	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.98	1.00	0.99		0.99	1.00		0.99	1.00	
Frt			0.850		0.955			0.988			0.986	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	3579	1617	1772	3276	0	1755	3350	0	1738	3403	0
Flt Permitted	0.195			0.191			0.339			0.361		
Satd. Flow (perm)	339	3579	1578	355	3276	0	622	3350	0	657	3403	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			128		57			7			11	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	14		11	11		14	15		12	12		15
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%	2%	1%	3%	4%	9%	4%	7%	12%	5%	5%	10%
Adj. Flow (vph)	169	741	150	70	439	191	115	454	40	328	722	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	169	741	150	70	630	0	115	494	0	328	796	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.5	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	13.0	43.0	10.0	11.0	41.0		10.0	36.0		30.0	56.0	
Total Split (%)	10.8%	35.8%	8.3%	9.2%	34.2%		8.3%	30.0%		25.0%	46.7%	
Maximum Green (s)	9.0	36.4	6.0	7.0	34.4		6.0	29.9		26.0	49.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	42.5	32.7	41.3	37.9	28.5		51.7	43.6		67.9	55.8	
Actuated g/C Ratio	0.35	0.27	0.34	0.32	0.24		0.43	0.36		0.57	0.46	
v/c Ratio	0.77	0.76	0.24	0.36	0.77		0.35	0.40		0.61	0.50	

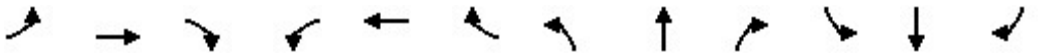
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	51.4	44.8	14.9	29.0	44.8		19.4	31.6		20.4	24.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	51.4	44.8	14.9	29.0	44.8		19.4	31.6		20.4	24.3	
LOS	D	D	B	C	D		B	C		C	C	
Approach Delay		41.6			43.3			29.3			23.1	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	24.6	90.5	6.5	10.6	66.0		12.3	45.1		40.3	67.4	
Queue Length 95th (m)	#56.9	107.5	30.9	19.1	82.0		23.5	70.9		65.1	92.0	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	219	1085	629	195	979		324	1221		605	1587	
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	0.77	0.68	0.24	0.36	0.64		0.35	0.40		0.54	0.50	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 33.9 Intersection LOS: C
Intersection Capacity Utilization 90.6% 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: 160: Wonderland Road South & Southdale Road West



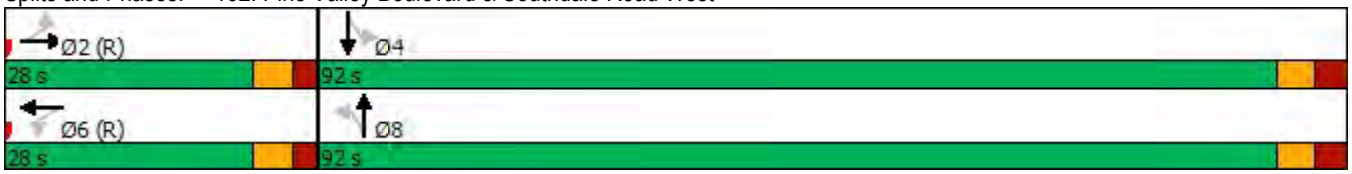


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	972	56	69	499	68	37	17	44	27	25	71
Future Volume (vph)	101	972	56	69	499	68	37	17	44	27	25	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00			1.00		0.99	0.99		1.00	0.98	
Frt		0.992			0.982			0.892			0.889	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3582	0	1825	3379	0	1825	1697	0	1755	1610	0
Flt Permitted	0.439			0.267			0.695			0.717		
Satd. Flow (perm)	840	3582	0	513	3379	0	1325	1697	0	1323	1610	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			11			1			26	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	5		2	2		5	7		1	1		7
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%	1%	0%	0%	6%	3%	0%	0%	0%	4%	0%	6%
Adj. Flow (vph)	101	972	56	69	499	68	37	17	44	27	25	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	1028	0	69	567	0	37	61	0	27	96	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	28.0	28.0		28.0	28.0		92.0	92.0		92.0	92.0	
Total Split (%)	23.3%	23.3%		23.3%	23.3%		76.7%	76.7%		76.7%	76.7%	
Maximum Green (s)	22.1	22.1		22.1	22.1		85.6	85.6		85.6	85.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	96.6	96.6		96.6	96.6		11.1	11.1		11.1	11.1	
Actuated g/C Ratio	0.80	0.80		0.80	0.80		0.09	0.09		0.09	0.09	
v/c Ratio	0.15	0.36		0.17	0.21		0.30	0.39		0.22	0.56	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	5.3	6.6		6.9	5.2		55.8	56.3		53.0	49.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	5.3	6.6		6.9	5.2		55.8	56.3		53.0	49.4	
LOS	A	A		A	A		E	E		D	D	
Approach Delay		6.4			5.4			56.1			50.2	
Approach LOS		A			A			E			D	
Queue Length 50th (m)	6.4	39.9		3.4	14.5		8.3	13.6		6.0	16.0	
Queue Length 95th (m)	22.4	105.6		m11.5	36.7		18.3	25.9		14.6	31.8	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	676	2884		413	2722		945	1210		943	1155	
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	0.15	0.36		0.17	0.21		0.04	0.05		0.03	0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 66 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 11.3		Intersection LOS: B	
Intersection Capacity Utilization 61.0%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West

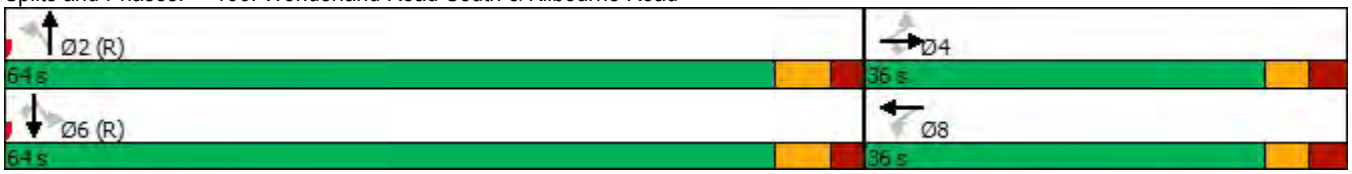


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	0	155	4	0	5	105	663	2	1	864	112
Future Volume (vph)	50	0	155	4	0	5	105	663	2	1	864	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00					0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	1921	1585	1043	1151	0	1807	3350	0	1825	3544	1601
Flt Permitted	0.754			0.757			0.324			0.399		
Satd. Flow (perm)	1340	1921	1585	831	1151	0	615	3350	0	767	3544	1558
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			148		241							112
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)	1					1	3					3
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 (%)	8%	0%	3%	75%	0%	40%	1%	9%	0%	0%	3%	2%
Adj. Flow (vph)	50	0	155	4	0	5	105	663	2	1	864	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	0	155	4	5	0	105	665	0	1	864	112
Turn Type	Perm		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	33.3	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	36.0	36.0	36.0	36.0	36.0		64.0	64.0		64.0	64.0	64.0
Total Split (%)	36.0%	36.0%	36.0%	36.0%	36.0%		64.0%	64.0%		64.0%	64.0%	64.0%
Maximum Green (s)	29.7	29.7	29.7	29.7	29.7		57.3	57.3		57.3	57.3	57.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag												
Lead-Lag Optimize?												
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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effct Green (s)	9.5		9.5	9.5	9.5		77.5	77.5		77.5	77.5	77.5
Actuated g/C Ratio	0.10		0.10	0.10	0.10		0.78	0.78		0.78	0.78	0.78
v/c Ratio	0.40		0.55	0.05	0.02		0.22	0.26		0.00	0.31	0.09

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	51.0		15.6	40.8	0.0		6.2	5.6		3.0	3.6	0.7
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	51.0		15.6	40.8	0.0		6.2	5.6		3.0	3.6	0.7
LOS	D		B	D	A		A	A		A	A	A
Approach Delay		24.2			18.1			5.7			3.2	
Approach LOS		C			B			A			A	
Queue Length 50th (m)	9.3		1.3	0.7	0.0		8.5	28.3		0.0	18.7	0.0
Queue Length 95th (m)	20.1		18.6	3.9	0.0		14.7	30.4		m0.1	29.6	3.1
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0			115.0		160.0
Base Capacity (vph)	397		574	246	511		476	2597		594	2747	1232
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	0.13		0.27	0.02	0.01		0.22	0.26		0.00	0.31	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 37 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 6.5		Intersection LOS: A	
Intersection Capacity Utilization 55.6%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road

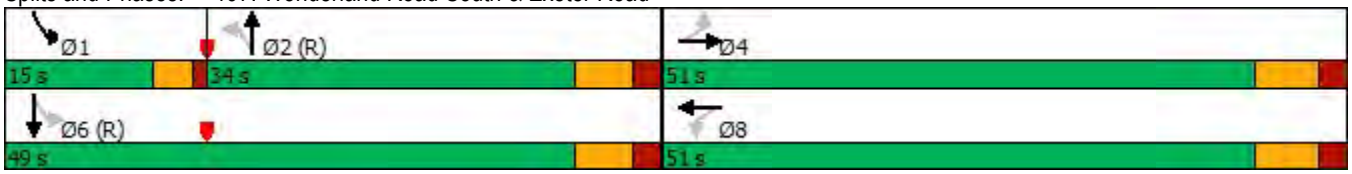


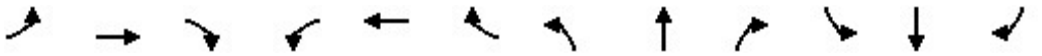
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	589	273	44	233	183	54	697	112	351	777	3
Future Volume (vph)	3	589	273	44	233	183	54	697	112	351	777	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.952			0.934			0.979			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1372	3407	0	1437	3032	0	1738	3408	0	1789	3507	0
Flt Permitted	0.465			0.154			0.356			0.224		
Satd. Flow (perm)	672	3407	0	233	3032	0	651	3408	0	422	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		96			183			18				
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
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 (%)	33%	2%	2%	27%	12%	13%	5%	5%	4%	2%	4%	0%
Adj. Flow (vph)	3	589	273	44	233	183	54	697	112	351	777	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	862	0	44	416	0	54	809	0	351	780	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		33.6	33.6		9.0	33.6	
Total Split (s)	51.0	51.0		51.0	51.0		34.0	34.0		15.0	49.0	
Total Split (%)	51.0%	51.0%		51.0%	51.0%		34.0%	34.0%		15.0%	49.0%	
Maximum Green (s)	44.0	44.0		44.0	44.0		27.4	27.4		11.0	42.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		4.4	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.6	6.6		4.0	6.6	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	30.7	30.7		30.7	30.7		40.7	40.7		58.3	55.7	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.41	0.41		0.58	0.56	
v/c Ratio	0.01	0.78		0.62	0.39		0.20	0.58		0.89	0.40	
Control Delay	26.0	34.9		65.3	15.0		24.7	25.7		49.6	9.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	26.0	34.9		65.3	15.0		24.7	25.7		49.6	9.3	
LOS	C	C		E	B		C	C		D	A	
Approach Delay		34.9			19.8			25.6			21.8	
Approach LOS		C			B			C			C	
Queue Length 50th (m)	0.4	55.2		7.3	17.7		6.6	61.3		31.6	26.5	
Queue Length 95th (m)	m0.6	67.2		#21.6	26.6		17.8	91.6		#55.7	27.7	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	295	1552		102	1436		264	1397		396	1953	
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	0.01	0.56		0.43	0.29		0.20	0.58		0.89	0.40	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 73 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 25.9		Intersection LOS: C	
Intersection Capacity Utilization 93.5%		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: 197: Wonderland Road South & Exeter Road



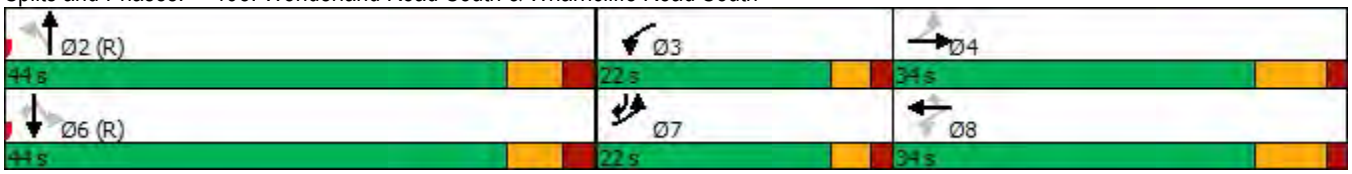


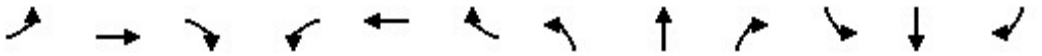
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	519	17	205	220	42	4	567	272	35	840	143
Future Volume (vph)	149	519	17	205	220	42	4	567	272	35	840	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				1.00		1.00		
Frt		0.995				0.850		0.951				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3521	0	1755	3544	1384	1825	3257	0	1508	3510	1570
Flt Permitted	0.614			0.252			0.263			0.264		
Satd. Flow (perm)	1134	3521	0	465	3544	1384	505	3257	0	419	3510	1570
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				89		92				143
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			1	1					3	3		
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 (%)	4%	3%	6%	4%	3%	18%	0%	8%	2%	21%	4%	4%
Adj. Flow (vph)	149	519	17	205	220	42	4	567	272	35	840	143
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	536	0	205	220	42	4	839	0	35	840	143
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	22.0	34.0		22.0	34.0	34.0	44.0	44.0		44.0	44.0	22.0
Total Split (%)	22.0%	34.0%		22.0%	34.0%	34.0%	44.0%	44.0%		44.0%	44.0%	22.0%
Maximum Green (s)	17.5	27.0		17.5	27.0	27.0	37.3	37.3		37.3	37.3	17.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	33.9	20.6		39.2	23.3	23.3	47.8	47.8		47.8	47.8	65.2
Actuated g/C Ratio	0.34	0.21		0.39	0.23	0.23	0.48	0.48		0.48	0.48	0.65
v/c Ratio	0.33	0.74		0.58	0.27	0.11	0.02	0.52		0.17	0.50	0.13

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	6.4	29.9		25.3	31.3	0.9	32.5	24.0		24.3	21.7	0.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	6.4	29.9		25.3	31.3	0.9	32.5	24.0		24.3	21.7	0.6
LOS	A	C		C	C	A	C	C		C	C	A
Approach Delay		24.8			25.9			24.0			18.8	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	1.6	58.6		25.9	18.4	0.0	0.4	38.8		2.5	55.7	0.1
Queue Length 95th (m)	m6.6	75.1		35.4	26.2	0.8	m1.3	85.5		15.2	100.1	0.5
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	559	952		415	970	443	241	1603		200	1676	1169
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	0.27	0.56		0.49	0.23	0.09	0.02	0.52		0.17	0.50	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 53 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 22.7		Intersection LOS: C	
Intersection Capacity Utilization 70.6%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 198: Wonderland Road South & Wharncliffe Road South





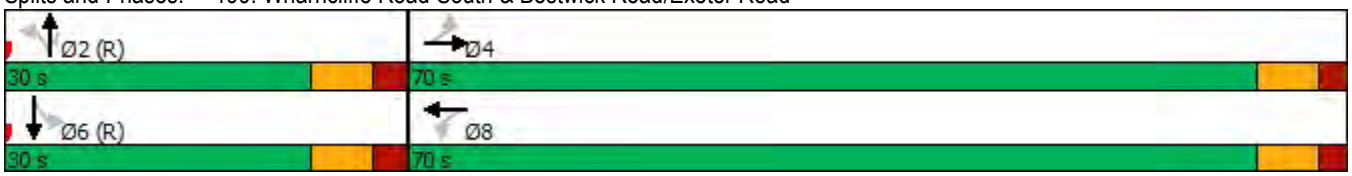
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	660	248	136	151	19	69	627	197	8	310	59
Future Volume (vph)	41	660	248	136	151	19	69	627	197	8	310	59
Ideal Flow (vphpl)	1900	1900	1900	2500	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.959			0.983				0.850		0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1779	0	2018	1756	0	1630	3544	1570	1496	3478	0
Flt Permitted	0.650			0.138			0.499			0.270		
Satd. Flow (perm)	1249	1779	0	293	1756	0	856	3544	1570	425	3478	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			12				197		20	
Link Speed (k/h)		70			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		11.0			14.1			20.8			18.2	
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%	3%	5%	19%	7%	12%	12%	3%	4%	22%	1%	10%
Adj. Flow (vph)	41	660	248	136	151	19	69	627	197	8	310	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	908	0	136	170	0	69	627	197	8	369	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	33.8	33.8		33.8	33.8		27.2	27.2	27.2	27.2	27.2	
Total Split (s)	70.0	70.0		70.0	70.0		30.0	30.0	30.0	30.0	30.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	63.2	63.2		63.2	63.2		22.8	22.8	22.8	22.8	22.8	
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		7.2	7.2	7.2	7.2	7.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		13.0	13.0	13.0	13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	59.4	59.4		59.4	59.4		26.6	26.6	26.6	26.6	26.6	
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.27	0.27	0.27	0.27	0.27	
v/c Ratio	0.06	0.85		0.78	0.16		0.30	0.67	0.35	0.07	0.39	
Control Delay	7.5	24.2		45.2	6.3		36.4	38.0	6.6	38.9	38.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	7.5	24.2		45.2	6.3		36.4	38.0	6.6	38.9	38.0	
LOS	A	C		D	A		D	D	A	D	D	
Approach Delay		23.5			23.6			31.0			38.0	
Approach LOS		C			C			C			D	
Queue Length 50th (m)	2.8	114.7		23.0	9.5		11.3	60.2	0.0	1.5	37.7	
Queue Length 95th (m)	6.6	173.9		#55.9	14.0		24.3	80.0	16.9	6.5	52.4	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0		90.0	80.0		
Base Capacity (vph)	789	1137		185	1114		227	942	562	112	939	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.05	0.80		0.74	0.15		0.30	0.67	0.35	0.07	0.39	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 74 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 28.3 Intersection LOS: C
Intersection Capacity Utilization 102.2% 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.

Splits and Phases: 199: Wharncliffe Road South & Bostwick Road/Exeter Road



Intersection	
Int Delay, s/veh	115

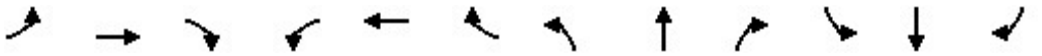
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	167	0	437	0	0	0	83	451	0	0	487	76
Future Vol, veh/h	167	0	437	0	0	0	83	451	0	0	487	76
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	2	0	0	0	5	6	0	0	2	4
Mvmt Flow	167	0	437	0	0	0	83	451	0	0	487	76

Major/Minor	Minor2				Major1			Major2		
Conflicting Flow All	1142	1142	525		563	0	-	-	-	0
Stage 1	525	525	-		-	-	-	-	-	-
Stage 2	617	617	-		-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.22		4.15	-	-	-	-	-
Critical Hdwy Stg 1	5.4	5.5	-		-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-		-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.318		2.245	-	-	-	-	-
Pot Cap-1 Maneuver	224	202	552		994	-	0	0	-	-
Stage 1	598	533	-		-	-	0	0	-	-
Stage 2	542	484	-		-	-	0	0	-	-
Platoon blocked, %						-			-	-
Mov Cap-1 Maneuver	199	0	552		994	-	-	-	-	-
Mov Cap-2 Maneuver	199	0	-		-	-	-	-	-	-
Stage 1	532	0	-		-	-	-	-	-	-
Stage 2	542	0	-		-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 322.5	1.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	994	-	370	-	-
HCM Lane V/C Ratio	0.084	-	1.632	-	-
HCM Control Delay (s)	9	0	$ 322.5	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.3	-	35.6	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

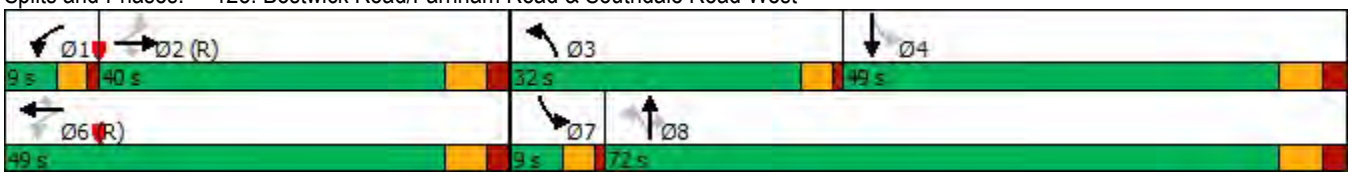


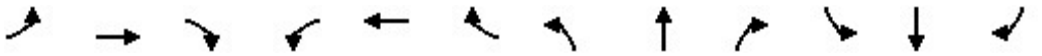
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	809	260	256	872	166	447	175	162	83	100	55
Future Volume (vph)	50	809	260	256	872	166	447	175	162	83	100	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		30.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98	1.00			1.00		0.99	1.00	0.99	
Frt			0.850			0.850			0.850		0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3614	1555	1755	3614	1633	1825	1902	1570	1755	1774	0
Flt Permitted	0.325			0.106			0.380			0.647		
Satd. Flow (perm)	624	3614	1521	196	3614	1633	728	1902	1547	1193	1774	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			132			98			162		23	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		66.3			26.0			45.0			3.6	
Confl. Peds. (#/hr)			1	1			3		2	2		3
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%	1%	5%	4%	1%	0%	0%	1%	4%	4%	2%	2%
Adj. Flow (vph)	50	809	260	256	872	166	447	175	162	83	100	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	809	260	256	872	166	447	175	162	83	155	0
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	2	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	34.5	34.5	34.5	9.0	34.5	34.5	9.0	37.7	37.7	9.0	37.7	
Total Split (s)	40.0	40.0	40.0	9.0	49.0	49.0	32.0	72.0	72.0	9.0	49.0	
Total Split (%)	30.8%	30.8%	30.8%	6.9%	37.7%	37.7%	24.6%	55.4%	55.4%	6.9%	37.7%	
Maximum Green (s)	33.5	33.5	33.5	5.0	42.5	42.5	28.0	65.3	65.3	5.0	42.3	
Yellow Time (s)	4.1	4.1	4.1	3.0	4.1	4.1	3.0	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.4	2.4	2.4	1.0	2.4	2.4	1.0	2.6	2.6	1.0	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	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	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		24.0	24.0		24.0	
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	
Act Effct Green (s)	34.9	34.9	34.9	72.6	70.1	70.1	49.4	37.7	37.7	22.9	15.2	
Actuated g/C Ratio	0.27	0.27	0.27	0.56	0.54	0.54	0.38	0.29	0.29	0.18	0.12	
v/c Ratio	0.30	0.83	0.52	0.53	0.45	0.18	0.88	0.32	0.29	0.36	0.68	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	43.8	53.6	23.3	42.8	24.3	12.9	52.4	36.7	5.8	33.8	61.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	43.8	53.6	23.3	42.8	24.3	12.9	52.4	36.7	5.8	33.8	61.1	
LOS	D	D	C	D	C	B	D	D	A	C	E	
Approach Delay		46.1			26.5			39.3			51.6	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	10.0	100.8	26.4	51.1	78.2	12.8	92.6	34.9	0.0	13.6	32.9	
Queue Length 95th (m)	22.8	#135.6	54.9	81.0	97.5	23.3	#123.7	50.8	14.7	22.8	53.2	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0		30.0	110.0		30.0	35.0			25.0		
Base Capacity (vph)	167	969	504	483	1948	925	512	955	857	231	592	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.30	0.83	0.52	0.53	0.45	0.18	0.87	0.18	0.19	0.36	0.26	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 113 (87%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 37.5		Intersection LOS: D	
Intersection Capacity Utilization 90.3%		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: 128: Bostwick Road/Farnham Road & Southdale Road West



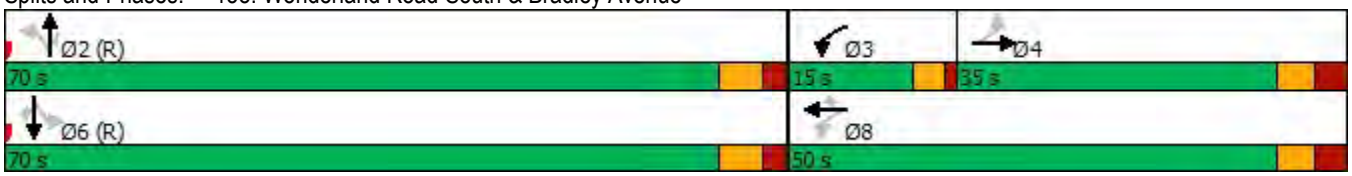


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	31	83	172	44	160	112	1088	125	166	851	25
Future Volume (vph)	13	31	83	172	44	160	112	1088	125	166	851	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99					0.98	1.00		0.98	1.00		0.97
Frt		0.891				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1712	0	1755	1921	1633	1484	3614	1142	1825	3544	1633
Flt Permitted	0.728			0.415			0.309			0.229		
Satd. Flow (perm)	1388	1712	0	767	1921	1601	482	3614	1116	440	3544	1589
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		83				71			115			67
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	6					6	3		1	1		3
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%	0%	4%	0%	0%	23%	1%	43%	0%	3%	0%
Adj. Flow (vph)	13	31	83	172	44	160	112	1088	125	166	851	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	114	0	172	44	160	112	1088	125	166	851	25
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.4	34.4		9.0	34.4	34.4	31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	35.0	35.0		15.0	50.0	50.0	70.0	70.0	70.0	70.0	70.0	70.0
Total Split (%)	29.2%	29.2%		12.5%	41.7%	41.7%	58.3%	58.3%	58.3%	58.3%	58.3%	58.3%
Maximum Green (s)	28.6	28.6		11.0	43.6	43.6	63.8	63.8	63.8	63.8	63.8	63.8
Yellow Time (s)	3.3	3.3		3.0	3.3	3.3	3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	3.1	3.1		1.0	3.1	3.1	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		4.0	6.4	6.4	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0			7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0			21.0	21.0	18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0			0	0	0	0	0	0	0	0
Act Effct Green (s)	8.9	8.9		26.2	23.8	23.8	83.6	83.6	83.6	83.6	83.6	83.6
Actuated g/C Ratio	0.07	0.07		0.22	0.20	0.20	0.70	0.70	0.70	0.70	0.70	0.70
v/c Ratio	0.13	0.56		0.67	0.12	0.43	0.33	0.43	0.15	0.54	0.34	0.02

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	53.0	28.7		54.1	39.2	26.2	11.1	10.3	3.1	17.8	8.0	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	28.7		54.1	39.2	26.2	11.1	10.3	3.1	17.8	8.0	0.0
LOS	D	C		D	D	C	B	B	A	B	A	A
Approach Delay		31.2			40.5			9.7			9.3	
Approach LOS		C			D			A			A	
Queue Length 50th (m)	3.0	7.1		35.8	8.7	18.2	12.3	69.0	5.8	16.5	36.4	0.0
Queue Length 95th (m)	9.0	24.2		54.1	17.9	36.7	15.1	53.0	6.5	44.1	54.0	0.0
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	330	471		257	697	626	336	2518	812	306	2470	1127
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.24		0.67	0.06	0.26	0.33	0.43	0.15	0.54	0.34	0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 51 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 14.6		Intersection LOS: B	
Intersection Capacity Utilization 72.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 158: Wonderland Road South & Bradley Avenue

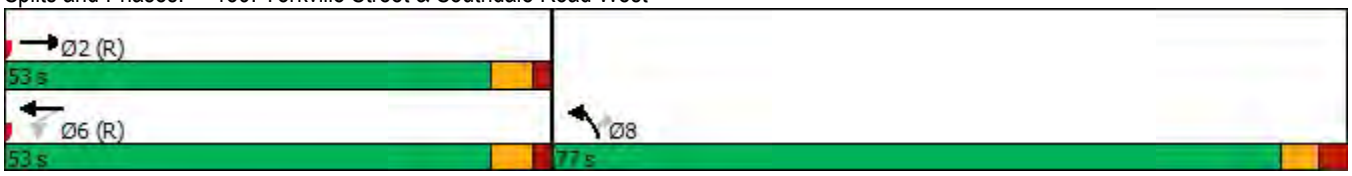


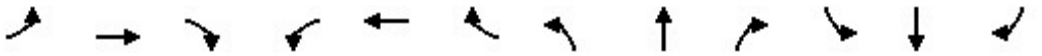
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	938	120	175	1198	95	118
Future Volume (vph)	938	120	175	1198	95	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.983					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3588	0	1825	3650	1825	1633
Flt Permitted			0.257		0.950	
Satd. Flow (perm)	3588	0	494	3650	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	12					33
Link Speed (k/h)	60			60	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	26.0			20.4	11.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	938	120	175	1198	95	118
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1058	0	175	1198	95	118
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	28.4		28.4	28.4	35.5	35.5
Total Split (s)	53.0		53.0	53.0	77.0	77.0
Total Split (%)	40.8%		40.8%	40.8%	59.2%	59.2%
Maximum Green (s)	47.0		47.0	47.0	70.5	70.5
Yellow Time (s)	4.1		4.1	4.1	3.6	3.6
All-Red Time (s)	1.9		1.9	1.9	2.9	2.9
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	22.0	22.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	104.8		104.8	104.8	12.7	12.7
Actuated g/C Ratio	0.81		0.81	0.81	0.10	0.10
v/c Ratio	0.37		0.44	0.41	0.53	0.62
Control Delay	1.9		9.1	5.7	65.6	54.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	1.9		9.1	5.7	65.6	54.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A		A	A	E	D
Approach Delay	1.9			6.2	59.2	
Approach LOS	A			A	E	
Queue Length 50th (m)	7.5		14.5	50.4	23.6	21.1
Queue Length 95th (m)	12.6		24.9	63.7	39.3	39.4
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)			55.0		45.0	
Base Capacity (vph)	2893		398	2941	989	900
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.37		0.44	0.41	0.10	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 28 (22%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 8.7		Intersection LOS: A	
Intersection Capacity Utilization 60.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 159: Yorkville Street & Southdale Road West



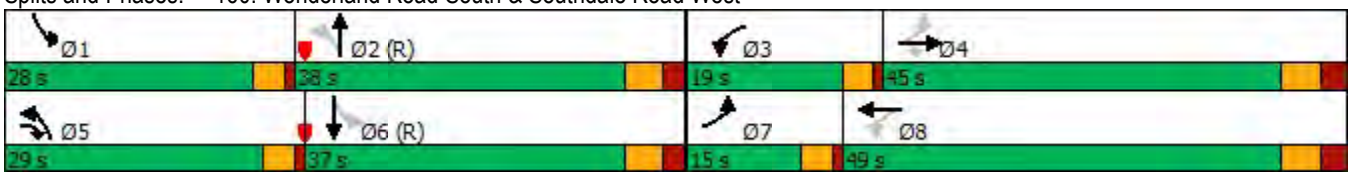


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	719	126	148	782	223	285	738	95	289	750	114
Future Volume (vph)	177	719	126	148	782	223	285	738	95	289	750	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.95	0.99	0.99		0.99	1.00		1.00	0.99	
Frt			0.850		0.967			0.983			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3579	1555	1825	3467	0	1807	3502	0	1738	3461	0
Flt Permitted	0.099			0.212			0.110			0.113		
Satd. Flow (perm)	186	3579	1483	404	3467	0	208	3502	0	206	3461	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113		30			10			12	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	12		29	29		12	32		14	14		32
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	5%	0%	1%	2%	1%	2%	3%	5%	3%	0%
Adj. Flow (vph)	177	719	126	148	782	223	285	738	95	289	750	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	177	719	126	148	1005	0	285	833	0	289	864	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.5	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	15.0	45.0	29.0	19.0	49.0		29.0	38.0		28.0	37.0	
Total Split (%)	11.5%	34.6%	22.3%	14.6%	37.7%		22.3%	29.2%		21.5%	28.5%	
Maximum Green (s)	11.0	38.4	25.0	15.0	42.4		25.0	31.9		24.0	30.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	53.9	40.3	62.7	55.2	41.0		58.5	36.5		60.4	37.5	
Actuated g/C Ratio	0.41	0.31	0.48	0.42	0.32		0.45	0.28		0.46	0.29	
v/c Ratio	0.83	0.65	0.16	0.49	0.90		0.85	0.84		0.85	0.86	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	73.9	25.5	4.3	27.0	53.3		54.9	53.3		54.9	53.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	73.9	25.5	4.3	27.0	53.3		54.9	53.3		54.9	53.8	
LOS	E	C	A	C	D		D	D		D	D	
Approach Delay		31.3			49.9			53.7			54.1	
Approach LOS		C			D			D			D	
Queue Length 50th (m)	30.6	50.2	0.0	21.8	124.2		55.1	108.7		54.9	112.2	
Queue Length 95th (m)	#69.9	89.4	9.9	35.2	#152.0		84.3	#151.1		#95.2	#164.7	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	212	1108	842	346	1150		406	990		380	1006	
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	0.83	0.65	0.15	0.43	0.87		0.70	0.84		0.76	0.86	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 125 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 47.7		Intersection LOS: D	
Intersection Capacity Utilization 96.6%		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.			

Splits and Phases: 160: Wonderland Road South & Southdale Road West

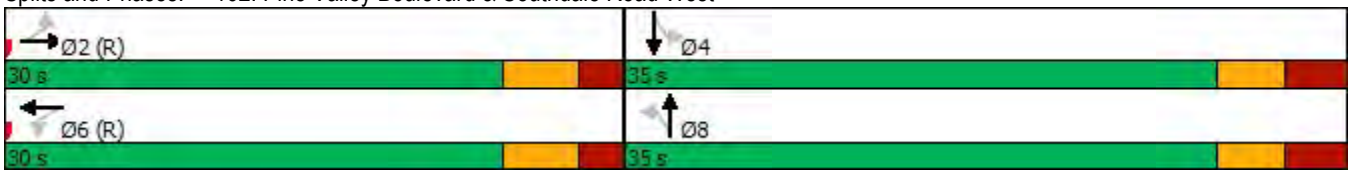


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	840	117	116	1007	75	191	102	74	64	71	176
Future Volume (vph)	100	840	117	116	1007	75	191	102	74	64	71	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1700	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		0.99	1.00		1.00	0.99		1.00	0.99	
Frt		0.982			0.990			0.937			0.893	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3495	0	1825	3566	0	1633	1788	0	1825	1677	0
Flt Permitted	0.205			0.251			0.566			0.646		
Satd. Flow (perm)	392	3495	0	479	3566	0	969	1788	0	1237	1677	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			13			43			24	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	18		24	24		18	8		6	6		8
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%	1%	0%	1%	1%	0%	0%	0%	0%	1%	1%
Adj. Flow (vph)	100	840	117	116	1007	75	191	102	74	64	71	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	957	0	116	1082	0	191	176	0	64	247	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	30.0	30.0		30.0	30.0		35.0	35.0		35.0	35.0	
Total Split (%)	46.2%	46.2%		46.2%	46.2%		53.8%	53.8%		53.8%	53.8%	
Maximum Green (s)	24.1	24.1		24.1	24.1		28.6	28.6		28.6	28.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	35.2	35.2		35.2	35.2		17.5	17.5		17.5	17.5	
Actuated g/C Ratio	0.54	0.54		0.54	0.54		0.27	0.27		0.27	0.27	
v/c Ratio	0.47	0.50		0.45	0.56		0.73	0.34		0.19	0.53	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	22.5	10.1		20.4	15.9		37.0	14.3		17.0	20.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.5	10.1		20.4	15.9		37.0	14.3		17.0	20.9	
LOS	C	B		C	B		D	B		B	C	
Approach Delay		11.3			16.3			26.1			20.1	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	17.3	96.6		13.4	76.3		20.9	12.6		5.9	22.6	
Queue Length 95th (m)	#26.0	115.5		m23.4	111.4		33.8	21.3		11.5	33.3	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	212	1905		259	1937		426	810		544	751	
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	0.47	0.50		0.45	0.56		0.45	0.22		0.12	0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 48 (74%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 16.1		Intersection LOS: B	
Intersection Capacity Utilization 85.6%		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.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West

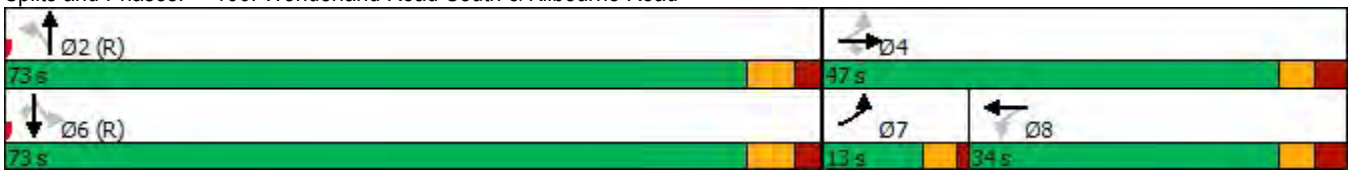


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	0	127	2	0	3	104	1240	1	0	1007	90
Future Volume (vph)	66	0	127	2	0	3	104	1240	1	0	1007	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00	1.00				0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1825	1921	1617	1825	1633	0	1825	3579	0	1921	3544	1601
Flt Permitted	0.588						0.269					
Satd. Flow (perm)	1130	1921	1617	1921	1633	0	516	3579	0	1921	3544	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95		140							90
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)							5		4	4		5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	3%	2%
Adj. Flow (vph)	66	0	127	2	0	3	104	1240	1	0	1007	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	0	127	2	3	0	104	1241	0	0	1007	90
Turn Type	pm+pt		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	9.0	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	13.0	47.0	47.0	34.0	34.0		73.0	73.0		73.0	73.0	73.0
Total Split (%)	10.8%	39.2%	39.2%	28.3%	28.3%		60.8%	60.8%		60.8%	60.8%	60.8%
Maximum Green (s)	9.0	40.7	40.7	27.7	27.7		66.3	66.3		66.3	66.3	66.3
Yellow Time (s)	3.0	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
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)	4.0	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0		0	0	0
Act Effct Green (s)	12.8		10.5	7.0	7.0		96.5	96.5			96.5	96.5
Actuated g/C Ratio	0.11		0.09	0.06	0.06		0.80	0.80			0.80	0.80
v/c Ratio	0.38		0.56	0.02	0.01		0.25	0.43			0.35	0.07

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	54.2		25.4	53.5	0.0		8.2	6.7			3.1	0.5
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	54.2		25.4	53.5	0.0		8.2	6.7			3.1	0.5
LOS	D		C	D	A		A	A			A	A
Approach Delay		35.3			21.4			6.9			2.9	
Approach LOS		D			C			A			A	
Queue Length 50th (m)	15.0		7.3	0.5	0.0		6.8	43.8			18.1	0.0
Queue Length 95th (m)	26.0		23.8	3.2	0.0		m19.9	100.4			38.1	m2.0
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0					160.0
Base Capacity (vph)	178		611	443	484		415	2879			2851	1263
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	0.37		0.21	0.00	0.01		0.25	0.43			0.35	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 7.3		Intersection LOS: A	
Intersection Capacity Utilization 66.9%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road



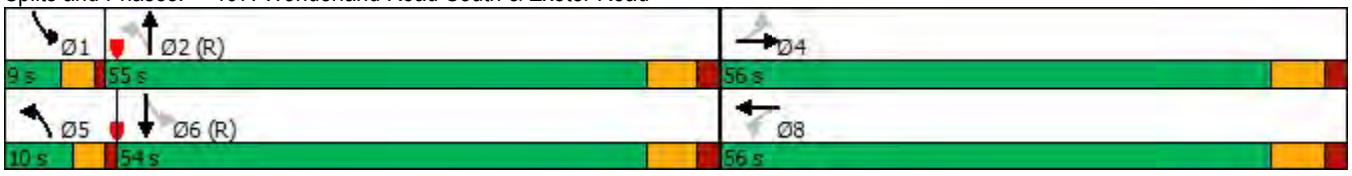
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	340	135	134	786	487	252	777	55	214	816	5
Future Volume (vph)	3	340	135	134	786	487	252	777	55	214	816	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.957			0.943			0.990			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3295	0	1755	3408	0	1772	3493	0	1706	3507	0
Flt Permitted	0.085			0.431			0.211			0.247		
Satd. Flow (perm)	163	3295	0	796	3408	0	394	3493	0	443	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		60			135			7			1	
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
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%	6%	6%	4%	1%	1%	3%	2%	24%	7%	4%	0%
Adj. Flow (vph)	3	340	135	134	786	487	252	777	55	214	816	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	475	0	134	1273	0	252	832	0	214	821	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		9.0	33.6		9.0	33.6	
Total Split (s)	56.0	56.0		56.0	56.0		10.0	55.0		9.0	54.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		8.3%	45.8%		7.5%	45.0%	
Maximum Green (s)	49.0	49.0		49.0	49.0		6.0	48.4		5.0	47.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		3.0	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		1.0	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		4.0	6.6		4.0	6.6	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	47.0	47.0		47.0	47.0		60.0	50.4		55.0	47.4	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.50	0.42		0.46	0.40	
v/c Ratio	0.05	0.36		0.43	0.90		0.87	0.57		0.84	0.59	
Control Delay	21.7	17.8		31.2	39.9		53.9	28.5		44.8	26.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

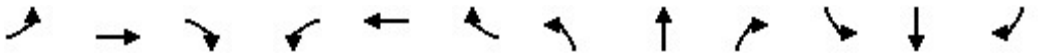
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	21.7	17.8		31.2	39.9		53.9	28.5		44.8	26.9	
LOS	C	B		C	D		D	C		D	C	
Approach Delay		17.8			39.1			34.4			30.6	
Approach LOS		B			D			C			C	
Queue Length 50th (m)	0.4	23.2		22.1	129.8		33.6	78.8		29.4	88.0	
Queue Length 95th (m)	m1.2	35.4		40.2	160.6		#79.4	99.0		#62.0	105.4	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	66	1380		325	1471		289	1471		255	1385	
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	0.05	0.34		0.41	0.87		0.87	0.57		0.84	0.59	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 33.1 Intersection LOS: C
Intersection Capacity Utilization 100.3% 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: 197: Wonderland Road South & Exeter Road



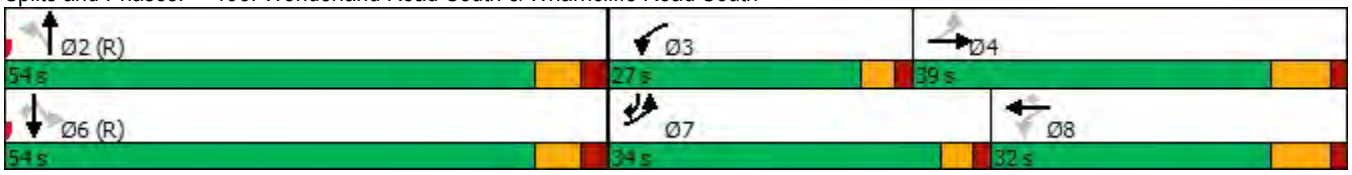


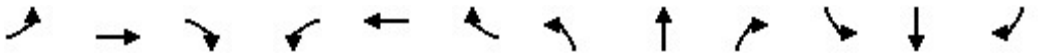
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	365	21	264	474	95	12	959	352	47	773	258
Future Volume (vph)	231	365	21	264	474	95	12	959	352	47	773	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				1.00				
Frt		0.992				0.850		0.960				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	3541	0	1755	3579	1512	1690	3436	0	1659	3380	1617
Flt Permitted	0.311			0.325			0.305			0.118		
Satd. Flow (perm)	592	3541	0	599	3579	1512	543	3436	0	206	3380	1617
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				115		52				51
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			2	2					3	3		
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 (%)	1%	2%	5%	4%	2%	8%	8%	1%	3%	10%	8%	1%
Adj. Flow (vph)	231	365	21	264	474	95	12	959	352	47	773	258
Shared Lane Traffic (%)												
Lane Group Flow (vph)	231	386	0	264	474	95	12	1311	0	47	773	258
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	34.0	39.0		27.0	32.0	32.0	54.0	54.0		54.0	54.0	34.0
Total Split (%)	28.3%	32.5%		22.5%	26.7%	26.7%	45.0%	45.0%		45.0%	45.0%	28.3%
Maximum Green (s)	29.5	32.0		22.5	25.0	25.0	47.3	47.3		47.3	47.3	29.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	37.9	18.9		42.4	21.2	21.2	64.1	64.1		64.1	64.1	87.3
Actuated g/C Ratio	0.32	0.16		0.35	0.18	0.18	0.53	0.53		0.53	0.53	0.73
v/c Ratio	0.65	0.69		0.67	0.75	0.26	0.04	0.70		0.43	0.43	0.22

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	17.9	33.4		35.9	54.6	6.4	27.8	34.6		27.9	13.3	4.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	17.9	33.4		35.9	54.6	6.4	27.8	34.6		27.9	13.3	4.1
LOS	B	C		D	D	A	C	C		C	B	A
Approach Delay		27.6			43.2			34.5			11.7	
Approach LOS		C			D			C			B	
Queue Length 50th (m)	9.7	45.8		45.0	55.8	0.0	1.7	152.3		4.9	42.9	14.6
Queue Length 95th (m)	m10.5	m60.3		60.1	71.7	9.7	m3.1	181.4		#24.7	64.3	22.1
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	518	947		436	745	406	290	1860		110	1806	1360
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	0.45	0.41		0.61	0.64	0.23	0.04	0.70		0.43	0.43	0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 75 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 28.9		Intersection LOS: C	
Intersection Capacity Utilization 80.2%		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: 198: Wonderland Road South & Wharncliffe Road South



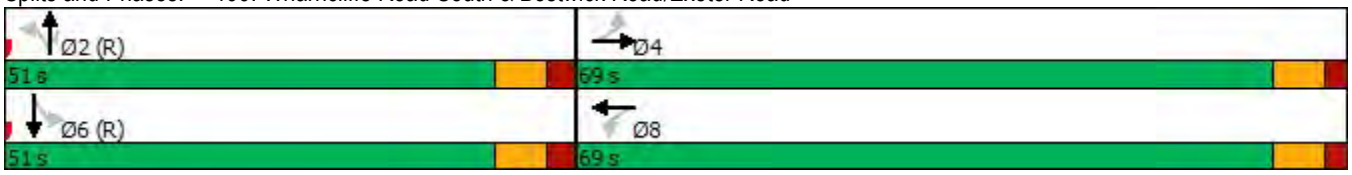


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	317	111	252	766	25	77	529	102	58	422	220
Future Volume (vph)	46	317	111	252	766	25	77	529	102	58	422	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					1.00							
Frt		0.961			0.995				0.850		0.949	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1805	0	1807	1908	0	1825	3579	1585	1738	3374	0
Flt Permitted	0.091			0.396			0.332			0.402		
Satd. Flow (perm)	175	1805	0	753	1908	0	638	3579	1585	736	3374	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			2				102		88	
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		9.6			14.1			20.8			18.2	
Confl. Peds. (#/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%	2%	3%	1%	0%	4%	0%	2%	3%	5%	3%	2%
Adj. Flow (vph)	46	317	111	252	766	25	77	529	102	58	422	220
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	428	0	252	791	0	77	529	102	58	642	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	33.8	33.8		33.8	33.8		27.2	27.2	27.2	27.2	27.2	
Total Split (s)	69.0	69.0		69.0	69.0		51.0	51.0	51.0	51.0	51.0	
Total Split (%)	57.5%	57.5%		57.5%	57.5%		42.5%	42.5%	42.5%	42.5%	42.5%	
Maximum Green (s)	62.2	62.2		62.2	62.2		43.8	43.8	43.8	43.8	43.8	
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		7.2	7.2	7.2	7.2	7.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		13.0	13.0	13.0	13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	56.8	56.8		56.8	56.8		49.2	49.2	49.2	49.2	49.2	
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.41	0.41	0.41	0.41	0.41	
v/c Ratio	0.56	0.49		0.71	0.88		0.30	0.36	0.14	0.19	0.45	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	49.7	22.0		19.4	22.8		30.1	26.5	5.4	48.0	47.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	49.7	22.0		19.4	22.8		30.1	26.5	5.4	48.0	47.3	
LOS	D	C		B	C		C	C	A	D	D	
Approach Delay		24.6			22.0			23.8			47.4	
Approach LOS		C			C			C			D	
Queue Length 50th (m)	7.2	61.5		23.4	146.3		12.4	46.2	0.0	12.7	72.7	
Queue Length 95th (m)	#24.8	83.4		m23.7	m149.0		26.6	63.3	11.2	m22.6	84.1	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0		90.0	80.0		
Base Capacity (vph)	90	946		390	989		261	1467	710	301	1435	
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	0.51	0.45		0.65	0.80		0.30	0.36	0.14	0.19	0.45	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 117 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 28.9		Intersection LOS: C	
Intersection Capacity Utilization 95.5%		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: 199: Wharncliffe Road South & Bostwick Road/Exeter Road



Intersection	
Int Delay, s/veh	265.3

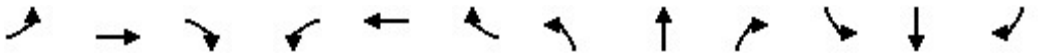
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	153	0	169	0	0	0	333	664	0	0	414	184
Future Vol, veh/h	153	0	169	0	0	0	333	664	0	0	414	184
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	2	0	0	0	0	0	0	0	5	1
Mvmt Flow	153	0	169	0	0	0	333	664	0	0	414	184

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	1836	1836	506			598	0	-	-	-	0
Stage 1	506	506	-			-	-	-	-	-	-
Stage 2	1330	1330	-			-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.22			4.1	-	-	-	-	-
Critical Hdwy Stg 1	5.4	5.5	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-			-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.318			2.2	-	-	-	-	-
Pot Cap-1 Maneuver	~ 84	77	566			989	-	0	0	-	-
Stage 1	610	543	-			-	-	0	0	-	-
Stage 2	249	226	-			-	-	0	0	-	-
Platoon blocked, %							-			-	-
Mov Cap-1 Maneuver	~ 39	0	566			989	-	-	-	-	-
Mov Cap-2 Maneuver	~ 39	0	-			-	-	-	-	-	-
Stage 1	284	0	-			-	-	-	-	-	-
Stage 2	249	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, $	1568.5	3.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	989	-	76	-	-
HCM Lane V/C Ratio	0.337	-	4.237	-	-
HCM Control Delay (s)	10.5	-	$ 1568.5	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	1.5	-	34.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

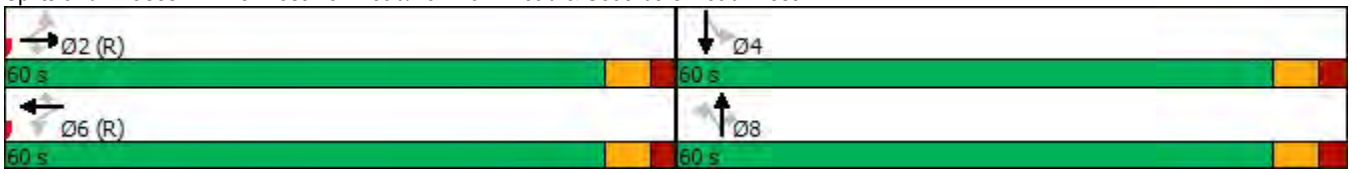


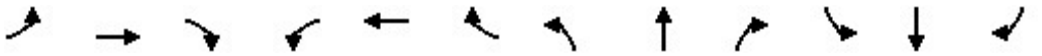
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	677	350	143	447	45	339	81	336	78	84	49
Future Volume (vph)	51	677	350	143	447	45	339	81	336	78	84	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		30.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98						
Frt			0.850			0.850			0.850		0.945	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3614	1498	1722	3444	1601	1674	1902	1585	1807	1755	0
Flt Permitted	0.480			0.352			0.672			0.704		
Satd. Flow (perm)	886	3614	1498	638	3444	1566	1184	1902	1585	1339	1755	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			263			45			148		31	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		66.3			26.0			45.0			3.6	
Confl. Peds. (#/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 (%)	4%	1%	9%	6%	6%	2%	9%	1%	3%	1%	2%	6%
Adj. Flow (vph)	51	677	350	143	447	45	339	81	336	78	84	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	677	350	143	447	45	339	81	336	78	133	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	34.5	34.5	34.5	34.5	34.5	34.5	37.7	37.7	37.7	37.7	37.7	
Total Split (s)	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	
Maximum Green (s)	53.5	53.5	53.5	53.5	53.5	53.5	53.3	53.3	53.3	53.3	53.3	
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.7	6.7	6.7	6.7	6.7	
Lead/Lag												
Lead-Lag Optimize?												
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	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0	24.0	24.0	24.0	24.0	24.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Act Effct Green (s)	65.3	65.3	65.3	65.3	65.3	65.3	41.5	41.5	41.5	41.5	41.5	
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54	0.54	0.35	0.35	0.35	0.35	0.35	
v/c Ratio	0.11	0.34	0.37	0.41	0.24	0.05	0.83	0.12	0.52	0.17	0.21	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	17.5	17.5	6.2	12.3	7.2	1.4	52.1	24.5	18.3	25.3	19.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	17.5	17.5	6.2	12.3	7.2	1.4	52.1	24.5	18.3	25.3	19.6	
LOS	B	B	A	B	A	A	D	C	B	C	B	
Approach Delay		13.8			7.9			34.1			21.7	
Approach LOS		B			A			C			C	
Queue Length 50th (m)	5.7	46.0	9.7	8.3	13.4	0.0	71.7	12.8	33.6	12.5	16.4	
Queue Length 95th (m)	15.1	71.3	33.0	30.6	21.2	0.8	94.8	20.3	51.7	20.4	26.1	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0		30.0	110.0		30.0	35.0			25.0		
Base Capacity (vph)	481	1966	934	347	1873	872	525	844	786	594	796	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.11	0.34	0.37	0.41	0.24	0.05	0.65	0.10	0.43	0.13	0.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 18 (15%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 18.8		Intersection LOS: B	
Intersection Capacity Utilization 77.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 128: Bostwick Road/Farnham Road & Southdale Road West



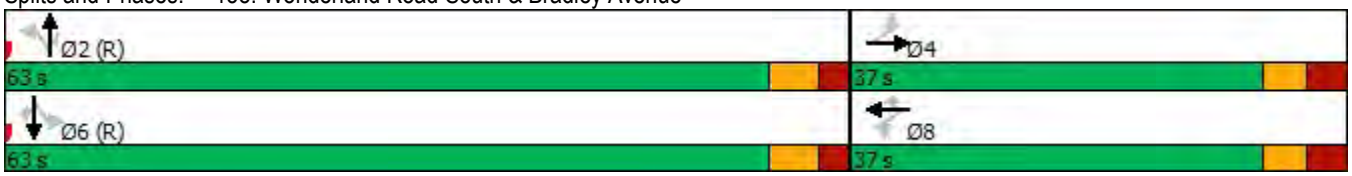


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	2	13	72	6	103	33	680	72	135	929	3
Future Volume (vph)	1	2	13	72	6	103	33	680	72	135	929	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00					0.98	1.00		0.98	1.00		0.99
Frt		0.870				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1563	0	1772	1921	1512	1601	3476	1570	1825	3579	1228
Flt Permitted	0.754			0.748			0.298			0.393		
Satd. Flow (perm)	1442	1563	0	1395	1921	1487	502	3476	1536	754	3579	1210
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				103			72			37
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	4					4	2		1	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%	0%	8%	14%	5%	4%	0%	2%	33%
Adj. Flow (vph)	1	2	13	72	6	103	33	680	72	135	929	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	15	0	72	6	103	33	680	72	135	929	3
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		8	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.4	34.4		34.4	34.4	34.4	31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	37.0	37.0		37.0	37.0	37.0	63.0	63.0	63.0	63.0	63.0	63.0
Total Split (%)	37.0%	37.0%		37.0%	37.0%	37.0%	63.0%	63.0%	63.0%	63.0%	63.0%	63.0%
Maximum Green (s)	30.6	30.6		30.6	30.6	30.6	56.8	56.8	56.8	56.8	56.8	56.8
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	3.1	3.1		3.1	3.1	3.1	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4	6.4	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag												
Lead-Lag Optimize?												
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		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0	21.0	18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effct Green (s)	10.7	10.7		10.7	10.7	10.7	76.7	76.7	76.7	76.7	76.7	76.7
Actuated g/C Ratio	0.11	0.11		0.11	0.11	0.11	0.77	0.77	0.77	0.77	0.77	0.77
v/c Ratio	0.01	0.08		0.48	0.03	0.41	0.09	0.26	0.06	0.23	0.34	0.00

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	37.0	20.9		51.9	37.8	13.1	3.1	4.1	1.1	5.0	4.3	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.0	20.9		51.9	37.8	13.1	3.1	4.1	1.1	5.0	4.3	0.0
LOS	D	C		D	D	B	A	A	A	A	A	A
Approach Delay		21.9			29.4			3.7			4.4	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	0.2	0.4		13.4	1.1	0.0	1.6	27.2	1.6	6.0	23.8	0.0
Queue Length 95th (m)	1.7	6.0		25.9	4.6	14.1	3.0	21.2	1.9	14.8	38.9	0.0
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	441	487		426	587	526	384	2664	1194	578	2743	936
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.03		0.17	0.01	0.20	0.09	0.26	0.06	0.23	0.34	0.00

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 41 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.48			
Intersection Signal Delay: 6.5		Intersection LOS: A	
Intersection Capacity Utilization 59.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 158: Wonderland Road South & Bradley Avenue

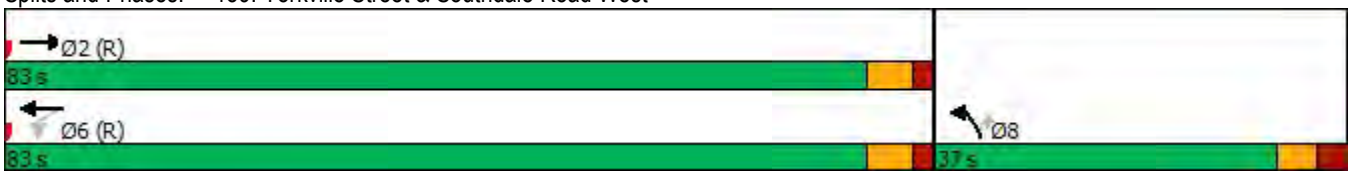


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1067	62	126	544	91	267
Future Volume (vph)	1067	62	126	544	91	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.992					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3621	0	1825	3650	1825	1633
Flt Permitted			0.228		0.950	
Satd. Flow (perm)	3621	0	438	3650	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	10					121
Link Speed (k/h)	60			60	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	26.0			20.4	11.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1067	62	126	544	91	267
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1129	0	126	544	91	267
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	28.4		28.4	28.4	35.5	35.5
Total Split (s)	83.0		83.0	83.0	37.0	37.0
Total Split (%)	69.2%		69.2%	69.2%	30.8%	30.8%
Maximum Green (s)	77.0		77.0	77.0	30.5	30.5
Yellow Time (s)	4.1		4.1	4.1	3.6	3.6
All-Red Time (s)	1.9		1.9	1.9	2.9	2.9
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	22.0	22.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	90.6		90.6	90.6	16.9	16.9
Actuated g/C Ratio	0.76		0.76	0.76	0.14	0.14
v/c Ratio	0.41		0.38	0.20	0.35	0.80
Control Delay	5.2		7.8	2.0	48.3	44.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	5.2		7.8	2.0	48.3	44.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A		A	A	D	D
Approach Delay	5.2			3.1	45.1	
Approach LOS	A			A	D	
Queue Length 50th (m)	45.5		5.8	10.5	19.7	34.0
Queue Length 95th (m)	57.4		15.4	18.2	32.4	58.8
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)			55.0		45.0	
Base Capacity (vph)	2736		330	2755	463	505
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.41		0.38	0.20	0.20	0.53

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 4 (3%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 11.2		Intersection LOS: B	
Intersection Capacity Utilization 59.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 159: Yorkville Street & Southdale Road West

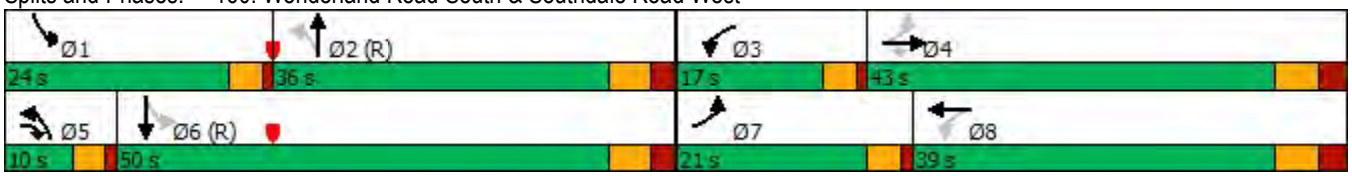


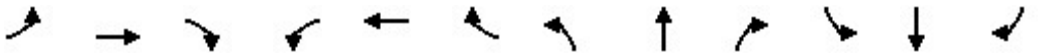
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	841	156	70	472	191	115	479	40	328	740	103
Future Volume (vph)	260	841	156	70	472	191	115	479	40	328	740	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.98	1.00	0.99		0.99	1.00		0.99	1.00	
Frt			0.850		0.957			0.988			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	3579	1617	1772	3287	0	1755	3351	0	1738	3381	0
Flt Permitted	0.165			0.214			0.282			0.311		
Satd. Flow (perm)	287	3579	1578	398	3287	0	518	3351	0	566	3381	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			117		50			7			14	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	14		11	11		14	15		12	12		15
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%	2%	1%	3%	4%	9%	4%	7%	12%	5%	5%	10%
Adj. Flow (vph)	260	841	156	70	472	191	115	479	40	328	740	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	260	841	156	70	663	0	115	519	0	328	843	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.5	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	21.0	43.0	10.0	17.0	39.0		10.0	36.0		24.0	50.0	
Total Split (%)	17.5%	35.8%	8.3%	14.2%	32.5%		8.3%	30.0%		20.0%	41.7%	
Maximum Green (s)	17.0	36.4	6.0	13.0	32.4		6.0	29.9		20.0	43.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	51.2	38.4	47.0	38.9	28.0		45.0	36.9		60.8	48.7	
Actuated g/C Ratio	0.43	0.32	0.39	0.32	0.23		0.38	0.31		0.51	0.41	
v/c Ratio	0.83	0.74	0.23	0.31	0.82		0.45	0.50		0.71	0.61	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	51.2	37.8	11.1	23.6	49.2		25.7	37.3		28.7	30.9	
Queue Delay	0.0	0.3	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	51.2	38.1	11.1	23.6	49.2		25.7	37.3		28.7	30.9	
LOS	D	D	B	C	D		C	D		C	C	
Approach Delay		37.4			46.7			35.2			30.3	
Approach LOS		D			D			D			C	
Queue Length 50th (m)	38.7	102.2	6.7	9.5	72.4		14.1	53.8		46.3	81.2	
Queue Length 95th (m)	#76.9	110.0	20.7	17.3	90.3		26.3	74.8		72.6	108.1	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	316	1148	690	293	923		255	1034		481	1379	
Starvation Cap Reductn	0	48	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	0.82	0.76	0.23	0.24	0.72		0.45	0.50		0.68	0.61	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 36.6		Intersection LOS: D	
Intersection Capacity Utilization 96.2%		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.			

Splits and Phases: 160: Wonderland Road South & Southdale Road West



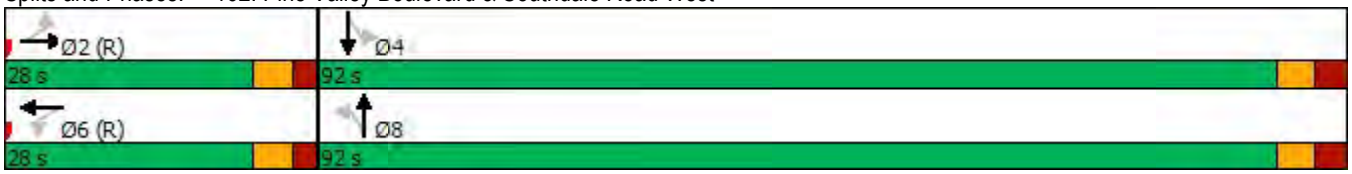


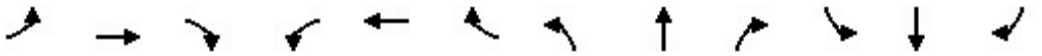
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	1171	63	69	560	68	40	17	44	27	25	71
Future Volume (vph)	101	1171	63	69	560	68	40	17	44	27	25	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00			1.00		0.99	0.99		1.00	0.98	
Frt		0.992			0.984			0.892			0.889	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3582	0	1825	3387	0	1825	1697	0	1755	1610	0
Flt Permitted	0.414			0.209			0.695			0.717		
Satd. Flow (perm)	792	3582	0	402	3387	0	1325	1697	0	1323	1610	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			10						16	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	5		2	2		5	7		1	1		7
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%	1%	0%	0%	6%	3%	0%	0%	0%	4%	0%	6%
Adj. Flow (vph)	101	1171	63	69	560	68	40	17	44	27	25	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	1234	0	69	628	0	40	61	0	27	96	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	28.0	28.0		28.0	28.0		92.0	92.0		92.0	92.0	
Total Split (%)	23.3%	23.3%		23.3%	23.3%		76.7%	76.7%		76.7%	76.7%	
Maximum Green (s)	22.1	22.1		22.1	22.1		85.6	85.6		85.6	85.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	96.0	96.0		96.0	96.0		11.7	11.7		11.7	11.7	
Actuated g/C Ratio	0.80	0.80		0.80	0.80		0.10	0.10		0.10	0.10	
v/c Ratio	0.16	0.43		0.21	0.23		0.31	0.37		0.21	0.56	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	2.4	2.6		12.8	10.0		55.0	55.6		51.8	54.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	2.4	2.6		12.8	10.0		55.0	55.6		51.8	54.7	
LOS	A	A		B	A		E	E		D	D	
Approach Delay		2.6			10.3			55.4			54.0	
Approach LOS		A			B			E			D	
Queue Length 50th (m)	2.1	19.4		7.8	37.0		8.9	13.7		6.0	18.2	
Queue Length 95th (m)	5.7	29.2		m15.2	58.9		19.1	26.0		14.5	34.0	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	633	2865		321	2711		945	1210		943	1153	
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	0.16	0.43		0.21	0.23		0.04	0.05		0.03	0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 66 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 10.1		Intersection LOS: B	
Intersection Capacity Utilization 66.7%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West



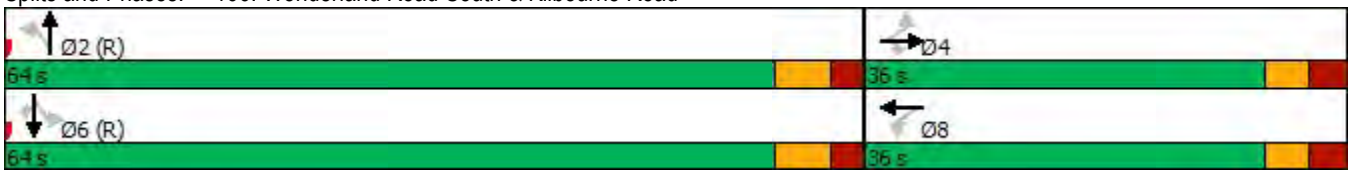


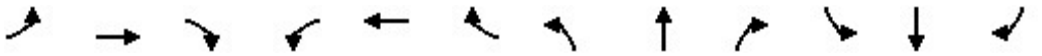
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	0	248	4	0	5	135	683	2	1	872	130
Future Volume (vph)	95	0	248	4	0	5	135	683	2	1	872	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00					0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	1921	1585	1043	1151	0	1807	3350	0	1825	3544	1601
Flt Permitted	0.754			0.757			0.315			0.391		
Satd. Flow (perm)	1340	1921	1585	831	1151	0	598	3350	0	751	3544	1558
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			145		230							130
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)	1					1	3					3
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 (%)	8%	0%	3%	75%	0%	40%	1%	9%	0%	0%	3%	2%
Adj. Flow (vph)	95	0	248	4	0	5	135	683	2	1	872	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	95	0	248	4	5	0	135	685	0	1	872	130
Turn Type	Perm		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	33.3	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	36.0	36.0	36.0	36.0	36.0		64.0	64.0		64.0	64.0	64.0
Total Split (%)	36.0%	36.0%	36.0%	36.0%	36.0%		64.0%	64.0%		64.0%	64.0%	64.0%
Maximum Green (s)	29.7	29.7	29.7	29.7	29.7		57.3	57.3		57.3	57.3	57.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag												
Lead-Lag Optimize?												
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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effct Green (s)	13.3		13.3	13.3	13.3		73.7	73.7		73.7	73.7	73.7
Actuated g/C Ratio	0.13		0.13	0.13	0.13		0.74	0.74		0.74	0.74	0.74
v/c Ratio	0.53		0.74	0.04	0.01		0.31	0.28		0.00	0.33	0.11

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	50.0		30.3	34.5	0.0		8.6	5.9		5.0	5.0	1.0
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	50.0		30.3	34.5	0.0		8.6	5.9		5.0	5.0	1.0
LOS	D		C	C	A		A	A		A	A	A
Approach Delay		35.8			15.3			6.3			4.5	
Approach LOS		D			B			A			A	
Queue Length 50th (m)	17.6		19.0	0.7	0.0		4.6	12.2		0.1	22.8	0.0
Queue Length 95th (m)	30.5		41.3	3.5	0.0		24.7	47.8		m0.2	40.9	4.5
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0			115.0		160.0
Base Capacity (vph)	397		572	246	503		440	2469		553	2612	1182
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		0.43	0.02	0.01		0.31	0.28		0.00	0.33	0.11

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 37 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 10.2		Intersection LOS: B	
Intersection Capacity Utilization 61.4%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road





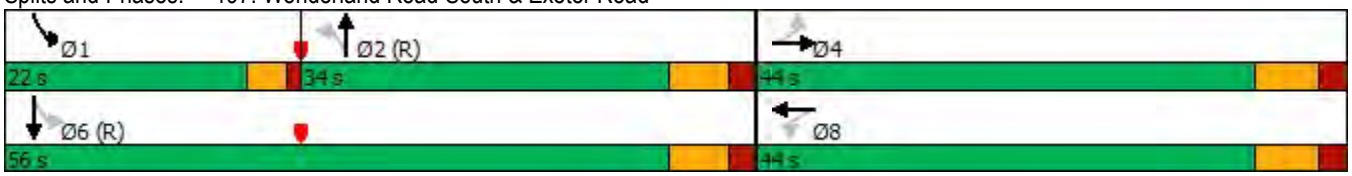
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	645	289	44	252	196	59	731	112	394	821	3
Future Volume (vph)	3	645	289	44	252	196	59	731	112	394	821	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.954			0.934			0.980			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1372	3414	0	1437	3032	0	1738	3411	0	1789	3507	0
Flt Permitted	0.442			0.128			0.341			0.156		
Satd. Flow (perm)	638	3414	0	194	3032	0	624	3411	0	294	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		81			196			17				
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
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 (%)	33%	2%	2%	27%	12%	13%	5%	5%	4%	2%	4%	0%
Adj. Flow (vph)	3	645	289	44	252	196	59	731	112	394	821	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	934	0	44	448	0	59	843	0	394	824	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		33.6	33.6		9.0	33.6	
Total Split (s)	44.0	44.0		44.0	44.0		34.0	34.0		22.0	56.0	
Total Split (%)	44.0%	44.0%		44.0%	44.0%		34.0%	34.0%		22.0%	56.0%	
Maximum Green (s)	37.0	37.0		37.0	37.0		27.4	27.4		18.0	49.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		4.4	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.6	6.6		4.0	6.6	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	31.9	31.9		31.9	31.9		32.5	32.5		57.1	54.5	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.32	0.32		0.57	0.54	
v/c Ratio	0.01	0.82		0.72	0.41		0.29	0.75		0.90	0.43	
Control Delay	21.0	34.6		86.7	14.9		32.6	35.8		54.0	9.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

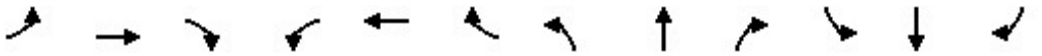
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	21.0	34.6		86.7	14.9		32.6	35.8		54.0	9.0	
LOS	C	C		F	B		C	D		D	A	
Approach Delay		34.6			21.3			35.6			23.6	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	0.4	79.6		7.4	18.7		8.6	75.4		44.6	26.7	
Queue Length 95th (m)	2.2	96.0		#25.2	29.4		21.4	#114.9		#106.3	25.1	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	236	1314		71	1245		202	1119		436	1911	
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	0.01	0.71		0.62	0.36		0.29	0.75		0.90	0.43	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 73 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 29.2 Intersection LOS: C
Intersection Capacity Utilization 96.8% 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.

Splits and Phases: 197: Wonderland Road South & Exeter Road



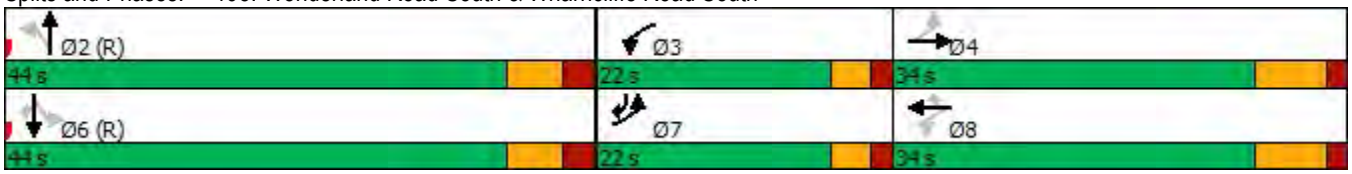


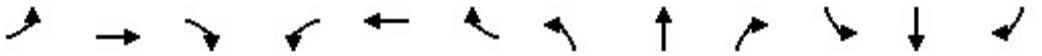
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	561	18	214	237	47	5	592	283	47	907	166
Future Volume (vph)	170	561	18	214	237	47	5	592	283	47	907	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				1.00		1.00		
Frt		0.995				0.850		0.951				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3521	0	1755	3544	1384	1825	3257	0	1508	3510	1570
Flt Permitted	0.604			0.237			0.228			0.242		
Satd. Flow (perm)	1116	3521	0	438	3544	1384	438	3257	0	384	3510	1570
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				89		91				166
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			1	1					3	3		
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 (%)	4%	3%	6%	4%	3%	18%	0%	8%	2%	21%	4%	4%
Adj. Flow (vph)	170	561	18	214	237	47	5	592	283	47	907	166
Shared Lane Traffic (%)												
Lane Group Flow (vph)	170	579	0	214	237	47	5	875	0	47	907	166
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	22.0	34.0		22.0	34.0	34.0	44.0	44.0		44.0	44.0	22.0
Total Split (%)	22.0%	34.0%		22.0%	34.0%	34.0%	44.0%	44.0%		44.0%	44.0%	22.0%
Maximum Green (s)	17.5	27.0		17.5	27.0	27.0	37.3	37.3		37.3	37.3	17.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	35.9	21.9		40.0	24.0	24.0	46.4	46.4		46.4	46.4	64.5
Actuated g/C Ratio	0.36	0.22		0.40	0.24	0.24	0.46	0.46		0.46	0.46	0.64
v/c Ratio	0.36	0.75		0.61	0.28	0.12	0.02	0.56		0.27	0.56	0.15

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	19.5	42.4		25.4	30.9	1.7	42.0	37.1		27.7	23.5	0.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	19.5	42.4		25.4	30.9	1.7	42.0	37.1		27.7	23.5	0.6
LOS	B	D		C	C	A	D	D		C	C	A
Approach Delay		37.2			25.8			37.1			20.3	
Approach LOS		D			C			D			C	
Queue Length 50th (m)	20.3	54.7		26.2	19.6	0.0	0.8	71.3		4.2	70.6	0.1
Queue Length 95th (m)	29.0	68.7		36.0	27.8	2.1	m1.6	105.9		20.2	114.5	1.7
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	570	952		415	973	444	203	1558		177	1627	1156
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	0.61		0.52	0.24	0.11	0.02	0.56		0.27	0.56	0.14

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 53 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 29.6		Intersection LOS: C	
Intersection Capacity Utilization 80.1%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 198: Wonderland Road South & Wharncliffe Road South





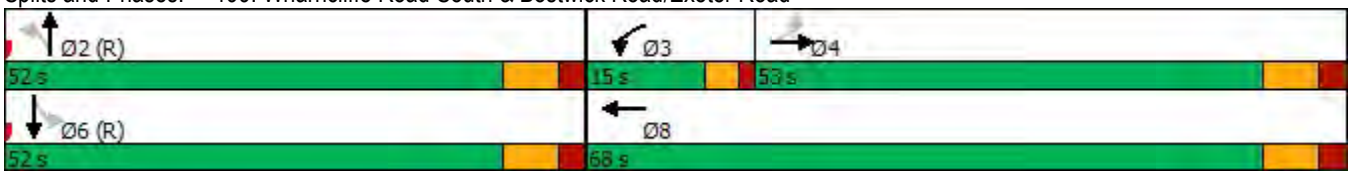
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	720	265	141	171	19	82	688	211	8	350	61
Future Volume (vph)	45	720	265	141	171	19	82	688	211	8	350	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.960			0.985			0.965			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3384	0	2975	3345	0	1630	4902	0	1496	3488	0
Flt Permitted	0.632			0.950			0.490			0.255		
Satd. Flow (perm)	1214	3384	0	2975	3345	0	840	4902	0	402	3488	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		50			14			73			19	
Link Speed (k/h)		60			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		12.8			14.1			20.8			18.2	
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%	3%	5%	19%	7%	12%	12%	3%	4%	22%	1%	10%
Adj. Flow (vph)	45	720	265	141	171	19	82	688	211	8	350	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	985	0	141	190	0	82	899	0	8	411	0
Turn Type	Perm	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4						2			6		
Detector Phase	4	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	52.7	52.7		9.5	52.7		51.6	51.6		51.6	51.6	
Total Split (s)	53.0	53.0		15.0	68.0		52.0	52.0		52.0	52.0	
Total Split (%)	44.2%	44.2%		12.5%	56.7%		43.3%	43.3%		43.3%	43.3%	
Maximum Green (s)	45.3	45.3		10.5	60.3		44.4	44.4		44.4	44.4	
Yellow Time (s)	5.0	5.0		3.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.7	2.7		1.5	2.7		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.7	7.7		4.5	7.7		7.6	7.6		7.6	7.6	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	38.0	38.0			38.0		37.0	37.0		37.0	37.0	
Pedestrian Calls (#/hr)	0	0			0		0	0		0	0	
Act Effct Green (s)	40.7	40.7		9.8	55.0		49.7	49.7		49.7	49.7	
Actuated g/C Ratio	0.34	0.34		0.08	0.46		0.41	0.41		0.41	0.41	
v/c Ratio	0.11	0.83		0.58	0.12		0.24	0.43		0.05	0.28	
Control Delay	26.2	41.3		63.1	16.5		27.3	24.5		25.2	23.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

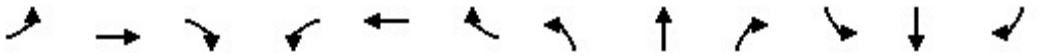
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	26.2	41.3		63.1	16.5		27.3	24.5		25.2	23.8	
LOS	C	D		E	B		C	C		C	C	
Approach Delay		40.7			36.3			24.7			23.9	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	7.1	105.3		16.6	11.8		12.7	51.3		1.2	32.4	
Queue Length 95th (m)	15.0	125.2		27.1	17.4		26.4	66.7		4.8	47.0	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0			80.0		
Base Capacity (vph)	458	1308		260	1687		347	2073		166	1456	
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	0.10	0.75		0.54	0.11		0.24	0.43		0.05	0.28	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 74 (62%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 31.9 Intersection LOS: C
Intersection Capacity Utilization 79.2% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 199: Wharncliffe Road South & Bostwick Road/Exeter Road



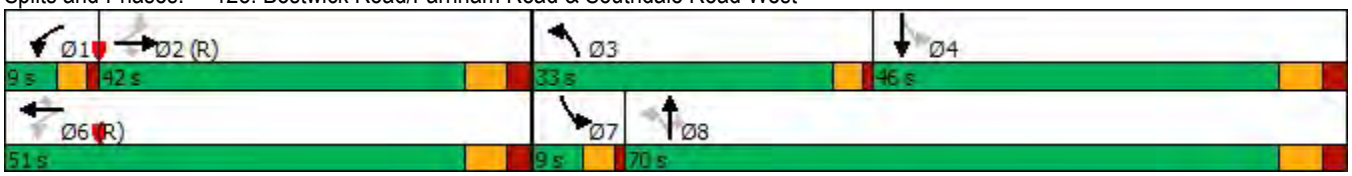


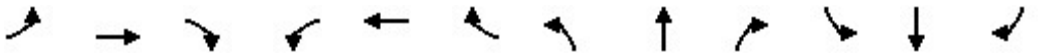
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	838	292	313	888	166	468	175	204	83	100	55
Future Volume (vph)	50	838	292	313	888	166	468	175	204	83	100	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		30.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.99				1.00		0.99	1.00	0.99	
Frt			0.850			0.850			0.850		0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3614	1555	1755	3614	1633	1825	1902	1570	1755	1774	0
Flt Permitted	0.320			0.101			0.382			0.647		
Satd. Flow (perm)	615	3614	1534	187	3614	1633	732	1902	1547	1193	1774	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			132			98			204		22	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		66.3			26.0			45.0			3.6	
Confl. Peds. (#/hr)			1	1			3		2	2		3
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%	1%	5%	4%	1%	0%	0%	1%	4%	4%	2%	2%
Adj. Flow (vph)	50	838	292	313	888	166	468	175	204	83	100	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	838	292	313	888	166	468	175	204	83	155	0
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	2	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	34.5	34.5	34.5	9.0	34.5	34.5	9.0	37.7	37.7	9.0	37.7	
Total Split (s)	42.0	42.0	42.0	9.0	51.0	51.0	33.0	70.0	70.0	9.0	46.0	
Total Split (%)	32.3%	32.3%	32.3%	6.9%	39.2%	39.2%	25.4%	53.8%	53.8%	6.9%	35.4%	
Maximum Green (s)	35.5	35.5	35.5	5.0	44.5	44.5	29.0	63.3	63.3	5.0	39.3	
Yellow Time (s)	4.1	4.1	4.1	3.0	4.1	4.1	3.0	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.4	2.4	2.4	1.0	2.4	2.4	1.0	2.6	2.6	1.0	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	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	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		24.0	24.0		24.0	
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	
Act Effct Green (s)	35.5	35.5	35.5	71.5	69.0	69.0	50.5	38.8	38.8	23.0	15.3	
Actuated g/C Ratio	0.27	0.27	0.27	0.55	0.53	0.53	0.39	0.30	0.30	0.18	0.12	
v/c Ratio	0.30	0.85	0.57	0.68	0.46	0.18	0.89	0.31	0.34	0.36	0.68	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	43.5	54.2	26.5	43.6	33.4	18.9	53.3	35.7	5.5	33.3	61.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	43.5	54.2	26.5	43.6	33.4	18.9	53.3	35.7	5.5	33.3	61.5	
LOS	D	D	C	D	C	B	D	D	A	C	E	
Approach Delay		46.9			34.0			38.2			51.6	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	10.2	107.3	34.9	69.1	98.0	18.2	97.0	34.5	0.0	13.4	33.1	
Queue Length 95th (m)	22.3	132.2	64.3	#107.1	131.7	29.6	#131.7	50.1	16.0	22.4	53.3	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0		30.0	110.0		30.0	35.0			25.0		
Base Capacity (vph)	167	986	514	459	1919	913	527	926	857	232	551	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.30	0.85	0.57	0.68	0.46	0.18	0.89	0.19	0.24	0.36	0.28	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 113 (87%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 40.3		Intersection LOS: D	
Intersection Capacity Utilization 94.6%		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.			

Splits and Phases: 128: Bostwick Road/Farnham Road & Southdale Road West



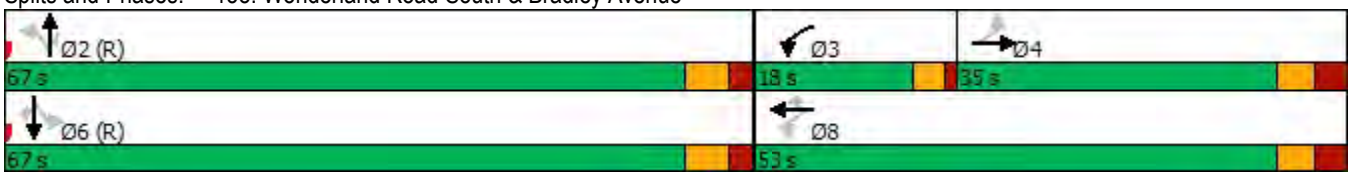


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	31	87	206	44	164	114	1111	143	171	890	25
Future Volume (vph)	13	31	87	206	44	164	114	1111	143	171	890	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99					0.98	1.00		0.98	1.00		0.98
Frt		0.889				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	1708	0	1755	1921	1633	1484	3614	1142	1825	3544	1633
Flt Permitted	0.728			0.399			0.290			0.217		
Satd. Flow (perm)	1388	1708	0	737	1921	1601	453	3614	1116	417	3544	1606
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		87				58			122			67
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	6					6	3		1	1		3
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%	0%	4%	0%	0%	23%	1%	43%	0%	3%	0%
Adj. Flow (vph)	13	31	87	206	44	164	114	1111	143	171	890	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	118	0	206	44	164	114	1111	143	171	890	25
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phase	4	4		3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.4	34.4		9.0	34.4	34.4	31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	35.0	35.0		18.0	53.0	53.0	67.0	67.0	67.0	67.0	67.0	67.0
Total Split (%)	29.2%	29.2%		15.0%	44.2%	44.2%	55.8%	55.8%	55.8%	55.8%	55.8%	55.8%
Maximum Green (s)	28.6	28.6		14.0	46.6	46.6	60.8	60.8	60.8	60.8	60.8	60.8
Yellow Time (s)	3.3	3.3		3.0	3.3	3.3	3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	3.1	3.1		1.0	3.1	3.1	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		4.0	6.4	6.4	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0			7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0			21.0	21.0	18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0			0	0	0	0	0	0	0	0
Act Effct Green (s)	9.0	9.0		28.9	26.5	26.5	80.9	80.9	80.9	80.9	80.9	80.9
Actuated g/C Ratio	0.08	0.08		0.24	0.22	0.22	0.67	0.67	0.67	0.67	0.67	0.67
v/c Ratio	0.13	0.57		0.71	0.10	0.41	0.37	0.46	0.18	0.61	0.37	0.02

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	52.9	28.2		52.6	36.6	28.1	7.9	5.5	1.2	23.6	9.4	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	28.2		52.6	36.6	28.1	7.9	5.5	1.2	23.6	9.4	0.0
LOS	D	C		D	D	C	A	A	A	C	A	A
Approach Delay		30.7			41.2			5.2			11.4	
Approach LOS		C			D			A			B	
Queue Length 50th (m)	3.0	7.1		42.3	8.4	21.2	6.9	35.6	2.1	19.8	42.6	0.0
Queue Length 95th (m)	9.0	24.4		61.9	17.3	39.1	11.8	38.7	2.4	55.4	62.3	0.0
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	330	473		296	745	657	305	2435	791	280	2388	1104
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.25		0.70	0.06	0.25	0.37	0.46	0.18	0.61	0.37	0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 51 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 13.5		Intersection LOS: B	
Intersection Capacity Utilization 74.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 158: Wonderland Road South & Bradley Avenue

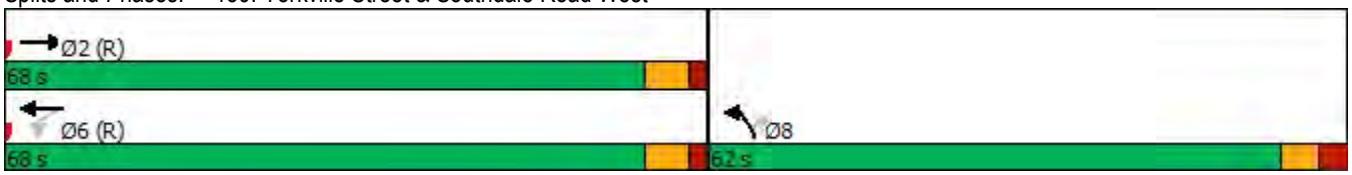


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	980	149	311	1255	111	203
Future Volume (vph)	980	149	311	1255	111	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.980					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3577	0	1825	3650	1825	1633
Flt Permitted			0.231		0.950	
Satd. Flow (perm)	3577	0	444	3650	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	18					70
Link Speed (k/h)	60			60	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	26.0			20.4	11.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	980	149	311	1255	111	203
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1129	0	311	1255	111	203
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	28.4		28.4	28.4	35.5	35.5
Total Split (s)	68.0		68.0	68.0	62.0	62.0
Total Split (%)	52.3%		52.3%	52.3%	47.7%	47.7%
Maximum Green (s)	62.0		62.0	62.0	55.5	55.5
Yellow Time (s)	4.1		4.1	4.1	3.6	3.6
All-Red Time (s)	1.9		1.9	1.9	2.9	2.9
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	22.0	22.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	100.8		100.8	100.8	16.7	16.7
Actuated g/C Ratio	0.78		0.78	0.78	0.13	0.13
v/c Ratio	0.41		0.90	0.44	0.47	0.75
Control Delay	1.9		44.9	4.3	57.7	51.9
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	1.9		44.9	4.3	57.7	51.9

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A		D	A	E	D
Approach Delay	1.9			12.4	54.0	
Approach LOS	A			B	D	
Queue Length 50th (m)	6.7		78.0	27.0	26.8	33.5
Queue Length 95th (m)	8.6		#136.5	31.3	42.2	55.7
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)			55.0		45.0	
Base Capacity (vph)	2778		344	2830	779	737
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.41		0.90	0.44	0.14	0.28

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 28 (22%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 12.8		Intersection LOS: B	
Intersection Capacity Utilization 70.6%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 159: Yorkville Street & Southdale Road West



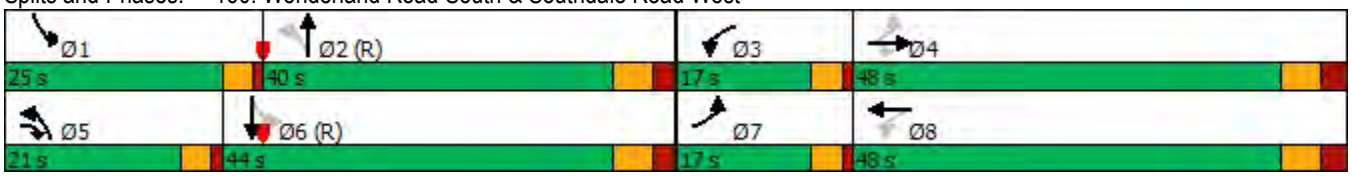
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	234	782	130	148	882	223	284	761	95	289	785	201
Future Volume (vph)	234	782	130	148	882	223	284	761	95	289	785	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.95	0.99	0.99		0.99	1.00			0.99	
Frt			0.850		0.970			0.983			0.969	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3579	1555	1825	3480	0	1807	3502	0	1738	3416	0
Flt Permitted	0.092			0.208			0.114			0.106		
Satd. Flow (perm)	173	3579	1483	396	3480	0	216	3502	0	194	3416	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			114		25			10			25	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	12		29	29		12	32		14	14		32
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	5%	0%	1%	2%	1%	2%	3%	5%	3%	0%
Adj. Flow (vph)	234	782	130	148	882	223	284	761	95	289	785	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	234	782	130	148	1105	0	284	856	0	289	986	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.5	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	17.0	48.0	21.0	17.0	48.0		21.0	40.0		25.0	44.0	
Total Split (%)	13.1%	36.9%	16.2%	13.1%	36.9%		16.2%	30.8%		19.2%	33.8%	
Maximum Green (s)	13.0	41.4	17.0	13.0	41.4		17.0	33.9		21.0	37.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	58.7	43.3	62.9	55.1	41.4		54.3	35.2		59.7	37.9	
Actuated g/C Ratio	0.45	0.33	0.48	0.42	0.32		0.42	0.27		0.46	0.29	
v/c Ratio	0.98	0.66	0.17	0.51	0.98		0.95	0.90		0.90	0.97	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	98.2	26.9	5.3	26.7	65.9		77.4	58.3		63.4	67.0	
Queue Delay	0.0	0.6	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	98.2	27.6	5.3	26.7	65.9		77.4	58.3		63.4	67.0	
LOS	F	C	A	C	E		E	E		E	E	
Approach Delay		39.5			61.2			63.1			66.2	
Approach LOS		D			E			E			E	
Queue Length 50th (m)	44.5	76.8	0.5	21.4	144.9		56.6	112.0		55.7	129.0	
Queue Length 95th (m)	#98.6	108.0	15.4	34.7	#191.7		#111.5	#149.8		#102.1	#173.1	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	239	1192	785	316	1125		298	956		340	1013	
Starvation Cap Reductn	0	143	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	0.98	0.75	0.17	0.47	0.98		0.95	0.90		0.85	0.97	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 125 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 57.8 Intersection LOS: E
Intersection Capacity Utilization 106.4% 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.

Splits and Phases: 160: Wonderland Road South & Southdale Road West

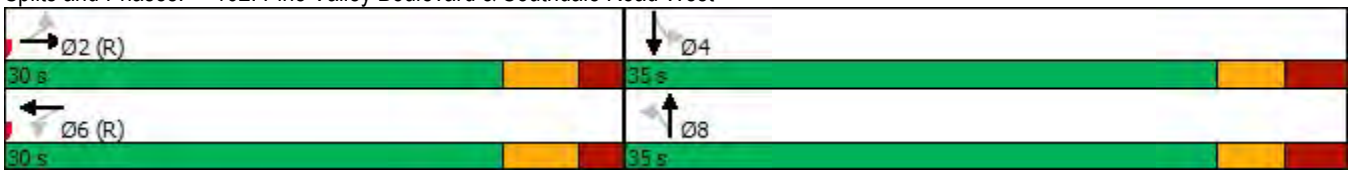


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	963	121	116	1193	75	198	102	74	64	71	176
Future Volume (vph)	100	963	121	116	1193	75	198	102	74	64	71	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		0.99	1.00		1.00	0.99		1.00	0.99	
Frt		0.983			0.991			0.937			0.893	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3500	0	1825	3572	0	1825	1788	0	1825	1677	0
Flt Permitted	0.151			0.208			0.560			0.646		
Satd. Flow (perm)	289	3500	0	397	3572	0	1072	1788	0	1237	1677	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			11			27			12	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	18		24	24		18	8		6	6		8
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%	1%	0%	1%	1%	0%	0%	0%	0%	1%	1%
Adj. Flow (vph)	100	963	121	116	1193	75	198	102	74	64	71	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	1084	0	116	1268	0	198	176	0	64	247	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	30.0	30.0		30.0	30.0		35.0	35.0		35.0	35.0	
Total Split (%)	46.2%	46.2%		46.2%	46.2%		53.8%	53.8%		53.8%	53.8%	
Maximum Green (s)	24.1	24.1		24.1	24.1		28.6	28.6		28.6	28.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	35.9	35.9		35.9	35.9		16.8	16.8		16.8	16.8	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.26	0.26		0.26	0.26	
v/c Ratio	0.63	0.56		0.53	0.64		0.71	0.37		0.20	0.56	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	36.7	10.8		24.4	19.7		35.3	17.0		17.8	23.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	36.7	10.8		24.4	19.7		35.3	17.0		17.8	23.5	
LOS	D	B		C	B		D	B		B	C	
Approach Delay		13.0			20.1			26.7			22.3	
Approach LOS		B			C			C			C	
Queue Length 50th (m)	20.0	72.3		16.7	112.0		21.8	14.6		6.1	24.5	
Queue Length 95th (m)	#43.1	127.9		m21.1	m124.0		35.0	23.8		12.0	36.1	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	159	1942		219	1976		471	801		544	744	
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	0.63	0.56		0.53	0.64		0.42	0.22		0.12	0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 48 (74%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 18.5		Intersection LOS: B	
Intersection Capacity Utilization 89.8%		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.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West

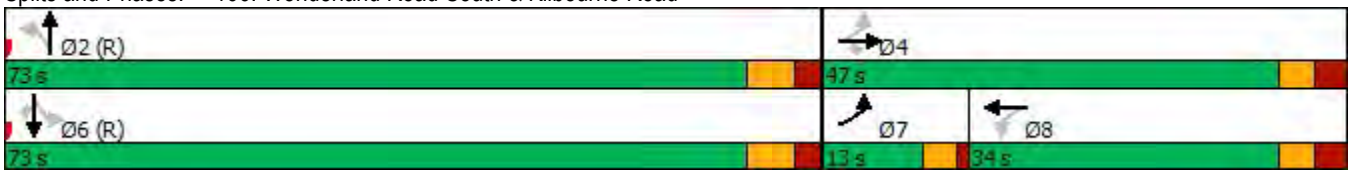


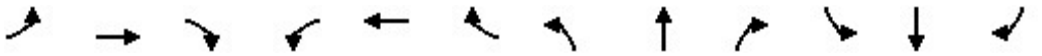
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	94	0	185	2	0	3	198	1257	1	0	1029	148
Future Volume (vph)	94	0	185	2	0	3	198	1257	1	0	1029	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00	1.00				0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1825	1921	1617	1825	1633	0	1825	3579	0	1921	3544	1601
Flt Permitted	0.741						0.257					
Satd. Flow (perm)	1424	1921	1617	1921	1633	0	493	3579	0	1921	3544	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			90		131							148
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)							5		4	4		5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	3%	2%
Adj. Flow (vph)	94	0	185	2	0	3	198	1257	1	0	1029	148
Shared Lane Traffic (%)												
Lane Group Flow (vph)	94	0	185	2	3	0	198	1258	0	0	1029	148
Turn Type	pm+pt		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	9.0	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	13.0	47.0	47.0	34.0	34.0		73.0	73.0		73.0	73.0	73.0
Total Split (%)	10.8%	39.2%	39.2%	28.3%	28.3%		60.8%	60.8%		60.8%	60.8%	60.8%
Maximum Green (s)	9.0	40.7	40.7	27.7	27.7		66.3	66.3		66.3	66.3	66.3
Yellow Time (s)	3.0	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
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)	4.0	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0		0	0	0
Act Effct Green (s)	15.5		13.2	7.0	7.0		93.8	93.8			93.8	93.8
Actuated g/C Ratio	0.13		0.11	0.06	0.06		0.78	0.78			0.78	0.78
v/c Ratio	0.42		0.72	0.02	0.01		0.51	0.45			0.37	0.12

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	52.1		41.3	53.5	0.0		14.2	7.4			3.6	0.4
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	52.1		41.3	53.5	0.0		14.2	7.4			3.6	0.4
LOS	D		D	D	A		B	A			A	A
Approach Delay		45.0			21.4			8.4			3.2	
Approach LOS		D			C			A			A	
Queue Length 50th (m)	20.7		21.6	0.5	0.0		12.3	40.7			24.1	0.0
Queue Length 95th (m)	34.6		43.4	3.2	0.0		m49.8	114.4			38.0	m1.9
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0					160.0
Base Capacity (vph)	226		607	443	477		385	2798			2771	1242
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	0.42		0.30	0.00	0.01		0.51	0.45			0.37	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 9.8		Intersection LOS: A	
Intersection Capacity Utilization 68.9%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road





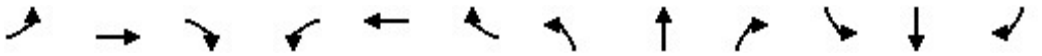
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	376	145	134	844	530	268	821	55	241	858	5
Future Volume (vph)	4	376	145	134	844	530	268	821	55	241	858	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.958			0.942			0.991			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3299	0	1755	3404	0	1772	3499	0	1706	3507	0
Flt Permitted	0.078			0.411			0.117			0.145		
Satd. Flow (perm)	150	3299	0	759	3404	0	218	3499	0	260	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		60			148			6				
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
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%	6%	6%	4%	1%	1%	3%	2%	24%	7%	4%	0%
Adj. Flow (vph)	4	376	145	134	844	530	268	821	55	241	858	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	521	0	134	1374	0	268	876	0	241	863	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		9.0	33.6		9.0	33.6	
Total Split (s)	60.0	60.0		60.0	60.0		21.0	42.0		18.0	39.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		17.5%	35.0%		15.0%	32.5%	
Maximum Green (s)	53.0	53.0		53.0	53.0		17.0	35.4		14.0	32.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		3.0	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		1.0	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		4.0	6.6		4.0	6.6	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	51.0	51.0		51.0	51.0		56.2	37.6		51.8	35.4	
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.47	0.31		0.43	0.30	
v/c Ratio	0.06	0.36		0.42	0.90		0.87	0.80		0.87	0.83	
Control Delay	21.2	18.4		28.3	37.2		54.4	44.5		54.2	39.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	21.2	18.4		28.3	37.2		54.4	44.5		54.2	39.2	
LOS	C	B		C	D		D	D		D	D	
Approach Delay		18.5			36.4			46.8			42.5	
Approach LOS		B			D			D			D	
Queue Length 50th (m)	0.4	22.8		21.0	137.6		44.1	101.3		25.2	109.6	
Queue Length 95th (m)	m1.6	42.2		38.4	169.9		#87.8	126.5		m#73.2	#141.8	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	66	1490		335	1586		324	1099		281	1034	
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	0.06	0.35		0.40	0.87		0.83	0.80		0.86	0.83	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 38.5 Intersection LOS: D
Intersection Capacity Utilization 105.4% 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: 197: Wonderland Road South & Exeter Road

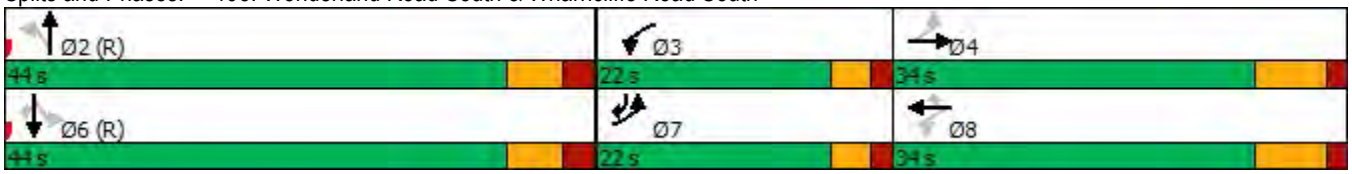


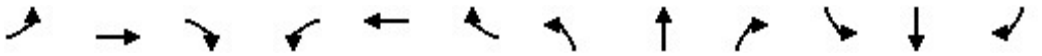
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	561	18	214	237	47	5	592	283	47	907	166
Future Volume (vph)	170	561	18	214	237	47	5	592	283	47	907	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				1.00		1.00		
Frt		0.995				0.850		0.951				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3521	0	1755	3544	1384	1825	3257	0	1508	3510	1570
Flt Permitted	0.604			0.237			0.228			0.242		
Satd. Flow (perm)	1116	3521	0	438	3544	1384	438	3257	0	384	3510	1570
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				89		91				166
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			1	1					3	3		
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 (%)	4%	3%	6%	4%	3%	18%	0%	8%	2%	21%	4%	4%
Adj. Flow (vph)	170	561	18	214	237	47	5	592	283	47	907	166
Shared Lane Traffic (%)												
Lane Group Flow (vph)	170	579	0	214	237	47	5	875	0	47	907	166
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	22.0	34.0		22.0	34.0	34.0	44.0	44.0		44.0	44.0	22.0
Total Split (%)	22.0%	34.0%		22.0%	34.0%	34.0%	44.0%	44.0%		44.0%	44.0%	22.0%
Maximum Green (s)	17.5	27.0		17.5	27.0	27.0	37.3	37.3		37.3	37.3	17.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	35.9	21.9		40.0	24.0	24.0	46.4	46.4		46.4	46.4	64.5
Actuated g/C Ratio	0.36	0.22		0.40	0.24	0.24	0.46	0.46		0.46	0.46	0.64
v/c Ratio	0.36	0.75		0.61	0.28	0.12	0.02	0.56		0.27	0.56	0.15

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	77.5	32.7		61.9	118.4	30.7	51.4	34.4		47.3	12.5	12.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	77.5	32.7		61.9	118.4	30.7	51.4	34.4		47.3	12.5	12.0
LOS	E	C		E	F	C	D	C		D	B	B
Approach Delay		42.9			85.9			34.5			13.9	
Approach LOS		D			F			C			B	
Queue Length 50th (m)	20.3	54.7		26.2	19.6	0.0	0.8	71.3		4.2	70.6	0.1
Queue Length 95th (m)	29.0	68.7		36.0	27.8	2.1	m1.6	105.9		20.2	114.5	1.7
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	570	952		415	973	444	203	1558		177	1627	1156
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	0.61		0.52	0.24	0.11	0.02	0.56		0.27	0.56	0.14

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 53 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 37.2		Intersection LOS: D	
Intersection Capacity Utilization 80.1%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 198: Wonderland Road South & Wharncliffe Road South





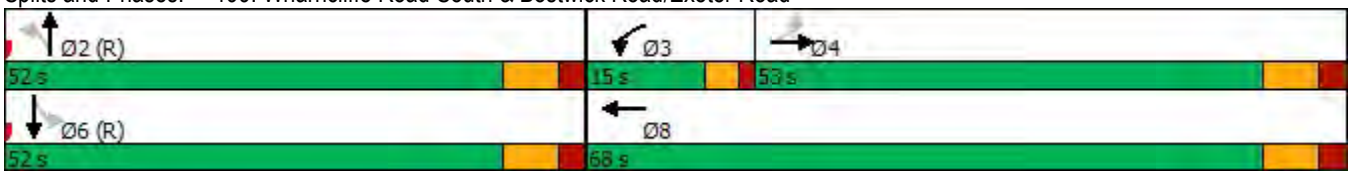
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	720	265	141	171	19	82	688	211	8	350	61
Future Volume (vph)	45	720	265	141	171	19	82	688	211	8	350	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.960			0.985			0.965			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3384	0	2975	3345	0	1630	4902	0	1496	3488	0
Flt Permitted	0.632			0.950			0.490			0.255		
Satd. Flow (perm)	1214	3384	0	2975	3345	0	840	4902	0	402	3488	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		50			14			73			19	
Link Speed (k/h)		60			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		12.8			14.1			20.8			18.2	
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%	3%	5%	19%	7%	12%	12%	3%	4%	22%	1%	10%
Adj. Flow (vph)	45	720	265	141	171	19	82	688	211	8	350	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	985	0	141	190	0	82	899	0	8	411	0
Turn Type	Perm	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4						2			6		
Detector Phase	4	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	52.7	52.7		9.5	52.7		51.6	51.6		51.6	51.6	
Total Split (s)	53.0	53.0		15.0	68.0		52.0	52.0		52.0	52.0	
Total Split (%)	44.2%	44.2%		12.5%	56.7%		43.3%	43.3%		43.3%	43.3%	
Maximum Green (s)	45.3	45.3		10.5	60.3		44.4	44.4		44.4	44.4	
Yellow Time (s)	5.0	5.0		3.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.7	2.7		1.5	2.7		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.7	7.7		4.5	7.7		7.6	7.6		7.6	7.6	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	38.0	38.0			38.0		37.0	37.0		37.0	37.0	
Pedestrian Calls (#/hr)	0	0			0		0	0		0	0	
Act Effct Green (s)	40.7	40.7		9.8	55.0		49.7	49.7		49.7	49.7	
Actuated g/C Ratio	0.34	0.34		0.08	0.46		0.41	0.41		0.41	0.41	
v/c Ratio	0.11	0.83		0.58	0.12		0.24	0.43		0.05	0.28	
Control Delay	45.1	24.0		76.9	140.5		26.7	13.3		228.5	52.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	45.1	24.0		76.9	140.5		26.7	13.3		228.5	52.8	
LOS	D	C		E	F		C	B		F	D	
Approach Delay		24.9			113.4			14.4			56.1	
Approach LOS		C			F			B			E	
Queue Length 50th (m)	7.1	105.3		16.6	11.8		12.7	51.3		1.2	32.4	
Queue Length 95th (m)	15.0	125.2		27.1	17.4		26.4	66.7		4.8	47.0	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0			80.0		
Base Capacity (vph)	458	1308		260	1687		347	2073		166	1456	
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	0.10	0.75		0.54	0.11		0.24	0.43		0.05	0.28	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 74 (62%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 36.5 Intersection LOS: D
Intersection Capacity Utilization 79.2% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 199: Wharncliffe Road South & Bostwick Road/Exeter Road

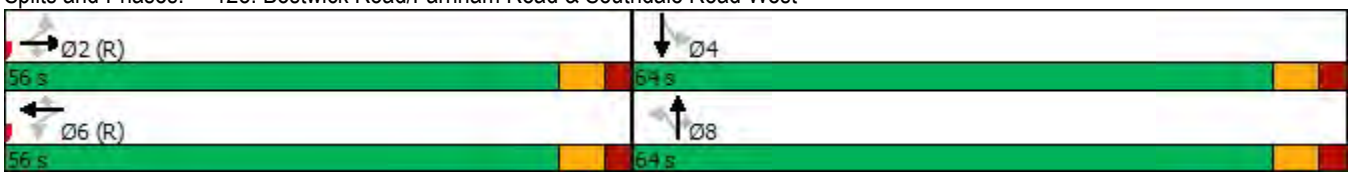


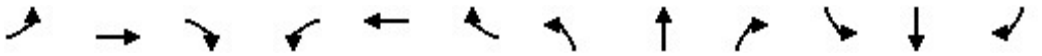
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	561	361	85	350	36	368	90	187	62	100	49
Future Volume (vph)	51	561	361	85	350	36	368	90	187	62	100	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		30.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98						
Frt			0.850			0.850			0.850		0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3614	1498	1722	3444	1601	1674	1902	1585	1807	1768	0
Flt Permitted	0.541			0.406			0.661			0.699		
Satd. Flow (perm)	998	3614	1498	736	3444	1566	1165	1902	1585	1330	1768	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			309			36			183		28	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		66.3			26.0			45.0			3.6	
Confl. Peds. (#/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 (%)	4%	1%	9%	6%	6%	2%	9%	1%	3%	1%	2%	6%
Adj. Flow (vph)	51	561	361	85	350	36	368	90	187	62	100	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	561	361	85	350	36	368	90	187	62	149	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	34.5	34.5	34.5	34.5	34.5	34.5	37.7	37.7	37.7	37.7	37.7	
Total Split (s)	56.0	56.0	56.0	56.0	56.0	56.0	64.0	64.0	64.0	64.0	64.0	
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%	53.3%	
Maximum Green (s)	49.5	49.5	49.5	49.5	49.5	49.5	57.3	57.3	57.3	57.3	57.3	
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.7	6.7	6.7	6.7	6.7	
Lead/Lag												
Lead-Lag Optimize?												
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	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0	24.0	24.0	24.0	24.0	24.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Act Effct Green (s)	61.6	61.6	61.6	61.6	61.6	61.6	45.2	45.2	45.2	45.2	45.2	
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51	0.51	0.38	0.38	0.38	0.38	0.38	
v/c Ratio	0.10	0.30	0.39	0.23	0.20	0.04	0.84	0.13	0.26	0.12	0.22	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	19.4	19.1	5.4	16.4	13.5	4.2	50.3	22.3	3.8	21.9	19.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	19.4	19.1	5.4	16.4	13.5	4.2	50.3	22.3	3.8	21.9	19.1	
LOS	B	B	A	B	B	A	D	C	A	C	B	
Approach Delay		14.0			13.3			32.9			20.0	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	6.1	39.3	6.1	7.7	16.0	0.0	77.2	13.5	0.6	9.3	18.6	
Queue Length 95th (m)	15.8	61.8	28.3	25.0	31.8	3.1	100.3	20.6	12.3	15.8	27.9	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0		30.0	110.0		30.0	35.0			25.0		
Base Capacity (vph)	512	1855	919	377	1767	821	556	908	852	635	858	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.10	0.30	0.39	0.23	0.20	0.04	0.66	0.10	0.22	0.10	0.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 18 (15%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 19.7		Intersection LOS: B	
Intersection Capacity Utilization 79.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 128: Bostwick Road/Farnham Road & Southdale Road West



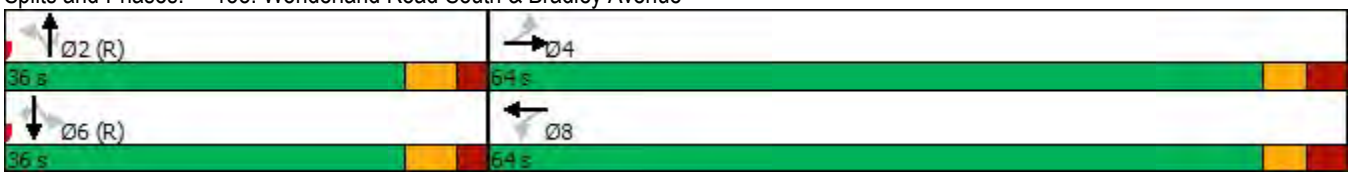


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	352	90	71	155	101	65	669	62	126	910	50
Future Volume (vph)	139	352	90	71	155	101	65	669	62	126	910	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00		0.99	1.00		0.99
Frt		0.969			0.941				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3480	0	1772	3308	0	1601	3476	1570	1825	3579	1228
Flt Permitted	0.591			0.359			0.287			0.387		
Satd. Flow (perm)	1132	3480	0	670	3308	0	483	3476	1549	743	3579	1210
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			53				62			37
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	4					4	2		1	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%	0%	8%	14%	5%	4%	0%	2%	33%
Adj. Flow (vph)	139	352	90	71	155	101	65	669	62	126	910	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	442	0	71	256	0	65	669	62	126	910	50
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.4	34.4		34.4	34.4		31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	64.0	64.0		64.0	64.0		36.0	36.0	36.0	36.0	36.0	36.0
Total Split (%)	64.0%	64.0%		64.0%	64.0%		36.0%	36.0%	36.0%	36.0%	36.0%	36.0%
Maximum Green (s)	57.6	57.6		57.6	57.6		29.8	29.8	29.8	29.8	29.8	29.8
Yellow Time (s)	3.3	3.3		3.3	3.3		3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	3.1	3.1		3.1	3.1		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag												
Lead-Lag Optimize?												
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		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	19.9	19.9		19.9	19.9		67.5	67.5	67.5	67.5	67.5	67.5
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.68	0.68	0.68	0.68	0.68	0.68
v/c Ratio	0.62	0.63		0.53	0.37		0.20	0.29	0.06	0.25	0.38	0.06

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	47.6	38.5		49.2	27.5		7.5	4.8	2.7	9.3	8.4	3.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.6	38.5		49.2	27.5		7.5	4.8	2.7	9.3	8.4	3.7
LOS	D	D		D	C		A	A	A	A	A	A
Approach Delay		40.7			32.2			4.9			8.3	
Approach LOS		D			C			A			A	
Queue Length 50th (m)	25.1	40.4		12.6	18.0		1.2	6.7	0.1	8.2	34.7	0.7
Queue Length 95th (m)	39.8	49.3		24.2	25.7		9.6	32.0	0.9	22.3	61.3	5.6
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	652	2011		385	1927		326	2346	1066	501	2416	829
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	0.21	0.22		0.18	0.13		0.20	0.29	0.06	0.25	0.38	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 41 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 16.9		Intersection LOS: B	
Intersection Capacity Utilization 70.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 158: Wonderland Road South & Bradley Avenue

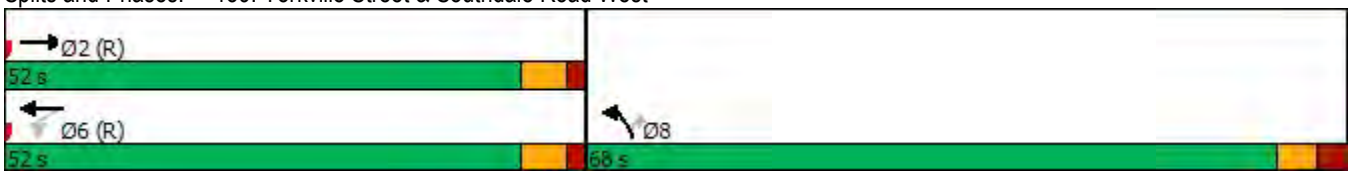


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	797	46	82	404	70	150
Future Volume (vph)	797	46	82	404	70	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.992					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3621	0	1825	3650	1825	1633
Flt Permitted			0.328		0.950	
Satd. Flow (perm)	3621	0	630	3650	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	6					68
Link Speed (k/h)	60			60	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	26.0			20.4	11.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	797	46	82	404	70	150
Shared Lane Traffic (%)						
Lane Group Flow (vph)	843	0	82	404	70	150
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	28.4		28.4	28.4	35.5	35.5
Total Split (s)	52.0		52.0	52.0	68.0	68.0
Total Split (%)	43.3%		43.3%	43.3%	56.7%	56.7%
Maximum Green (s)	46.0		46.0	46.0	61.5	61.5
Yellow Time (s)	4.1		4.1	4.1	3.6	3.6
All-Red Time (s)	1.9		1.9	1.9	2.9	2.9
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	22.0	22.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	95.3		95.3	95.3	12.2	12.2
Actuated g/C Ratio	0.79		0.79	0.79	0.10	0.10
v/c Ratio	0.29		0.16	0.14	0.38	0.66
Control Delay	6.6		2.1	1.4	54.7	41.8
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	6.6		2.1	1.4	54.7	41.8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A		A	A	D	D
Approach Delay	6.6			1.5	45.9	
Approach LOS	A			A	D	
Queue Length 50th (m)	20.0		1.5	3.7	15.7	18.7
Queue Length 95th (m)	75.0		3.3	6.2	28.4	38.0
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)			55.0		45.0	
Base Capacity (vph)	2878		500	2899	935	870
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.29		0.16	0.14	0.07	0.17

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 4 (3%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 10.6		Intersection LOS: B	
Intersection Capacity Utilization 50.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 159: Yorkville Street & Southdale Road West

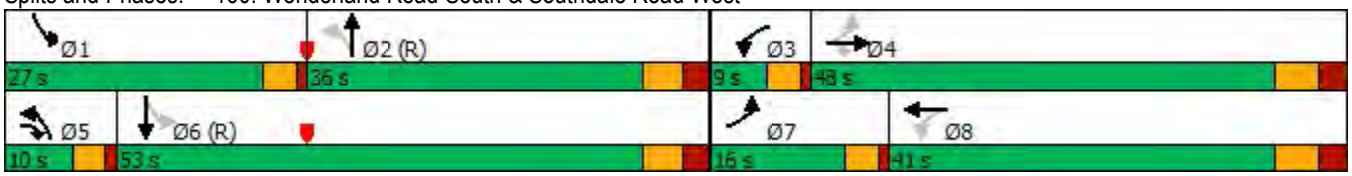


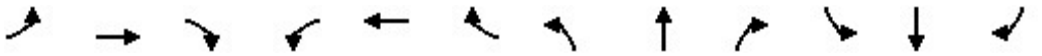
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	594	108	75	353	191	83	607	55	328	792	71
Future Volume (vph)	171	594	108	75	353	191	83	607	55	328	792	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.98	0.99	0.99		0.99	1.00		1.00	1.00	
Frt			0.850		0.947			0.988			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	3579	1617	1772	3237	0	1755	3350	0	1738	3413	0
Flt Permitted	0.202			0.353			0.311			0.269		
Satd. Flow (perm)	351	3579	1578	655	3237	0	571	3350	0	490	3413	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			108		85			8			9	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	14		11	11		14	15		12	12		15
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%	2%	1%	3%	4%	9%	4%	7%	12%	5%	5%	10%
Adj. Flow (vph)	171	594	108	75	353	191	83	607	55	328	792	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	171	594	108	75	544	0	83	662	0	328	863	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.0	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	16.0	48.0	10.0	9.0	41.0		10.0	36.0		27.0	53.0	
Total Split (%)	13.3%	40.0%	8.3%	7.5%	34.2%		8.3%	30.0%		22.5%	44.2%	
Maximum Green (s)	12.0	41.4	6.0	5.0	34.4		6.0	29.9		23.0	46.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	41.7	31.9	40.5	31.0	23.4		53.6	45.6		70.3	58.2	
Actuated g/C Ratio	0.35	0.27	0.34	0.26	0.20		0.45	0.38		0.59	0.48	
v/c Ratio	0.69	0.62	0.18	0.35	0.78		0.26	0.52		0.68	0.52	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	42.8	40.2	12.0	30.5	46.1		16.3	32.3		21.6	23.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	42.8	40.2	12.0	30.5	46.1		16.3	32.3		21.6	23.4	
LOS	D	D	B	C	D		B	C		C	C	
Approach Delay		37.2			44.2			30.5			22.9	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	22.7	55.2	2.2	11.9	54.7		8.2	63.2		37.8	71.5	
Queue Length 95th (m)	47.8	75.7	20.8	20.5	69.1		17.5	93.3		63.9	100.3	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	252	1234	606	215	988		314	1277		526	1659	
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	0.68	0.48	0.18	0.35	0.55		0.26	0.52		0.62	0.52	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 32.0	Intersection LOS: C
Intersection Capacity Utilization 89.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 160: Wonderland Road South & Southdale Road West





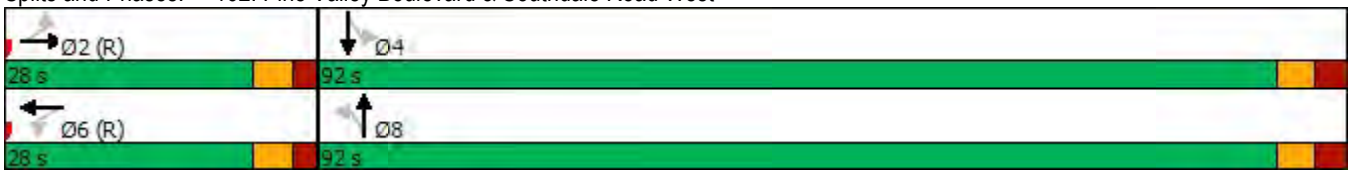
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	789	60	69	382	68	39	17	44	27	25	71
Future Volume (vph)	101	789	60	69	382	68	39	17	44	27	25	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00			0.99		0.99	0.99		1.00	0.98	
Frt		0.989			0.977			0.892			0.889	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3570	0	1825	3362	0	1825	1697	0	1755	1610	0
Flt Permitted	0.492			0.328			0.695			0.717		
Satd. Flow (perm)	940	3570	0	630	3362	0	1325	1697	0	1323	1610	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			15			3			63	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	5		2	2		5	7		1	1		7
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%	1%	0%	0%	6%	3%	0%	0%	0%	4%	0%	6%
Adj. Flow (vph)	101	789	60	69	382	68	39	17	44	27	25	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	849	0	69	450	0	39	61	0	27	96	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	28.0	28.0		28.0	28.0		92.0	92.0		92.0	92.0	
Total Split (%)	23.3%	23.3%		23.3%	23.3%		76.7%	76.7%		76.7%	76.7%	
Maximum Green (s)	22.1	22.1		22.1	22.1		85.6	85.6		85.6	85.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	97.8	97.8		97.8	97.8		9.9	9.9		9.9	9.9	
Actuated g/C Ratio	0.82	0.82		0.82	0.82		0.08	0.08		0.08	0.08	
v/c Ratio	0.13	0.29		0.13	0.16		0.36	0.43		0.25	0.51	

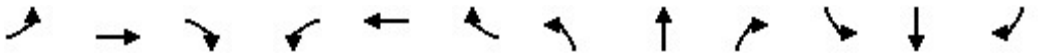
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	4.2	5.2		6.2	4.8		60.4	58.4		56.1	30.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	4.2	5.2		6.2	4.8		60.4	58.4		56.1	30.7	
LOS	A	A		A	A		E	E		E	C	
Approach Delay		5.1			5.0			59.2			36.3	
Approach LOS		A			A			E			D	
Queue Length 50th (m)	6.3	31.9		3.6	13.7		8.9	13.3		6.1	7.4	
Queue Length 95th (m)	16.9	79.1		m12.5	26.3		19.5	26.2		15.0	23.4	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	766	2911		513	2743		945	1211		943	1166	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.13	0.29		0.13	0.16		0.04	0.05		0.03	0.08	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 66 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 10.5 Intersection LOS: B
Intersection Capacity Utilization 56.1% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West



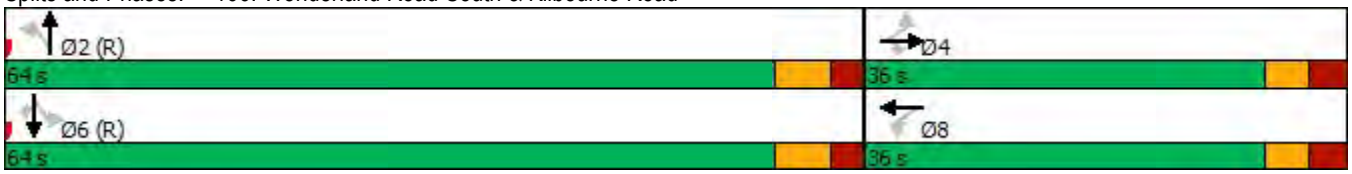


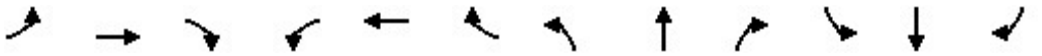
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	0	209	4	0	5	122	702	2	1	927	131
Future Volume (vph)	86	0	209	4	0	5	122	702	2	1	927	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00					0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	1921	1585	1043	1151	0	1807	3350	0	1825	3544	1601
Flt Permitted	0.754			0.757			0.297			0.384		
Satd. Flow (perm)	1340	1921	1585	831	1151	0	564	3350	0	738	3544	1558
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127		220							131
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)	1					1	3					3
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 (%)	8%	0%	3%	75%	0%	40%	1%	9%	0%	0%	3%	2%
Adj. Flow (vph)	86	0	209	4	0	5	122	702	2	1	927	131
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	0	209	4	5	0	122	704	0	1	927	131
Turn Type	Perm		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	33.3	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	36.0	36.0	36.0	36.0	36.0		64.0	64.0		64.0	64.0	64.0
Total Split (%)	36.0%	36.0%	36.0%	36.0%	36.0%		64.0%	64.0%		64.0%	64.0%	64.0%
Maximum Green (s)	29.7	29.7	29.7	29.7	29.7		57.3	57.3		57.3	57.3	57.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag												
Lead-Lag Optimize?												
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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effct Green (s)	12.2		12.2	12.2	12.2		74.8	74.8		74.8	74.8	74.8
Actuated g/C Ratio	0.12		0.12	0.12	0.12		0.75	0.75		0.75	0.75	0.75
v/c Ratio	0.53		0.69	0.04	0.02		0.29	0.28		0.00	0.35	0.11

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	51.6		28.6	36.2	0.0		8.2	5.6		3.0	3.5	0.4
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	51.6		28.6	36.2	0.0		8.2	5.6		3.0	3.5	0.4
LOS	D		C	D	A		A	A		A	A	A
Approach Delay		35.3			16.1			6.0			3.1	
Approach LOS		D			B			A			A	
Queue Length 50th (m)	16.0		15.0	0.7	0.0		4.5	13.8		0.0	15.8	0.0
Queue Length 95th (m)	28.9		35.8	3.6	0.0		23.2	49.0		m0.1	27.0	1.0
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0			115.0		160.0
Base Capacity (vph)	397		560	246	496		421	2505		551	2650	1198
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	0.22		0.37	0.02	0.01		0.29	0.28		0.00	0.35	0.11

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 37 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 8.6		Intersection LOS: A	
Intersection Capacity Utilization 60.5%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road



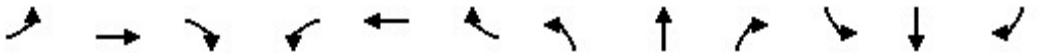


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	614	291	44	242	190	60	755	112	377	864	3
Future Volume (vph)	3	614	291	44	242	190	60	755	112	377	864	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.952			0.934			0.981			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1372	3407	0	1437	3032	0	1738	3414	0	1789	3507	0
Flt Permitted	0.453			0.136			0.327			0.158		
Satd. Flow (perm)	654	3407	0	206	3032	0	598	3414	0	298	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		90			190			16				
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
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 (%)	33%	2%	2%	27%	12%	13%	5%	5%	4%	2%	4%	0%
Adj. Flow (vph)	3	614	291	44	242	190	60	755	112	377	864	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	905	0	44	432	0	60	867	0	377	867	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		33.6	33.6		9.0	33.6	
Total Split (s)	44.0	44.0		44.0	44.0		35.0	35.0		21.0	56.0	
Total Split (%)	44.0%	44.0%		44.0%	44.0%		35.0%	35.0%		21.0%	56.0%	
Maximum Green (s)	37.0	37.0		37.0	37.0		28.4	28.4		17.0	49.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		4.4	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.6	6.6		4.0	6.6	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	31.2	31.2		31.2	31.2		34.2	34.2		57.8	55.2	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.34	0.34		0.58	0.55	
v/c Ratio	0.01	0.81		0.69	0.40		0.29	0.74		0.89	0.45	
Control Delay	21.3	34.1		80.1	15.0		31.7	34.1		52.5	7.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	21.3	34.1		80.1	15.0		31.7	34.1		52.5	7.8	
LOS	C	C		F	B		C	C		D	A	
Approach Delay		34.0			21.0			34.0			21.3	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	0.4	76.3		7.4	18.2		8.5	76.0		43.6	21.8	
Queue Length 95th (m)	2.2	91.1		#24.3	28.3		21.3	#116.7		#101.4	30.5	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	241	1317		76	1241		204	1178		425	1936	
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	0.01	0.69		0.58	0.35		0.29	0.74		0.89	0.45	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 73 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 27.8		Intersection LOS: C	
Intersection Capacity Utilization 96.6%		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.			

Splits and Phases: 197: Wonderland Road South & Exeter Road

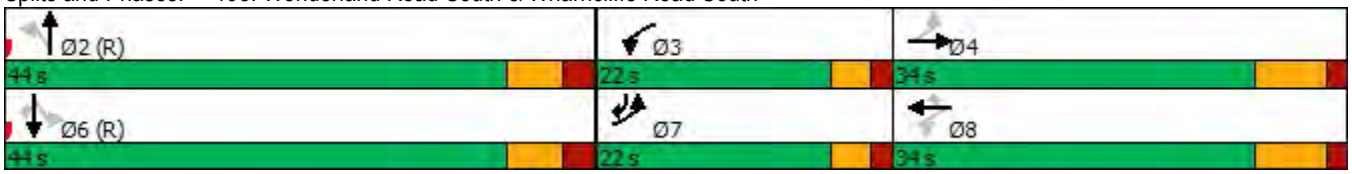


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	176	582	18	222	246	50	5	590	295	54	912	171
Future Volume (vph)	176	582	18	222	246	50	5	590	295	54	912	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				0.99		1.00		
Frt		0.995				0.850		0.950				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3522	0	1755	3544	1384	1825	3255	0	1508	3510	1570
Flt Permitted	0.599			0.224			0.223			0.235		
Satd. Flow (perm)	1106	3522	0	414	3544	1384	428	3255	0	373	3510	1570
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				89		99				171
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			1	1					3	3		
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 (%)	4%	3%	6%	4%	3%	18%	0%	8%	2%	21%	4%	4%
Adj. Flow (vph)	176	582	18	222	246	50	5	590	295	54	912	171
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	600	0	222	246	50	5	885	0	54	912	171
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	22.0	34.0		22.0	34.0	34.0	44.0	44.0		44.0	44.0	22.0
Total Split (%)	22.0%	34.0%		22.0%	34.0%	34.0%	44.0%	44.0%		44.0%	44.0%	22.0%
Maximum Green (s)	17.5	27.0		17.5	27.0	27.0	37.3	37.3		37.3	37.3	17.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	36.5	22.4		40.7	24.5	24.5	45.7	45.7		45.7	45.7	64.0
Actuated g/C Ratio	0.36	0.22		0.41	0.24	0.24	0.46	0.46		0.46	0.46	0.64
v/c Ratio	0.37	0.76		0.63	0.28	0.12	0.03	0.57		0.32	0.57	0.16

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	19.3	42.5		25.9	30.7	2.1	42.4	36.6		22.1	17.5	0.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	19.3	42.5		25.9	30.7	2.1	42.4	36.6		22.1	17.5	0.5
LOS	B	D		C	C	A	D	D		C	B	A
Approach Delay		37.3			25.9			36.7			15.2	
Approach LOS		D			C			D			B	
Queue Length 50th (m)	20.7	56.8		26.9	20.2	0.0	0.7	69.3		3.9	57.2	0.0
Queue Length 95th (m)	29.7	71.6		37.1	28.8	2.6	m1.6	106.7		15.8	80.0	1.1
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	574	953		411	976	445	195	1541		170	1604	1149
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	0.31	0.63		0.54	0.25	0.11	0.03	0.57		0.32	0.57	0.15

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 53 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 27.8		Intersection LOS: C	
Intersection Capacity Utilization 81.5%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 198: Wonderland Road South & Wharncliffe Road South



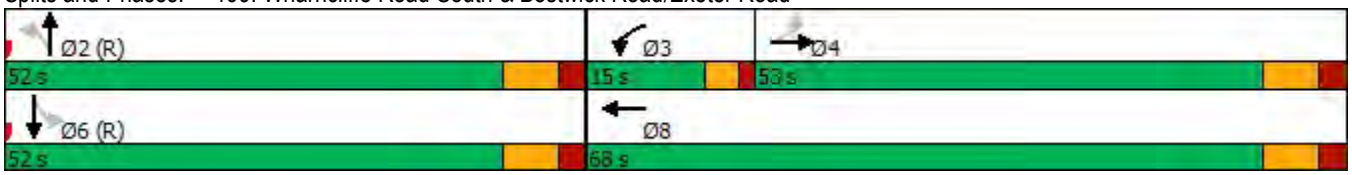
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	687	271	142	161	19	86	723	214	8	367	59
Future Volume (vph)	41	687	271	142	161	19	86	723	214	8	367	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.958			0.984			0.966			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3376	0	2975	3340	0	1630	4908	0	1496	3495	0
Flt Permitted	0.638			0.950			0.481			0.242		
Satd. Flow (perm)	1226	3376	0	2975	3340	0	825	4908	0	381	3495	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56			15			71			17	
Link Speed (k/h)		60			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		12.8			14.1			20.8			18.2	
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%	3%	5%	19%	7%	12%	12%	3%	4%	22%	1%	10%
Adj. Flow (vph)	41	687	271	142	161	19	86	723	214	8	367	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	958	0	142	180	0	86	937	0	8	426	0
Turn Type	Perm	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4						2			6		
Detector Phase	4	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	52.7	52.7		9.5	52.7		51.6	51.6		51.6	51.6	
Total Split (s)	53.0	53.0		15.0	68.0		52.0	52.0		52.0	52.0	
Total Split (%)	44.2%	44.2%		12.5%	56.7%		43.3%	43.3%		43.3%	43.3%	
Maximum Green (s)	45.3	45.3		10.5	60.3		44.4	44.4		44.4	44.4	
Yellow Time (s)	5.0	5.0		3.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.7	2.7		1.5	2.7		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.7	7.7		4.5	7.7		7.6	7.6		7.6	7.6	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	38.0	38.0			38.0		37.0	37.0		37.0	37.0	
Pedestrian Calls (#/hr)	0	0			0		0	0		0	0	
Act Effct Green (s)	39.8	39.8		9.8	54.1		50.6	50.6		50.6	50.6	
Actuated g/C Ratio	0.33	0.33		0.08	0.45		0.42	0.42		0.42	0.42	
v/c Ratio	0.10	0.83		0.59	0.12		0.25	0.44		0.05	0.29	
Control Delay	26.5	41.2		63.2	16.6		27.1	24.3		25.0	23.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

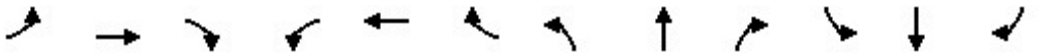
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	26.5	41.2		63.2	16.6		27.1	24.3		25.0	23.6	
LOS	C	D		E	B		C	C		C	C	
Approach Delay		40.5			37.2			24.6			23.6	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	6.6	101.7		16.8	11.2		13.2	53.5		1.1	33.6	
Queue Length 95th (m)	13.9	119.8		27.2	16.5		27.6	70.2		4.8	48.9	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0			80.0		
Base Capacity (vph)	462	1309		260	1685		347	2109		160	1482	
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	0.09	0.73		0.55	0.11		0.25	0.44		0.05	0.29	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 74 (62%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 31.6 Intersection LOS: C
Intersection Capacity Utilization 79.2% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 199: Wharncliffe Road South & Bostwick Road/Exeter Road



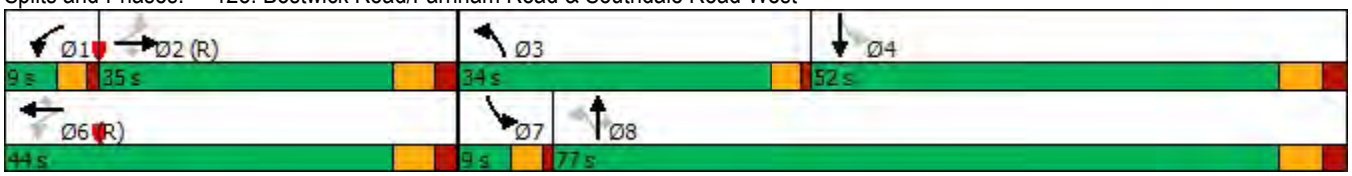


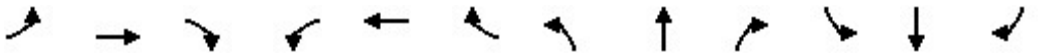
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	684	330	167	746	133	490	208	92	66	117	55
Future Volume (vph)	50	684	330	167	746	133	490	208	92	66	117	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		30.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.99	1.00			1.00		0.99	1.00	0.99	
Frt			0.850			0.850			0.850		0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3614	1555	1755	3614	1633	1825	1902	1570	1755	1784	0
Flt Permitted	0.368			0.224			0.371			0.628		
Satd. Flow (perm)	707	3614	1534	414	3614	1633	711	1902	1547	1158	1784	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			161			98			97		20	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		66.3			26.0			45.0			3.6	
Confl. Peds. (#/hr)			1	1			3		2	2		3
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%	1%	5%	4%	1%	0%	0%	1%	4%	4%	2%	2%
Adj. Flow (vph)	50	684	330	167	746	133	490	208	92	66	117	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	684	330	167	746	133	490	208	92	66	172	0
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	2	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	34.5	34.5	34.5	9.0	34.5	34.5	9.0	37.7	37.7	9.0	37.7	
Total Split (s)	35.0	35.0	35.0	9.0	44.0	44.0	34.0	77.0	77.0	9.0	52.0	
Total Split (%)	26.9%	26.9%	26.9%	6.9%	33.8%	33.8%	26.2%	59.2%	59.2%	6.9%	40.0%	
Maximum Green (s)	28.5	28.5	28.5	5.0	37.5	37.5	30.0	70.3	70.3	5.0	45.3	
Yellow Time (s)	4.1	4.1	4.1	3.0	4.1	4.1	3.0	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.4	2.4	2.4	1.0	2.4	2.4	1.0	2.6	2.6	1.0	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	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	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		24.0	24.0		24.0	
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	
Act Effct Green (s)	42.6	42.6	42.6	69.0	66.5	66.5	53.0	43.1	43.1	24.4	16.7	
Actuated g/C Ratio	0.33	0.33	0.33	0.53	0.51	0.51	0.41	0.33	0.33	0.19	0.13	
v/c Ratio	0.22	0.58	0.54	0.39	0.40	0.15	0.90	0.33	0.16	0.28	0.70	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	36.1	39.1	21.8	25.8	24.4	11.5	52.2	33.8	5.4	28.8	62.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	36.1	39.1	21.8	25.8	24.4	11.5	52.2	33.8	5.4	28.8	62.2	
LOS	D	D	C	C	C	B	D	C	A	C	E	
Approach Delay		33.6			23.0			41.9			52.9	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	9.0	74.3	33.5	24.4	65.3	7.7	99.9	40.6	0.0	10.2	37.8	
Queue Length 95th (m)	21.3	102.1	68.2	43.1	81.2	20.4	#126.2	56.9	10.1	17.7	58.6	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0		30.0	110.0		30.0	35.0			25.0		
Base Capacity (vph)	231	1184	611	424	1848	883	547	1028	881	240	634	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.22	0.58	0.54	0.39	0.40	0.15	0.90	0.20	0.10	0.28	0.27	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 113 (87%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 33.6		Intersection LOS: C	
Intersection Capacity Utilization 88.6%		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: 128: Bostwick Road/Farnham Road & Southdale Road West





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	308	141	205	407	159	211	1070	138	165	886	151
Future Volume (vph)	116	308	141	205	407	159	211	1070	138	165	886	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00		0.99	1.00		0.98
Frt		0.953			0.958				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3479	0	1755	3478	0	1484	3614	1142	1825	3544	1633
Flt Permitted	0.212			0.298			0.269			0.204		
Satd. Flow (perm)	406	3479	0	550	3478	0	420	3614	1127	392	3544	1606
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		58			45				129			144
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	6					6	3		1	1		3
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%	0%	4%	0%	0%	23%	1%	43%	0%	3%	0%
Adj. Flow (vph)	116	308	141	205	407	159	211	1070	138	165	886	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	449	0	205	566	0	211	1070	138	165	886	151
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	9.0	34.4		9.0	34.4		31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	15.0	35.0		15.0	35.0		70.0	70.0	70.0	70.0	70.0	70.0
Total Split (%)	12.5%	29.2%		12.5%	29.2%		58.3%	58.3%	58.3%	58.3%	58.3%	58.3%
Maximum Green (s)	11.0	28.6		11.0	28.6		63.8	63.8	63.8	63.8	63.8	63.8
Yellow Time (s)	3.0	3.3		3.0	3.3		3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	1.0	3.1		1.0	3.1		2.4	2.4	2.4	2.4	2.4	2.4
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)	4.0	6.4		4.0	6.4		6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	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		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		21.0			21.0		18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	0
Act Effct Green (s)	35.1	22.6		37.0	23.6		69.8	69.8	69.8	69.8	69.8	69.8
Actuated g/C Ratio	0.29	0.19		0.31	0.20		0.58	0.58	0.58	0.58	0.58	0.58
v/c Ratio	0.49	0.64		0.73	0.79		0.86	0.51	0.19	0.73	0.43	0.15

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	34.4	42.5		46.4	50.0		47.8	8.6	1.3	41.7	15.6	2.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	42.5		46.4	50.0		47.8	8.6	1.3	41.7	15.6	2.9
LOS	C	D		D	D		D	A	A	D	B	A
Approach Delay		40.9			49.1			13.7			17.6	
Approach LOS		D			D			B			B	
Queue Length 50th (m)	19.0	44.3		35.5	61.7		46.3	36.0	1.1	27.6	60.1	0.7
Queue Length 95th (m)	30.8	58.4		52.2	77.7		#97.9	36.6	1.1	#72.9	82.0	10.4
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	252	873		280	863		244	2100	709	227	2060	993
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	0.46	0.51		0.73	0.66		0.86	0.51	0.19	0.73	0.43	0.15

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 51 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 25.6		Intersection LOS: C	
Intersection Capacity Utilization 82.1%		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.			

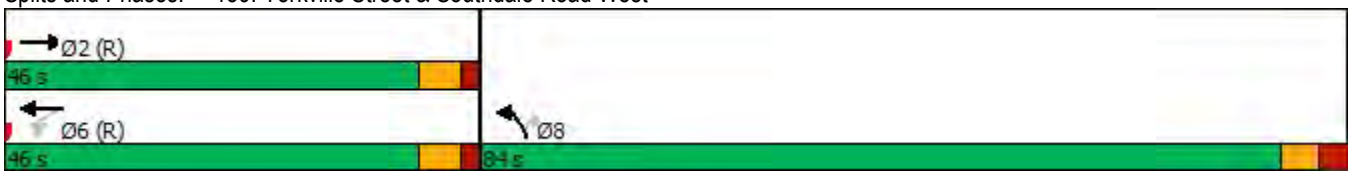
Splits and Phases: 158: Wonderland Road South & Bradley Avenue

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	734	104	192	961	83	126
Future Volume (vph)	734	104	192	961	83	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.981					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3581	0	1825	3650	1825	1633
Flt Permitted			0.330		0.950	
Satd. Flow (perm)	3581	0	634	3650	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	12					44
Link Speed (k/h)	60			60	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	26.0			20.4	11.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	734	104	192	961	83	126
Shared Lane Traffic (%)						
Lane Group Flow (vph)	838	0	192	961	83	126
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	28.4		28.4	28.4	35.5	35.5
Total Split (s)	46.0		46.0	46.0	84.0	84.0
Total Split (%)	35.4%		35.4%	35.4%	64.6%	64.6%
Maximum Green (s)	40.0		40.0	40.0	77.5	77.5
Yellow Time (s)	4.1		4.1	4.1	3.6	3.6
All-Red Time (s)	1.9		1.9	1.9	2.9	2.9
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	22.0	22.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	105.0		105.0	105.0	12.5	12.5
Actuated g/C Ratio	0.81		0.81	0.81	0.10	0.10
v/c Ratio	0.29		0.38	0.33	0.47	0.64
Control Delay	1.0		4.6	2.5	63.3	50.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	1.0		4.6	2.5	63.3	50.6

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A		A	A	E	D
Approach Delay	1.0			2.8	55.7	
Approach LOS	A			A	E	
Queue Length 50th (m)	4.6		8.6	21.6	20.5	20.4
Queue Length 95th (m)	7.0		21.2	32.2	35.2	39.1
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)			55.0		45.0	
Base Capacity (vph)	2894		512	2948	1087	991
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.29		0.38	0.33	0.08	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 28 (22%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 7.2		Intersection LOS: A	
Intersection Capacity Utilization 55.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 159: Yorkville Street & Southdale Road West



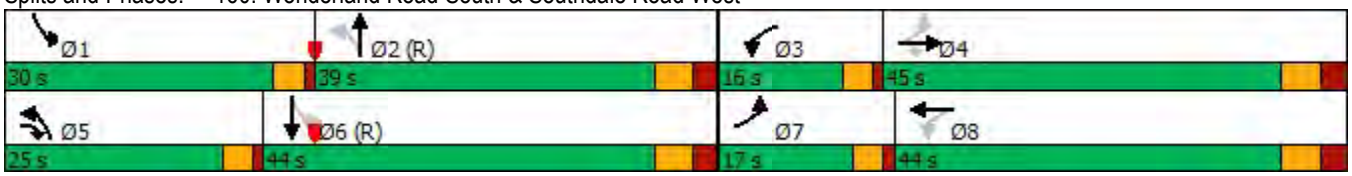
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	571	93	165	623	223	215	862	106	289	907	120
Future Volume (vph)	162	571	93	165	623	223	215	862	106	289	907	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.95	0.99	0.99		0.99	1.00			0.99	
Frt			0.850		0.960			0.984			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3579	1555	1825	3436	0	1807	3506	0	1738	3470	0
Flt Permitted	0.110			0.296			0.114			0.090		
Satd. Flow (perm)	207	3579	1483	561	3436	0	216	3506	0	165	3470	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93		39			10			11	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	12		29	29		12	32		14	14		32
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	5%	0%	1%	2%	1%	2%	3%	5%	3%	0%
Adj. Flow (vph)	162	571	93	165	623	223	215	862	106	289	907	120
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	571	93	165	846	0	215	968	0	289	1027	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.5	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	17.0	45.0	25.0	16.0	44.0		25.0	39.0		30.0	44.0	
Total Split (%)	13.1%	34.6%	19.2%	12.3%	33.8%		19.2%	30.0%		23.1%	33.8%	
Maximum Green (s)	13.0	38.4	21.0	12.0	37.4		21.0	32.9		26.0	37.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	51.0	36.2	54.1	49.3	35.3		58.0	40.5		67.9	46.4	
Actuated g/C Ratio	0.39	0.28	0.42	0.38	0.27		0.45	0.31		0.52	0.36	
v/c Ratio	0.71	0.57	0.14	0.51	0.88		0.76	0.88		0.84	0.82	

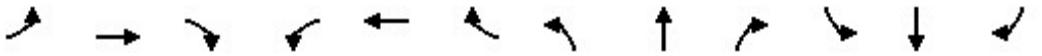
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	60.1	26.3	2.8	29.6	54.4		45.3	53.5		54.4	45.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	60.1	26.3	2.8	29.6	54.4		45.3	53.5		54.4	45.6	
LOS	E	C	A	C	D		D	D		D	D	
Approach Delay		30.3			50.3			52.0			47.6	
Approach LOS		C			D			D			D	
Queue Length 50th (m)	24.5	57.3	0.0	25.7	102.7		35.3	128.3		56.6	129.3	
Queue Length 95th (m)	#50.5	42.3	1.0	40.6	127.7		61.5	#186.3		87.3	#185.6	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	240	1057	743	332	1016		361	1098		400	1245	
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	0.68	0.54	0.13	0.50	0.83		0.60	0.88		0.72	0.82	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 125 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 46.1 Intersection LOS: D
Intersection Capacity Utilization 94.9% 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.

Splits and Phases: 160: Wonderland Road South & Southdale Road West



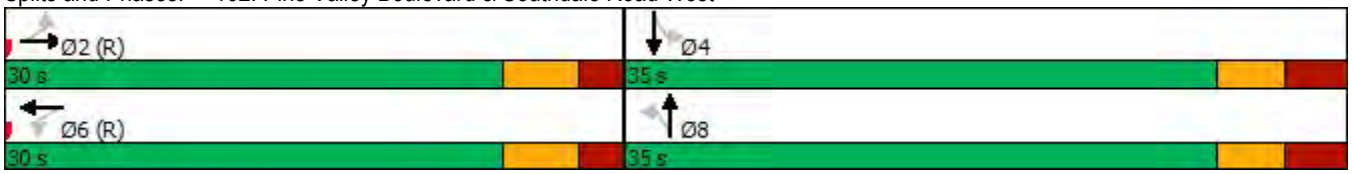


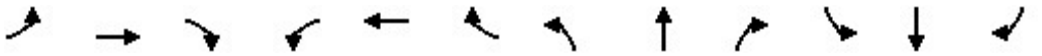
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	649	119	116	793	75	195	102	74	64	71	176
Future Volume (vph)	100	649	119	116	793	75	195	102	74	64	71	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99	1.00		1.00	0.99		1.00	0.99	
Frt		0.977			0.987			0.937			0.893	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3472	0	1825	3553	0	1825	1788	0	1825	1677	0
Flt Permitted	0.291			0.336			0.558			0.646		
Satd. Flow (perm)	555	3472	0	639	3553	0	1068	1788	0	1237	1677	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			17			72			54	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	18		24	24		18	8		6	6		8
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%	1%	0%	1%	1%	0%	0%	0%	0%	1%	1%
Adj. Flow (vph)	100	649	119	116	793	75	195	102	74	64	71	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	768	0	116	868	0	195	176	0	64	247	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	30.0	30.0		30.0	30.0		35.0	35.0		35.0	35.0	
Total Split (%)	46.2%	46.2%		46.2%	46.2%		53.8%	53.8%		53.8%	53.8%	
Maximum Green (s)	24.1	24.1		24.1	24.1		28.6	28.6		28.6	28.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	36.1	36.1		36.1	36.1		16.6	16.6		16.6	16.6	
Actuated g/C Ratio	0.56	0.56		0.56	0.56		0.26	0.26		0.26	0.26	
v/c Ratio	0.33	0.40		0.33	0.44		0.71	0.34		0.20	0.53	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	18.6	14.6		16.4	14.4		35.6	12.2		18.0	18.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	18.6	14.6		16.4	14.4		35.6	12.2		18.0	18.9	
LOS	B	B		B	B		D	B		B	B	
Approach Delay		15.1			14.6			24.5			18.7	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	18.3	75.6		12.8	58.1		21.5	9.9		6.1	19.6	
Queue Length 95th (m)	34.9	93.8		m25.2	90.9		34.7	19.4		12.1	31.6	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	307	1942		354	1978		469	827		544	768	
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	0.33	0.40		0.33	0.44		0.42	0.21		0.12	0.32	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 48 (74%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 16.7		Intersection LOS: B	
Intersection Capacity Utilization 78.7%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West



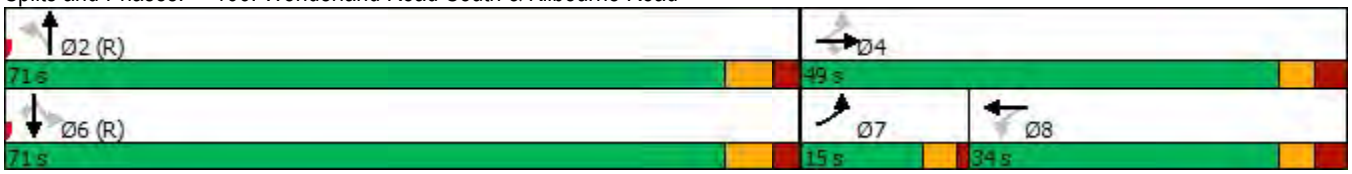


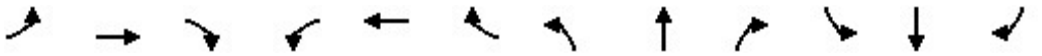
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	0	161	2	0	3	159	1314	1	0	1076	150
Future Volume (vph)	90	0	161	2	0	3	159	1314	1	0	1076	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00	1.00				0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1825	1921	1617	1825	1633	0	1825	3579	0	1921	3544	1601
Flt Permitted	0.741						0.243					
Satd. Flow (perm)	1424	1921	1617	1921	1633	0	466	3579	0	1921	3544	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73		144							150
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)							5		4	4		5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	3%	2%
Adj. Flow (vph)	90	0	161	2	0	3	159	1314	1	0	1076	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	0	161	2	3	0	159	1315	0	0	1076	150
Turn Type	pm+pt		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	9.0	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	15.0	49.0	49.0	34.0	34.0		71.0	71.0		71.0	71.0	71.0
Total Split (%)	12.5%	40.8%	40.8%	28.3%	28.3%		59.2%	59.2%		59.2%	59.2%	59.2%
Maximum Green (s)	11.0	42.7	42.7	27.7	27.7		64.3	64.3		64.3	64.3	64.3
Yellow Time (s)	3.0	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
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)	4.0	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0		0	0	0
Act Effct Green (s)	15.4		13.1	7.0	7.0		93.9	93.9			93.9	93.9
Actuated g/C Ratio	0.13		0.11	0.06	0.06		0.78	0.78			0.78	0.78
v/c Ratio	0.40		0.67	0.02	0.01		0.44	0.47			0.39	0.12

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	51.4		40.3	53.5	0.0		13.2	8.4			4.0	1.0
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	51.4		40.3	53.5	0.0		13.2	8.4			4.0	1.0
LOS	D		D	D	A		B	A			A	A
Approach Delay		44.3			21.4			8.9			3.7	
Approach LOS		D			C			A			A	
Queue Length 50th (m)	19.9		20.0	0.5	0.0		11.4	50.0			21.7	0.0
Queue Length 95th (m)	32.7		39.1	3.2	0.0		m36.9	124.8			52.1	m4.6
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0					160.0
Base Capacity (vph)	231		622	443	487		364	2799			2772	1243
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	0.39		0.26	0.00	0.01		0.44	0.47			0.39	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 9.8		Intersection LOS: A	
Intersection Capacity Utilization 70.3%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road



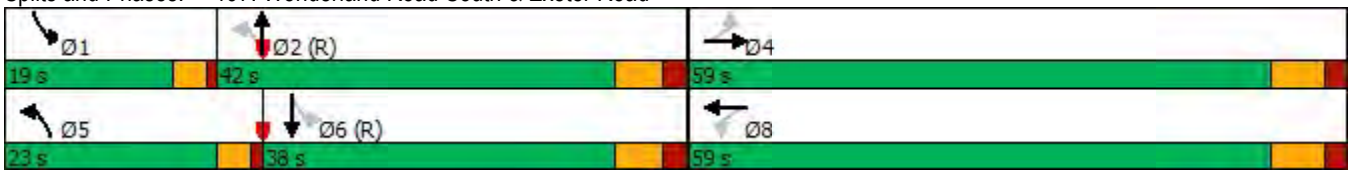


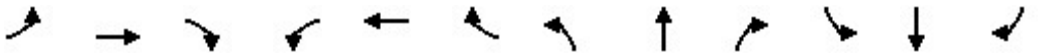
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	354	145	134	812	511	271	862	55	230	897	5
Future Volume (vph)	3	354	145	134	812	511	271	862	55	230	897	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.956			0.942			0.991			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3292	0	1755	3404	0	1772	3501	0	1706	3507	0
Flt Permitted	0.081			0.422			0.104			0.133		
Satd. Flow (perm)	156	3292	0	780	3404	0	194	3501	0	239	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		65			146			5				
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
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%	6%	6%	4%	1%	1%	3%	2%	24%	7%	4%	0%
Adj. Flow (vph)	3	354	145	134	812	511	271	862	55	230	897	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	499	0	134	1323	0	271	917	0	230	902	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		9.0	33.6		9.0	33.6	
Total Split (s)	59.0	59.0		59.0	59.0		23.0	42.0		19.0	38.0	
Total Split (%)	49.2%	49.2%		49.2%	49.2%		19.2%	35.0%		15.8%	31.7%	
Maximum Green (s)	52.0	52.0		52.0	52.0		19.0	35.4		15.0	31.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		3.0	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		1.0	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		4.0	6.6		4.0	6.6	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	49.6	49.6		49.6	49.6		58.1	38.6		52.8	35.9	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.48	0.32		0.44	0.30	
v/c Ratio	0.05	0.36		0.42	0.89		0.86	0.81		0.83	0.86	
Control Delay	24.7	23.3		29.0	37.0		54.1	44.8		51.1	44.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	24.7	23.3		29.0	37.0		54.1	44.8		51.1	44.5	
LOS	C	C		C	D		D	D		D	D	
Approach Delay		23.3			36.3			46.9			45.8	
Approach LOS		C			D			D			D	
Queue Length 50th (m)	0.3	25.3		21.2	131.0		45.8	107.8		28.0	99.1	
Queue Length 95th (m)	m1.5	44.5		38.7	162.2		#85.7	#142.2		m#65.2	#152.3	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	67	1463		338	1557		346	1129		289	1050	
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	0.04	0.34		0.40	0.85		0.78	0.81		0.80	0.86	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 40.2		Intersection LOS: D	
Intersection Capacity Utilization 105.1%		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: 197: Wonderland Road South & Exeter Road



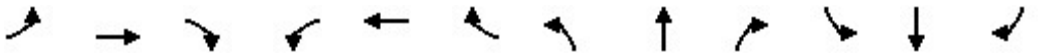


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	268	408	23	287	536	114	14	1032	382	63	824	294
Future Volume (vph)	268	408	23	287	536	114	14	1032	382	63	824	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				1.00				
Frt		0.992				0.850		0.959				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	3541	0	1755	3579	1512	1690	3433	0	1659	3380	1617
Flt Permitted	0.218			0.396			0.283			0.094		
Satd. Flow (perm)	415	3541	0	730	3579	1512	503	3433	0	164	3380	1617
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				86		65				39
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			2	2					3	3		
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 (%)	1%	2%	5%	4%	2%	8%	8%	1%	3%	10%	8%	1%
Adj. Flow (vph)	268	408	23	287	536	114	14	1032	382	63	824	294
Shared Lane Traffic (%)												
Lane Group Flow (vph)	268	431	0	287	536	114	14	1414	0	63	824	294
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	19.0	35.0		17.0	33.0	33.0	68.0	68.0		68.0	68.0	19.0
Total Split (%)	15.8%	29.2%		14.2%	27.5%	27.5%	56.7%	56.7%		56.7%	56.7%	15.8%
Maximum Green (s)	14.5	28.0		12.5	26.0	26.0	61.3	61.3		61.3	61.3	14.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	41.8	24.9		37.9	22.9	22.9	64.4	64.4		64.4	64.4	85.6
Actuated g/C Ratio	0.35	0.21		0.32	0.19	0.19	0.54	0.54		0.54	0.54	0.71
v/c Ratio	0.86	0.59		0.85	0.78	0.32	0.05	0.75		0.72	0.45	0.25

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	48.7	39.4		54.1	54.7	15.4	19.6	23.5		62.0	14.0	7.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	48.7	39.4		54.1	54.7	15.4	19.6	23.5		62.0	14.0	7.3
LOS	D	D		D	D	B	B	C		E	B	A
Approach Delay		43.0			49.8			23.4			14.9	
Approach LOS		D			D			C			B	
Queue Length 50th (m)	51.7	51.6		49.7	63.1	5.4	1.8	107.2		8.8	49.2	22.7
Queue Length 95th (m)	#78.3	68.5		#83.8	80.6	20.7	m2.3	130.8		#39.1	68.7	35.4
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	312	829		337	775	394	269	1873		87	1815	1164
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	0.86	0.52		0.85	0.69	0.29	0.05	0.75		0.72	0.45	0.25

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 75 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 30.1		Intersection LOS: C	
Intersection Capacity Utilization 97.1%		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: 198: Wonderland Road South & Wharncliffe Road South

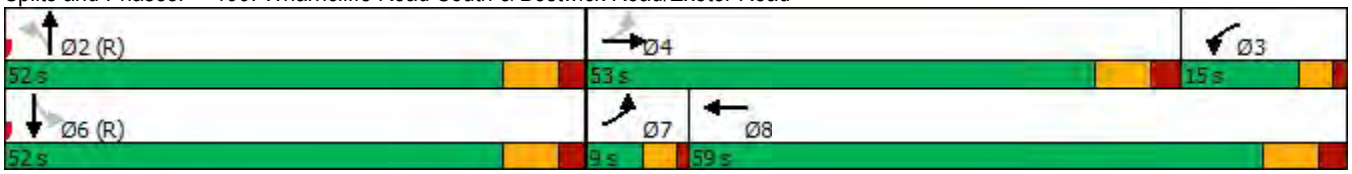


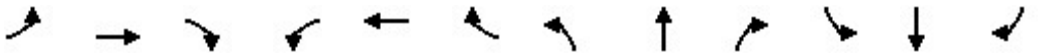
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	332	133	270	794	25	105	617	113	58	507	222
Future Volume (vph)	46	332	133	270	794	25	105	617	113	58	507	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Ped Bike Factor	1.00				1.00							
Frt		0.957			0.995			0.977			0.954	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3415	0	3506	3626	0	1825	5016	0	1738	3391	0
Flt Permitted	0.242			0.950			0.324			0.347		
Satd. Flow (perm)	465	3415	0	3506	3626	0	622	5016	0	635	3391	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		57			3			35			65	
Link Speed (k/h)		60			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		12.8			14.1			20.8			18.2	
Confl. Peds. (#/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%	2%	3%	1%	0%	4%	0%	2%	3%	5%	3%	2%
Adj. Flow (vph)	46	332	133	270	794	25	105	617	113	58	507	222
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	465	0	270	819	0	105	730	0	58	729	0
Turn Type	pm+pt	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4						2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	9.0	52.7		9.5	52.7		51.6	51.6		51.6	51.6	
Total Split (s)	9.0	53.0		15.0	59.0		52.0	52.0		52.0	52.0	
Total Split (%)	7.5%	44.2%		12.5%	49.2%		43.3%	43.3%		43.3%	43.3%	
Maximum Green (s)	5.0	45.3		10.5	51.3		44.4	44.4		44.4	44.4	
Yellow Time (s)	3.0	5.0		3.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	2.7		1.5	2.7		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7		4.5	7.7		7.6	7.6		7.6	7.6	
Lead/Lag	Lead	Lead		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		38.0			38.0		37.0	37.0		37.0	37.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	24.2	20.5		17.4	35.2		62.3	62.3		62.3	62.3	
Actuated g/C Ratio	0.20	0.17		0.14	0.29		0.52	0.52		0.52	0.52	
v/c Ratio	0.31	0.74		0.53	0.77		0.33	0.28		0.18	0.41	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	42.6	48.2		41.7	33.1		22.6	16.7		30.1	29.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	42.6	48.2		41.7	33.1		22.6	16.7		30.1	29.6	
LOS	D	D		D	C		C	B		C	C	
Approach Delay		47.7			35.2			17.4			29.6	
Approach LOS		D			D			B			C	
Queue Length 50th (m)	9.0	48.8		32.6	101.2		14.2	33.2		11.9	72.9	
Queue Length 95th (m)	17.9	62.6		m37.9	m101.7		31.5	47.2		m20.5	91.9	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0			80.0		
Base Capacity (vph)	150	1324		508	1551		322	2620		329	1791	
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	0.31	0.35		0.53	0.53		0.33	0.28		0.18	0.41	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 117 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 31.2		Intersection LOS: C	
Intersection Capacity Utilization 76.8%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 199: Wharncliffe Road South & Bostwick Road/Exeter Road



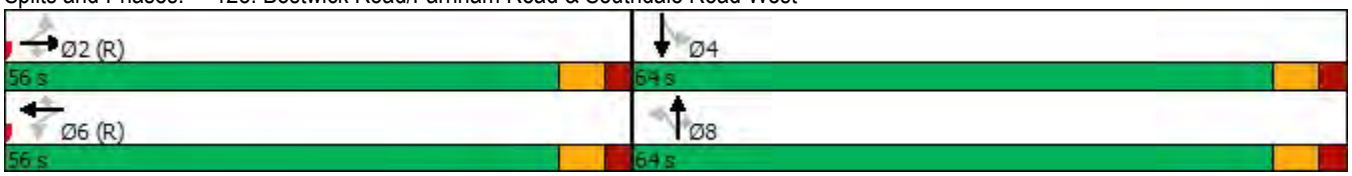


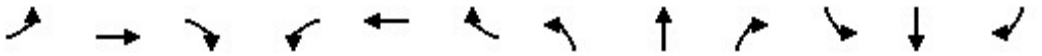
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	561	365	85	350	36	382	90	187	62	100	49
Future Volume (vph)	51	561	365	85	350	36	382	90	187	62	100	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		30.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98						
Frt			0.850			0.850			0.850		0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3614	1498	1722	3444	1601	1674	1902	1585	1807	1768	0
Flt Permitted	0.539			0.404			0.662			0.699		
Satd. Flow (perm)	994	3614	1498	732	3444	1566	1167	1902	1585	1330	1768	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			313			36			183		28	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		66.3			26.0			45.0			3.6	
Confl. Peds. (#/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 (%)	4%	1%	9%	6%	6%	2%	9%	1%	3%	1%	2%	6%
Adj. Flow (vph)	51	561	365	85	350	36	382	90	187	62	100	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	561	365	85	350	36	382	90	187	62	149	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	34.5	34.5	34.5	34.5	34.5	34.5	37.7	37.7	37.7	37.7	37.7	
Total Split (s)	56.0	56.0	56.0	56.0	56.0	56.0	64.0	64.0	64.0	64.0	64.0	
Total Split (%)	46.7%	46.7%	46.7%	46.7%	46.7%	46.7%	53.3%	53.3%	53.3%	53.3%	53.3%	
Maximum Green (s)	49.5	49.5	49.5	49.5	49.5	49.5	57.3	57.3	57.3	57.3	57.3	
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.6	2.6	2.6	2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.7	6.7	6.7	6.7	6.7	
Lead/Lag												
Lead-Lag Optimize?												
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	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0	21.0	24.0	24.0	24.0	24.0	24.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Act Effct Green (s)	60.5	60.5	60.5	60.5	60.5	60.5	46.3	46.3	46.3	46.3	46.3	
Actuated g/C Ratio	0.50	0.50	0.50	0.50	0.50	0.50	0.39	0.39	0.39	0.39	0.39	
v/c Ratio	0.10	0.31	0.40	0.23	0.20	0.04	0.85	0.12	0.26	0.12	0.21	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	19.9	19.6	5.5	17.6	14.8	4.9	50.6	21.7	3.7	21.4	18.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	19.9	19.6	5.5	17.6	14.8	4.9	50.6	21.7	3.7	21.4	18.6	
LOS	B	B	A	B	B	A	D	C	A	C	B	
Approach Delay		14.4			14.5			33.3			19.4	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	6.2	40.3	6.2	8.2	16.6	0.0	79.7	13.3	0.6	9.1	18.3	
Queue Length 95th (m)	15.8	61.8	28.4	24.6	31.2	3.0	105.5	20.6	12.3	15.8	27.9	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0		30.0	110.0		30.0	35.0			25.0		
Base Capacity (vph)	501	1822	910	368	1736	807	557	908	852	635	858	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.10	0.31	0.40	0.23	0.20	0.04	0.69	0.10	0.22	0.10	0.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 18 (15%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 20.2		Intersection LOS: C	
Intersection Capacity Utilization 80.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 128: Bostwick Road/Farnham Road & Southdale Road West



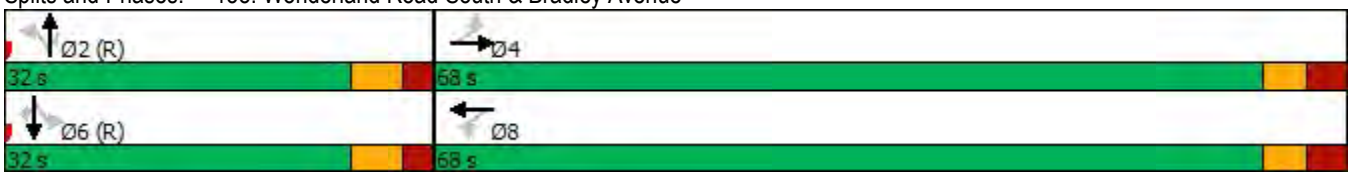


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	352	90	82	155	101	65	712	96	126	941	50
Future Volume (vph)	139	352	90	82	155	101	65	712	96	126	941	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00		0.99	1.00		0.99
Frt		0.969			0.941				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3480	0	1772	3308	0	1601	3476	1570	1825	3579	1228
Flt Permitted	0.592			0.362			0.276			0.367		
Satd. Flow (perm)	1134	3480	0	675	3308	0	465	3476	1549	705	3579	1210
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			25				96			37
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	4					4	2		1	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%	0%	8%	14%	5%	4%	0%	2%	33%
Adj. Flow (vph)	139	352	90	82	155	101	65	712	96	126	941	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	442	0	82	256	0	65	712	96	126	941	50
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	34.4	34.4		34.4	34.4		31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	68.0	68.0		68.0	68.0		32.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	68.0%	68.0%		68.0%	68.0%		32.0%	32.0%	32.0%	32.0%	32.0%	32.0%
Maximum Green (s)	61.6	61.6		61.6	61.6		25.8	25.8	25.8	25.8	25.8	25.8
Yellow Time (s)	3.3	3.3		3.3	3.3		3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	3.1	3.1		3.1	3.1		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag												
Lead-Lag Optimize?												
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		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	20.2	20.2		20.2	20.2		67.2	67.2	67.2	67.2	67.2	67.2
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.67	0.67	0.67	0.67	0.67	0.67
v/c Ratio	0.61	0.63		0.60	0.37		0.21	0.30	0.09	0.27	0.39	0.06

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	46.7	39.1		53.5	31.3		13.5	9.1	5.8	9.8	8.6	3.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	39.1		53.5	31.3		13.5	9.1	5.8	9.8	8.6	3.7
LOS	D	D		D	C		B	A	A	A	A	A
Approach Delay		40.9			36.7			9.1			8.5	
Approach LOS		D			D			A			A	
Queue Length 50th (m)	25.0	41.2		14.7	20.5		1.5	8.5	0.1	8.4	36.9	0.7
Queue Length 95th (m)	39.6	50.1		27.4	28.1		17.3	55.6	13.4	23.0	64.5	5.7
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	698	2146		415	2047		312	2336	1072	473	2405	825
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	0.20	0.21		0.20	0.13		0.21	0.30	0.09	0.27	0.39	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 41 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 18.4		Intersection LOS: B	
Intersection Capacity Utilization 71.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 158: Wonderland Road South & Bradley Avenue

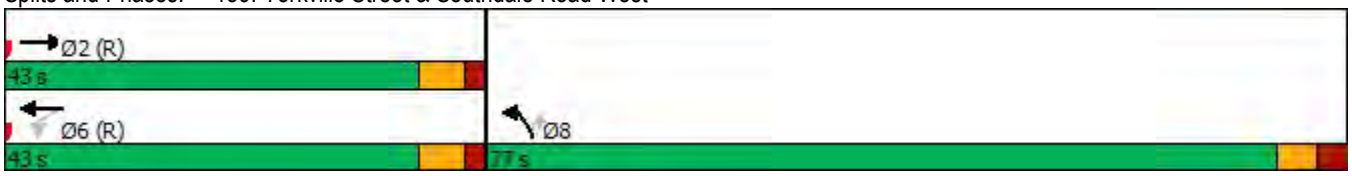


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	797	46	82	404	70	150
Future Volume (vph)	797	46	82	404	70	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.992					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3621	0	1825	3650	1825	1633
Flt Permitted			0.325		0.950	
Satd. Flow (perm)	3621	0	624	3650	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	5					33
Link Speed (k/h)	60			60	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	26.0			20.4	11.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	797	46	82	404	70	150
Shared Lane Traffic (%)						
Lane Group Flow (vph)	843	0	82	404	70	150
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	28.4		28.4	28.4	35.5	35.5
Total Split (s)	43.0		43.0	43.0	77.0	77.0
Total Split (%)	35.8%		35.8%	35.8%	64.2%	64.2%
Maximum Green (s)	37.0		37.0	37.0	70.5	70.5
Yellow Time (s)	4.1		4.1	4.1	3.6	3.6
All-Red Time (s)	1.9		1.9	1.9	2.9	2.9
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	22.0	22.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	93.0		93.0	93.0	14.5	14.5
Actuated g/C Ratio	0.78		0.78	0.78	0.12	0.12
v/c Ratio	0.30		0.17	0.14	0.32	0.67
Control Delay	11.7		3.1	2.1	50.2	52.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	11.7		3.1	2.1	50.2	52.6

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	B		A	A	D	D
Approach Delay	11.7			2.3	51.8	
Approach LOS	B			A	D	
Queue Length 50th (m)	43.7		1.7	4.2	15.3	26.6
Queue Length 95th (m)	98.7		5.6	10.1	27.6	45.4
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)			55.0		45.0	
Base Capacity (vph)	2808		483	2829	1072	973
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.30		0.17	0.14	0.07	0.15

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 4 (3%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 14.4		Intersection LOS: B	
Intersection Capacity Utilization 50.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 159: Yorkville Street & Southdale Road West



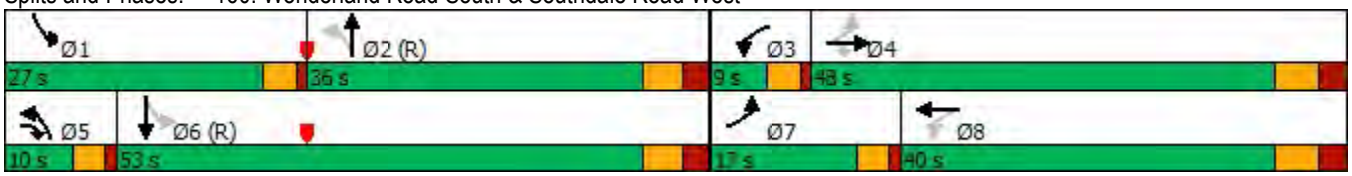
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	594	108	75	353	191	83	641	55	328	815	71
Future Volume (vph)	171	594	108	75	353	191	83	641	55	328	815	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99		0.98	0.99	0.99		0.99	1.00		1.00	1.00	
Frt			0.850		0.947			0.988			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1659	3579	1617	1772	3237	0	1755	3351	0	1738	3413	0
Flt Permitted	0.202			0.370			0.300			0.244		
Satd. Flow (perm)	351	3579	1578	686	3237	0	551	3351	0	445	3413	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			108		84			7			9	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	14		11	11		14	15		12	12		15
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%	2%	1%	3%	4%	9%	4%	7%	12%	5%	5%	10%
Adj. Flow (vph)	171	594	108	75	353	191	83	641	55	328	815	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	171	594	108	75	544	0	83	696	0	328	886	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.0	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	17.0	48.0	10.0	9.0	40.0		10.0	36.0		27.0	53.0	
Total Split (%)	14.2%	40.0%	8.3%	7.5%	33.3%		8.3%	30.0%		22.5%	44.2%	
Maximum Green (s)	13.0	41.4	6.0	5.0	33.4		6.0	29.9		23.0	46.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	42.5	32.7	41.3	31.0	23.4		52.2	44.1		69.5	57.4	
Actuated g/C Ratio	0.35	0.27	0.34	0.26	0.20		0.44	0.37		0.58	0.48	
v/c Ratio	0.66	0.61	0.18	0.34	0.78		0.28	0.56		0.71	0.54	

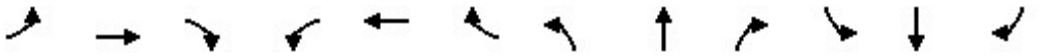
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	45.5	44.3	17.1	29.7	46.2		17.1	34.2		23.3	24.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	45.5	44.3	17.1	29.7	46.2		17.1	34.2		23.3	24.3	
LOS	D	D	B	C	D		B	C		C	C	
Approach Delay		41.1			44.2			32.4			24.1	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	28.9	66.0	7.3	11.7	54.8		8.3	69.7		38.7	75.5	
Queue Length 95th (m)	55.6	85.1	25.8	20.2	69.2		17.9	100.3		65.1	105.4	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	265	1234	615	222	961		300	1236		505	1637	
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	0.65	0.48	0.18	0.34	0.57		0.28	0.56		0.65	0.54	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 33.8 Intersection LOS: C
Intersection Capacity Utilization 89.3% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 160: Wonderland Road South & Southdale Road West





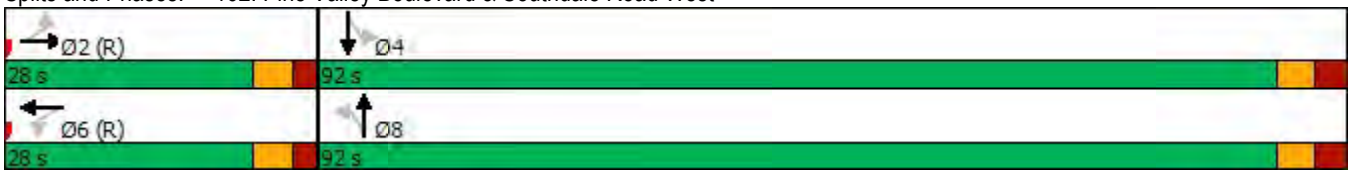
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	789	60	69	382	68	39	17	44	27	25	71
Future Volume (vph)	101	789	60	69	382	68	39	17	44	27	25	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00			0.99		0.99	0.99		1.00	0.98	
Frt		0.989			0.977			0.892			0.889	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3570	0	1825	3362	0	1825	1697	0	1755	1610	0
Flt Permitted	0.492			0.328			0.695			0.717		
Satd. Flow (perm)	940	3570	0	630	3362	0	1325	1697	0	1323	1610	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			15			3			63	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	5		2	2		5	7		1	1		7
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%	1%	0%	0%	6%	3%	0%	0%	0%	4%	0%	6%
Adj. Flow (vph)	101	789	60	69	382	68	39	17	44	27	25	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	849	0	69	450	0	39	61	0	27	96	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	28.0	28.0		28.0	28.0		92.0	92.0		92.0	92.0	
Total Split (%)	23.3%	23.3%		23.3%	23.3%		76.7%	76.7%		76.7%	76.7%	
Maximum Green (s)	22.1	22.1		22.1	22.1		85.6	85.6		85.6	85.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	97.8	97.8		97.8	97.8		9.9	9.9		9.9	9.9	
Actuated g/C Ratio	0.82	0.82		0.82	0.82		0.08	0.08		0.08	0.08	
v/c Ratio	0.13	0.29		0.13	0.16		0.36	0.43		0.25	0.51	

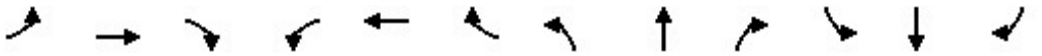
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	7.7	8.8		6.8	5.3		60.4	58.4		56.1	30.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.7	8.8		6.8	5.3		60.4	58.4		56.1	30.7	
LOS	A	A		A	A		E	E		E	C	
Approach Delay		8.7			5.5			59.2			36.3	
Approach LOS		A			A			E			D	
Queue Length 50th (m)	11.2	53.6		4.0	14.3		8.9	13.3		6.1	7.4	
Queue Length 95th (m)	29.6	98.3		m12.6	27.7		19.5	26.2		15.0	23.4	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	766	2911		513	2743		945	1211		943	1166	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.13	0.29		0.13	0.16		0.04	0.05		0.03	0.08	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 66 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 12.7 Intersection LOS: B
Intersection Capacity Utilization 56.1% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West



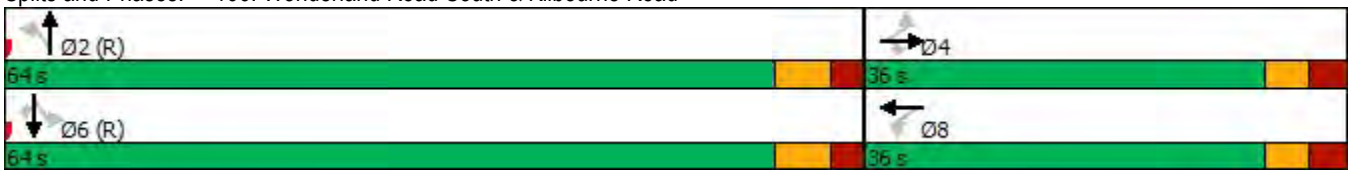


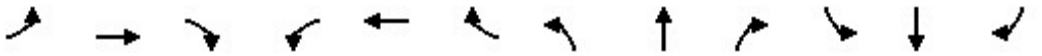
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	0	245	4	0	5	134	718	2	1	948	150
Future Volume (vph)	147	0	245	4	0	5	134	718	2	1	948	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00					0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1690	1921	1585	1043	1151	0	1807	3349	0	1825	3544	1601
Flt Permitted	0.754			0.757			0.282			0.372		
Satd. Flow (perm)	1340	1921	1585	831	1151	0	536	3349	0	715	3544	1558
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			121		212							150
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)	1					1	3					3
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 (%)	8%	0%	3%	75%	0%	40%	1%	9%	0%	0%	3%	2%
Adj. Flow (vph)	147	0	245	4	0	5	134	718	2	1	948	150
Shared Lane Traffic (%)												
Lane Group Flow (vph)	147	0	245	4	5	0	134	720	0	1	948	150
Turn Type	Perm		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	4	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	33.3	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	36.0	36.0	36.0	36.0	36.0		64.0	64.0		64.0	64.0	64.0
Total Split (%)	36.0%	36.0%	36.0%	36.0%	36.0%		64.0%	64.0%		64.0%	64.0%	64.0%
Maximum Green (s)	29.7	29.7	29.7	29.7	29.7		57.3	57.3		57.3	57.3	57.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag												
Lead-Lag Optimize?												
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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	0
Act Effct Green (s)	16.3		16.3	16.3	16.3		70.7	70.7		70.7	70.7	70.7
Actuated g/C Ratio	0.16		0.16	0.16	0.16		0.71	0.71		0.71	0.71	0.71
v/c Ratio	0.67		0.68	0.03	0.01		0.35	0.30		0.00	0.38	0.13

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	53.9		28.8	32.0	0.0		11.7	7.8		4.0	4.4	0.5
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	53.9		28.8	32.0	0.0		11.7	7.8		4.0	4.4	0.5
LOS	D		C	C	A		B	A		A	A	A
Approach Delay		38.2			14.2			8.4			3.9	
Approach LOS		D			B			A			A	
Queue Length 50th (m)	27.1		22.3	0.7	0.0		4.1	11.7		0.1	24.2	0.4
Queue Length 95th (m)	43.7		44.1	3.4	0.0		m27.0	53.3		m0.1	28.5	0.8
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0			115.0		160.0
Base Capacity (vph)	397		555	246	490		378	2367		505	2505	1145
Starvation Cap Reductn	0		0	0	0		0	0		0	0	0
Spillback Cap Reductn	0		0	0	0		0	0		0	0	0
Storage Cap Reductn	0		0	0	0		0	0		0	0	0
Reduced v/c Ratio	0.37		0.44	0.02	0.01		0.35	0.30		0.00	0.38	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 37 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 11.3		Intersection LOS: B	
Intersection Capacity Utilization 64.9%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road





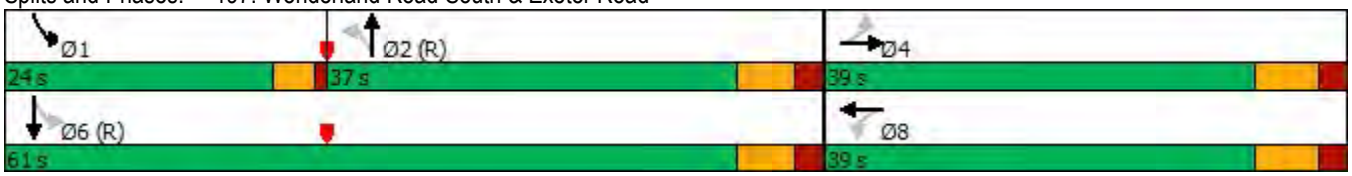
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	617	292	44	243	195	61	806	112	392	923	3
Future Volume (vph)	3	617	292	44	243	195	61	806	112	392	923	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.952			0.933			0.982				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1372	3407	0	1437	3029	0	1738	3418	0	1789	3510	0
Flt Permitted	0.442			0.135			0.308			0.133		
Satd. Flow (perm)	638	3407	0	204	3029	0	564	3418	0	250	3510	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		83			195			16				
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
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 (%)	33%	2%	2%	27%	12%	13%	5%	5%	4%	2%	4%	0%
Adj. Flow (vph)	3	617	292	44	243	195	61	806	112	392	923	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	909	0	44	438	0	61	918	0	392	926	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		33.6	33.6		9.0	33.6	
Total Split (s)	39.0	39.0		39.0	39.0		37.0	37.0		24.0	61.0	
Total Split (%)	39.0%	39.0%		39.0%	39.0%		37.0%	37.0%		24.0%	61.0%	
Maximum Green (s)	32.0	32.0		32.0	32.0		30.4	30.4		20.0	54.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		4.4	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.6	6.6		4.0	6.6	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	29.6	29.6		29.6	29.6		34.0	34.0		59.4	56.8	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.34	0.34		0.59	0.57	
v/c Ratio	0.02	0.85		0.73	0.42		0.32	0.78		0.89	0.46	
Control Delay	23.7	38.6		92.8	16.1		32.8	36.1		54.1	6.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

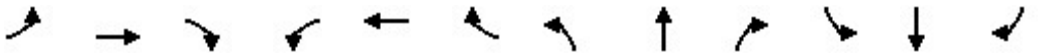
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	23.7	38.6		92.8	16.1		32.8	36.1		54.1	6.9	
LOS	C	D		F	B		C	D		D	A	
Approach Delay		38.6			23.1			35.9			20.9	
Approach LOS		D			C			D			C	
Queue Length 50th (m)	0.4	77.8		7.4	18.4		9.1	85.9		45.1	22.6	
Queue Length 95th (m)	2.4	100.5		#26.5	31.3		21.4	#120.6		#103.3	26.8	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	204	1146		65	1101		191	1172		456	1995	
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	0.01	0.79		0.68	0.40		0.32	0.78		0.86	0.46	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 73 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 29.5 Intersection LOS: C
Intersection Capacity Utilization 98.8% 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.

Splits and Phases: 197: Wonderland Road South & Exeter Road



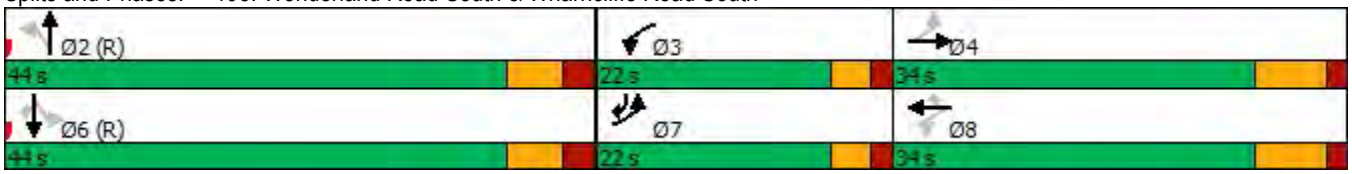


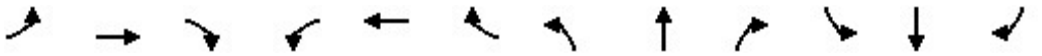
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	617	19	237	260	54	5	610	315	63	952	181
Future Volume (vph)	181	617	19	237	260	54	5	610	315	63	952	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				0.99		1.00		
Frt		0.996				0.850		0.949				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1755	3525	0	1755	3544	1384	1825	3252	0	1508	3510	1570
Flt Permitted	0.591			0.201			0.201			0.212		
Satd. Flow (perm)	1092	3525	0	371	3544	1384	386	3252	0	336	3510	1570
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				89		105				181
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			1	1					3	3		
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 (%)	4%	3%	6%	4%	3%	18%	0%	8%	2%	21%	4%	4%
Adj. Flow (vph)	181	617	19	237	260	54	5	610	315	63	952	181
Shared Lane Traffic (%)												
Lane Group Flow (vph)	181	636	0	237	260	54	5	925	0	63	952	181
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	22.0	34.0		22.0	34.0	34.0	44.0	44.0		44.0	44.0	22.0
Total Split (%)	22.0%	34.0%		22.0%	34.0%	34.0%	44.0%	44.0%		44.0%	44.0%	22.0%
Maximum Green (s)	17.5	27.0		17.5	27.0	27.0	37.3	37.3		37.3	37.3	17.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	37.3	23.1		42.2	25.5	25.5	44.6	44.6		44.6	44.6	63.0
Actuated g/C Ratio	0.37	0.23		0.42	0.26	0.26	0.45	0.45		0.45	0.45	0.63
v/c Ratio	0.37	0.78		0.67	0.29	0.13	0.03	0.61		0.42	0.61	0.17

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	18.8	42.9		27.1	30.0	2.7	44.8	41.8		24.7	16.9	0.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	18.8	42.9		27.1	30.0	2.7	44.8	41.8		24.7	16.9	0.6
LOS	B	D		C	C	A	D	D		C	B	A
Approach Delay		37.5			26.1			41.9			14.8	
Approach LOS		D			C			D			B	
Queue Length 50th (m)	20.8	60.1		28.2	21.1	0.0	0.9	88.3		4.8	59.5	0.3
Queue Length 95th (m)	30.3	76.4		39.2	30.1	3.5	m1.3	111.1		#16.6	76.4	1.5
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	580	953		404	987	449	171	1507		149	1564	1136
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	0.31	0.67		0.59	0.26	0.12	0.03	0.61		0.42	0.61	0.16

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 53 (53%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 29.1		Intersection LOS: C	
Intersection Capacity Utilization 84.5%		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.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 198: Wonderland Road South & Wharncliffe Road South





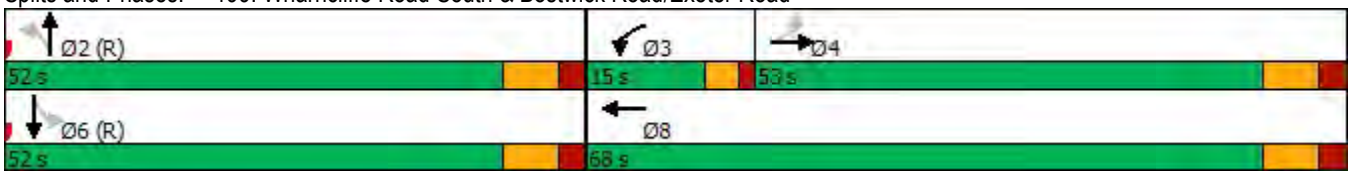
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	690	272	142	162	19	86	768	214	8	396	59
Future Volume (vph)	41	690	272	142	162	19	86	768	214	8	396	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.958			0.984			0.967			0.981	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3376	0	2975	3340	0	1630	4913	0	1496	3505	0
Flt Permitted	0.638			0.950			0.460			0.225		
Satd. Flow (perm)	1226	3376	0	2975	3340	0	789	4913	0	354	3505	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56			15			67			16	
Link Speed (k/h)		60			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		12.8			14.1			20.8			18.2	
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%	3%	5%	19%	7%	12%	12%	3%	4%	22%	1%	10%
Adj. Flow (vph)	41	690	272	142	162	19	86	768	214	8	396	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	962	0	142	181	0	86	982	0	8	455	0
Turn Type	Perm	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4						2			6		
Detector Phase	4	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	52.7	52.7		9.5	52.7		51.6	51.6		51.6	51.6	
Total Split (s)	53.0	53.0		15.0	68.0		52.0	52.0		52.0	52.0	
Total Split (%)	44.2%	44.2%		12.5%	56.7%		43.3%	43.3%		43.3%	43.3%	
Maximum Green (s)	45.3	45.3		10.5	60.3		44.4	44.4		44.4	44.4	
Yellow Time (s)	5.0	5.0		3.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	2.7	2.7		1.5	2.7		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.7	7.7		4.5	7.7		7.6	7.6		7.6	7.6	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	38.0	38.0			38.0		37.0	37.0		37.0	37.0	
Pedestrian Calls (#/hr)	0	0			0		0	0		0	0	
Act Effct Green (s)	40.0	40.0		9.8	54.2		50.5	50.5		50.5	50.5	
Actuated g/C Ratio	0.33	0.33		0.08	0.45		0.42	0.42		0.42	0.42	
v/c Ratio	0.10	0.83		0.59	0.12		0.26	0.47		0.05	0.31	
Control Delay	26.4	41.1		63.2	16.6		27.5	24.9		25.2	24.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

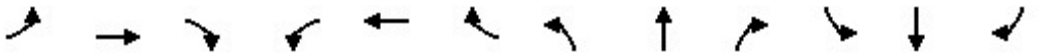
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	26.4	41.1		63.2	16.6		27.5	24.9		25.2	24.0	
LOS	C	D		E	B		C	C		C	C	
Approach Delay		40.5			37.1			25.1			24.0	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	6.5	102.2		16.8	11.2		13.3	57.3		1.1	36.4	
Queue Length 95th (m)	13.9	120.5		27.2	16.6		27.9	74.6		4.8	52.3	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0			80.0		
Base Capacity (vph)	462	1309		260	1685		331	2104		148	1482	
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	0.09	0.73		0.55	0.11		0.26	0.47		0.05	0.31	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 74 (62%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 31.7 Intersection LOS: C
Intersection Capacity Utilization 80.2% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 199: Wharncliffe Road South & Bostwick Road/Exeter Road



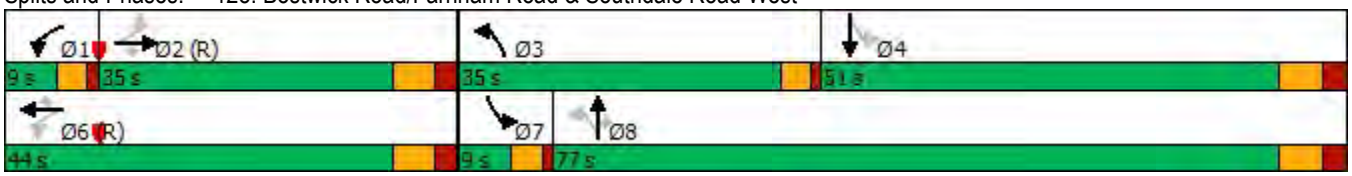


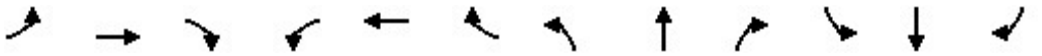
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	684	343	167	746	133	498	208	92	66	117	55
Future Volume (vph)	50	684	343	167	746	133	498	208	92	66	117	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		30.0	110.0		30.0	35.0		0.0	25.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.99	1.00			1.00		0.99	1.00	0.99	
Frt			0.850			0.850			0.850		0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3614	1555	1755	3614	1633	1825	1902	1570	1755	1784	0
Flt Permitted	0.368			0.220			0.370			0.628		
Satd. Flow (perm)	707	3614	1534	406	3614	1633	709	1902	1547	1158	1784	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			167			98			97		20	
Link Speed (k/h)		60			60			60			50	
Link Distance (m)		1104.4			434.0			749.7			50.0	
Travel Time (s)		66.3			26.0			45.0			3.6	
Confl. Peds. (#/hr)			1	1			3		2	2		3
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%	1%	5%	4%	1%	0%	0%	1%	4%	4%	2%	2%
Adj. Flow (vph)	50	684	343	167	746	133	498	208	92	66	117	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	684	343	167	746	133	498	208	92	66	172	0
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	2	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0	5.0	7.0	
Minimum Split (s)	34.5	34.5	34.5	9.0	34.5	34.5	9.0	37.7	37.7	9.0	37.7	
Total Split (s)	35.0	35.0	35.0	9.0	44.0	44.0	35.0	77.0	77.0	9.0	51.0	
Total Split (%)	26.9%	26.9%	26.9%	6.9%	33.8%	33.8%	26.9%	59.2%	59.2%	6.9%	39.2%	
Maximum Green (s)	28.5	28.5	28.5	5.0	37.5	37.5	31.0	70.3	70.3	5.0	44.3	
Yellow Time (s)	4.1	4.1	4.1	3.0	4.1	4.1	3.0	4.1	4.1	3.0	4.1	
All-Red Time (s)	2.4	2.4	2.4	1.0	2.4	2.4	1.0	2.6	2.6	1.0	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.7	6.7	4.0	6.7	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	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	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		24.0	24.0		24.0	
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	
Act Effct Green (s)	41.7	41.7	41.7	68.2	65.7	65.7	53.8	43.9	43.9	24.4	16.7	
Actuated g/C Ratio	0.32	0.32	0.32	0.52	0.51	0.51	0.41	0.34	0.34	0.19	0.13	
v/c Ratio	0.22	0.59	0.57	0.40	0.41	0.15	0.90	0.32	0.16	0.28	0.70	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	37.0	40.0	22.8	26.7	24.8	11.6	50.7	33.1	5.2	28.4	62.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	37.0	40.0	22.8	26.7	24.8	11.6	50.7	33.1	5.2	28.4	62.3	
LOS	D	D	C	C	C	B	D	C	A	C	E	
Approach Delay		34.4			23.4			40.9			52.9	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	9.1	75.2	35.7	24.0	66.3	7.3	100.9	40.2	0.0	10.1	37.9	
Queue Length 95th (m)	21.6	103.3	72.3	43.4	80.6	20.2	#127.0	56.2	10.0	17.5	58.6	
Internal Link Dist (m)		1080.4			410.0			725.7			26.0	
Turn Bay Length (m)	150.0		30.0	110.0		30.0	35.0			25.0		
Base Capacity (vph)	226	1159	605	419	1825	873	559	1028	881	240	621	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.22	0.59	0.57	0.40	0.41	0.15	0.89	0.20	0.10	0.28	0.28	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 113 (87%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 33.8		Intersection LOS: C	
Intersection Capacity Utilization 89.0%		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: 128: Bostwick Road/Farnham Road & Southdale Road West





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	308	141	237	407	159	211	1112	158	165	932	151
Future Volume (vph)	116	308	141	237	407	159	211	1112	158	165	932	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00		0.99	1.00		0.98
Frt		0.953			0.958				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3479	0	1755	3478	0	1484	3614	1142	1825	3544	1633
Flt Permitted	0.220			0.286			0.250			0.189		
Satd. Flow (perm)	421	3479	0	528	3478	0	390	3614	1127	363	3544	1606
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		58			45				140			134
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	6					6	3		1	1		3
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%	0%	4%	0%	0%	23%	1%	43%	0%	3%	0%
Adj. Flow (vph)	116	308	141	237	407	159	211	1112	158	165	932	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	449	0	237	566	0	211	1112	158	165	932	151
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		3	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	9.0	34.4		9.0	34.4		31.2	31.2	31.2	31.2	31.2	31.2
Total Split (s)	16.0	35.0		16.0	35.0		69.0	69.0	69.0	69.0	69.0	69.0
Total Split (%)	13.3%	29.2%		13.3%	29.2%		57.5%	57.5%	57.5%	57.5%	57.5%	57.5%
Maximum Green (s)	12.0	28.6		12.0	28.6		62.8	62.8	62.8	62.8	62.8	62.8
Yellow Time (s)	3.0	3.3		3.0	3.3		3.8	3.8	3.8	3.8	3.8	3.8
All-Red Time (s)	1.0	3.1		1.0	3.1		2.4	2.4	2.4	2.4	2.4	2.4
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)	4.0	6.4		4.0	6.4		6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	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		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		21.0			21.0		18.0	18.0	18.0	18.0	18.0	18.0
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	0
Act Effct Green (s)	35.0	22.2		38.0	23.8		69.2	69.2	69.2	69.2	69.2	69.2
Actuated g/C Ratio	0.29	0.18		0.32	0.20		0.58	0.58	0.58	0.58	0.58	0.58
v/c Ratio	0.48	0.65		0.82	0.78		0.94	0.53	0.22	0.79	0.46	0.15

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	33.4	43.2		53.7	49.7		62.2	7.6	1.0	51.0	16.3	3.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	43.2		53.7	49.7		62.2	7.6	1.0	51.0	16.3	3.5
LOS	C	D		D	D		E	A	A	D	B	A
Approach Delay		41.2			50.9			14.6			19.3	
Approach LOS		D			D			B			B	
Queue Length 50th (m)	18.9	44.7		41.9	61.7		50.8	33.7	0.2	29.3	64.5	1.7
Queue Length 95th (m)	30.4	58.4		#66.8	77.7		#101.8	35.6	0.7	#77.4	89.1	11.8
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	268	873		289	863		225	2084	709	209	2044	983
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	0.43	0.51		0.82	0.66		0.94	0.53	0.22	0.79	0.46	0.15

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 51 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 26.8		Intersection LOS: C	
Intersection Capacity Utilization 85.0%		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.			

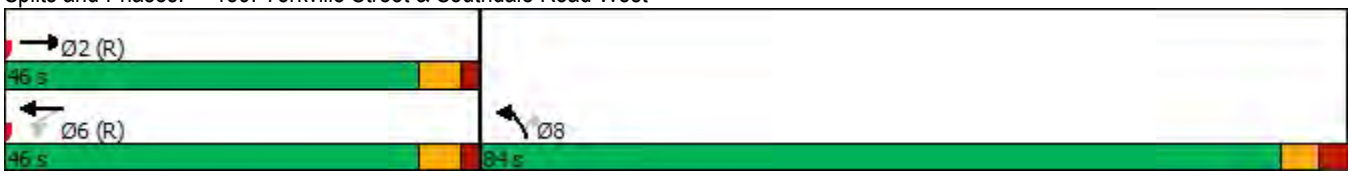
Splits and Phases: 158: Wonderland Road South & Bradley Avenue

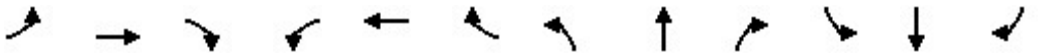
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	734	104	192	961	83	126
Future Volume (vph)	734	104	192	961	83	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		40.0	55.0		45.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.981					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3581	0	1825	3650	1825	1633
Flt Permitted			0.330		0.950	
Satd. Flow (perm)	3581	0	634	3650	1825	1633
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	12					44
Link Speed (k/h)	60			60	50	
Link Distance (m)	434.0			340.4	165.0	
Travel Time (s)	26.0			20.4	11.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	734	104	192	961	83	126
Shared Lane Traffic (%)						
Lane Group Flow (vph)	838	0	192	961	83	126
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0
Minimum Split (s)	28.4		28.4	28.4	35.5	35.5
Total Split (s)	46.0		46.0	46.0	84.0	84.0
Total Split (%)	35.4%		35.4%	35.4%	64.6%	64.6%
Maximum Green (s)	40.0		40.0	40.0	77.5	77.5
Yellow Time (s)	4.1		4.1	4.1	3.6	3.6
All-Red Time (s)	1.9		1.9	1.9	2.9	2.9
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0		14.0	14.0	22.0	22.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	105.0		105.0	105.0	12.5	12.5
Actuated g/C Ratio	0.81		0.81	0.81	0.10	0.10
v/c Ratio	0.29		0.38	0.33	0.47	0.64
Control Delay	1.0		4.7	2.6	63.3	50.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	1.0		4.7	2.6	63.3	50.6

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	A		A	A	E	D
Approach Delay	1.0			2.9	55.7	
Approach LOS	A			A	E	
Queue Length 50th (m)	4.6		9.3	24.4	20.5	20.4
Queue Length 95th (m)	6.8		21.9	34.0	35.2	39.1
Internal Link Dist (m)	410.0			316.4	141.0	
Turn Bay Length (m)			55.0		45.0	
Base Capacity (vph)	2894		512	2948	1087	991
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.29		0.38	0.33	0.08	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 28 (22%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 7.2		Intersection LOS: A	
Intersection Capacity Utilization 55.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 159: Yorkville Street & Southdale Road West



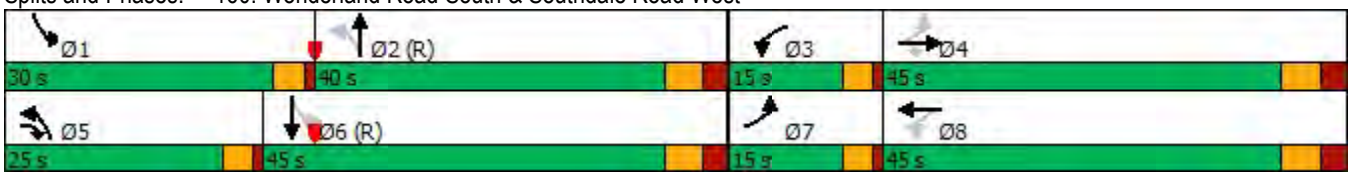


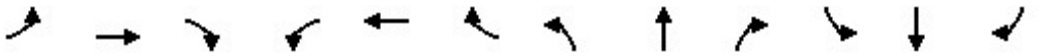
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	571	93	165	623	223	215	894	106	289	947	120
Future Volume (vph)	162	571	93	165	623	223	215	894	106	289	947	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		45.0	160.0		0.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00		0.95	0.99	0.99			1.00			0.99	
Frt			0.850		0.960			0.984			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1789	3579	1555	1825	3436	0	1807	3506	0	1738	3474	0
Flt Permitted	0.112			0.288			0.104			0.088		
Satd. Flow (perm)	210	3579	1483	546	3436	0	198	3506	0	161	3474	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93		39			9			11	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		167.3			209.5			727.4			342.0	
Travel Time (s)		10.0			12.6			43.6			20.5	
Confl. Peds. (#/hr)	12		29	29		12	32		14	14		32
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	5%	0%	1%	2%	1%	2%	3%	5%	3%	0%
Adj. Flow (vph)	162	571	93	165	623	223	215	894	106	289	947	120
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	571	93	165	846	0	215	1000	0	289	1067	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	9.5	38.6	9.5	9.5	38.6		9.5	35.1		9.5	35.1	
Total Split (s)	15.0	45.0	25.0	15.0	45.0		25.0	40.0		30.0	45.0	
Total Split (%)	11.5%	34.6%	19.2%	11.5%	34.6%		19.2%	30.8%		23.1%	34.6%	
Maximum Green (s)	11.0	38.4	21.0	11.0	38.4		21.0	33.9		26.0	38.9	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	1.0	1.0	2.7		1.0	2.4		1.0	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.6	4.0	4.0	6.6		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	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	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		25.0			25.0			22.0			22.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	49.2	35.8	53.7	48.9	35.6		59.0	41.6		68.9	47.5	
Actuated g/C Ratio	0.38	0.28	0.41	0.38	0.27		0.45	0.32		0.53	0.37	
v/c Ratio	0.77	0.58	0.14	0.53	0.87		0.77	0.89		0.84	0.84	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	66.8	26.8	2.8	31.2	53.5		48.0	53.2		54.7	45.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	66.8	26.8	2.8	31.2	53.5		48.0	53.2		54.7	45.4	
LOS	E	C	A	C	D		D	D		D	D	
Approach Delay		31.9			49.8			52.3			47.4	
Approach LOS		C			D			D			D	
Queue Length 50th (m)	26.1	59.2	0.2	26.5	102.7		36.5	131.1		56.2	132.8	
Queue Length 95th (m)	#56.4	42.5	1.1	41.2	126.4		62.6	#192.3		87.3	#193.3	
Internal Link Dist (m)		143.3			185.5			703.4			318.0	
Turn Bay Length (m)	110.0		45.0	160.0			90.0			60.0		
Base Capacity (vph)	213	1057	739	315	1042		357	1127		400	1276	
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	0.76	0.54	0.13	0.52	0.81		0.60	0.89		0.72	0.84	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 125 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 46.4		Intersection LOS: D	
Intersection Capacity Utilization 95.8%		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.			

Splits and Phases: 160: Wonderland Road South & Southdale Road West



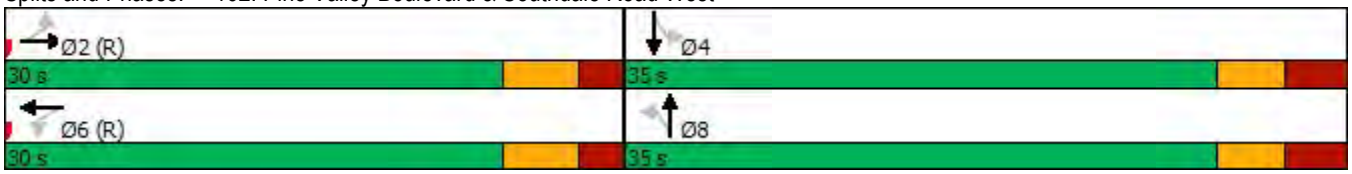


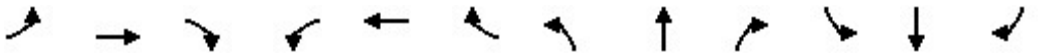
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	649	119	116	793	75	195	102	74	64	71	176
Future Volume (vph)	100	649	119	116	793	75	195	102	74	64	71	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		0.0	110.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99	1.00		1.00	0.99		1.00	0.99	
Frt		0.977			0.987			0.937			0.893	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3472	0	1825	3553	0	1825	1788	0	1825	1677	0
Flt Permitted	0.291			0.336			0.558			0.646		
Satd. Flow (perm)	555	3472	0	639	3553	0	1068	1788	0	1237	1677	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			17			72			54	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.4			167.3			96.4			360.6	
Travel Time (s)		20.4			10.0			6.9			26.0	
Confl. Peds. (#/hr)	18		24	24		18	8		6	6		8
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%	1%	0%	1%	1%	0%	0%	0%	0%	1%	1%
Adj. Flow (vph)	100	649	119	116	793	75	195	102	74	64	71	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	768	0	116	868	0	195	176	0	64	247	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	27.9	27.9		27.9	27.9		34.4	34.4		34.4	34.4	
Total Split (s)	30.0	30.0		30.0	30.0		35.0	35.0		35.0	35.0	
Total Split (%)	46.2%	46.2%		46.2%	46.2%		53.8%	53.8%		53.8%	53.8%	
Maximum Green (s)	24.1	24.1		24.1	24.1		28.6	28.6		28.6	28.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		3.1	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	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	36.1	36.1		36.1	36.1		16.6	16.6		16.6	16.6	
Actuated g/C Ratio	0.56	0.56		0.56	0.56		0.26	0.26		0.26	0.26	
v/c Ratio	0.33	0.40		0.33	0.44		0.71	0.34		0.20	0.53	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	18.1	14.1		16.0	14.0		35.6	12.2		18.0	18.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	18.1	14.1		16.0	14.0		35.6	12.2		18.0	18.9	
LOS	B	B		B	B		D	B		B	B	
Approach Delay		14.5			14.3			24.5			18.7	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	18.3	75.6		12.1	57.0		21.5	9.9		6.1	19.6	
Queue Length 95th (m)	35.1	94.0		m25.0	89.6		34.7	19.4		12.1	31.6	
Internal Link Dist (m)		316.4			143.3			72.4			336.6	
Turn Bay Length (m)	65.0			110.0			30.0			30.0		
Base Capacity (vph)	307	1942		354	1978		469	827		544	768	
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	0.33	0.40		0.33	0.44		0.42	0.21		0.12	0.32	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 65			
Offset: 48 (74%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 16.4		Intersection LOS: B	
Intersection Capacity Utilization 78.7%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 162: Pine Valley Boulevard & Southdale Road West



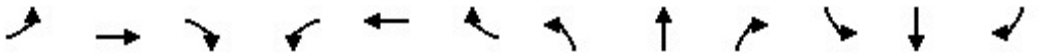


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	0	183	2	0	3	194	1343	1	0	1100	209
Future Volume (vph)	127	0	183	2	0	3	194	1343	1	0	1100	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0		65.0	15.0		0.0	95.0		0.0	115.0		160.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor							1.00	1.00				0.97
Frt			0.850		0.850							0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1825	1921	1617	1825	1633	0	1825	3579	0	1921	3544	1601
Flt Permitted	0.741						0.232					
Satd. Flow (perm)	1424	1921	1617	1921	1633	0	445	3579	0	1921	3544	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			60		150							209
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		369.2			152.5			431.3			625.9	
Travel Time (s)		26.6			11.0			25.9			37.6	
Confl. Peds. (#/hr)							5		4	4		5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	3%	2%
Adj. Flow (vph)	127	0	183	2	0	3	194	1343	1	0	1100	209
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	0	183	2	3	0	194	1344	0	0	1100	209
Turn Type	pm+pt		Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4	4	8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	9.0	33.3	33.3	33.3	33.3		28.7	28.7		28.7	28.7	28.7
Total Split (s)	18.0	52.0	52.0	34.0	34.0		68.0	68.0		68.0	68.0	68.0
Total Split (%)	15.0%	43.3%	43.3%	28.3%	28.3%		56.7%	56.7%		56.7%	56.7%	56.7%
Maximum Green (s)	14.0	45.7	45.7	27.7	27.7		61.3	61.3		61.3	61.3	61.3
Yellow Time (s)	3.0	3.3	3.3	3.3	3.3		4.2	4.2		4.2	4.2	4.2
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0		2.5	2.5		2.5	2.5	2.5
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)	4.0	6.3	6.3	6.3	6.3		6.7	6.7		6.7	6.7	6.7
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	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	None	None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		20.0	20.0	20.0	20.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0		0	0	0
Act Effct Green (s)	17.8		15.5	7.0	7.0		91.5	91.5			91.5	91.5
Actuated g/C Ratio	0.15		0.13	0.06	0.06		0.76	0.76			0.76	0.76
v/c Ratio	0.49		0.70	0.02	0.01		0.57	0.49			0.41	0.17

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	51.6		46.8	53.5	0.0		20.5	11.0			5.7	1.7
Queue Delay	0.0		0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	51.6		46.8	53.5	0.0		20.5	11.0			5.7	1.7
LOS	D		D	D	A		C	B			A	A
Approach Delay		48.7			21.4			12.2			5.0	
Approach LOS		D			C			B			A	
Queue Length 50th (m)	27.9		28.2	0.5	0.0		27.3	71.5			25.1	0.0
Queue Length 95th (m)	42.5		47.8	3.2	0.0		m52.6	m136.9			65.6	m9.3
Internal Link Dist (m)		345.2			128.5			407.3			601.9	
Turn Bay Length (m)	65.0		65.0	15.0			95.0					160.0
Base Capacity (vph)	273		652	443	492		339	2729			2702	1230
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	0.47		0.28	0.00	0.01		0.57	0.49			0.41	0.17

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 45 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 12.8		Intersection LOS: B	
Intersection Capacity Utilization 73.1%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 166: Wonderland Road South & Kilbourne Road



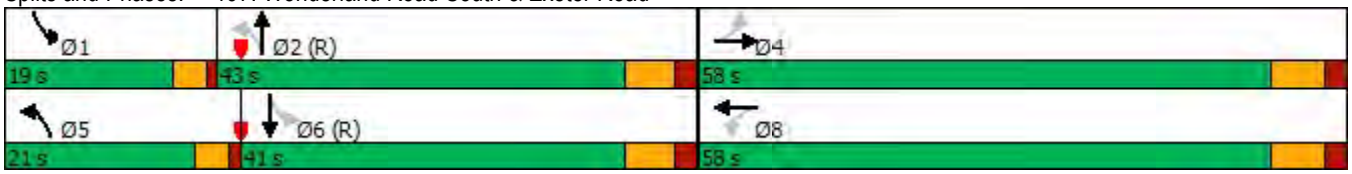
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	356	146	134	815	526	272	920	55	239	958	5
Future Volume (vph)	3	356	146	134	815	526	272	920	55	239	958	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		0.0	125.0		0.0	100.0		0.0	105.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.956			0.941			0.992			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3292	0	1755	3401	0	1772	3507	0	1706	3507	0
Flt Permitted	0.081			0.419			0.103			0.108		
Satd. Flow (perm)	156	3292	0	774	3401	0	192	3507	0	194	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		65			152			5				
Link Speed (k/h)		80			80			70			70	
Link Distance (m)		312.6			311.0			317.5			272.5	
Travel Time (s)		14.1			14.0			16.3			14.0	
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%	6%	6%	4%	1%	1%	3%	2%	24%	7%	4%	0%
Adj. Flow (vph)	3	356	146	134	815	526	272	920	55	239	958	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	502	0	134	1341	0	272	975	0	239	963	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	7.0		5.0	7.0	
Minimum Split (s)	34.0	34.0		34.0	34.0		9.0	33.6		9.0	33.6	
Total Split (s)	58.0	58.0		58.0	58.0		21.0	43.0		19.0	41.0	
Total Split (%)	48.3%	48.3%		48.3%	48.3%		17.5%	35.8%		15.8%	34.2%	
Maximum Green (s)	51.0	51.0		51.0	51.0		17.0	36.4		15.0	34.4	
Yellow Time (s)	4.8	4.8		4.8	4.8		3.0	4.4		3.0	4.4	
All-Red Time (s)	2.2	2.2		2.2	2.2		1.0	2.2		1.0	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		4.0	6.6		4.0	6.6	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0			20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	49.3	49.3		49.3	49.3		57.5	38.7		53.9	36.9	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.48	0.32		0.45	0.31	
v/c Ratio	0.05	0.36		0.42	0.90		0.89	0.86		0.89	0.89	
Control Delay	21.3	16.2		29.6	38.6		60.7	47.5		61.1	42.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

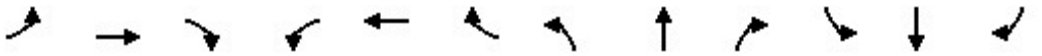
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	21.3	16.2		29.6	38.6		60.7	47.5		61.1	42.9	
LOS	C	B		C	D		E	D		E	D	
Approach Delay		16.2			37.7			50.4			46.6	
Approach LOS		B			D			D			D	
Queue Length 50th (m)	0.3	20.5		21.6	135.7		47.1	115.8		31.0	103.3	
Queue Length 95th (m)	m1.4	40.3		39.3	167.8		#93.7	#153.6		m#71.1	m#151.8	
Internal Link Dist (m)		288.6			287.0			293.5			248.5	
Turn Bay Length (m)	125.0			125.0			100.0			105.0		
Base Capacity (vph)	66	1436		328	1532		317	1135		277	1079	
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	0.05	0.35		0.41	0.88		0.86	0.86		0.86	0.89	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 104 (87%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 41.2 Intersection LOS: D
Intersection Capacity Utilization 107.4% 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: 197: Wonderland Road South & Exeter Road



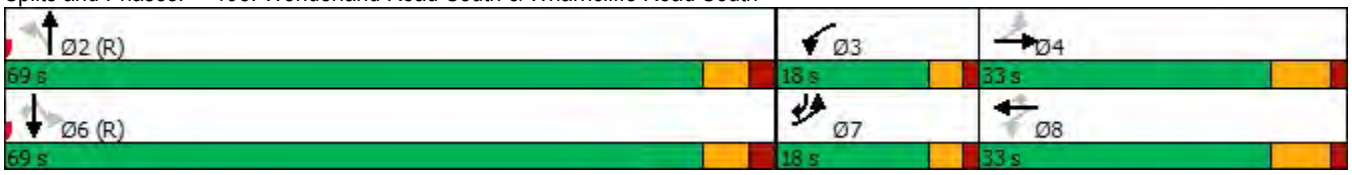


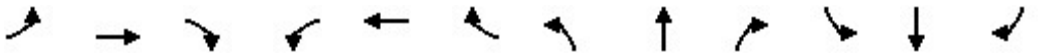
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	279	432	24	306	569	124	14	1073	408	69	855	304
Future Volume (vph)	279	432	24	306	569	124	14	1073	408	69	855	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				1.00				
Frt		0.992				0.850		0.959				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	3542	0	1755	3579	1512	1690	3432	0	1659	3380	1617
Flt Permitted	0.212			0.328			0.271			0.079		
Satd. Flow (perm)	403	3542	0	605	3579	1512	482	3432	0	138	3380	1617
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				77		69				36
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			2	2					3	3		
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 (%)	1%	2%	5%	4%	2%	8%	8%	1%	3%	10%	8%	1%
Adj. Flow (vph)	279	432	24	306	569	124	14	1073	408	69	855	304
Shared Lane Traffic (%)												
Lane Group Flow (vph)	279	456	0	306	569	124	14	1481	0	69	855	304
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		7.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		33.7	33.7	9.5
Total Split (s)	18.0	33.0		18.0	33.0	33.0	69.0	69.0		69.0	69.0	18.0
Total Split (%)	15.0%	27.5%		15.0%	27.5%	27.5%	57.5%	57.5%		57.5%	57.5%	15.0%
Maximum Green (s)	13.5	26.0		13.5	26.0	26.0	62.3	62.3		62.3	62.3	13.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		4.2	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		2.5	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		6.7	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag						Lead
Lead-Lag Optimize?	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		None	None	None	C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0		0	0	
Act Effct Green (s)	39.7	23.7		39.7	23.7	23.7	64.6	64.6		64.6	64.6	84.8
Actuated g/C Ratio	0.33	0.20		0.33	0.20	0.20	0.54	0.54		0.54	0.54	0.71
v/c Ratio	0.96	0.65		0.93	0.81	0.35	0.05	0.79		0.93	0.47	0.26

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	68.4	42.2		66.8	55.4	19.6	20.6	26.2		115.7	17.1	8.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	68.4	42.2		66.8	55.4	19.6	20.6	26.2		115.7	17.1	8.0
LOS	E	D		E	E	B	C	C		F	B	A
Approach Delay		52.2			54.5			26.2			20.4	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	54.2	56.0		53.7	67.0	9.1	1.8	119.6		10.5	57.8	25.4
Queue Length 95th (m)	#92.6	73.6		#84.9	86.0	25.7	m2.2	141.3		#47.6	85.4	45.6
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	291	770		329	775	387	259	1879		74	1819	1153
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	0.96	0.59		0.93	0.73	0.32	0.05	0.79		0.93	0.47	0.26

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 75 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 35.2		Intersection LOS: D	
Intersection Capacity Utilization 100.6%		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: 198: Wonderland Road South & Wharncliffe Road South



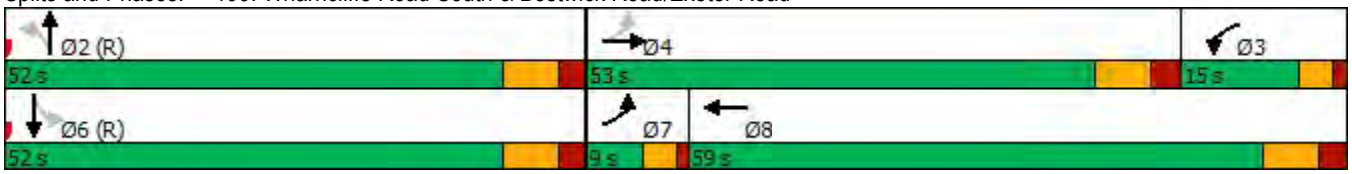


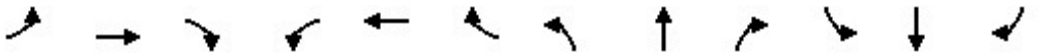
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	334	134	270	797	25	106	660	113	58	540	222
Future Volume (vph)	46	334	134	270	797	25	106	660	113	58	540	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	110.0		0.0	70.0		90.0	80.0		0.0
Storage Lanes	1		0	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	0.97	0.95	0.95	1.00	0.91	0.91	1.00	0.95	0.95
Ped Bike Factor	1.00				1.00							
Frt		0.957			0.995			0.978			0.956	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3415	0	3506	3626	0	1825	5021	0	1738	3397	0
Flt Permitted	0.241			0.950			0.308			0.328		
Satd. Flow (perm)	463	3415	0	3506	3626	0	592	5021	0	600	3397	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		58			3			32			59	
Link Speed (k/h)		60			80			80			80	
Link Distance (m)		213.8			312.6			462.1			404.7	
Travel Time (s)		12.8			14.1			20.8			18.2	
Confl. Peds. (#/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%	2%	3%	1%	0%	4%	0%	2%	3%	5%	3%	2%
Adj. Flow (vph)	46	334	134	270	797	25	106	660	113	58	540	222
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	468	0	270	822	0	106	773	0	58	762	0
Turn Type	pm+pt	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4						2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	9.0	52.7		9.5	52.7		51.6	51.6		51.6	51.6	
Total Split (s)	9.0	53.0		15.0	59.0		52.0	52.0		52.0	52.0	
Total Split (%)	7.5%	44.2%		12.5%	49.2%		43.3%	43.3%		43.3%	43.3%	
Maximum Green (s)	5.0	45.3		10.5	51.3		44.4	44.4		44.4	44.4	
Yellow Time (s)	3.0	5.0		3.0	5.0		5.0	5.0		5.0	5.0	
All-Red Time (s)	1.0	2.7		1.5	2.7		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.7		4.5	7.7		7.6	7.6		7.6	7.6	
Lead/Lag	Lead	Lead		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		38.0			38.0		37.0	37.0		37.0	37.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	24.3	20.6		17.4	35.3		62.2	62.2		62.2	62.2	
Actuated g/C Ratio	0.20	0.17		0.14	0.29		0.52	0.52		0.52	0.52	
v/c Ratio	0.31	0.74		0.53	0.77		0.35	0.30		0.19	0.43	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	42.5	48.1		40.7	31.2		23.5	17.0		30.5	30.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	42.5	48.1		40.7	31.2		23.5	17.0		30.5	30.3	
LOS	D	D		D	C		C	B		C	C	
Approach Delay		47.6			33.5			17.8			30.3	
Approach LOS		D			C			B			C	
Queue Length 50th (m)	9.0	49.1		32.7	96.4		14.5	35.9		12.0	78.7	
Queue Length 95th (m)	17.9	62.8		m35.4	m95.5		32.7	50.6		m20.4	97.4	
Internal Link Dist (m)		189.8			288.6			438.1			380.7	
Turn Bay Length (m)	50.0			110.0			70.0			80.0		
Base Capacity (vph)	150	1325		509	1551		306	2616		310	1787	
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	0.31	0.35		0.53	0.53		0.35	0.30		0.19	0.43	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 117 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 30.7		Intersection LOS: C	
Intersection Capacity Utilization 77.8%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 199: Wharncliffe Road South & Bostwick Road/Exeter Road



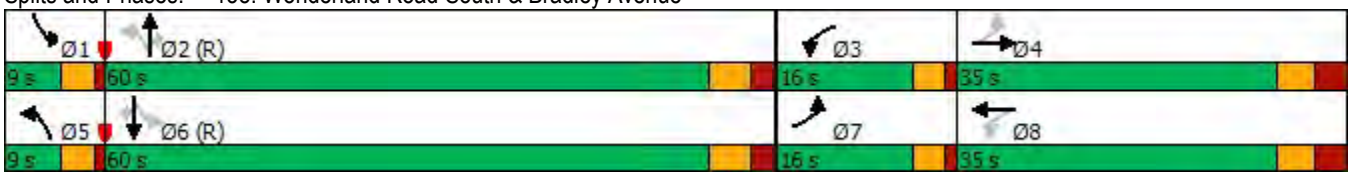


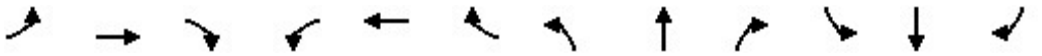
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	308	141	237	407	159	211	1112	158	165	932	151
Future Volume (vph)	116	308	141	237	407	159	211	1112	158	165	932	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	35.0		0.0	45.0		55.0	110.0		45.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00				0.99		1.00		0.99			0.98
Frt		0.953			0.958				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1825	3479	0	1755	3478	0	1484	3614	1142	1825	3544	1633
Flt Permitted	0.220			0.286			0.191			0.155		
Satd. Flow (perm)	421	3479	0	528	3478	0	298	3614	1127	298	3544	1606
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		58			45				121			116
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		925.9			171.2			625.9			727.4	
Travel Time (s)		55.6			10.3			37.6			43.6	
Confl. Peds. (#/hr)	6					6	3		1	1		3
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%	0%	4%	0%	0%	23%	1%	43%	0%	3%	0%
Adj. Flow (vph)	116	308	141	237	407	159	211	1112	158	165	932	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	449	0	237	566	0	211	1112	158	165	932	151
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	9.0	34.4		9.0	34.4		9.0	31.2	31.2	9.0	31.2	31.2
Total Split (s)	16.0	35.0		16.0	35.0		9.0	60.0	60.0	9.0	60.0	60.0
Total Split (%)	13.3%	29.2%		13.3%	29.2%		7.5%	50.0%	50.0%	7.5%	50.0%	50.0%
Maximum Green (s)	12.0	28.6		12.0	28.6		5.0	53.8	53.8	5.0	53.8	53.8
Yellow Time (s)	3.0	3.3		3.0	3.3		3.0	3.8	3.8	3.0	3.8	3.8
All-Red Time (s)	1.0	3.1		1.0	3.1		1.0	2.4	2.4	1.0	2.4	2.4
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)	4.0	6.4		4.0	6.4		4.0	6.2	6.2	4.0	6.2	6.2
Lead/Lag	Lead	Lag		Lead	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
Recall Mode	None	None		None	None		None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		21.0			21.0			18.0	18.0		18.0	18.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effct Green (s)	35.0	22.2		38.0	23.8		69.0	56.9	56.9	64.5	54.0	54.0
Actuated g/C Ratio	0.29	0.18		0.32	0.20		0.58	0.47	0.47	0.54	0.45	0.45
v/c Ratio	0.48	0.65		0.82	0.78		0.75	0.65	0.26	0.62	0.58	0.19

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	33.4	43.2		53.7	49.7		39.3	12.3	1.8	26.3	26.5	6.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	43.2		53.7	49.7		39.3	12.3	1.8	26.3	26.5	6.4
LOS	C	D		D	D		D	B	A	C	C	A
Approach Delay		41.2			50.9			15.0			24.0	
Approach LOS		D			D			B			C	
Queue Length 50th (m)	18.9	44.7		41.9	61.7		17.4	52.5	0.3	16.7	84.6	4.6
Queue Length 95th (m)	30.4	58.4		#66.8	77.7		#49.1	45.9	1.5	#40.4	104.7	16.5
Internal Link Dist (m)		901.9			147.2			601.9			703.4	
Turn Bay Length (m)	45.0			35.0			45.0		55.0	110.0		45.0
Base Capacity (vph)	268	873		289	863		281	1714	598	266	1595	787
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	0.43	0.51		0.82	0.66		0.75	0.65	0.26	0.62	0.58	0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 51 (43%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 28.4		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: 158: Wonderland Road South & Bradley Avenue



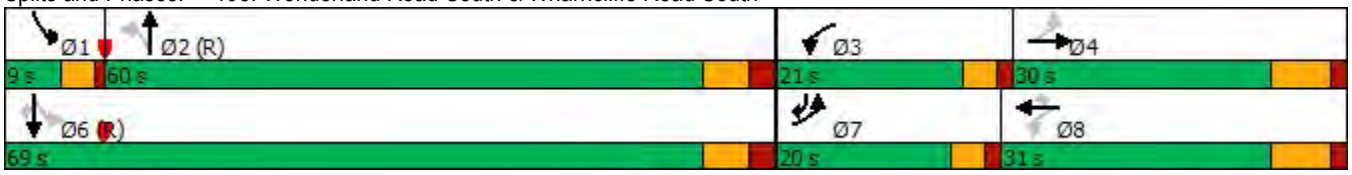


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	279	432	24	306	569	124	14	1073	408	69	855	304
Future Volume (vph)	279	432	24	306	569	124	14	1073	408	69	855	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		0.0	105.0		40.0	45.0		0.0	80.0		90.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00				1.00				
Frt		0.992				0.850		0.959				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1807	3542	0	1755	3579	1512	1690	3432	0	1659	3380	1617
Flt Permitted	0.208			0.296			0.307			0.067		
Satd. Flow (perm)	396	3542	0	546	3579	1512	546	3432	0	117	3380	1617
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				111		59				36
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		404.7			310.4			272.5			431.3	
Travel Time (s)		18.2			14.0			16.4			25.9	
Confl. Peds. (#/hr)			2	2					3	3		
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 (%)	1%	2%	5%	4%	2%	8%	8%	1%	3%	10%	8%	1%
Adj. Flow (vph)	279	432	24	306	569	124	14	1073	408	69	855	304
Shared Lane Traffic (%)												
Lane Group Flow (vph)	279	456	0	306	569	124	14	1481	0	69	855	304
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	pm+ov
Protected Phases	7	4		3	8			2		1	6	7
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	2	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	7.0	7.0	7.0		5.0	7.0	5.0
Minimum Split (s)	9.5	30.0		9.5	30.0	30.0	33.7	33.7		9.0	33.7	9.5
Total Split (s)	20.0	30.0		21.0	31.0	31.0	60.0	60.0		9.0	69.0	20.0
Total Split (%)	16.7%	25.0%		17.5%	25.8%	25.8%	50.0%	50.0%		7.5%	57.5%	16.7%
Maximum Green (s)	15.5	23.0		16.5	24.0	24.0	53.3	53.3		5.0	62.3	15.5
Yellow Time (s)	3.0	5.4		3.0	5.4	5.4	4.2	4.2		3.0	4.2	3.0
All-Red Time (s)	1.5	1.6		1.5	1.6	1.6	2.5	2.5		1.0	2.5	1.5
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)	4.5	7.0		4.5	7.0	7.0	6.7	6.7		4.0	6.7	4.5
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		Lead
Lead-Lag Optimize?	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
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)		16.0			16.0	16.0	20.0	20.0			20.0	
Pedestrian Calls (#/hr)		0			0	0	0	0			0	
Act Effct Green (s)	39.7	21.8		41.7	22.8	22.8	56.2	56.2		66.3	63.6	85.7
Actuated g/C Ratio	0.33	0.18		0.35	0.19	0.19	0.47	0.47		0.55	0.53	0.71
v/c Ratio	0.89	0.71		0.86	0.84	0.33	0.05	0.90		0.52	0.48	0.26

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	49.1	40.2		53.3	58.8	12.0	31.6	43.3		32.9	19.8	7.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	49.1	40.2		53.3	58.8	12.0	31.6	43.3		32.9	19.8	7.2
LOS	D	D		D	E	B	C	D		C	B	A
Approach Delay		43.6			51.3			43.2			17.4	
Approach LOS		D			D			D			B	
Queue Length 50th (m)	50.9	53.3		52.8	67.6	2.5	2.4	154.8		10.2	75.8	28.7
Queue Length 95th (m)	#90.9	70.8		#85.6	88.0	18.4	m2.9	#211.7		#19.6	96.2	49.3
Internal Link Dist (m)		380.7			286.4			248.5			407.3	
Turn Bay Length (m)	70.0			105.0		40.0	45.0			80.0		90.0
Base Capacity (vph)	313	682		355	715	391	255	1637		133	1790	1166
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	0.89	0.67		0.86	0.80	0.32	0.05	0.90		0.52	0.48	0.26

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 75 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 38.0		Intersection LOS: D	
Intersection Capacity Utilization 96.6%		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: 198: Wonderland Road South & Wharncliffe Road South



MOVEMENT SUMMARY

Site: 1 [Bostwick&Pack: FB2027AM (Site Folder: General)]

Bostwick Rd & Bradley Ave / Pack Rd
Future (2027) Background Traffic
AM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	76	5.0	76	5.0	0.277	6.6	LOS A	0.9	6.9	0.25	0.16	0.25	54.7
8	T1	452	6.0	452	6.0	0.277	6.6	LOS A	0.9	6.9	0.24	0.16	0.24	55.3
18	R2	1	0.0	1	0.0	0.277	6.4	LOS A	0.8	6.5	0.23	0.15	0.23	54.3
Approach		529	5.8	529	5.8	0.277	6.6	LOS A	0.9	6.9	0.24	0.16	0.24	55.2
East: Bradley Avenue														
1	L2	1	0.0	1	0.0	0.002	5.4	LOS A	0.0	0.0	0.43	0.30	0.43	54.2
6	T1	1	0.0	1	0.0	0.002	5.3	LOS A	0.0	0.0	0.42	0.29	0.42	55.5
16	R2	1	0.0	1	0.0	0.002	5.3	LOS A	0.0	0.0	0.41	0.28	0.41	55.3
Approach		3	0.0	3	0.0	0.002	5.3	LOS A	0.0	0.0	0.42	0.29	0.42	55.0
North: Bostwick Road														
7	L2	1	0.0	1	0.0	0.285	6.2	LOS A	1.0	7.4	0.18	0.10	0.18	56.5
4	T1	514	2.0	514	2.0	0.285	6.2	LOS A	1.0	7.4	0.18	0.09	0.18	56.2
14	R2	77	4.0	77	4.0	0.285	6.3	LOS A	0.9	6.9	0.17	0.09	0.17	54.4
Approach		592	2.3	592	2.3	0.285	6.3	LOS A	1.0	7.4	0.18	0.09	0.18	56.0
West: Pack Road														
5	L2	148	0.0	148	0.0	0.196	6.9	LOS A	0.6	4.4	0.43	0.43	0.43	51.9
2	T1	1	0.0	1	0.0	0.196	6.9	LOS A	0.6	4.4	0.43	0.43	0.43	51.7
12	R2	419	2.0	419	2.0	0.547	13.0	LOS B	3.4	25.9	0.56	0.71	0.99	49.4
Approach		568	1.5	568	1.5	0.547	11.4	LOS B	3.4	25.9	0.53	0.63	0.84	50.1
All Vehicles		1692	3.1	1692	3.1	0.547	8.1	LOS A	3.4	25.9	0.32	0.30	0.42	53.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Bostwick&Pack: FB2027PM (Site Folder: General)]

Bostwick Rd & Bradley Ave / Pack Rd
Future (2027) Background Traffic
PM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	314	0.0	314	0.0	0.494	9.5	LOS A	2.3	17.1	0.34	0.24	0.34	51.4
8	T1	686	0.0	686	0.0	0.494	9.4	LOS A	2.3	17.1	0.33	0.23	0.33	53.1
18	R2	1	0.0	1	0.0	0.494	9.4	LOS A	2.1	16.1	0.32	0.22	0.32	52.2
Approach		1001	0.0	1001	0.0	0.494	9.4	LOS A	2.3	17.1	0.33	0.23	0.33	52.5
East: Bradley Avenue														
1	L2	1	0.0	1	0.0	0.003	7.6	LOS A	0.0	0.1	0.58	0.48	0.58	52.6
6	T1	1	0.0	1	0.0	0.003	7.3	LOS A	0.0	0.1	0.56	0.46	0.56	54.0
16	R2	1	0.0	1	0.0	0.003	7.1	LOS A	0.0	0.1	0.55	0.45	0.55	53.7
Approach		3	0.0	3	0.0	0.003	7.4	LOS A	0.0	0.1	0.56	0.46	0.56	53.4
North: Bostwick Road														
7	L2	1	0.0	1	0.0	0.341	7.9	LOS A	1.1	8.8	0.39	0.34	0.39	55.0
4	T1	422	5.0	422	5.0	0.341	8.1	LOS A	1.1	8.8	0.38	0.34	0.38	54.6
14	R2	166	1.0	166	1.0	0.341	7.8	LOS A	1.1	8.5	0.37	0.33	0.37	53.1
Approach		589	3.9	589	3.9	0.341	8.0	LOS A	1.1	8.8	0.38	0.33	0.38	54.2
West: Pack Road														
5	L2	147	0.0	147	0.0	0.183	6.4	LOS A	0.5	4.1	0.40	0.37	0.40	52.3
2	T1	1	0.0	1	0.0	0.183	6.4	LOS A	0.5	4.1	0.40	0.37	0.40	52.1
12	R2	157	2.0	157	2.0	0.194	6.5	LOS A	0.5	4.1	0.38	0.35	0.38	54.1
Approach		305	1.0	305	1.0	0.194	6.4	LOS A	0.5	4.1	0.39	0.36	0.39	53.2
All Vehicles		1898	1.4	1898	1.4	0.494	8.5	LOS A	2.3	17.1	0.36	0.28	0.36	53.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Bostwick&Pack: FB2030AM (Site Folder: General)]

Bostwick Rd & Bradley Ave / Pack Rd
Future (2030) Background Traffic
AM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	76	5.0	76	5.0	0.298	7.4	LOS A	0.9	7.4	0.35	0.30	0.35	54.0
8	T1	389	6.0	389	6.0	0.298	7.4	LOS A	0.9	7.4	0.34	0.29	0.34	54.6
18	R2	55	0.0	55	0.0	0.298	7.1	LOS A	0.9	7.1	0.33	0.28	0.33	53.7
Approach		520	5.2	520	5.2	0.298	7.4	LOS A	0.9	7.4	0.34	0.29	0.34	54.4
East: Bradley Avenue														
1	L2	33	0.0	33	0.0	0.092	6.1	LOS A	0.3	1.9	0.44	0.42	0.44	54.4
6	T1	87	0.0	87	0.0	0.092	6.0	LOS A	0.3	1.9	0.42	0.41	0.42	55.6
16	R2	12	0.0	12	0.0	0.092	5.9	LOS A	0.2	1.8	0.41	0.40	0.41	54.8
Approach		132	0.0	132	0.0	0.092	6.0	LOS A	0.3	1.9	0.42	0.41	0.42	55.2
North: Bostwick Road														
7	L2	26	0.0	26	0.0	0.293	6.7	LOS A	1.0	7.5	0.30	0.22	0.30	55.6
4	T1	462	2.0	462	2.0	0.293	6.8	LOS A	1.0	7.5	0.29	0.21	0.29	55.5
14	R2	72	4.0	72	4.0	0.293	6.8	LOS A	0.9	7.1	0.28	0.21	0.28	53.9
Approach		560	2.2	560	2.2	0.293	6.8	LOS A	1.0	7.5	0.29	0.21	0.29	55.3
West: Pack Road														
5	L2	141	0.0	141	0.0	0.341	8.9	LOS A	1.2	9.1	0.49	0.50	0.53	52.2
2	T1	118	0.0	118	0.0	0.341	8.9	LOS A	1.2	9.1	0.49	0.50	0.53	52.0
12	R2	419	2.0	419	2.0	0.549	13.0	LOS B	3.4	26.0	0.57	0.71	0.99	49.3
Approach		678	1.2	678	1.2	0.549	11.4	LOS B	3.4	26.0	0.54	0.63	0.82	50.4
All Vehicles		1890	2.5	1890	2.5	0.549	8.6	LOS A	3.4	26.0	0.40	0.40	0.50	53.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Bostwick&Pack: FB2030PM (Site Folder: General)]

Bostwick Rd & Bradley Ave / Pack Rd
Future (2030) Background Traffic
PM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	314	0.0	314	0.0	0.539	11.3	LOS B	3.7	28.1	0.49	0.54	0.71	50.2
8	T1	616	0.0	616	0.0	0.539	11.2	LOS B	3.7	28.1	0.48	0.52	0.70	51.7
18	R2	48	0.0	48	0.0	0.539	11.1	LOS B	3.6	27.3	0.47	0.52	0.69	50.9
Approach		978	0.0	978	0.0	0.539	11.2	LOS B	3.7	28.1	0.48	0.53	0.70	51.2
East: Bradley Avenue														
1	L2	55	0.0	55	0.0	0.219	10.1	LOS B	0.6	4.7	0.61	0.61	0.61	51.5
6	T1	136	0.0	136	0.0	0.219	9.9	LOS A	0.6	4.7	0.60	0.60	0.60	52.6
16	R2	38	0.0	38	0.0	0.219	9.7	LOS A	0.6	4.5	0.59	0.59	0.59	51.9
Approach		229	0.0	229	0.0	0.219	9.9	LOS A	0.6	4.7	0.60	0.60	0.60	52.2
North: Bostwick Road														
7	L2	23	0.0	23	0.0	0.355	9.1	LOS A	1.2	9.7	0.48	0.50	0.53	53.7
4	T1	352	5.0	352	5.0	0.355	9.2	LOS A	1.2	9.7	0.47	0.49	0.53	53.5
14	R2	162	1.0	162	1.0	0.355	8.9	LOS A	1.2	9.3	0.46	0.48	0.51	52.3
Approach		537	3.6	537	3.6	0.355	9.1	LOS A	1.2	9.7	0.47	0.49	0.52	53.1
West: Pack Road														
5	L2	133	0.0	133	0.0	0.269	7.4	LOS A	0.9	6.5	0.43	0.42	0.43	52.9
2	T1	146	0.0	146	0.0	0.269	7.4	LOS A	0.9	6.5	0.42	0.41	0.42	53.8
12	R2	157	2.0	157	2.0	0.269	7.4	LOS A	0.8	6.1	0.41	0.39	0.41	53.5
Approach		436	0.7	436	0.7	0.269	7.4	LOS A	0.9	6.5	0.42	0.40	0.42	53.4
All Vehicles		2180	1.0	2180	1.0	0.539	9.8	LOS A	3.7	28.1	0.48	0.50	0.59	52.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 1 [Bostwick&Pack: FB2035AM (Site Folder: General)]

Bostwick Rd & Bradley Ave / Pack Rd
Future (2035) Background Traffic
AM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	76	5.0	76	5.0	0.298	7.4	LOS A	0.9	7.4	0.35	0.30	0.35	54.0
8	T1	389	6.0	389	6.0	0.298	7.4	LOS A	0.9	7.4	0.34	0.29	0.34	54.6
18	R2	55	0.0	55	0.0	0.298	7.1	LOS A	0.9	7.1	0.33	0.28	0.33	53.7
Approach		520	5.2	520	5.2	0.298	7.4	LOS A	0.9	7.4	0.34	0.29	0.34	54.4
East: Bradley Avenue														
1	L2	33	0.0	33	0.0	0.092	6.1	LOS A	0.3	1.9	0.44	0.42	0.44	54.4
6	T1	87	0.0	87	0.0	0.092	6.0	LOS A	0.3	1.9	0.42	0.41	0.42	55.6
16	R2	12	0.0	12	0.0	0.092	5.9	LOS A	0.2	1.8	0.41	0.40	0.41	54.8
Approach		132	0.0	132	0.0	0.092	6.0	LOS A	0.3	1.9	0.42	0.41	0.42	55.2
North: Bostwick Road														
7	L2	26	0.0	26	0.0	0.293	6.7	LOS A	1.0	7.5	0.30	0.22	0.30	55.6
4	T1	462	2.0	462	2.0	0.293	6.8	LOS A	1.0	7.5	0.29	0.21	0.29	55.5
14	R2	72	4.0	72	4.0	0.293	6.8	LOS A	0.9	7.1	0.28	0.21	0.28	53.9
Approach		560	2.2	560	2.2	0.293	6.8	LOS A	1.0	7.5	0.29	0.21	0.29	55.3
West: Pack Road														
5	L2	141	0.0	141	0.0	0.341	8.9	LOS A	1.2	9.1	0.49	0.50	0.53	52.2
2	T1	118	0.0	118	0.0	0.341	8.9	LOS A	1.2	9.1	0.49	0.50	0.53	52.0
12	R2	419	2.0	419	2.0	0.549	13.0	LOS B	3.4	26.0	0.57	0.71	0.99	49.3
Approach		678	1.2	678	1.2	0.549	11.4	LOS B	3.4	26.0	0.54	0.63	0.82	50.4
All Vehicles		1890	2.5	1890	2.5	0.549	8.6	LOS A	3.4	26.0	0.40	0.40	0.50	53.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 1 [Bostwick&Pack: FB2035PM (Site Folder: General)]

Bostwick Rd & Bradley Ave / Pack Rd
Future (2035) Background Traffic
PM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	314	0.0	314	0.0	0.539	11.3	LOS B	3.7	28.1	0.49	0.54	0.71	50.2
8	T1	616	0.0	616	0.0	0.539	11.2	LOS B	3.7	28.1	0.48	0.52	0.70	51.7
18	R2	48	0.0	48	0.0	0.539	11.1	LOS B	3.6	27.3	0.47	0.52	0.69	50.9
Approach		978	0.0	978	0.0	0.539	11.2	LOS B	3.7	28.1	0.48	0.53	0.70	51.2
East: Bradley Avenue														
1	L2	55	0.0	55	0.0	0.219	10.1	LOS B	0.6	4.7	0.61	0.61	0.61	51.5
6	T1	136	0.0	136	0.0	0.219	9.9	LOS A	0.6	4.7	0.60	0.60	0.60	52.6
16	R2	38	0.0	38	0.0	0.219	9.7	LOS A	0.6	4.5	0.59	0.59	0.59	51.9
Approach		229	0.0	229	0.0	0.219	9.9	LOS A	0.6	4.7	0.60	0.60	0.60	52.2
North: Bostwick Road														
7	L2	23	0.0	23	0.0	0.355	9.1	LOS A	1.2	9.7	0.48	0.50	0.53	53.7
4	T1	352	5.0	352	5.0	0.355	9.2	LOS A	1.2	9.7	0.47	0.49	0.53	53.5
14	R2	162	1.0	162	1.0	0.355	8.9	LOS A	1.2	9.3	0.46	0.48	0.51	52.3
Approach		537	3.6	537	3.6	0.355	9.1	LOS A	1.2	9.7	0.47	0.49	0.52	53.1
West: Pack Road														
5	L2	133	0.0	133	0.0	0.269	7.4	LOS A	0.9	6.5	0.43	0.42	0.43	52.9
2	T1	146	0.0	146	0.0	0.269	7.4	LOS A	0.9	6.5	0.42	0.41	0.42	53.8
12	R2	157	2.0	157	2.0	0.269	7.4	LOS A	0.8	6.1	0.41	0.39	0.41	53.5
Approach		436	0.7	436	0.7	0.269	7.4	LOS A	0.9	6.5	0.42	0.40	0.42	53.4
All Vehicles		2180	1.0	2180	1.0	0.539	9.8	LOS A	3.7	28.1	0.48	0.50	0.59	52.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Bostwick&Pack: TT2027AM (Site Folder: General)]

Bostwick Rd & Bradley Ave / Pack Rd
Future (2027) Total Traffic
AM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	105	5.0	105	5.0	0.332	7.6	LOS A	1.1	8.7	0.33	0.26	0.33	53.6
8	T1	496	6.0	496	6.0	0.332	7.6	LOS A	1.1	8.7	0.32	0.25	0.32	54.4
18	R2	1	0.0	1	0.0	0.332	7.4	LOS A	1.0	8.2	0.31	0.24	0.31	53.5
Approach		602	5.8	602	5.8	0.332	7.6	LOS A	1.1	8.7	0.32	0.25	0.32	54.3
East: Bradley Avenue														
1	L2	1	0.0	1	0.0	0.002	6.1	LOS A	0.0	0.0	0.48	0.35	0.48	53.7
6	T1	1	0.0	1	0.0	0.002	6.0	LOS A	0.0	0.0	0.46	0.34	0.46	55.0
16	R2	1	0.0	1	0.0	0.002	5.8	LOS A	0.0	0.0	0.45	0.34	0.45	54.8
Approach		3	0.0	3	0.0	0.002	6.0	LOS A	0.0	0.0	0.46	0.35	0.46	54.5
North: Bostwick Road														
7	L2	1	0.0	1	0.0	0.311	6.6	LOS A	1.1	8.3	0.22	0.13	0.22	56.1
4	T1	537	2.0	537	2.0	0.311	6.7	LOS A	1.1	8.3	0.22	0.13	0.22	55.8
14	R2	94	4.0	94	4.0	0.311	6.7	LOS A	1.0	7.8	0.21	0.13	0.21	54.0
Approach		632	2.3	632	2.3	0.311	6.7	LOS A	1.1	8.3	0.22	0.13	0.22	55.6
West: Pack Road														
5	L2	224	0.0	224	0.0	0.301	8.4	LOS A	1.0	7.3	0.48	0.48	0.48	50.9
2	T1	1	0.0	1	0.0	0.301	8.4	LOS A	1.0	7.3	0.48	0.48	0.48	50.7
12	R2	442	2.0	442	2.0	0.587	14.3	LOS B	3.9	30.4	0.60	0.77	1.11	48.5
Approach		667	1.3	667	1.3	0.587	12.3	LOS B	3.9	30.4	0.56	0.67	0.90	49.3
All Vehicles		1904	3.1	1904	3.1	0.587	8.9	LOS A	3.9	30.4	0.37	0.36	0.49	52.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Bostwick&Pack: TT2027PM (Site Folder: General)]

Bostwick Rd & Bradley Ave / Pack Rd
Future (2027) Total Traffic
PM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	348	0.0	348	0.0	0.545	10.8	LOS B	2.8	21.7	0.42	0.34	0.45	50.4
8	T1	715	0.0	715	0.0	0.545	10.7	LOS B	2.8	21.7	0.41	0.33	0.43	52.1
18	R2	1	0.0	1	0.0	0.545	10.7	LOS B	2.7	20.6	0.40	0.33	0.43	51.3
Approach		1064	0.0	1064	0.0	0.545	10.7	LOS B	2.8	21.7	0.41	0.34	0.44	51.6
East: Bradley Avenue														
1	L2	1	0.0	1	0.0	0.003	8.3	LOS A	0.0	0.1	0.61	0.52	0.61	52.1
6	T1	1	0.0	1	0.0	0.003	8.0	LOS A	0.0	0.1	0.60	0.51	0.60	53.5
16	R2	1	0.0	1	0.0	0.003	7.7	LOS A	0.0	0.1	0.59	0.50	0.59	53.3
Approach		3	0.0	3	0.0	0.003	8.0	LOS A	0.0	0.1	0.60	0.51	0.60	52.9
North: Bostwick Road														
7	L2	1	0.0	1	0.0	0.416	9.3	LOS A	1.6	12.6	0.44	0.42	0.48	53.9
4	T1	493	5.0	493	5.0	0.416	9.4	LOS A	1.6	12.6	0.43	0.42	0.47	53.6
14	R2	208	1.0	208	1.0	0.416	9.1	LOS A	1.6	12.1	0.42	0.41	0.46	52.2
Approach		702	3.8	702	3.8	0.416	9.3	LOS A	1.6	12.6	0.43	0.42	0.47	53.2
West: Pack Road														
5	L2	199	0.0	199	0.0	0.254	7.4	LOS A	0.7	5.7	0.43	0.43	0.43	51.5
2	T1	1	0.0	1	0.0	0.247	7.5	LOS A	0.7	5.8	0.45	0.45	0.45	55.0
12	R2	184	2.0	184	2.0	0.247	7.6	LOS A	0.7	5.8	0.45	0.45	0.45	53.2
Approach		384	1.0	384	1.0	0.254	7.5	LOS A	0.7	5.8	0.44	0.44	0.44	52.3
All Vehicles		2153	1.4	2153	1.4	0.545	9.7	LOS A	2.8	21.7	0.42	0.38	0.45	52.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Bostwick&Pack: TT2030AM (Site Folder: General)]

Bostwick Rd & Bradley Ave / Pack Rd
Future (2030) Total Traffic
AM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	91	5.0	91	5.0	0.383	9.3	LOS A	1.4	10.8	0.45	0.46	0.49	52.5
8	T1	413	6.0	413	6.0	0.383	9.2	LOS A	1.4	10.8	0.44	0.45	0.48	53.1
18	R2	108	0.0	108	0.0	0.383	8.9	LOS A	1.3	10.4	0.43	0.44	0.47	52.4
Approach		612	4.8	612	4.8	0.383	9.2	LOS A	1.4	10.8	0.44	0.45	0.48	52.9
East: Bradley Avenue														
1	L2	54	0.0	54	0.0	0.150	7.0	LOS A	0.4	3.2	0.47	0.47	0.47	53.5
6	T1	116	0.0	116	0.0	0.150	6.9	LOS A	0.4	3.2	0.46	0.46	0.46	54.8
16	R2	35	0.0	35	0.0	0.150	6.8	LOS A	0.4	3.1	0.45	0.45	0.45	54.1
Approach		205	0.0	205	0.0	0.150	6.9	LOS A	0.4	3.2	0.46	0.46	0.46	54.3
North: Bostwick Road														
7	L2	37	0.0	37	0.0	0.319	7.3	LOS A	1.1	8.3	0.35	0.29	0.35	55.0
4	T1	470	2.0	470	2.0	0.319	7.4	LOS A	1.1	8.3	0.34	0.28	0.34	55.0
14	R2	75	4.0	75	4.0	0.319	7.4	LOS A	1.0	7.8	0.33	0.27	0.33	53.5
Approach		582	2.1	582	2.1	0.319	7.4	LOS A	1.1	8.3	0.34	0.28	0.34	54.8
West: Pack Road														
5	L2	158	0.0	158	0.0	0.509	12.4	LOS B	2.9	21.9	0.58	0.70	0.95	50.2
2	T1	217	0.0	217	0.0	0.509	12.4	LOS B	2.9	21.9	0.58	0.70	0.95	50.0
12	R2	434	2.0	434	2.0	0.584	14.4	LOS B	3.8	29.6	0.60	0.77	1.12	48.5
Approach		809	1.1	809	1.1	0.584	13.4	LOS B	3.8	29.6	0.59	0.74	1.04	49.2
All Vehicles		2208	2.3	2208	2.3	0.584	10.1	LOS B	3.8	29.6	0.47	0.51	0.65	52.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 1 [Bostwick&Pack: TT2030PM (Site Folder: General)]

Bostwick Rd & Bradley Ave / Pack Rd
Future (2030) Total Traffic
PM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	333	0.0	333	0.0	0.633	14.8	LOS B	5.7	43.0	0.62	0.82	1.17	48.0
8	T1	632	0.0	632	0.0	0.633	14.6	LOS B	5.7	43.0	0.61	0.81	1.15	49.3
18	R2	85	0.0	85	0.0	0.633	14.6	LOS B	5.6	42.3	0.60	0.80	1.15	48.7
Approach		1050	0.0	1050	0.0	0.633	14.7	LOS B	5.7	43.0	0.61	0.81	1.16	48.8
East: Bradley Avenue														
1	L2	108	0.0	108	0.0	0.351	13.0	LOS B	1.2	9.2	0.67	0.73	0.89	49.1
6	T1	194	0.0	194	0.0	0.351	12.6	LOS B	1.2	9.2	0.65	0.71	0.87	50.6
16	R2	53	0.0	53	0.0	0.351	12.4	LOS B	1.2	9.0	0.64	0.70	0.87	50.0
Approach		355	0.0	355	0.0	0.351	12.7	LOS B	1.2	9.2	0.65	0.71	0.88	50.1
North: Bostwick Road														
7	L2	57	0.0	57	0.0	0.439	11.4	LOS B	1.9	15.2	0.56	0.64	0.83	51.5
4	T1	377	5.0	377	5.0	0.439	11.6	LOS B	1.9	15.2	0.55	0.64	0.82	51.5
14	R2	171	1.0	171	1.0	0.439	11.1	LOS B	1.9	14.9	0.54	0.62	0.81	50.7
Approach		605	3.4	605	3.4	0.439	11.4	LOS B	1.9	15.2	0.55	0.63	0.82	51.3
West: Pack Road														
5	L2	144	0.0	144	0.0	0.364	9.4	LOS A	1.4	10.6	0.51	0.54	0.61	51.8
2	T1	225	0.0	225	0.0	0.364	9.3	LOS A	1.4	10.6	0.50	0.53	0.60	52.5
12	R2	175	2.0	175	2.0	0.364	9.3	LOS A	1.3	10.1	0.48	0.52	0.59	52.0
Approach		544	0.6	544	0.6	0.364	9.4	LOS A	1.4	10.6	0.50	0.53	0.60	52.2
All Vehicles		2554	0.9	2554	0.9	0.633	12.5	LOS B	5.7	43.0	0.58	0.70	0.92	50.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Bostwick&Pack: TT2035AM (Site Folder: General)]

Bostwick Rd & Bradley Ave / Pack Rd
Future (2035) Total Traffic
AM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	92	5.0	92	5.0	0.386	9.4	LOS A	1.4	11.1	0.46	0.47	0.51	52.5
8	T1	415	6.0	415	6.0	0.386	9.3	LOS A	1.4	11.1	0.45	0.46	0.50	53.0
18	R2	108	0.0	108	0.0	0.386	9.0	LOS A	1.4	10.7	0.44	0.45	0.49	52.3
Approach		615	4.8	615	4.8	0.386	9.3	LOS A	1.4	11.1	0.45	0.46	0.50	52.8
East: Bradley Avenue														
1	L2	54	0.0	54	0.0	0.163	7.2	LOS A	0.5	3.5	0.47	0.47	0.47	53.6
6	T1	121	0.0	121	0.0	0.163	7.1	LOS A	0.5	3.5	0.46	0.46	0.46	54.6
16	R2	47	0.0	47	0.0	0.163	7.0	LOS A	0.4	3.4	0.45	0.45	0.45	53.9
Approach		222	0.0	222	0.0	0.163	7.1	LOS A	0.5	3.5	0.46	0.46	0.46	54.2
North: Bostwick Road														
7	L2	40	0.0	40	0.0	0.323	7.4	LOS A	1.1	8.4	0.36	0.30	0.36	54.9
4	T1	471	2.0	471	2.0	0.323	7.5	LOS A	1.1	8.4	0.35	0.29	0.35	54.9
14	R2	75	4.0	75	4.0	0.323	7.5	LOS A	1.0	7.9	0.34	0.28	0.34	53.4
Approach		586	2.1	586	2.1	0.323	7.5	LOS A	1.1	8.4	0.35	0.29	0.35	54.7
West: Pack Road														
5	L2	158	0.0	158	0.0	0.514	12.5	LOS B	2.9	22.3	0.59	0.71	0.96	50.1
2	T1	219	0.0	219	0.0	0.514	12.5	LOS B	2.9	22.3	0.59	0.71	0.96	50.0
12	R2	434	2.0	434	2.0	0.586	14.4	LOS B	3.8	29.7	0.60	0.77	1.12	48.4
Approach		811	1.1	811	1.1	0.586	13.6	LOS B	3.8	29.7	0.60	0.74	1.05	49.2
All Vehicles		2234	2.3	2234	2.3	0.586	10.1	LOS B	3.8	29.7	0.48	0.52	0.65	52.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Bostwick&Pack: TT2035PM (Site Folder: General)]

Bostwick Rd & Bradley Ave / Pack Rd
Future (2035) Total Traffic
PM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	334	0.0	334	0.0	0.642	15.2	LOS C	5.8	44.0	0.64	0.85	1.22	47.7
8	T1	633	0.0	633	0.0	0.642	15.1	LOS C	5.8	44.0	0.62	0.83	1.20	49.1
18	R2	85	0.0	85	0.0	0.642	15.0	LOS B	5.7	43.3	0.61	0.82	1.19	48.4
Approach		1052	0.0	1052	0.0	0.642	15.1	LOS C	5.8	44.0	0.63	0.83	1.20	48.6
East: Bradley Avenue														
1	L2	108	0.0	108	0.0	0.361	13.2	LOS B	1.3	9.6	0.67	0.73	0.91	49.0
6	T1	197	0.0	197	0.0	0.361	12.8	LOS B	1.3	9.6	0.66	0.72	0.90	50.4
16	R2	60	0.0	60	0.0	0.361	12.6	LOS B	1.2	9.4	0.65	0.71	0.89	49.9
Approach		365	0.0	365	0.0	0.361	12.9	LOS B	1.3	9.6	0.66	0.72	0.90	49.9
North: Bostwick Road														
7	L2	68	0.0	68	0.0	0.449	11.7	LOS B	2.0	16.0	0.56	0.66	0.86	51.2
4	T1	379	5.0	379	5.0	0.449	11.8	LOS B	2.0	16.0	0.55	0.65	0.85	51.3
14	R2	171	1.0	171	1.0	0.449	11.4	LOS B	2.0	15.6	0.54	0.63	0.83	50.5
Approach		618	3.3	618	3.3	0.449	11.7	LOS B	2.0	16.0	0.55	0.64	0.84	51.1
West: Pack Road														
5	L2	144	0.0	144	0.0	0.371	9.6	LOS A	1.5	11.1	0.52	0.56	0.64	51.7
2	T1	230	0.0	230	0.0	0.371	9.5	LOS A	1.5	11.1	0.51	0.55	0.63	52.4
12	R2	176	2.0	176	2.0	0.371	9.5	LOS A	1.4	10.6	0.49	0.53	0.61	51.9
Approach		550	0.6	550	0.6	0.371	9.6	LOS A	1.5	11.1	0.50	0.54	0.63	52.0
All Vehicles		2585	0.9	2585	0.9	0.642	12.8	LOS B	5.8	44.0	0.59	0.71	0.95	50.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Bostwick&Kilbourne: TT2027AM (Site Folder: General)]

Bostwick Rd & Kilbourne Rd
Future (2027) Total Traffic
AM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	1	0.0	1	0.0	0.149	4.5	LOS A	0.5	4.4	0.04	0.01	0.04	57.8
8	T1	308	6.0	308	6.0	0.149	4.7	LOS A	0.5	4.4	0.04	0.01	0.04	57.4
18	R2	6	0.0	6	0.0	0.149	4.5	LOS A	0.5	4.4	0.04	0.01	0.04	55.8
Approach		315	5.9	315	5.9	0.149	4.7	LOS A	0.5	4.4	0.04	0.01	0.04	57.4
East: Kilbourne Road														
1	L2	17	0.0	17	0.0	0.039	4.4	LOS A	0.1	0.7	0.29	0.21	0.29	55.9
6	T1	1	0.0	1	0.0	0.039	4.4	LOS A	0.1	0.7	0.29	0.21	0.29	55.7
16	R2	17	0.0	17	0.0	0.039	4.4	LOS A	0.1	0.7	0.29	0.21	0.29	54.1
Approach		35	0.0	35	0.0	0.039	4.4	LOS A	0.1	0.7	0.29	0.21	0.29	55.0
North: Bostwick Road														
7	L2	4	0.0	4	0.0	0.469	8.5	LOS A	2.8	21.8	0.14	0.04	0.14	54.6
4	T1	1014	2.0	1014	2.0	0.469	8.6	LOS A	2.8	21.8	0.14	0.04	0.14	54.3
14	R2	1	0.0	1	0.0	0.469	8.5	LOS A	2.8	21.8	0.14	0.04	0.14	52.8
Approach		1019	2.0	1019	2.0	0.469	8.6	LOS A	2.8	21.8	0.14	0.04	0.14	54.3
West: Kilbourne Road														
5	L2	1	0.0	1	0.0	0.006	6.7	LOS A	0.0	0.1	0.52	0.45	0.52	54.6
2	T1	1	0.0	1	0.0	0.006	6.7	LOS A	0.0	0.1	0.52	0.45	0.52	54.4
12	R2	1	0.0	1	0.0	0.006	6.7	LOS A	0.0	0.1	0.52	0.45	0.52	52.9
Approach		3	0.0	3	0.0	0.006	6.7	LOS A	0.0	0.1	0.52	0.45	0.52	54.0
All Vehicles		1372	2.8	1372	2.8	0.469	7.6	LOS A	2.8	21.8	0.12	0.04	0.12	55.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 1 [Bostwick&Kilbourne: TT2027PM (Site Folder: General)]

Bostwick Rd & Kilbourne Rd
Future (2027) Total Traffic
PM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	1	0.0	1	0.0	0.518	9.3	LOS A	3.6	27.0	0.14	0.04	0.14	54.1
8	T1	1132	0.0	1132	0.0	0.518	9.3	LOS A	3.6	27.0	0.14	0.04	0.14	53.9
18	R2	18	0.0	18	0.0	0.518	9.3	LOS A	3.6	27.0	0.14	0.04	0.14	52.3
Approach		1151	0.0	1151	0.0	0.518	9.3	LOS A	3.6	27.0	0.14	0.04	0.14	53.8
East: Kilbourne Road														
1	L2	11	0.0	11	0.0	0.069	7.9	LOS A	0.2	1.3	0.57	0.57	0.57	53.8
6	T1	1	0.0	1	0.0	0.069	7.9	LOS A	0.2	1.3	0.57	0.57	0.57	53.6
16	R2	23	0.0	23	0.0	0.069	7.9	LOS A	0.2	1.3	0.57	0.57	0.57	52.1
Approach		35	0.0	35	0.0	0.069	7.9	LOS A	0.2	1.3	0.57	0.57	0.57	52.6
North: Bostwick Road														
7	L2	14	0.0	14	0.0	0.249	5.6	LOS A	1.1	8.3	0.08	0.02	0.08	56.7
4	T1	520	4.0	520	4.0	0.249	5.7	LOS A	1.1	8.3	0.08	0.02	0.08	56.5
14	R2	1	0.0	1	0.0	0.249	5.6	LOS A	1.1	8.3	0.08	0.02	0.08	55.0
Approach		535	3.9	535	3.9	0.249	5.7	LOS A	1.1	8.3	0.08	0.02	0.08	56.5
West: Kilbourne Road														
5	L2	1	0.0	1	0.0	0.004	4.8	LOS A	0.0	0.1	0.37	0.25	0.37	56.2
2	T1	1	0.0	1	0.0	0.004	4.8	LOS A	0.0	0.1	0.37	0.25	0.37	56.0
12	R2	1	0.0	1	0.0	0.004	4.8	LOS A	0.0	0.1	0.37	0.25	0.37	54.4
Approach		3	0.0	3	0.0	0.004	4.8	LOS A	0.0	0.1	0.37	0.25	0.37	55.5
All Vehicles		1724	1.2	1724	1.2	0.518	8.1	LOS A	3.6	27.0	0.13	0.05	0.13	54.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Bostwick&Kilbourne: TT2030AM (Site Folder: General)]

Bostwick Rd & Kilbourne Rd
Future (2030) Total Traffic
AM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	1	0.0	1	0.0	0.145	4.5	LOS A	0.5	4.2	0.04	0.01	0.04	57.8
8	T1	298	6.0	298	6.0	0.145	4.7	LOS A	0.5	4.2	0.04	0.01	0.04	57.4
18	R2	8	0.0	8	0.0	0.145	4.5	LOS A	0.5	4.2	0.04	0.01	0.04	55.8
Approach		307	5.8	307	5.8	0.145	4.7	LOS A	0.5	4.2	0.04	0.01	0.04	57.4
East: Kilbourne Road														
1	L2	23	0.0	23	0.0	0.050	4.4	LOS A	0.1	0.9	0.28	0.21	0.28	55.7
6	T1	1	0.0	1	0.0	0.050	4.4	LOS A	0.1	0.9	0.28	0.21	0.28	55.5
16	R2	21	0.0	21	0.0	0.050	4.4	LOS A	0.1	0.9	0.28	0.21	0.28	53.9
Approach		45	0.0	45	0.0	0.050	4.4	LOS A	0.1	0.9	0.28	0.21	0.28	54.8
North: Bostwick Road														
7	L2	4	0.0	4	0.0	0.455	8.3	LOS A	2.7	20.5	0.16	0.05	0.16	54.7
4	T1	977	2.0	977	2.0	0.455	8.4	LOS A	2.7	20.5	0.16	0.05	0.16	54.5
14	R2	1	0.0	1	0.0	0.455	8.3	LOS A	2.7	20.5	0.16	0.05	0.16	53.0
Approach		982	2.0	982	2.0	0.455	8.4	LOS A	2.7	20.5	0.16	0.05	0.16	54.5
West: Kilbourne Road														
5	L2	1	0.0	1	0.0	0.005	6.6	LOS A	0.0	0.1	0.51	0.43	0.51	54.7
2	T1	1	0.0	1	0.0	0.005	6.6	LOS A	0.0	0.1	0.51	0.43	0.51	54.5
12	R2	1	0.0	1	0.0	0.005	6.6	LOS A	0.0	0.1	0.51	0.43	0.51	53.0
Approach		3	0.0	3	0.0	0.005	6.6	LOS A	0.0	0.1	0.51	0.43	0.51	54.1
All Vehicles		1337	2.8	1337	2.8	0.455	7.4	LOS A	2.7	20.5	0.14	0.05	0.14	55.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Bostwick&Kilbourne: TT2030PM (Site Folder: General)]

Bostwick Rd & Kilbourne Rd
Future (2030) Total Traffic
PM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	1	0.0	1	0.0	0.505	9.0	LOS A	3.4	25.6	0.13	0.03	0.13	54.3
8	T1	1097	0.0	1097	0.0	0.505	9.0	LOS A	3.4	25.6	0.13	0.03	0.13	54.1
18	R2	25	0.0	25	0.0	0.505	9.0	LOS A	3.4	25.6	0.13	0.03	0.13	52.5
Approach		1123	0.0	1123	0.0	0.505	9.0	LOS A	3.4	25.6	0.13	0.03	0.13	54.0
East: Kilbourne Road														
1	L2	15	0.0	15	0.0	0.101	8.2	LOS A	0.3	2.0	0.56	0.56	0.56	53.7
6	T1	1	0.0	1	0.0	0.101	8.2	LOS A	0.3	2.0	0.56	0.56	0.56	53.5
16	R2	37	0.0	37	0.0	0.101	8.2	LOS A	0.3	2.0	0.56	0.56	0.56	52.0
Approach		53	0.0	53	0.0	0.101	8.2	LOS A	0.3	2.0	0.56	0.56	0.56	52.5
North: Bostwick Road														
7	L2	12	0.0	12	0.0	0.237	5.5	LOS A	1.0	7.8	0.09	0.03	0.09	56.8
4	T1	494	4.0	494	4.0	0.237	5.6	LOS A	1.0	7.8	0.09	0.03	0.09	56.6
14	R2	1	0.0	1	0.0	0.237	5.5	LOS A	1.0	7.8	0.09	0.03	0.09	55.1
Approach		507	3.9	507	3.9	0.237	5.6	LOS A	1.0	7.8	0.09	0.03	0.09	56.6
West: Kilbourne Road														
5	L2	1	0.0	1	0.0	0.004	4.7	LOS A	0.0	0.1	0.36	0.24	0.36	56.3
2	T1	1	0.0	1	0.0	0.004	4.7	LOS A	0.0	0.1	0.36	0.24	0.36	56.1
12	R2	1	0.0	1	0.0	0.004	4.7	LOS A	0.0	0.1	0.36	0.24	0.36	54.5
Approach		3	0.0	3	0.0	0.004	4.7	LOS A	0.0	0.1	0.36	0.24	0.36	55.6
All Vehicles		1686	1.2	1686	1.2	0.505	7.9	LOS A	3.4	25.6	0.13	0.05	0.13	54.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Bostwick&Kilbourne: TT2035AM (Site Folder: General)]

Bostwick Rd & Kilbourne Rd
Future (2035) Total Traffic
AM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	1	0.0	1	0.0	0.145	4.5	LOS A	0.5	4.3	0.05	0.01	0.05	57.8
8	T1	298	6.0	298	6.0	0.145	4.7	LOS A	0.5	4.3	0.05	0.01	0.05	57.4
18	R2	9	0.0	9	0.0	0.145	4.5	LOS A	0.5	4.3	0.05	0.01	0.05	55.8
Approach		308	5.8	308	5.8	0.145	4.7	LOS A	0.5	4.3	0.05	0.01	0.05	57.4
East: Kilbourne Road														
1	L2	27	0.0	27	0.0	0.057	4.5	LOS A	0.1	1.1	0.29	0.21	0.29	55.6
6	T1	1	0.0	1	0.0	0.057	4.5	LOS A	0.1	1.1	0.29	0.21	0.29	55.4
16	R2	24	0.0	24	0.0	0.057	4.5	LOS A	0.1	1.1	0.29	0.21	0.29	53.8
Approach		52	0.0	52	0.0	0.057	4.5	LOS A	0.1	1.1	0.29	0.21	0.29	54.8
North: Bostwick Road														
7	L2	5	0.0	5	0.0	0.457	8.4	LOS A	2.7	20.6	0.17	0.06	0.17	54.7
4	T1	977	2.0	977	2.0	0.457	8.4	LOS A	2.7	20.6	0.17	0.06	0.17	54.4
14	R2	1	0.0	1	0.0	0.457	8.4	LOS A	2.7	20.6	0.17	0.06	0.17	52.9
Approach		983	2.0	983	2.0	0.457	8.4	LOS A	2.7	20.6	0.17	0.06	0.17	54.4
West: Kilbourne Road														
5	L2	1	0.0	1	0.0	0.005	6.6	LOS A	0.0	0.1	0.51	0.44	0.51	54.7
2	T1	1	0.0	1	0.0	0.005	6.6	LOS A	0.0	0.1	0.51	0.44	0.51	54.5
12	R2	1	0.0	1	0.0	0.005	6.6	LOS A	0.0	0.1	0.51	0.44	0.51	53.0
Approach		3	0.0	3	0.0	0.005	6.6	LOS A	0.0	0.1	0.51	0.44	0.51	54.1
All Vehicles		1346	2.8	1346	2.8	0.457	7.4	LOS A	2.7	20.6	0.15	0.06	0.15	55.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 1 [Bostwick&Kilbourne: TT2035PM (Site Folder: General)]

Bostwick Rd & Kilbourne Rd
Future (2035) Total Traffic
PM Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bostwick Road														
3	L2	1	0.0	1	0.0	0.508	9.1	LOS A	3.4	25.9	0.14	0.04	0.14	54.2
8	T1	1097	0.0	1097	0.0	0.508	9.1	LOS A	3.4	25.9	0.14	0.04	0.14	54.0
18	R2	29	0.0	29	0.0	0.508	9.1	LOS A	3.4	25.9	0.14	0.04	0.14	52.4
Approach		1127	0.0	1127	0.0	0.508	9.1	LOS A	3.4	25.9	0.14	0.04	0.14	54.0
East: Kilbourne Road														
1	L2	18	0.0	18	0.0	0.111	8.3	LOS A	0.3	2.2	0.57	0.57	0.57	53.5
6	T1	1	0.0	1	0.0	0.111	8.3	LOS A	0.3	2.2	0.57	0.57	0.57	53.3
16	R2	39	0.0	39	0.0	0.111	8.3	LOS A	0.3	2.2	0.57	0.57	0.57	51.8
Approach		58	0.0	58	0.0	0.111	8.3	LOS A	0.3	2.2	0.57	0.57	0.57	52.4
North: Bostwick Road														
7	L2	15	0.0	15	0.0	0.239	5.5	LOS A	1.0	7.9	0.10	0.03	0.10	56.8
4	T1	494	4.0	494	4.0	0.239	5.6	LOS A	1.0	7.9	0.10	0.03	0.10	56.6
14	R2	1	0.0	1	0.0	0.239	5.5	LOS A	1.0	7.9	0.10	0.03	0.10	55.1
Approach		510	3.9	510	3.9	0.239	5.6	LOS A	1.0	7.9	0.10	0.03	0.10	56.6
West: Kilbourne Road														
5	L2	1	0.0	1	0.0	0.004	4.7	LOS A	0.0	0.1	0.36	0.25	0.36	56.3
2	T1	1	0.0	1	0.0	0.004	4.7	LOS A	0.0	0.1	0.36	0.25	0.36	56.1
12	R2	1	0.0	1	0.0	0.004	4.7	LOS A	0.0	0.1	0.36	0.25	0.36	54.4
Approach		3	0.0	3	0.0	0.004	4.7	LOS A	0.0	0.1	0.36	0.25	0.36	55.6
All Vehicles		1698	1.2	1698	1.2	0.508	8.0	LOS A	3.4	25.9	0.14	0.06	0.14	54.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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