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36 Years

Project Python
222 CitiGate Drive

Transportation Impact Assessment

Project Python

222 CitiGate Drive

Transportation Impact Assessment

Prepared By:

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

April 9, 2020

Novatech File: 120025
Ref: R-2020-043

NOVATECH
Engineers, Planners & Landscape Architects

April 9, 2020

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

Attention: Mr. Mike Giampa
Sr. Engineer,
Infrastructure Applications

Ministry of Transportation
Eastern Region Engineering Office
1355 John Counter Blvd.
Kingston, ON K7L 5A3

Attention: Mr. Stephen Kapusta
Corridor Mgmt Planner
Eastern Region

Dear Sirs:

Reference: Project Python, 222 CitiGate Drive
Transportation Impact Assessment Report
Novatech File No. 120025

We are pleased to submit the following Transportation Impact Assessment report in support of a Site Plan Control application for the above address. The structure and format of this report is in accordance with the MTO Traffic Impact Study Guidelines (2009) and the City of Ottawa Transportation Impact Assessment Guidelines (June 2017).

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

Yours truly,

NOVATECH



Rochelle Fortier, B.Eng.
E.I.T. | Transportation/Traffic

Suite 200, 240 Michael Cowpland Drive, Ottawa ON K2M 1P6 Tel: 613.254.9643 Fax: 613.254.5867 www.novatech-eng.com

TIA Plan Reports

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

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

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

CERTIFICATION

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

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

City Of Ottawa
Infrastructure Services and Community Sustainability
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Dated at Ottawa (City) this 9 day of April, 2020.

Name: Jennifer Luong, P.Eng.
(Please Print)

Professional Title: Senior Project Manager, Transportation/Traffic

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

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EXECUTIVE SUMMARY

This Transportation Impact Assessment (TIA) report has been prepared in support of a Site Plan Control application for Block 13 of the CitiGate Business Park.

The proposed development consists of a new prestige office and light industrial building, providing approximately 2,700,000 square feet (250,000 square metres) of GFA. Approximately 2,035 vehicular parking spaces and approximately 50 loading docks are proposed. Access to the proposed development will be from the extensions of CrossKeys Place, Systemhouse Street and CitiGate Drive, with two all movement accesses from CrossKeys Place and two all movement accesses from CitiGate Drive.

The proposed development is anticipated to be completed in one phase, with full occupancy by the year 2021. A second phase will be part of a future Site Plan Application and includes an office building on the northern portion of the site. It will not be included as part of the scope of this report.

This site is expected to operate with two shifts with approximately 590 employees on site during each shift during the off-peak season and approximately 840 employees on site during each shift during the peak season. The peak season for this site is anticipated to occur from October to January, and the off-peak season from February to September. For the purpose of this report, the total traffic analysis will include the site traffic for the peak season.

Person trip generation for the proposed development, consisting of a new prestige office and light industrial building with approximately 2,700,000 square feet of GFA, was determined using first principles. The owner provided typical hourly volumes for both employees and truck movements to and from a building of this size and nature. Shift arrivals and departures are spread over a two-hour period. The peak hour for the site generated traffic occurs between 6:00AM to 7:00AM and 5:30PM to 6:30PM.

The proposed site is expected to generate approximately 16-24 trucks per hour (two-way) between 6:00AM to 8:00PM during the peak season. Truck volume is expected to reach a high of 21-32 two-way trucks per hour between 8:00PM to 3:00AM and drop to approximately 11-14 two-way trucks per hour between 3:00 AM to 6:00 AM.

A Community Transportation Study (CTS) prepared by Novatech, dated November 2012, was completed for the CitiGate development lands. The ultimate CitiGate development lands includes the subject site, and the traffic generated the subject site was estimated using the Office Park land use and assuming 110 employees per hectare and 350 square foot per employee. The proposed development is anticipated to generate less overall person trips than the CTS concept, however the person trip estimate is higher for trips exiting the site during the AM peak and trips entering the site during the PM peak hour. This is a result of day and night shifts that were not anticipated as part of the 2012 CTS.

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

<u>Development Design & Parking</u>

- Pedestrian facilities will be provided between the building entrances and the parking lot. New pedestrian walkways will be constructed, providing connectivity to the existing pedestrian facilities along CrossKeys Place and CitiGate Drive. Spine walkways through the parking lots are provided, with raised crosswalks along the main east/west and north/south

drive aisles, as shown on the site plan. A multi-use pathway is provided, connecting to the existing facility at the CitiGate Drive/CrossKeys Place roundabout.

- It is anticipated that bus service will be extended via CrossKeys Place, CitiGate Drive, and Systemhouse Street. Stops would likely be added at the two intersections, CrossKeys Place/CitiGate Drive and Systemhouse Street/CitiGate Drive.
- Bicycle parking for the proposed development will be in accordance with the minimum requirement of the City's Zoning By-law (ZBL), as described in section 6.2. Bike racks will be located to the north of the building's front entrance, with additional bike parking located at the rear of the building (southwest corner). In addition to the MUP connection at the roundabout, a bike path is proposed which will connect the bike rack area to the CrossKeys Place extension at the southerly CrossKeys Place access, as shown on the site plan.
- All required TDM-supportive design and infrastructure measures in the TDM checklist are met.
- The approximately 2,035 proposed vehicular parking spaces meet the minimum requirement of the ZBL.

Boundary Street Design

- The planned CitiGate Drive extension meets the target PLOS, TkLOS and Auto LOS, however it does not meet the target BLOS.
- Along the east side of CitiGate Drive there is a planned multi-use pathway which earns a BLOS of A. The west side of CitiGate Drive will offer mixed traffic for cyclists, which earns a BLOS of F with an operating speed of 60km/h. This is considered a reasonable trade-off as cyclists will have the option of using the MUP along the east side of CitiGate Drive.

Access Intersection Design

- The proposed development will be served by two accesses along the CitiGate Drive extension and two accesses along the private CrossKeys Place extension. All accesses will be stop controlled.
- The private CrossKeys Place extension and the northerly CitiGate Drive access range between 8m-8.6m in width, measured at the property line. The southern CitiGate Drive access, which serves trucks, is approximately 10.7m in width, measured at the property line.
- The proposed accesses meet all requirements of the City's *Private Approach By-Law,* and the TAC criteria for corner clearance and clear throat.

Transportation Demand Management

- The developer has agreed to encourage the future tenant(s) to implement and promote ride sharing.

Neighbourhood Traffic Management

- The majority of traffic being generated by the proposed development is anticipated to arrive/depart the study area via the arterial roadways (Strandherd Drive and Fallowfield Road) and Highway 416.
- Hélène Campbell Road, Maravista Drive, and Kennevale Drive will operate with v/c ratios less than 0.60 (LOS A) under 2026 total traffic conditions. The added traffic generated by the proposed development is not anticipated to have a significant impact on the existing vehicular operations along the neighbourhood collector roadways (Hélène Campbell Road, Maravista Drive, and Kennevale Drive).

Transit

- The proposed development is anticipated to generate an additional 192 transit trips (94 in, 98 out) during the weekday AM peak hour and 251 transit trips (124 in, 127 out) during the weekday PM peak hour.

Intersection MMLOS Analysis

- A Complete Streets Design has been completed for Strandherd Drive. The City of Ottawa has completed its analysis and review of the "trade-offs" when developing this Complete Streets design and have already considered MMLOS factors in the development of its concept. It is anticipated that the site will have no major impacts on non-auto MMLOS results.

Existing Intersection Operations

- Under existing traffic conditions, the Fallowfield Road/O'Keefe Court/Cobble Hill Drive is operating with a LOS E in the AM peak hour. All other study area intersections are anticipated to operate with a LOS D or better.
- The Fallowfield Road/O'Keefe Court/Cobble Hill Drive intersection is experiencing delays of approximately 39 seconds on the westbound approach in the AM peak hour. A maximum queue length of 22m, or approximately three vehicles, occurs on the westbound approach. Given that the traffic signal warrant is only 46% met, side street stop control is recommended for the existing traffic condition.

2021 Background Intersection Operations

- Under 2021 background traffic conditions, all study area intersections are anticipated to operate with a LOS D or better.
- With background growth and the addition of other study area development traffic, minor increases in queue lengths are anticipated.

2026 Background Intersection Operations

- Additional through capacity is required on Strandherd Drive to accommodate background traffic. This is consistent with the recommendations of the approved 2012 CTS for the CitiGate lands, and the 1991 Strandherd Drive ESR to protect for a six-lane cross section between Highway 416 and Jockvale Road. The footings for the rail overpass have been designed for a bridge expansion to six lanes. This additional capacity could be provided via general travel lanes or the extension of the planned Chapman Mills bus rapid transit (BRT) corridor west of Borrisokane.
- The Fallowfield Road/O'Keefe Court/Cobble Hill Drive intersection is anticipated to operate with delays of approximately 47 seconds on the westbound approach in the AM peak hour. A maximum queue length of 24m, or approximately three vehicles, is anticipated on the westbound approach. Given that the traffic signal warrant is not met, side street stop control is recommended for the 2026 background traffic condition.

2031 Background Intersection Operations

- Additional through lane capacity is required on Fallowfield Road at the 416 off-ramps. Note that the 416 overpass on Fallowfield Road is built to six lanes.
- With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Southbound Off-Ramp is anticipated to operate with a v/c of 0.99 in the AM peak. In order to achieve MTO's target v/c ratio of 0.85, a reduction of 400 eastbound through vehicles, or

a reduction of 300 eastbound through and 100 southbound left vehicles would be required in the AM peak, and a reduction of 100 eastbound through vehicles would be required in the PM peak, based on current geometry.

- With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Northbound Off-Ramp is anticipated to operate with a v/c of 1.16 in the AM peak. In order to achieve the MTO target v/c ratio 0.85, a reduction of 750 eastbound through vehicles would be required in the AM peak, based on current geometry.

2021 Total Intersection Operation

- With the addition of site generated traffic, minor increases in queue lengths are anticipated at all study area intersections.
- For a cycle length of 130 seconds at all signalized intersections within the study area during the AM peak, all signalized study area intersections are anticipated to operate with a LOS D or better.
- The Fallowfield Road/O'Keefe Court/Cobble Hill Drive intersection is anticipated to operate with a LOS E and delays of approximately 40 seconds on the westbound approach in the AM peak hour. A maximum queue length of 21m, or approximately three vehicles, is anticipated on the westbound approach. Given that the traffic signal warrant is not met, side street stop control is recommended for the 2021 total traffic condition.

2026 Total Intersection Operations

- With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Southbound Off-Ramp, Strandherd Drive/Systemhouse Street/Maravista Drive, and Strandherd Drive/Dealership Drive/Kennevale Drive intersections are anticipated to operate with a LOS D or better in the AM and PM peaks.
- With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Northbound Off-Ramp is anticipated to operate with a v/c of 0.91 in the AM peak. In order to achieve the MTO's target v/c ratio of 0.85, a reduction of 125 eastbound through vehicles would be required in the AM peak.
- Consideration could be given to re-assigning the northbound lanes on CitiGate Drive and removing the protected northbound/southbound left turn phase in order to free up capacity and assign more time to the east-west through traffic.
- The Fallowfield Road/O'Keefe Court/Cobble Hill Drive intersection is anticipated to operate with delays of approximately 59 seconds on the westbound approach in the AM peak hour. A maximum queue length of 24m, or approximately three vehicles, is anticipated on the westbound approach. Given that the traffic signal warrant is not met, side street stop control is recommended for the 2026 total traffic condition.
- The CitiGate Drive/Systemhouse Street/Site Access intersection is anticipated to operate with delays of 9 seconds under 2026 total traffic conditions, with stop control at the site access. When CitiGate Drive is extended further south, a roundabout control is recommended at this intersection through future site plan applications for lands to the south.
- A review of left turn warrants was conducted at the northern CitiGate Drive site access. Based on advancing and opposing volumes, no northbound left turn lane is required at this access under 2026 total traffic conditions.

2031 Total Intersection Operations

- Consistent with the 2031 background traffic analysis, the total traffic analysis demonstrates that additional through lane capacity is required on Fallowfield Road at the 416 off-ramps.

- With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Southbound Off-Ramp is anticipated to operate with a v/c of 1.07 in the AM peak and 0.95 in the PM peak. In order to achieve the MTO target v/c ratio 0.85, a reduction of 400 eastbound through vehicles and 150 southbound left vehicles would be required in the AM peak and a reduction of 200 westbound through and 100 southbound left vehicles would be required in the PM peak.
- With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Northbound Off-Ramp is anticipated to operate with a v/c of 1.18 in the AM peak and 0.94 in the PM peak. In order to achieve the MTO v/c ratio target of 0.85, a reduction of 800 eastbound through vehicles and 75 northbound right vehicles would be required in the AM peak and a reduction of 250 eastbound through vehicles would be required in the PM peak.

1.0 INTRODUCTION

This Transportation Impact Assessment (TIA) report has been prepared in support of a Site Plan Control application for Block 13 of the CitiGate Business Park. The subject site is currently vacant. The subject site is surrounded by the following:

- Fallowfield Road to the north;
- Future CitiGate Drive and commercial/office to the east;
- Highway 416 to the west; and
- Vacant land to be developed as business park to the south

A view of the subject site is provided in **Figure 1**.

Figure 1: View of the Subject Site



A Community Transportation Study (CTS) prepared by Novatech, dated November 2012, was completed for the CitiGate development lands. The ultimate CitiGate development lands includes the subject site, and the traffic generated the subject site was estimated using the Office Park land use and assuming 110 employees per hectare and 350 square foot per employee. A portion of the City's Strandherd Drive Widening Project was recently constructed between Fallowfield Road and Maravista Drive, with the remainder between Maravista Drive and Jockvale Road to be constructed in 2020-2022.

2.0 PROPOSED DEVELOPMENT

The subject site is designated as 'Urban Employment Area' on Schedule 'B' of the City of Ottawa's Official Plan. It is currently zoned Business Park Industrial Zone – IP[2045]H(45). The proposed development is located in the CitiGate business park, and as such, must adhere to the CitiGate Design Guidelines.

The proposed development consists of a new prestige office and light industrial building, providing approximately 2,700,000 square feet (250,000 square metres) of GFA. Approximately 2,035 vehicular parking spaces and approximately 50 loading docks are proposed. Access to the proposed development will be from the extensions of CrossKeys Place, Systemhouse Street and CitiGate Drive, with two all movement accesses from CrossKeys Place and two all movement accesses from CitiGate Drive.

The proposed development is anticipated to be completed in one phase, with full occupancy by the year 2021. A second phase will be part of a future Site Plan Application and includes an office building on the northern portion of the site. It will not be included as part of the scope of this report.

A copy of the preliminary site plan is included in **Appendix A**.

3.0 SCREENING

The City's 2017 TIA Guidelines identify three triggers for completing a TIA report, including trip generation, location, and safety. The criteria for each trigger are outlined in the City's TIA Screening Form.

The proposed development satisfies the Trip Generation and Safety triggers for completing a TIA. A copy of the TIA screening form is included in **Appendix B**.

4.0 SCOPING

4.1 Existing Conditions

This section provides a review of existing conditions in the vicinity of the subject site including: roadways, intersections, driveways, pedestrian and cycling facilities, transit, area traffic management measures, traffic volumes, and collision records.

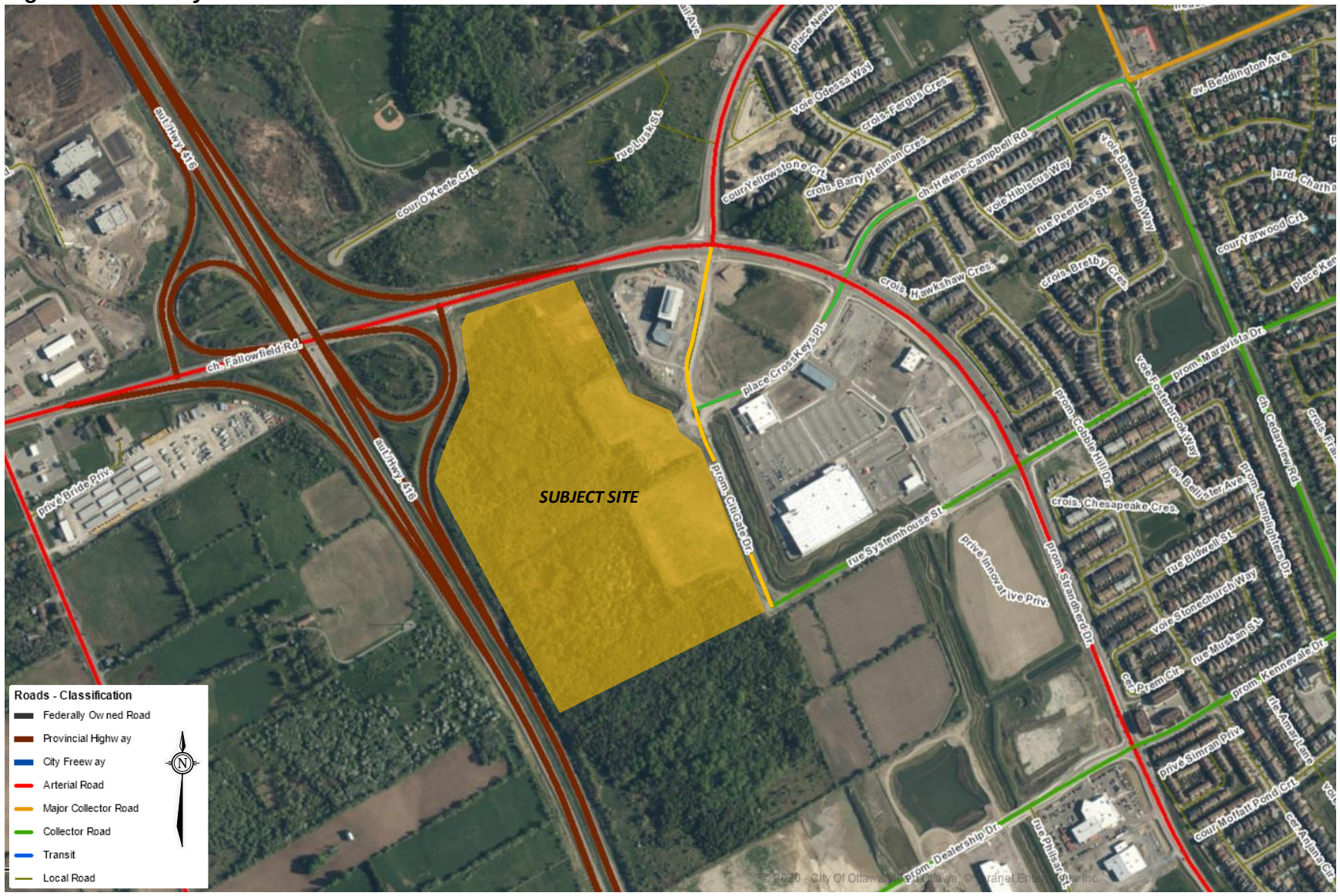
4.1.1 Roadways

The roadway network of the greater area surrounding the subject site is illustrated in **Figure 2**.

Highway 416 falls under the jurisdiction of the Ministry of Transportation of Ontario (MTO). All other study area roadways fall under the jurisdiction of the City of Ottawa.

Highway 416 is a four-lane rural divided freeway. It has a north-south alignment extending from Highway 417 to the north to Highway 401 in the south. The posted speed is 100km/h.

Figure 2: Roadway Network



Strandherd Drive is a major arterial road in Barrhaven that generally runs east-west, with a curvilinear alignment. North of Maravista Drive, it has a four lane urban cross section, narrowing to a two lane rural cross section south of Maravista Drive. Within the study area it has a posted speed limit of 80km/h. Strandherd Drive is a designated truck route. The Official Plan identifies a right-of-way (ROW) protection requirement of 44.5 metres for Strandherd Drive between Fallowfield Road and Crestway Drive. A widening is not required as part of this application. For ease of reference, given the curvilinear alignment of the subject section of Strandherd Drive, the following cardinal directions have been adopted for this analysis:

- Strandherd Drive from Fallowfield Road to Hélène Campbell Road/CrossKeys Place is considered east/west, and cross streets are considered north/south, and

- Strandherd Drive from Maravista Drive/Systemhouse Street to Kennevale Drive/Dealership Drive is considered north/south, and cross streets are considered east/west.

Fallowfield Road is an arterial roadway with a two lane rural cross section east/north of Strandherd Drive and a four lane rural cross section west of Strandherd Drive to Moodie Drive. It runs on an east-west alignment north of Barrhaven, extending between Dwyer Hill Road in the west and Prince of Wales Drive in the east. Fallowfield Road is a designated truck route with a posted speed of 80 km/h west of Strandherd Drive and a posted speed of 60km/h east/north of Strandherd Drive.

O'Keefe Court and Cobble Hill Drive are local roadways with a two-lane cross section and a regulatory speed limit of 50km/h. O'Keefe Court has a rural cross section while Cobble Hill Drive has an urban cross section with curbs and sidewalks along both sides of the street.

CitiGate Drive (formerly Nortel Drive) runs on a north-south alignment between Strandherd Drive/Fallowfield Road and CrossKeys Place. It is classified as a major collector road, with a two lane, undivided urban cross section and a regulatory speed limit of 50km/h. It is planned to extend south to McKenna Casey Drive.

CrossKeys Place runs on a north-south alignment between Strandherd Drive and CitiGate Drive. It is classified as a collector, with a two lane, undivided urban cross section and a regulatory speed limit of 50km/h.

Hélène Campbell Road (formerly Jockvale Road) is a collector roadway with a two-lane urban cross section, extending easterly from Strandherd Drive to Cedarview Road. The posted speed on Hélène Campbell Road is 50km/h. To the east of Cedarview Road, Hélène Campbell Road becomes Jockvale Road.

Systemhouse Street and Dealership Drive are collector roadways with two-lane urban cross sections that extend westerly from Strandherd Drive. Both roadways have regulatory speed limits of 50km/h.

Maravista Drive and Kennevale Drive are collector roadways with a two-lane urban cross section that extend easterly from Strandherd Drive. Both roadways have posted speed limits of 40km/h.

4.1.2 Intersections

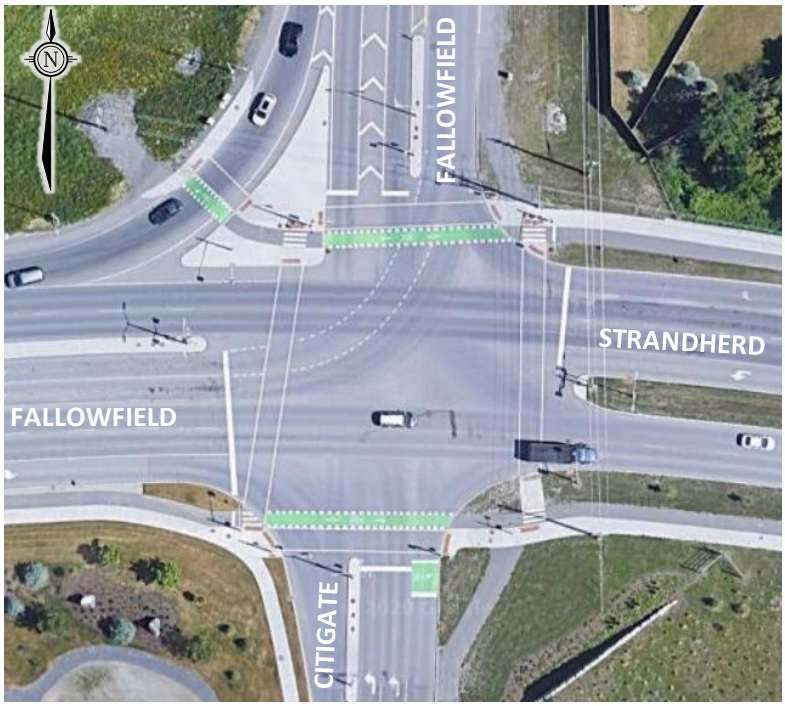
Fallowfield Road/Highway 416

- Partial cloverleaf interchange
- East/West: two through lanes. All on-ramps are channelized right turn lanes
- 416 Northbound off-ramp: signalized intersection. Designated left and right turn lanes are provided
- 416 Southbound off-ramp: signalized intersection. Two designated left turn lanes and one right turn lane are provided.



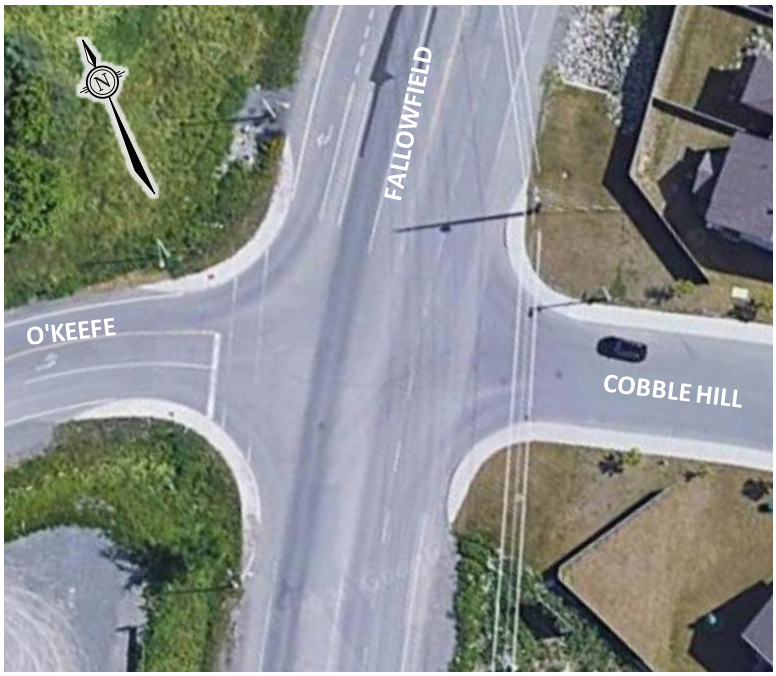
Strandherd Drive/Fallowfield Road/CitiGate Drive

- Signalized intersection
- Northbound: two left turn lanes, one shared through/right turn lane
- Southbound: one left turn lane, one through lane, one channelized right turn lane
- Eastbound: two left turn lanes, two through lanes, one right turn lane
- Westbound: one left turn lane, two through lanes, one right turn lane. U-turns are prohibited
- Standard crosswalks are provided on all legs of the intersection
- Cycle tracks are provided with cross rides along Strandherd Drive. A two-stage bike box is provided to turn left onto Fallowfield Road



Fallowfield Road/O'Keefe Court/Cobble Hill Drive

- Unsignalized intersection, with stop control on O'Keefe Court/Cobble Hill Drive and free flow on Fallowfield Road
- Northbound: one left turn lane, one through lane, one right turn lane
- Southbound: one left turn lane, one through lane, one pocket bike lane, one right turn lane
- Eastbound: one left turn lane, one shared through/right turn lane
- Westbound: one shared left turn/through/right turn lane



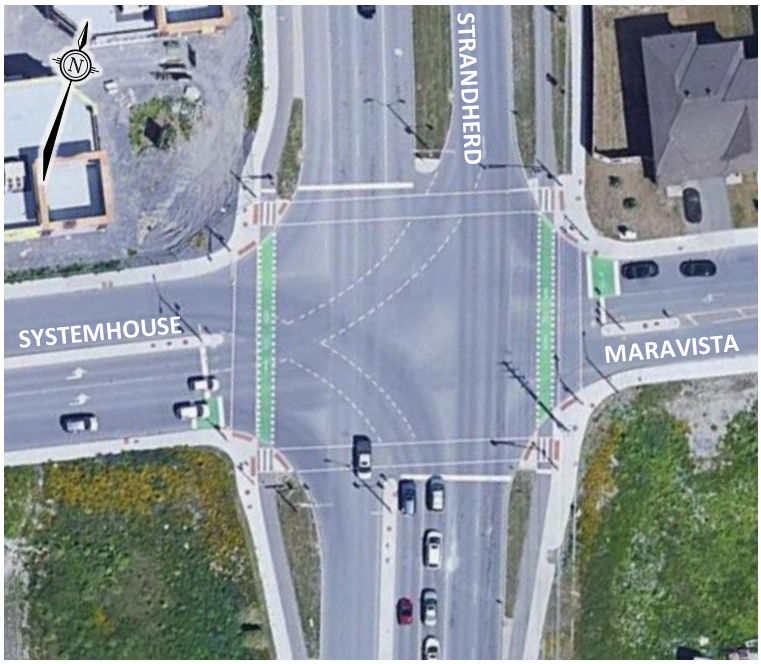
Strandherd Drive/CrossKeys Place/ Hélène Campbell Road

- Signalized intersection
- Northbound/Southbound: one left turn lane, one through lane, one bike lane, one right turn lane
- Eastbound: one right turn lane, two through lanes, one left turn lane
- Westbound: one right turn lane, two through lanes, two left turn lanes
- Standard crosswalks are provided on all legs of the intersection
- Cycle tracks are provided with cross rides along Strandherd Drive. Two-stage bike boxes are provided to turn left onto Hélène Campbell Road and onto CrossKeys Place



Strandherd Drive/Systemhouse Street/Maravista Drive

- Signalized intersection
- Northbound: two left turn lanes, one through lane, one shared through/right turn lane
- Southbound: one left turn lane, two through lanes, one right turn lane
- Eastbound: two left turn lanes, one shared through/right turn lane
- Westbound: one left turn lane, one shared through/right turn lane
- Standard crosswalks are provided on all legs of the intersection
- Cycle tracks are provided with cross rides along Strandherd Drive. Two-stage bike boxes are provided to turn left onto Systemhouse Street and onto Maravista Drive



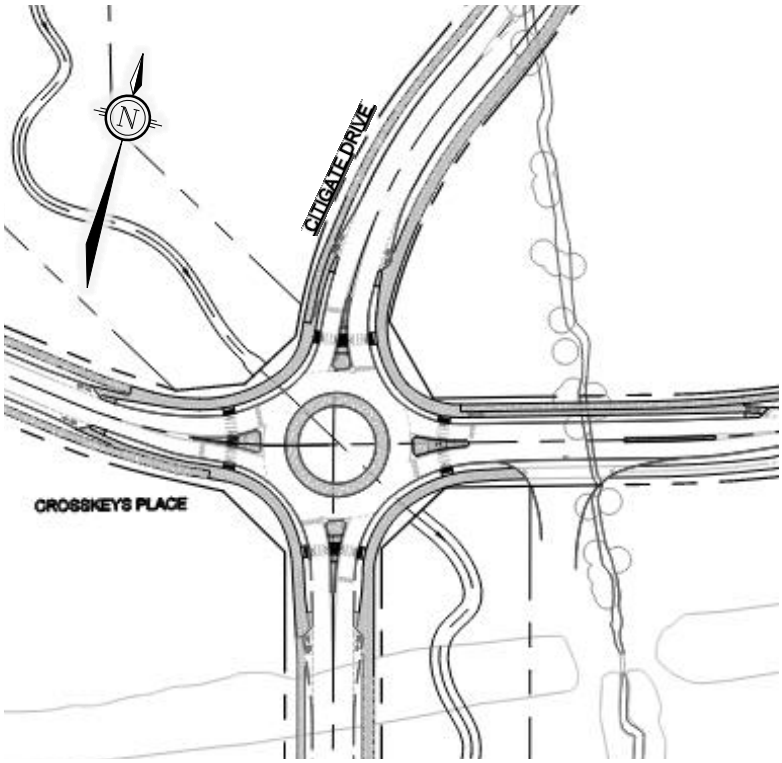
Strandherd Drive/Dealership Drive/Kennevale Drive

- Signalized intersection
- Northbound/Southbound: one left turn lane, one through lane, one pocket bike lane, one right turn lane
- Eastbound: one left turn lane, one through lane, one right turn lane
- Westbound: one left turn lane, one shared through/right turn lane
- Standard crosswalks are provided on all legs of the intersection
- Trucks are banned on Kennevale Drive



CitiGate Drive/CrossKeys Place

- Two-legged roundabout (north and east legs have been built)
- One lane approach on both legs
- Splitter islands on both approaches



4.1.3 Driveways

In accordance with the City's 2017 TIA guidelines, a review of adjacent driveways along the boundary roads are provided as follows:

CrossKeys Place, east side: two driveways to the retail plaza situated at 4235 and 4225 Strandherd Drive.

CitiGate Drive, west side: two driveways to Tomlinson Corporate Headquarters located at 100 CitiGate Drive. One future access to a hotel at 101 CitiGate Drive will be located immediately opposite the Tomlinson main access.

4.1.4 Pedestrian and Cycling Facilities

Sidewalks are provided along both sides of Strandherd Drive, CrossKeys Place, Systemhouse Street, Dealership Drive, Kennevale Drive, Maravista Drive, Hélène Campbell Road, Cobble Hill Drive, and along the west side of CitiGate Drive. On the east side of CitiGate Drive, a multi-use pathway is planned, but not yet constructed. This path will extend south along the CitiGate Drive extension, east along Systemhouse Street and south along the O'Keefe Drain, connecting to the rail corridor/McKenna Casey Drive. Bike lanes are provided along CrossKeys Place and Hélène Campbell Road.

Strandherd Drive is identified as a spine cycling route with a major pathway in the City's Cycling Network. There are currently cycle tracks along Strandherd Drive, north of Maravista Drive, with

two-stage bike boxes at intersections. A paved shoulder is provided south of Maravista Drive. Pocket bike lanes are provided on Strandherd Drive at the Kennevale Drive/Dealership Drive intersection.

Fallowfield Road is classified as a spine cycling route in the City's Ultimate Cycling Network. Paved shoulders are provided alongside Fallowfield Road, north of Strandherd Drive, in the vicinity of the subject site. An existing multi-use pathway is provided on the north side of Fallowfield Road from Cedarview Road which continues along O'Keefe Road to Lytle Park then north to Lytle Avenue.

4.1.5 Transit

The nearest bus stops to the subject site are summarized in **Table 1**. An aerial view of the bus stops in the vicinity of the subject site can be found in **Figure 3**. OC Transpo Route information is included in **Appendix C**.

Table 1: OC Transpo Bus Stops

OC Transpo Bus Stop	Location	Route(s) Serviced
#4811	West side of Costco retail plaza drive aisle, south of CrossKeys Place	170, 179
#4810	East side of Costco retail plaza drive aisle, south of CrossKeys Place	170, 179
#8204	East side of Costco retail plaza drive aisle, north of Systemhouse Street	170, 179
#8205	West side of Costco retail plaza drive aisle, north of Systemhouse Street	170
#1214	South side of Maravista Street at Cobble Hill Drive	170
#1788	East side of Cobble Hill Drive at Maravista Street	272
#5372	West side of Cobble Hill Drive at Hélène Campbell Road	272
#5371	East side of Cobble Hill Drive at Hélène Campbell Road	272

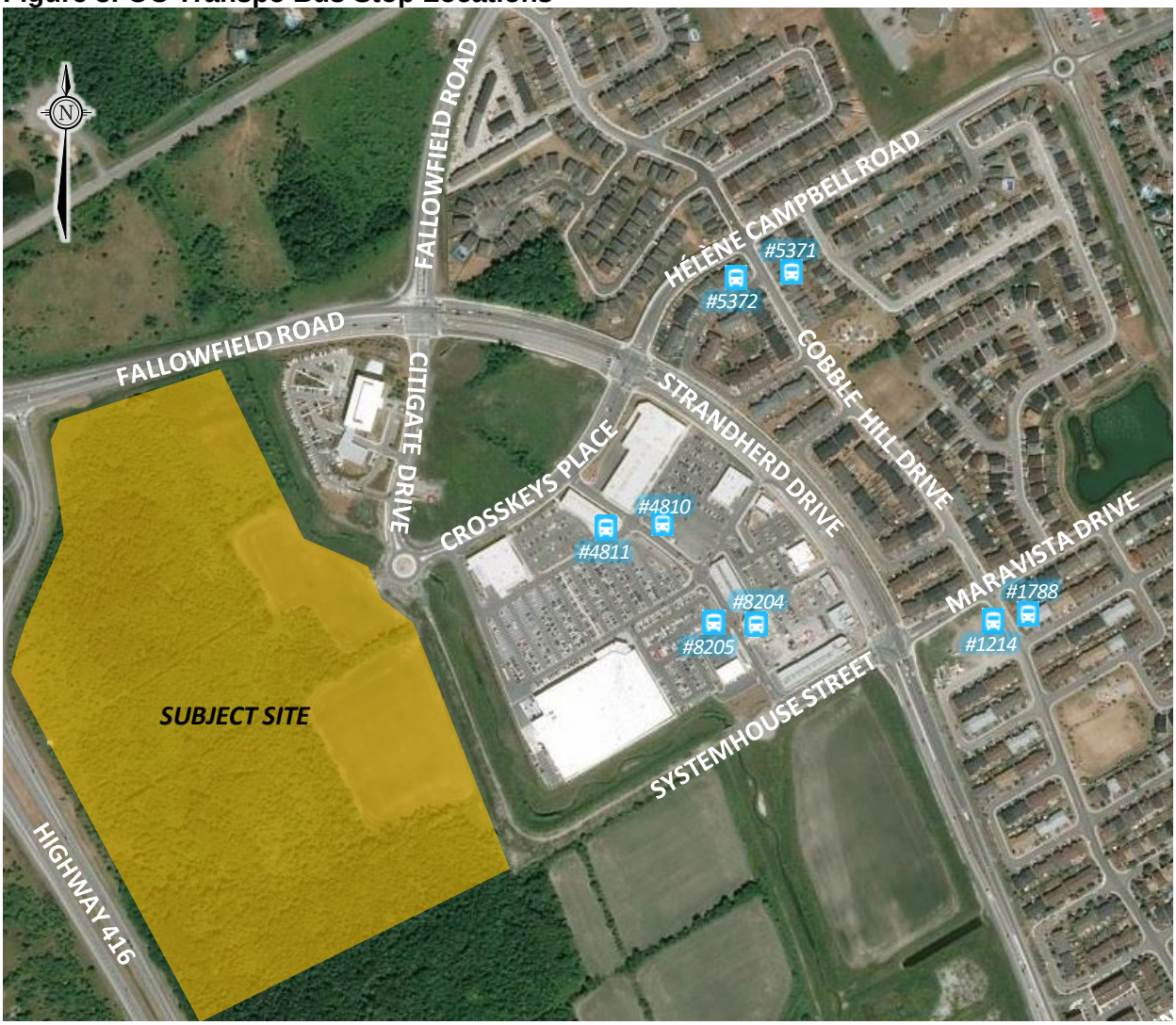
OC Transpo Route 179 travels from Fallowfield Transit Station to CitiGate. It operates Monday to Friday, with peak period service. The 179 to CitiGate offers morning service, and the 179 to Fallowfield Station operates in the evening.

OC Transpo Route 170 travels from Barrhaven Town Center Transit Station to Fallowfield Transit Station. It operates seven days a week, with all day service.

OC Transpo Route 272 travels from Tunney's Pasture Transit Station to Cobble Hill Drive. It operates Monday to Friday, with peak period service. The 272 to Tunney's Pasture Station offers morning service, and the 272 to Cobble Hill Drive operates in the evening.

It is anticipated that bus service will be extended into the CitiGate lands via CrossKeys Place, CitiGate Drive, and Systemhouse Street. New bus stops will likely be added at the CitiGate Drive/CrossKeys Place and CitiGate Drive/Systemhouse Street intersections.

Figure 3: OC Transpo Bus Stop Locations



4.1.6 Existing Area Traffic Management Measures

Flex posts and pavement markings indicating the posted speed are provided at the following locations:

- Along Maravista Drive, east of Cobble Hill Drive
- Along Kennevale Drive, east of Cobble Hill Drive
- Along Cobble Hill Drive, between Chesapeake Crescent and Copperfield Crescent

Signs stating “Traffic Calmed Neighbourhood” are also provided at the above locations.

Currently, there are no other existing Area Traffic Management (ATM) measures within the study area, apart from the prohibition of trucks on Kennevale Drive noted in Section 4.1.2.

4.1.7 Existing Traffic Volumes

Traffic counts were completed at the study area intersections to determine the existing pedestrian, cyclist and vehicular traffic volumes.

Weekday traffic counts were obtained from the City of Ottawa at the Strandherd Drive/Hélène Campbell Road/CrossKeys Place, Strandherd Drive/Fallowfield Road/CitiGate Drive, Strandherd Drive/Kennevale Drive/Dealership Drive, Strandherd Drive/Maravista Drive/Systemhouse Street, and Fallowfield Road/O'Keefe Court/Cobble Hill Drive intersections.

A weekday traffic count was completed by Novatech at the at the CitiGate Drive/CrossKeys Place intersection and the Fallowfield Road/Highway 416 Northbound and Southbound Off-Ramps.

The traffic counts were completed on the following dates:

- Strandherd Drive/Hélène Campbell Road/CrossKeys Place — May 30, 2018
- Strandherd Drive/Fallowfield Road/CitiGate Drive — March 8, 2018
- Strandherd Drive/Kennevale Drive/Dealership Drive — January 18, 2018
- Strandherd Drive/Maravista Drive/Systemhouse Street — January 18, 2018
- Fallowfield Road/O'Keefe Court/Cobble Hill Drive — June 5, 2018
- CitiGate Drive/CrossKeys Place — August 23, 2018
- Fallowfield Road/Highway 416 Northbound Ramps — March 4, 2020
- Fallowfield Road/ Highway 416 Southbound Ramps — March 4, 2020

Existing traffic volumes along the study area roadways at 7:00AM-8:00AM and 5:00PM-6:00PM are shown in **Figure 4**. A further discussion on time periods is provided in Section 4.3.2. Summary sheets of the above traffic counts are included in **Appendix D**.

Figure 4: Existing Traffic Volumes



4.1.8 Collision Records

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

The collision data has been evaluated to determine if there are any identifiable collision patterns. **Table 2** summarizes the number of collisions at each intersection from January 1, 2014 to December 31, 2018.

Table 2: Reported Collisions

Intersection	Impact Types					Total Number of Collisions
	Angle	Sideswipe	Rear End	Turning Movement	SMV/ Other	
Fallowfield Road/O'Keefe Court/Cobble Hill Drive	1	0	0	0	0	**1**
Fallowfield Road/Highway 416 Southbound	0	0	7	0	0	**7**
Fallowfield Road/Highway 416 Northbound	8	0	5	0	0	**13**
Strandherd Drive/CrossKeys Place/Hélène Campbell Road	3	3	6	0	1	**13**
Strandherd Drive/Systemhouse Street/Maravista Drive	4	2	9	1	2	**18**
Fallowfield Road/Strandherd Drive/CitiGate Drive	4	5	22	1	3	**35**
Strandherd Drive/Dealership Drive/Kennevale Drive	2	0	22	8	4	**36**

Fallowfield Road/O'Keefe Court/Cobble Hill Drive
One collision was reported at this intersection over the last five years, an angle impact involving an eastbound through vehicle and a southbound through travelling vehicle. No injuries were reported.

Fallowfield Road/Highway 416 Southbound
A total of seven rear end collisions were reported at this intersection over the last five years, of which two occurred on the southbound approach, two on the westbound approach, and three on the eastbound approach. One collision caused injuries, but none caused fatalities.

Fallowfield Road/Highway 416 Northbound
A total of thirteen collisions were reported at this intersection over the last five years, of which there were five rear end impacts and eight sideswipes. Four of the collisions caused injuries, but

none caused fatalities. It is important to note that this intersection has only been signalized since mid-2016, and that prior to signalization, there were lengthy delays and queues for northbound vehicles.

Of the eight angle impacts, four occurred pre-signalization of the intersection, and four occurred post-signalization.

Of the five rear end impacts, three occurred on the eastbound approach, one occurred on the westbound approach, and one occurred on the northbound approach.

Strandherd Drive/Hélène Campbell Road/CrossKeys Place
A total of thirteen collisions were reported at this intersection over the last five years, of which there were six rear end impacts, three sideswipes, three angle impacts, and one single vehicle collision. One of the collisions caused an injury, but none caused fatalities.

Of the six rear end collisions, three occurred on the westbound approach, and one occurred on each of the northbound, southbound and eastbound approaches.

Strandherd Drive/Systemhouse Street/Maravista Drive
A total of 18 collisions were reported at this intersection over the last five years, of which there were nine rear end impacts, four angle impacts, two sideswipes, two single vehicle/other impacts, and one turning movement impact. Four of the collisions caused injuries, but none caused fatalities.

Of the nine rear end impacts, four occurred on the eastbound approach, three on the northbound approach, and two on the southbound approach.

Strandherd Drive/Fallowfield Road/CitiGate Drive
A total of 35 collisions were reported at this intersection over the last five years, of which there were 22 rear end collisions, five sideswipes, four angle impacts, three single vehicle/other impacts, and one turning movement impact. A total of nine collisions caused injuries, but none caused fatalities. One of the collisions involved a pedestrian.

Of the 22 rear end impacts, eleven occurred on the westbound approach, seven on the southbound approach (all southbound right turning vehicles), and five on the eastbound approach. The high frequency of rear end impacts on the westbound and southbound approaches is likely a result of heavy volume.

Strandherd Drive/Dealership Drive/Kennevale Drive
A total of 36 collisions were reported at this intersection over the last five years, of which there were 22 rear end impacts, eight turning movement impacts, four single vehicle/other impacts, and two angle impacts. Six of the collisions caused injuries, but none caused fatalities.

Of the 22 rear end impacts, eight occurred on the southbound approach, seven on the westbound approach, four on the eastbound approach, and three on the northbound approach. The rear end impacts on the southbound approach is likely a result of heavy volume in the single through lane.

4.2 Planned Conditions

The City of Ottawa's 2013 Transportation Master Plan (TMP) identifies the widening of Strandherd Drive from two to four lanes between Fallowfield Road and Jockvale Road as part of the Affordable Network Plan. A section of this has been completed, between Fallowfield Road and Maravista Drive. The remainder of the Strandherd Drive widening is anticipated to be completed from 2020-2022. The design currently includes cycle tracks and sidewalks on both sides of Strandherd Drive, with a divided four lane cross section.

The TMP identifies the extension of Chapman Mills Drive as a new 4-lane road between Longfields Drive and Strandherd Drive in the Affordable Network Plan. The Chapman Mills Environmental Assessment (EA) was completed in 2016 and identified new eastbound/westbound travel lanes, parking lanes, median bus rapid transit (BRT) lanes, sidewalks and cycle tracks between Longfields Drive and a new collector road connecting to Strandherd Drive at Frasier Fields Way. West of the new collector road, an exclusive BRT corridor and multi-use pathway (MUP) was identified extending to Borrisokane Road. The new collector road to Strandherd Drive was identified as a two-lane undivided road with sidewalks and cycle tracks. The new collector road will be built as part of Minto's Harmony development described in subsequent sections of this report.

The City of Ottawa is advancing the design of the realignment and extension of McKenna Casey Drive to Dealership Drive to 2020, including closure of McKenna Casey at the rail crossing.

The City's Transportation Master Plan also notes a potential need for Fallowfield Road to be widened from two to four lanes between Strandherd Drive and Greenbank Road to support growth in Barrhaven. However, this project is not currently on the TMP Affordable Network Plan.

Other study area developments that are likely to occur within this study's horizon year include:

- Phase 1 of the residential development (Caivan Communities) at 3285 Borrisokane Road;
- The residential development (Glenview Homes) at 3387 Borrisokane Road;
- The mixed-use residential development (Minto Harmony) at 4025 Strandherd Drive;
- The mixed-use residential development (Half Moon Bay West) at 3345 Borrisokane Road;
- The proposed hotel located at 101 CitiGate Drive;
- The mixed-used development (automobile dealership, office, and hotel) located at 4149 Strandherd Drive;
- The proposed hotel located at 4401 Fallowfield Road; and
- Build-out of the CitiGate lands.

Traffic generated by these developments will be considered in the forecasting section of this report.

4.3 Study Area and Time Periods

4.3.1 Study Area

The study area intersections include the proposed accesses, the roundabout at CitiGate Drive/CrossKeys Place, the signalized intersections of Strandherd Drive/Fallowfield

Road/CitiGate Drive, Strandherd Drive/CrossKeys Place/Hélène Campbell Road, Strandherd Drive/Systemhouse Street/Maravista Drive, Strandherd Drive/Dealership Drive/Kennevale Drive, the Fallowfield Road/Highway 416 northbound and southbound off-ramps, and the unsignalized intersection of Fallowfield Road/O'Keefe Court/Cobble Hill Drive.

4.3.2 Time Periods

The peak hours of site generated traffic occur from 6:00AM-7:00AM and 5:30PM-6:30PM, seven days a week.

Typically, 8-hour weekday traffic counts from the City of Ottawa include the hours of 7:00AM-10:00AM, 11:30AM-1:30PM, and 3:00PM-6:00PM. The weekday peak hours of adjacent street traffic along Strandherd Drive, based on the latest traffic counts, occur from 7:45AM-8:45AM and from 4:00PM-5:00PM.

The peak hour of adjacent street traffic along Strandherd Drive on a Saturday occurs from 1:00PM-2:00PM. Site generated traffic during this time period is anticipated to be in the order of 30 vehicles per hour. As such, the Saturday peak period will be excluded from the analysis.

The weekday AM and PM peak periods will be analyzed. The peak hour of site generated traffic will be overlaid on top of the adjacent street traffic from 7:00AM-8:00AM and from 5:00PM-6:00PM, to represent the worst-case scenario of site generated traffic and adjacent street traffic.

Analysis will be completed for the build-out year (2021) and 5-year horizon (2026) per the City's TIA guidelines. Analysis of the 10-year horizon (2031) will be completed for the 416 Northbound/Southbound ramp terminals per the MTO's TIS guidelines.

4.4 Exemptions Review

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

Table 3: TIA Exemptions

Module	Element	Exemption Criteria	Exemption Applies
Design Review Component			
4.1 Development Design	*4.1.2* Circulation and Access	• Only required for site plans	Not Exempt
	4.1.3 New Street Networks	• Only required for plans of subdivision	Exempt
4.2 Parking	*4.2.1* Parking Supply	• Only required for site plans	Not Exempt
	4.2.2 Spillover Parking	• Only required for site plans where parking supply is 15% below unconstrained demand	Exempt
Network Impact Component			
4.5 Transportation Demand Management	*All elements*	• Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time	Not Exempt
4.6 Neighbourhood Traffic Management	*4.6.1* Adjacent Neighbourhoods	• Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds	Not Exempt
4.8 Network Concept	*All elements*	• Only required when the proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by the established zoning	Exempt

5.0 FORECASTING

5.1 Development-Generated Traffic

5.1.1 Trip Generation

This site is expected to operate with two shifts with approximately 590 employees on site during each shift during the off-peak season and approximately 840 employees on site during each shift during the peak season. The peak season for this site is anticipated to occur from October to January, and the off-peak season from February to September. For the purpose of this report, the total traffic analysis will include the site traffic for the peak season.

Person trip generation for the proposed development, consisting of a new prestige office and light industrial building with approximately 2,700,000 square feet of GFA, was determined using first principles. The owner provided typical hourly volumes for both employees and truck movements to and from a building of this size and nature. Shift arrivals and departures are spread over a two-hour period. The peak hour for the site generated traffic occurs between 6:00AM to 7:00AM and 5:30PM to 6:30PM. Person Trips generated by the proposed development are summarized in **Table 4**.

Table 4: Person Trip Generation

Land Use	AM Peak (PPH)			PM Peak (PPH)		
	IN	OUT	TOT	IN	OUT	TOT
Proposed Site (Employees)	409	425	834	539	549	1088
Proposed Site (Heavy Vehicles)	8	8	16	8	8	16
Proposed Site (Total)	**417**	**433**	**850**	**547**	**557**	**1104**

The proposed site is expected to generate approximately 16-24 trucks per hour (two-way) between 6:00AM to 8:00PM during the peak season. Truck volume is expected to reach a high of 21-32 two-way trucks per hour between 8:00PM to 3:00AM and drop to approximately 11-14 two-way trucks per hour between 3:00 AM to 6:00 AM.

The ultimate CitiGate Business Park development considered in the 2012 CTS includes the subject site. The traffic generated by the subject site was estimated using the Office Park land use and assuming 110 employees per hectare and 350 square foot per employee. This resulted in 2012 total person trips (1791 in, 221 out) in the AM peak, and 1772 total person trips (248 in, 1524 out) in the PM peak hour. A comparison of person trip generation between the assumed 2012 CTS concept and the proposed development can be found in **Table 5**. Note that negative values indicate that estimated trip generation from the 2012 CTS is higher than the proposed site.

Table 5: Comparison of Person Trips - 2012 CTS vs Proposed Development

Land Use	AM Peak (PPH)			PM Peak (PPH)		
	IN	OUT	TOT	IN	OUT	TOT
2012 CTS – Block 13 Trips	1791	221	2012	248	1524	1772
Proposed Development	417	433	850	547	557	1104
Difference	**-1374**	**212**	**-1162**	**299**	**-967**	**-668**

As indicated in the previous table, the proposed development is anticipated to generate less overall person trips than the CTS concept, however the person trip estimate is higher for trips exiting the site during the AM peak and trips entering the site during the PM peak hour. This is a result of day and night shifts that were not anticipated as part of the 2012 CTS.

The modal shares from the 2012 CTS have been applied to the employee portion of site generated person trips. This modal share is similar to travel data from the City of Ottawa's 2011 TRANS O-D Survey which indicates that 45-55% of persons trips in the South Nepean area were driver trips.

All heavy vehicle trips have been assigned as auto driver trips. A full breakdown of the projected person trips by modal share are shown in **Table 6**.

Table 6: Person Trips by Modal Share

Travel Mode	Modal Share	AM Peak			PM Peak		
		IN	OUT	TOT	IN	OUT	TOT
Employees							
Person Trips		409	425	834	539	549	1088
Auto Driver	56%	229	238	467	302	307	609
Auto Passenger	13.5%	55	57	112	73	74	147
Transit	23%	94	98	192	124	127	251
Non-Auto	7.5%	31	32	63	40	41	81
Heavy Vehicles							
Person Trips		8	8	16	8	8	16
Auto Driver	100%	8	8	16	8	8	16
Total Site							
Person Trips		**417**	**433**	**850**	**547**	**557**	**1104**
Auto Driver		**237**	**246**	**483**	**310**	**315**	**625**
Auto Passenger		**55**	**57**	**112**	**73**	**74**	**147**
Transit		**94**	**98**	**192**	**124**	**127**	**251**
Non-Auto		**31**	**32**	**63**	**40**	**41**	**81**

From the previous table, the proposed development is projected to generate 483 vehicle trips during the AM peak hour and 625 vehicle trips during the PM peak hour.

5.1.2 Trip Distribution

The trip distribution for the employees is based off population centres within a 50km radius and logical routing assumptions. Working population was tallied for all TRANS O-D Survey districts in the National Capital Region as well as the surrounding communities of Arnprior, Mississippi Mills, Carleton Place, Beckwith, Montague, Smiths Falls, Merrickville-Wolford, North Grenville, North Dundas, and Russell.

The employee trip distribution for the proposed development is as follows:

- 55% to/from the north via Highway 416
- 17% to/from the east via Fallowfield Road
- 5% to/from the south and east via Strandherd Drive
- 10% to/from the south via Highway 416
- 10% to/from the west via Fallowfield Road
- 3% to/from the east via Hélène Campbell Road, Maravista Drive, and Kennevale Drive

Of the trips arriving from or departing to the north and south via Highway 416 or the west via Fallowfield Road, one third have been assigned to each CitiGate Drive, CrossKeys Place, and Systemhouse Street. Of the trips arriving from or departing to the east via Fallowfield Road, half have been assigned to CitiGate Drive and half to CrossKeys Place. This is assumed in light of the fully protected southbound left turn phase and the likelihood of motorists to choose the advanced left if they arrive while the light is red for that approach. All trips arriving from or departing to the east via Hélène Campbell Road have been assigned to CrossKeys Place. All trips arriving from and departing to the south and east via Strandherd Drive, Maravista Drive or Kennevale Drive have been assigned to Systemhouse Street.

All heavy vehicles accessing the site will use Fallowfield Road to access Highway 416. It is anticipated that 50% of heavy vehicles will travel to/from the north towards Highway 417 with the balance, 50% travelling to/from the south towards Highway 401. Delivery trucks will use CrossKeys Place and Systemhouse Street to access the site.

Of the employee trips assigned to CitiGate Drive north of the roundabout, one third will access the site via the northerly CrossKeys Drive entrance, one third will access the site via the southerly CrossKeys Drive entrance, and one third will access the site via the northerly CitiGate Drive entrance. Of the employee trips assigned to CrossKeys Drive east of the roundabout, half have been assigned to the southerly CrossKeys Drive entrance and half to the northerly CitiGate Drive entrance. Of the employee trips assigned to Systemhouse Street, half have been assigned to the northerly CitiGate Drive extension entrance, and half have been assigned to the southerly CitiGate Drive extension entrance. Half of the trucks have been assigned to the northerly truck access on CrossKeys Place and half to the southerly CitiGate Drive extension access.

Site generated traffic volumes are shown in **Figure 5**.

5.2 Background Traffic

5.2.1 General Background Growth Rate

A review of other recent transportation studies in the vicinity of the subject site was conducted in order to establish a base background growth rate.

The CitiGate CTS completed by Novatech in 2012 assumed a background growth rate of 1% as a significant portion of adjacent development traffic was accounted for separately. This approach was consistent with the 4401 Fallowfield Road CTS published by IBI Group in 2015, the CitiGate Retail Development TIS published by Parsons in 2015, and the CitiGate Hotel TIA by Novatech in 2018.

The CitiGate Block 4 TIA completed by Novatech in 2019 and revised in February 2020 assumed a background growth rate of 2% along Strandherd Drive, as requested by the City.

A 1% background growth factor is assumed for the Highway 416 ramps, as discussed with the Ministry of Transportation (MTO). A 2% background growth factor is assumed for Strandherd Drive and Fallowfield Road. Other study area developments will be accounted for separately.

No growth rate was applied to Hélène Campbell Road, Cobble Hill Drive, O'Keefe Court, Maravista Drive, or Kennevale Drive as the background growth rate is intended to account for

growth in regional traffic which is not anticipated on lower class roads. The background growth rate was not applied to CitiGate Drive, CrossKeys Place, Systemhouse Street, or Dealership Drive, as growth on these roads is highly development-driven and has been accounted for separately.

Background growth within the study area for the 2021 build-out, 2026 and 2031 horizon years is shown in **Figures 6**, **7** and **8**.

5.2.2 Other Area Development

Other study area developments that are likely to occur within this study's horizon year include:

- Phase 1 of the residential development (Caivan Communities) at 3285 Borrisokane Road. 200 residential units are proposed, with a mixture of single detached units and townhouse units. A TIA Report was prepared by Parsons in February 2018 in support of the proposed development. The estimated date of occupancy is 2020. Traffic generated by the Caivan Communities development has been added to the background traffic for the 2021 build-out and 2026/2031 horizon years. Relevant excerpts from the 3285 Borrisokane Road study are included in **Appendix F**.

- The residential development (Glenview Homes) at 3387 Borrisokane Road. A total of 208 residential dwellings, consisting of 116 single family and 92 townhomes, as well as a 5.93-acre school block are proposed. A CTS/TIS was prepared by Stantec, with the latest Addendum in May 2017 in support of the proposed development. The estimated date of occupancy is 2022. Traffic generated by the Glenview Homes development has been added to the background traffic for the 2026/2031 horizon years. Relevant excerpts from the 3387 Borrisokane Road study are included in **Appendix F**.

- The full build out of the mixed-use residential development (Minto Harmony) at 4025 Strandherd Drive. Stage 1 included 146 single family units, 274 townhouses, 24 condominiums, a shopping center and a school. Stage 2 will include 132 townhouses and 25 single family homes. Stage 2 is expected to be complete by 2025. A CTS/TIS was prepared by Parsons, with the latest revision in July 2017 in support of the proposed development, and an Addendum in November 2017. Traffic generated by the Minto Communities development has been added to the background traffic for the 2026/2031 horizon years. Relevant excerpts from the 4025 Strandherd Drive study are included in **Appendix F**.

- The development (Half Moon Bay West) at 3345 Borrisokane Road. The proposed development includes 1016 residential homes, consisting of 552 single family homes and 464 townhomes, as well as 5.3 acres of commercial lands. A CTS was prepared by Stantec in November 2016 in support of the proposed development. The development build-out year was 2024. Traffic generated by the Half Moon Bay West development has been added to the background traffic for the 2026/2031 horizon years. Relevant excerpts from the 3345 Borrisokane Road study are included in **Appendix F**.

- The proposed hotel (102 rooms) located at 4401 Fallowfield Road. A TIA Report was prepared by IBI Group in June 2018 in support of the proposed development. The estimated date of occupancy was 2019, however the development is still under

construction. Traffic generated by the development has been added to the background traffic for the 2021 build-out and 2026/2031 horizon years. Relevant excerpts from the 4401 Fallowfield Road hotel study are included in **Appendix F**.

- The interim development of the CitiGate campus. The 2012 CTS suggested development would start construction in 2014 and identified two stages of development, the 2019 interim development year and a 2029 ultimate buildout horizon. It was also noted that the buildout will be dependent on market demands and may require a period of 15 years or more to achieve. Relevant excerpts from the CitiGate study are included in **Appendix F**. For the purpose of this analysis, the interim development will include:
    - The proposed hotel (99 rooms) located at 101 CitiGate Drive. A TIA Report was prepared in 2018 and revised in March 2019 in support of this development. The estimated date of occupancy is 2020. Traffic generated by the development has been added to the background traffic for the 2021 build out and 2026/2031 horizon years. Relevant excerpts from the CitiGate Hotel study are included in **Appendix F**.
    - The build out of the proposed auto dealerships along Dealership Drive. Traffic generated by the Ford dealership (555 Dealership Drive) which has a March 2020 opening and by the proposed dealership at 540 Dealership Drive will be added to the background traffic for the 2021 build out and 2026/2031 horizon years. Traffic generated by the Hyundai, Honda, and Toyota Dealerships will have been captured in the 2018 traffic counts as these dealerships were constructed at the time.
    - The build out of Block 4. A TIA Report was prepared by Novatech in 2019 and revised in February 2020 in support of the development of Block 4. Phase 1 will include a 38,600 square foot auto dealership, Phase 2 will include an 84,300 square foot office, and Phase 3 may include a hotel with up to 120 rooms. The estimated date of occupancy is 2020 for Phase 1, 2021 for Phase 2, and 2024 for Phase 3. Traffic generated by Phases 1 and 2 of the development has been added to the background traffic for the 2021 build out and 2026/2031 horizon years. Traffic generated by Phase 3 of the development has been added to the background traffic for the 2026/2031 horizon years. Relevant excerpts from the CitiGate Block 4 study are included in **Appendix F**.
    - The build out of Block 3. Consistent with the CTS, Block 3 will be estimated using the rates for Office Park with 110 employees per hectare and 350 square feet per employee for a total of 182,105 ft^2 of Prestige Business Park. Traffic generated by Block 3 will be added to the background traffic for the 2026/2031 horizon years.

- The future build-out of the CitiGate campus. In addition to the interim scenario, full buildout would add an additional 1,163,145 ft^2 of Prestige Business Park and an additional 711,700 ft^2 of Business Park. Traffic generated by these uses has been estimated using the methods outlined in the CTS study and has been added to background traffic for the 2031 horizon year.

Trips generated by the above developments have been assigned to the road network in a manner consistent with their respective traffic studies. Trips generated by the new dealerships that did not have a traffic study were estimated using the ITE *Trip Generation Manual*, 10th Edition and distributed to the road network using the assumptions outlined for the dealership in the Block 4 TIA.

Trips generated by future Prestige Business Park or Business Park have been estimated using the rates for Office Park and Business Park in the ITE *Trip Generation Manual*, 9th Edition (many of the surveys in the 9th Edition were removed from the dataset for these land use codes in the 10th Edition as the data pre-dated 1980, however the 9th Edition still remains statistically valid). All trips estimated were converted to person trips using an ITE Trip to Person Trip adjustment factor of 1.28, consistent with the TIA Guidelines. The Person Trips were then converted to vehicle trips using a 56% auto driver share, consistent with the CitiGate CTS.

A full breakdown of the AM and PM peak hour Auto Driver trips generated by future developments in the study area is shown in **Table 7**.

Table 7: Other Area Development Auto Driver Trips

Development		AM Peak			PM Peak		
		IN	OUT	TOT	IN	OUT	TOT
Caivan Communities (3285 Borrisokane Road)		41	88	129	86	60	146
Glenview Homes (3387 Borrisokane Road)		61	139	200	129	74	203
Minto Harmony (4025 Strandherd Drive)		183	330	513	285	189	474
Half Moon Bay West (3345 Borrisokane Road)		114	326	441	372	237	610
4401 Fallowfield Hotel (4401 Fallowfield Road)		33	23	56	33	31	64
CitiGate Interim	CitiGate Hotel (101 CitiGate Drive)	29	20	48	27	26	53
	Block 4 Auto Dealership (4149 Strandherd Drive)	53	19	72	37	56	93
	Block 4 Office (4149 Strandherd Drive)	75	12	87	13	68	81
	Block 4 Hotel (4149 Strandherd Drive)	35	25	60	36	34	70
	Prestige Business Park (Block 3)	239	30	269	32	196	228
	Remaining Auto Dealerships	85	32	117	60	92	152
CitiGate Buildout	Prestige Business Park	1016	126	1142	142	875	1017
	Business Park	607	107	714	167	476	643

Trips generated by future developments for the 2021 build-out, 2026 horizon and 2031 horizon year are shown in **Figures 9**, **10** and **11**. Background traffic volumes for the 2021 build out, 2026 horizon and 2031 horizon year are shown in **Figures 12**, **13** and **14**, respectively. Total traffic volumes are shown in **Figures 15**, **16** and **17**.

Figure 5: Site Generated Traffic Volumes

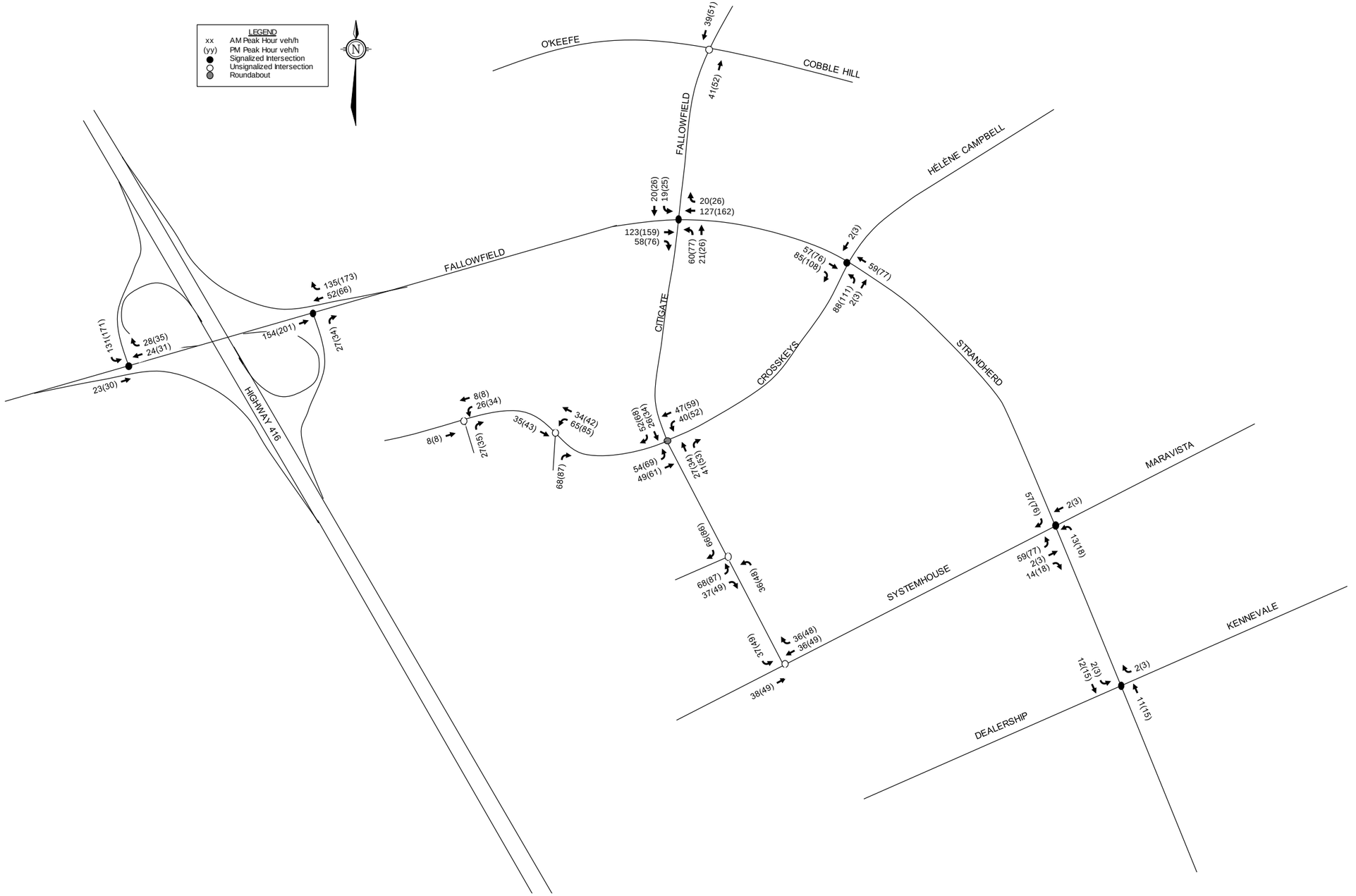


Figure 6: 2021 Background Growth

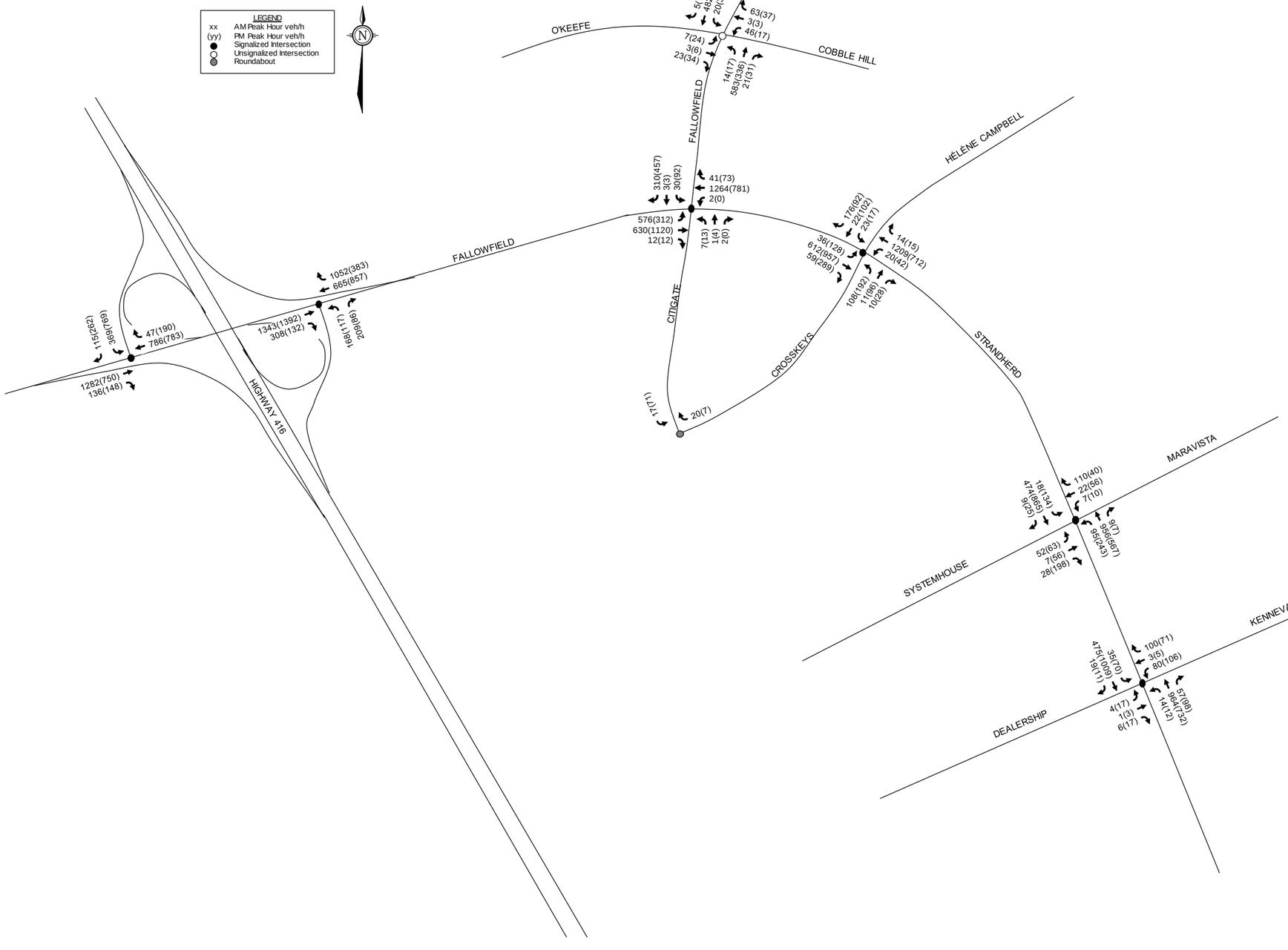


Figure 7: 2026 Background Growth

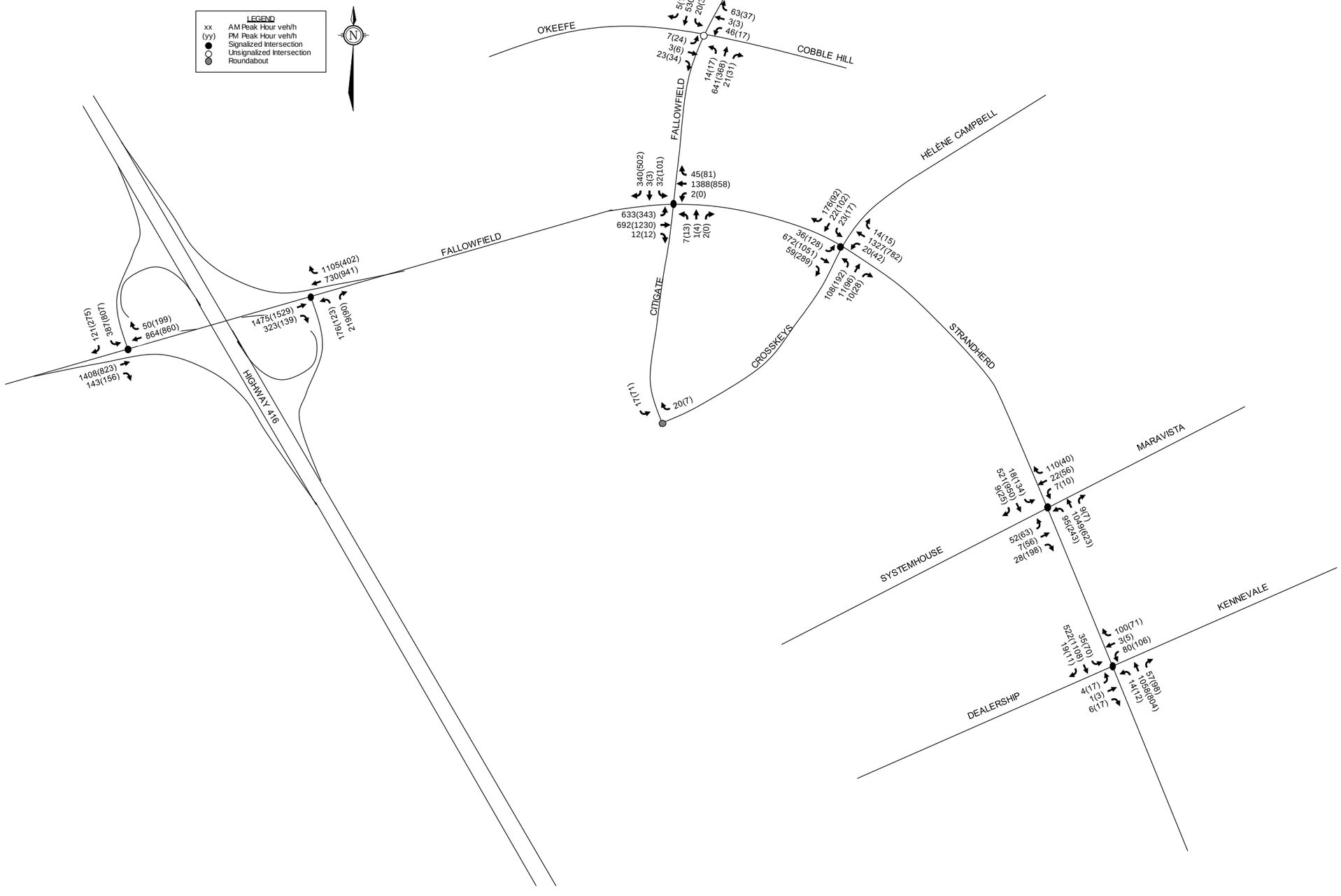


Figure 8: 2031 Background Growth

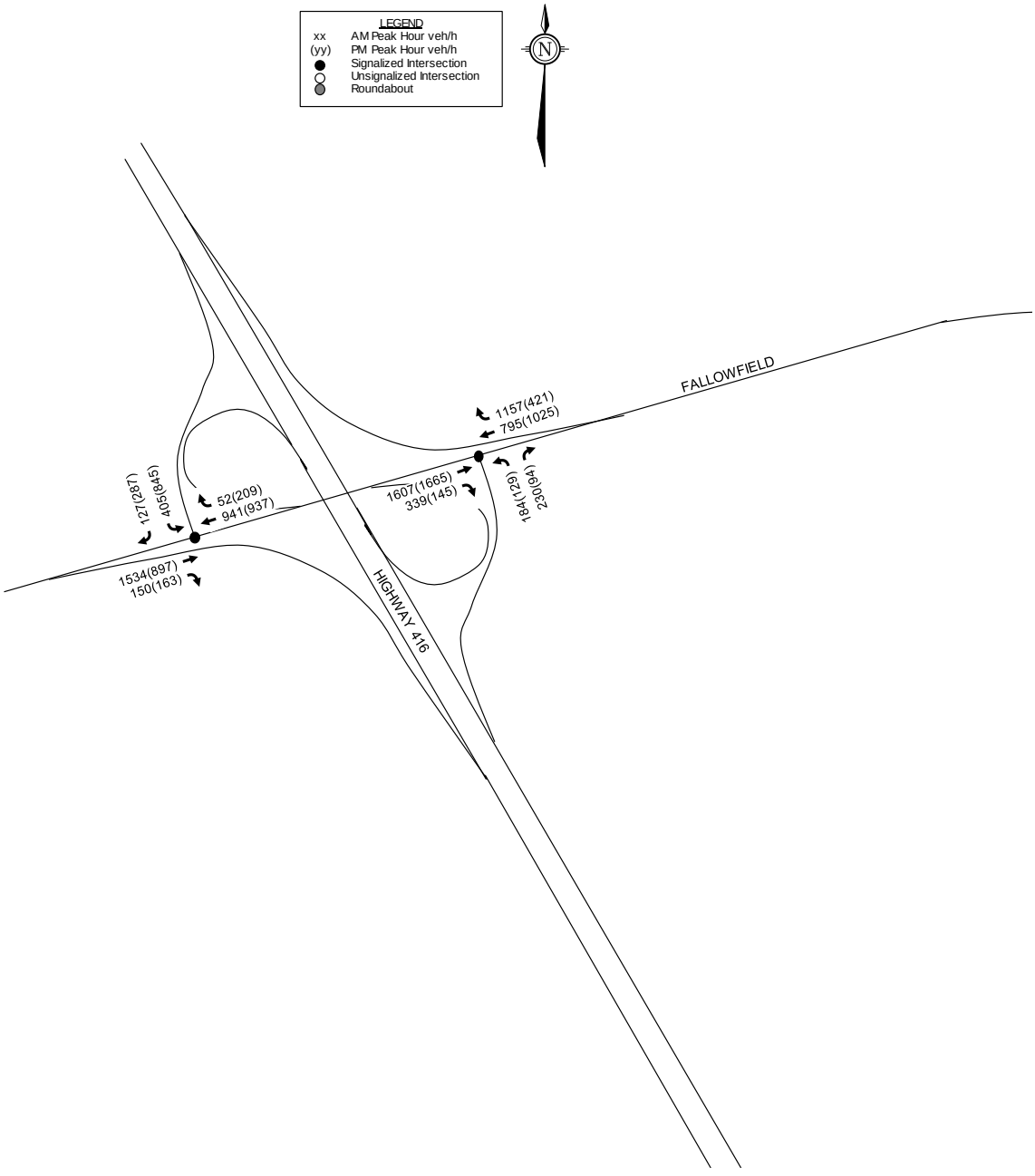


Figure 9: 2021 Other Development Traffic

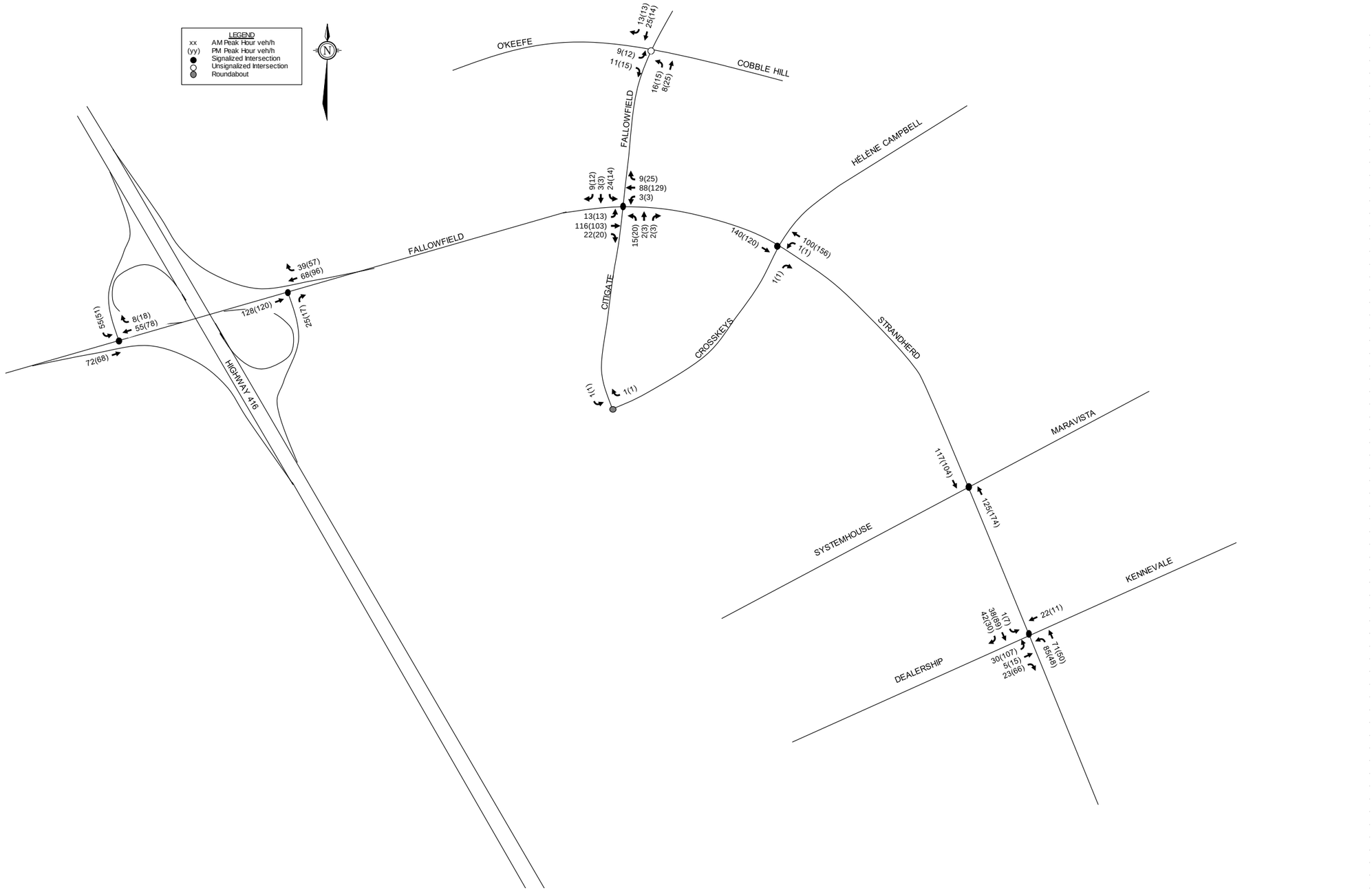


Figure 10: 2026 Other Development Traffic

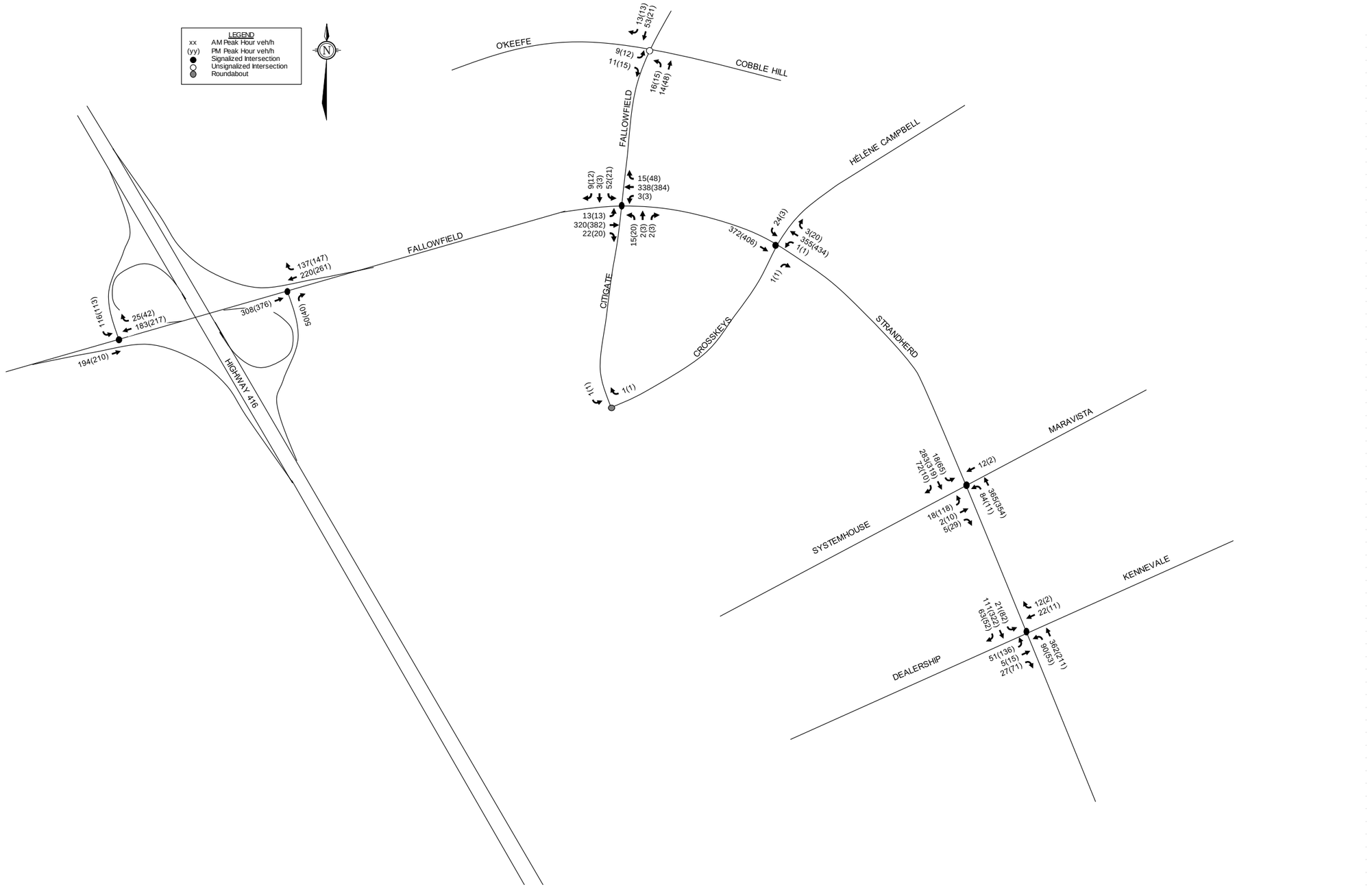


Figure 11: 2031 Other Development Traffic

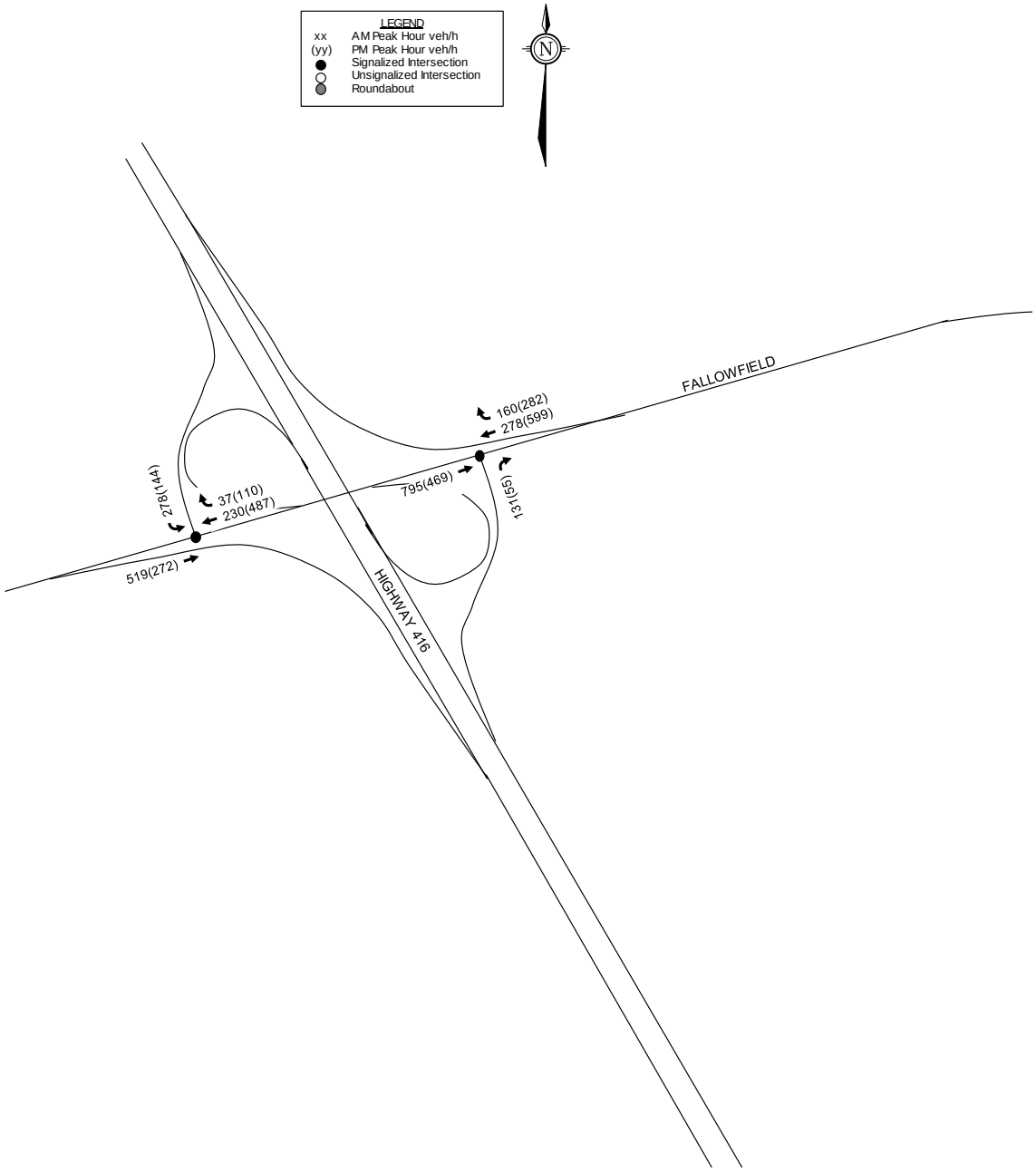


Figure 12: 2021 Background + Other Development Traffic

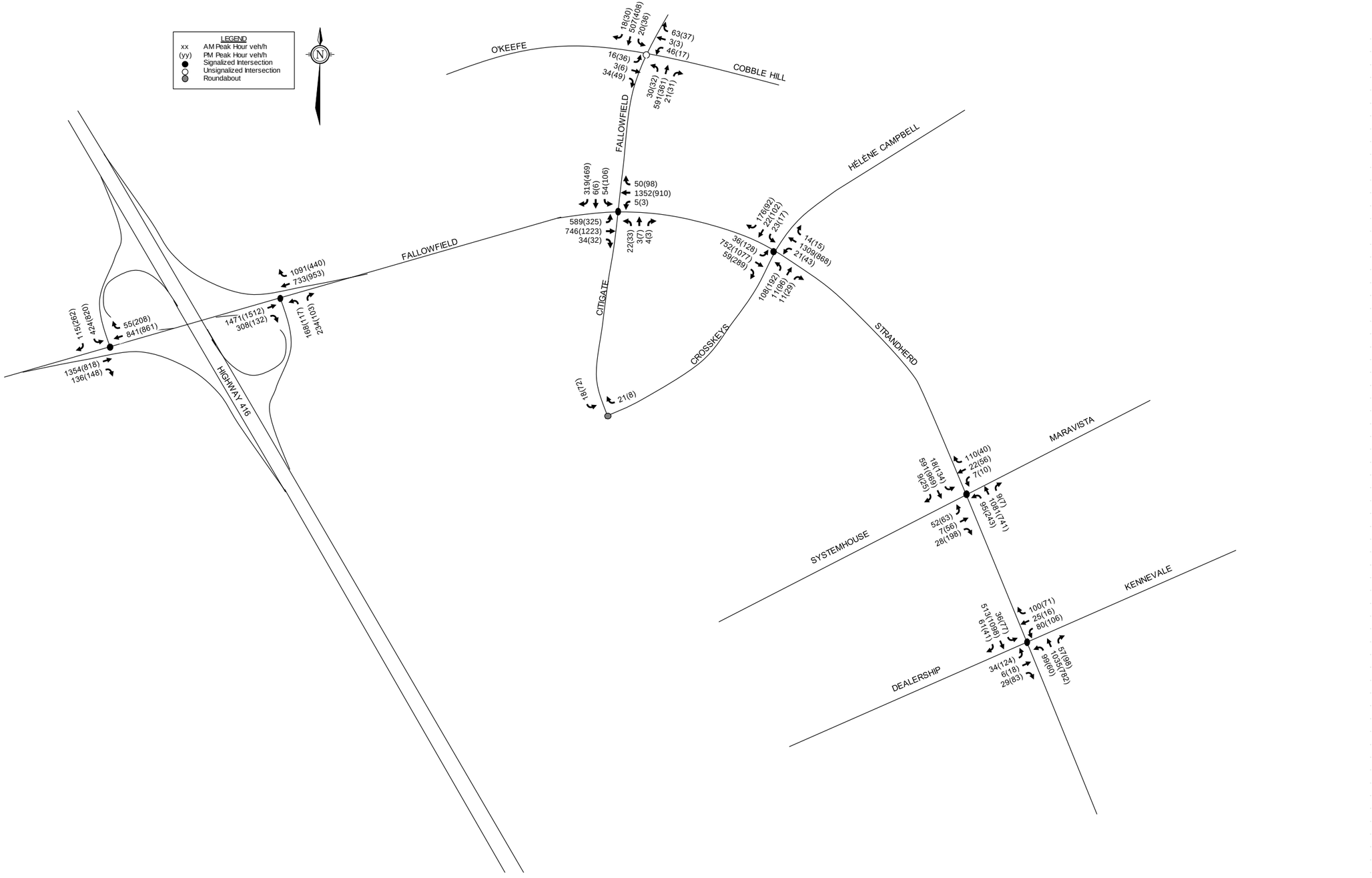


Figure 13: 2026 Background + Other Development Traffic

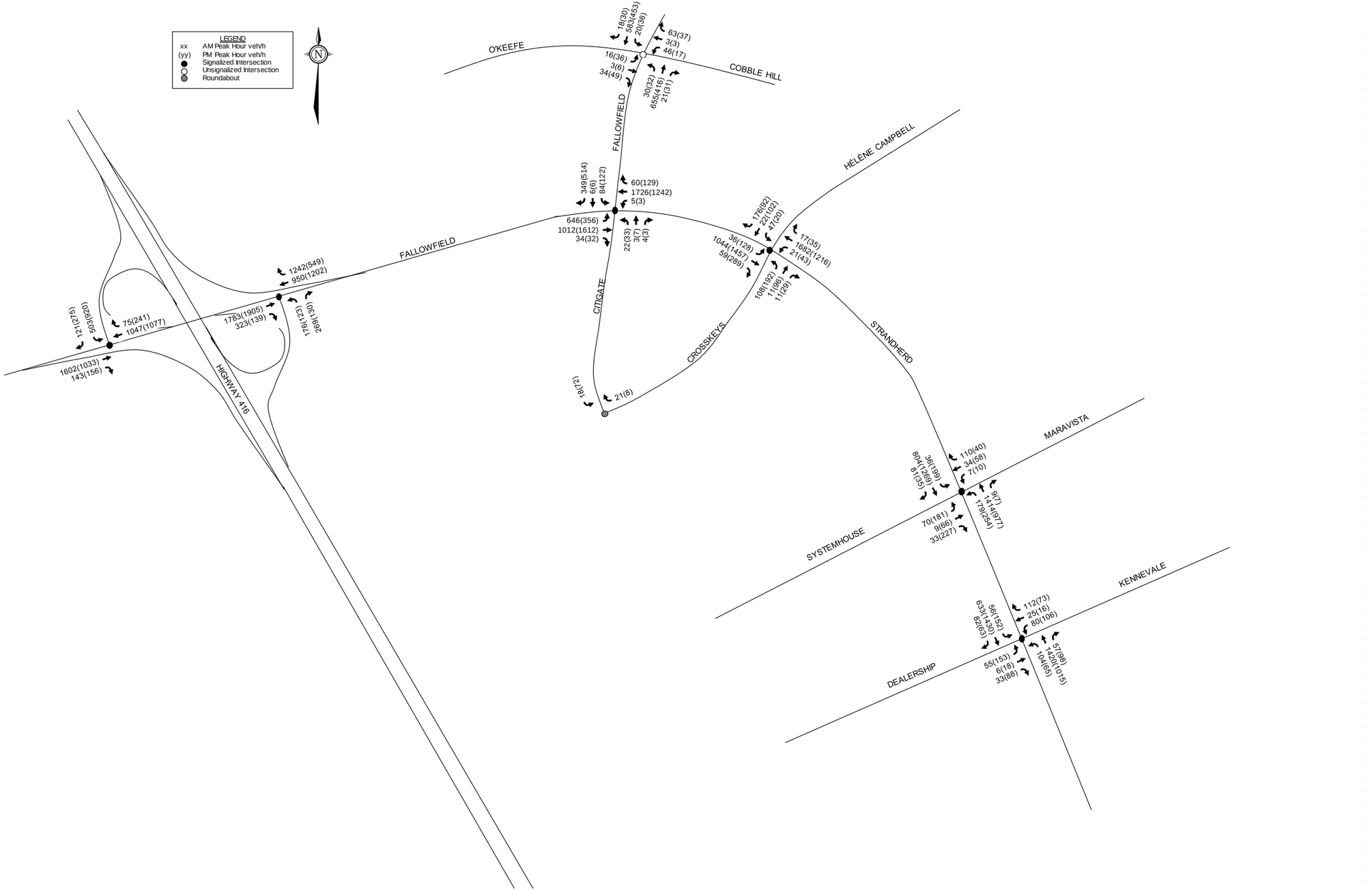


Figure 14: 2031 Background + Other Development Traffic



Figure 15: 2021 Total Traffic

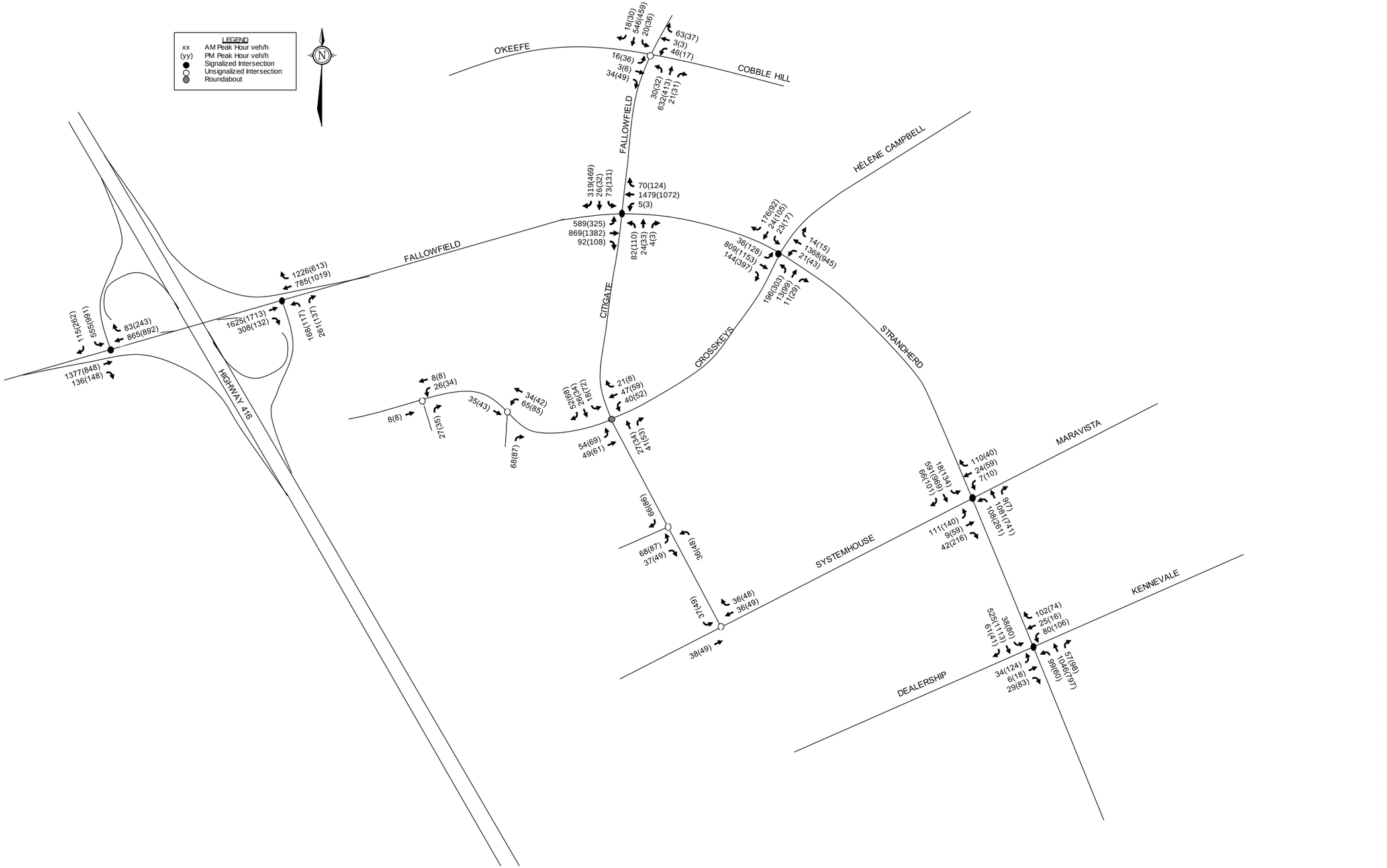


Figure 16: 2026 Total Traffic

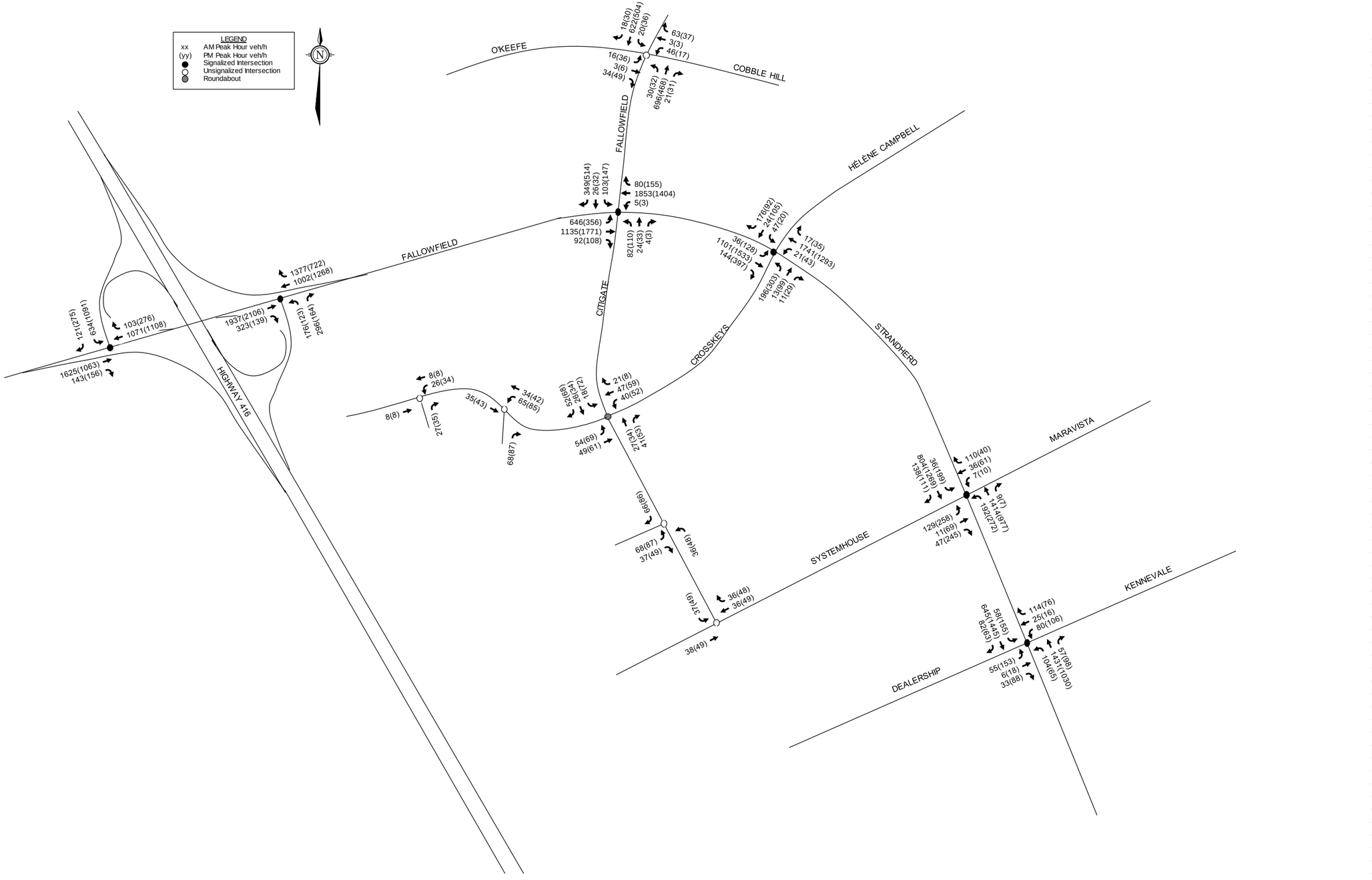


Figure 17: 2031 Total Traffic



6.0 ANALYSIS

6.1 Development Design

6.1.1 Design for Sustainable Modes

The existing and proposed multi-modal network within the study area is shown in **Figure 18**. The planned CitiGate Drive extension will have a multi-use pathway along the east side and a sidewalk along the west side.

Pedestrian facilities will be provided between the building entrances and the parking lot. New pedestrian walkways will be constructed, providing connectivity to the existing pedestrian facilities along CrossKeys Place and CitiGate Drive. Spine walkways through the parking lots are provided, with raised crosswalks along the main east/west and north/south drive aisles, as shown on the site plan. A multi-use pathway is provided, connecting to the existing facility at the CitiGate Drive/CrossKeys Place roundabout.

The nearest bus stops to the subject site are described in section 4.1.5.

OC Transpo's service design guideline for peak period service is to provide service within a five minute (400m) walk of the home, school and work location of 95% of urban residents. It is anticipated that bus service will be extended via CrossKeys Place, CitiGate Drive, and Systemhouse Street. Stops would likely be added at the two intersections, CrossKeys Place/CitiGate Drive and Systemhouse Street/CitiGate Drive. Based on the foregoing, there are expected to be two transit stops within the required 400m walk radius.

Bicycle parking for the proposed development will be in accordance with the minimum requirement of the City's Zoning By-law (ZBL), as described in section 6.2. Bike racks will be located to the north of the building's front entrance, with extra bike racks located at the rear of the building (southwest corner). In addition to the MUP connection at the roundabout, a bike path is proposed which will connect the bike rack area to the CrossKeys Place extension at the southerly CrossKeys Place access, as shown on the site plan.

A review of the Transportation Demand Management (TDM) – *Supportive Development Design and Infrastructure Checklist* has been conducted. A copy of the TDM checklist is included in **Appendix G**. All required TDM-supportive design and infrastructure measures in the TDM checklist are met.

6.1.2 Circulation and Access

The proposed development will be served by two accesses along the CitiGate Drive extension and two accesses along the private CrossKeys Place extension. Two drop-off areas are proposed at the northeast and southeast corners of the building, with access to the main building entrances.

The southern CitiGate Drive access and the northerly access to the CrossKeys Place extension will serve trucks and employees, with all loading spaces located on the west and south sides of the building. The other two driveways are intended for vehicular access only (no trucks).

Figure 18: Existing and Planned Multi-Modal Network



Signage is recommended on-site that will direct outbound trucks to CrossKeys Place and Systemhouse Street. Signage is also recommended on Fallowfield Road, directing inbound site trucks to CrossKeys Place and Systemhouse Street.

Garbage collection will utilize the on-site truck route which wraps around the west and south the building, with a garbage compactor located off one of the loading docks at the rear or south side of the proposed building.

There are eight proposed fire hydrants evenly spaced around the proposed building and two internal fire pump rooms in the southwest corner of the building. The proposed fire route includes the main east-west drive aisle which provides front door access. The fire route also includes the on-site truck route which will provide access to the rear loading dock area on the west side of the building and to the pump rooms.

6.2 Parking

The subject site is located in Area C on Schedule 1 and 1A of the City of Ottawa's ZBL. Minimum vehicular and bicycle parking rates for the proposed uses are identified in the ZBL and are summarized in the following table.

Table 8: Parking Requirements

Land Use	Rate	GFA	Requirement
Vehicle Parking			
Office	2.4 per 100m^2 of GFA	1,105 m^2	27
Light Industrial	0.8 per 100m^2 of GFA	250,752 m^2	2,006
		Total	**2,033**
Bicycle Parking			
Office	1 per 250m^2 of GFA	1,105 m^2	4
Light Industrial	1 per 1,500m^2 of GFA	250,752 m^2	167
		Total	**171**

Based on the foregoing, the approximately 2,035 proposed vehicular parking spaces meet the minimum requirement of the ZBL. The 176 proposed bicycle parking spaces also meet the minimum requirements of the ZBL.

Minimum barrier-free parking was reviewed for the subject site. A total of 31 barrier-free parking spaces are required for the proposed development, and 28 spaces are proposed. Further refinement is required to meet AODA parking space requirements.

As per the City of Ottawa's Zoning By-law, three loading spaces are required for the light industrial use and one loading space is required for the office use. A total of 52 loading spaces are shown on the site plan, thereby exceeding the minimum requirements of the ZBL.

6.3 Boundary Street Design

This section provides a review of the boundary street using complete streets principles. The Multi-Modal Level of Service (MMLOS) guidelines produced by IBI Group in 2015 were used to evaluate the LOS of the boundary roadway for each mode of transportation. Schedule 'B' of the City of Ottawa's Official Plan indicates the subject site is in the 'Urban Employment Area'.

The analysis reflects the approved design including the planned multi-use pathway (MUP) along the east side and the sidewalk along the west side of the CitiGate Drive extension. Plan and profile sheets for CitiGate Drive can be found in **Appendix H**.

Target PLOS, BLOS, TLOS, TkLOS and Auto LOS for CitiGate Drive are based on the targets for Employment Area, as identified in Exhibit 22 of the MMLOS guidelines. The following summarizes the findings of the MMLOS segment analysis.

6.3.1 Pedestrian Level of Service (PLOS)

Exhibit 4 of the MMLOS guidelines has been used to evaluate the segment PLOS of the CitiGate Drive extension. Exhibit 22 of the MMLOS guidelines suggest a target PLOS C all road classes within an Employment Area. The results of the segment PLOS analysis are summarized in the following table.

Table 9: PLOS Segment Analysis

Sidewalk Width	Boulevard Width	Avg. Daily Curb Lane Traffic Volume	Presence of On-Street Parking	Operating Speed[1]	Segment PLOS
CitiGate Drive Extension (East Side)					
3m	>2m	<3,000 vpd	Yes	60	A
CitiGate Drive Extension (West Side)					
2m	>2m	<3,000 vpd	Yes	60	A

1. Operating speed taken as 10km/h above the posted speed

6.3.2 Bicycle Level of Service (BLOS)

Exhibit 11 of the MMLOS guidelines has been used to evaluate the segment BLOS of the CitiGate Drive extension. Exhibit 22 of the MMLOS guidelines suggest a target BLOS E for collector roads in an Employment Area. The results of the segment BLOS analysis are in the following table.

Table 10: BLOS Segment Analysis

Road Class	Bike Route	Type of Bikeway	Travel Lanes	Centerline Markings	Operating Speed	Segment BLOS
CitiGate Drive Extension (East Side)						
Collector	Major Pathway	Multi-Use Pathway	2	Yes	60km/h	A
CitiGate Drive Extension (West Side)						
Collector	Major Pathway	Mixed Traffic	2	Yes	60km/h	F

6.3.3 Transit Level of Service (TLOS)

Exhibit 15 of the MMLOS guidelines has been used to evaluate the segment TLOS of the boundary roadways. The CitiGate Drive extension has been evaluated for TLOS despite having no target. The results of the segment TLOS analysis are summarized in the following table.

Table 11: TLOS Segment Analysis

Facility Type	Level/Exposure to Congestion Delay, Friction and Incidents			Segment TLOS
	Congestion	Friction	Incident Potential	
CitiGate Drive Extension				
Mixed Traffic	Yes	Low	Medium	D

6.3.4 Truck Level of Service (TkLOS)

Exhibit 20 of the MMLOS guidelines has been used to evaluate the segment TkLOS of the CitiGate Drive extension. Exhibit 22 of the MMLOS guidelines suggests a target TkLOS of D for collector roadways in an Employment Area. The results of the segment TkLOS analysis are summarized in the following table.

Table 12: TkLOS Segment Analysis

Curb Lane Width	Number of Travel Lanes	Segment TkLOS
CitiGate Drive Extension		
5.5m	2	B

6.3.5 Vehicular Level of Service (Auto LOS)

Exhibit 22 of the MMLOS guidelines suggest a target Auto LOS D for all roadways within an Employment Area. The typical lane capacity along the CitiGate Drive extension are based on the City's guidelines for the TRANS Long-Range Transportation Model. The lane capacity along the CitiGate Drive extension has been estimated based on roadway classification and general characteristics (i.e. suburban with limited access, urban with on-street parking, etc.). The results of the Auto LOS analysis are summarized in the following table.

Traffic volumes used for the Auto LOS analysis are the 2026 total traffic projections identified above.

Table 13: Auto LOS Segment Analysis

Direction	Directional Capacity	Traffic Volumes		V/C Ratio and LOS			
		AM Peak	PM Peak	AM Peak		PM Peak	
				V/C	LOS	V/C	LOS
CitiGate Drive Extension							
NB	600 vph	68	87	0.11	A	0.15	A
SB	600 vph	66	86	0.11	A	0.14	A

6.3.6 Segment MMLOS Summary

The following table summarizes the findings of the MMLOS segment analysis.

Table 14: Segment MMLOS Summary

Segment	PLOS	BLOS	TLOS	TkLOS	Auto LOS
CitiGate Drive Extension	A	F	D	B	A
Target	**C**	**E**	**-**	**D**	**D**

The planned CitiGate Drive extension meets the target PLOS, TkLOS and Auto LOS, however it does not meet the target BLOS.

Along the east side of CitiGate Drive there is a planned multi-use pathway which earns a BLOS of A. The west side of CitiGate Drive will offer mixed traffic for cyclists, which earns a BLOS of F with an operating speed of 60km/h. This is considered a reasonable trade-off as cyclists will have the option of using the MUP along the east side of CitiGate Drive.

6.4 Access Intersection Design

The proposed development will be served by two accesses along the CitiGate Drive extension and two accesses along the CrossKeys Place extension. All accesses will be stop controlled.

The private CrossKeys Place extension and the northerly CitiGate Drive access range between 8m-8.6m in width, measured at the property line. The southern CitiGate Drive access, which serves trucks, is approximately 10.7m in width, measured at the property line.

Section 25 (a) of the City's *Private Approach By-Law* identifies a maximum number of private approaches that can be provided, based on the amount of frontage. For sites with 46m to 150m of frontage, one two-way private approach and two one-way private approaches or two two-way private approaches are permitted. For every additional 90m of frontage in excess of 150m, the by-law permits another two-way private approach or two one-way private approaches. The subject site has approximately 350m of frontage on the CitiGate Drive extension. Therefore, the number of accesses on CitiGate Drive serving the proposed development meets this requirement.

Section 25 (m) of the *Private Approach By-Law* identifies a requirement to provide a minimum distance of 60m on CitiGate Drive at the street line between a private approach and the nearest intersecting street line, and between a private approach and any other private approach. The northern CitiGate Drive access will be located approximately 125m south of the CitiGate Drive/CrossKeys Place roundabout, and approximately 200m north of the southern CitiGate Drive access/Systemhouse Street, thereby meeting this requirement.

Section 25 (p) of the *Private Approach By-Law* identifies a minimum spacing requirement of 3.0m between the nearest edge of a private approach and the property line, as measured at the street line. The southern CitiGate Drive access will be located approximately 7m north of the southern property line, thereby meeting this requirement.

Section 107 (1)(a) of the *Zoning By-Law* identifies a minimum width requirement of 6.7m for a two-way driveway to a parking lot. Section 25 (d) of the *Private Approach By-Law* identifies a maximum width requirement of 9.0m for any two-way private approach, as measured at the street

line, although an exception for wider accesses is permitted under Section 25 (e) for transport loading areas.

The Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads* suggests a minimum corner clearance of 25m for an access from an intersection along a collector roadway. The northern CitiGate Drive access will be located approximately 125m south of the CitiGate Drive/CrossKeys Place roundabout, and approximately 200m north of the southern CitiGate Drive access/Systemhouse Street. Based on the proposed spacing, the minimum corner clearance requirements are met.

The TAC *Geometric Design Guide for Canadian Roads* outlines minimum clear throat lengths for driveways based on land use, development size, and types of roadways. On a collector roadway, the minimum clear throat length for a driveway to a large light industrial development is 15m. All accesses meet this requirement.

6.5 Transportation Demand Management

A review of the Transportation Demand Management (TDM) Measures Checklist has been conducted. A copy of the TDM checklist is included in **Appendix G**.

The developer has agreed to encourage the future tenant(s) to implement and promote ride sharing. Potential carpoolers in Ottawa are served by www.OttawaRideMatch.com, an online service to help people find carpool partners. Employers can arrange for a dedicated portal where their employees can search for potential carpool partners only among their colleagues, if they desire. Some very large employers may establish internal ride matching services, to maximize employee uptake and corporate control. Ride matching service providers typically include a waiver to relieve employers of liability when their employees start carpooling through a ride matching service. Ridesharing with co-workers also tends to eliminate security concerns.

6.6 Neighbourhood Traffic Management

The City's TIA guidelines identify a threshold of 2,500 vehicles per day or 300 vehicles during the peak hour for consideration of Area Traffic Management (ATM) measures on a collector roadway. TAC table 2.6.5 suggests that residential collectors typically carry up to 8,000 vehicles per day. The typical lane capacity for a collector roadway is estimated at 600 vehicles per hour per lane based on the City's TRANS Long Range Transportation Model. Total traffic volumes on Hélène Campbell Road, Maravista Drive, and Kennevale Drive were reviewed.

<u>Hélène Campbell Road</u>
The 2026 total traffic volumes indicate that a two-way total of approximately 315 vehicles will use Hélène Campbell Road during the AM peak hour and 480 vehicles during the PM peak hour. The AM peak directional traffic volume is projected to be approximately 250 vehicles (southbound) and the PM peak directional traffic volume is projected to be approximately 260 vehicles (northbound). Based on the lane capacity, the v/c ratio is 0.42 during the AM peak hour and 0.43 during the PM peak hour.

<u>Maravista Drive</u>
The 2026 total traffic volumes indicate that a two-way total of approximately 210 vehicles will use Maravista Drive during the AM peak hour and 385 vehicles during the PM peak hour. The AM peak directional traffic volume is projected to be approximately 155 vehicles (westbound) and the PM peak directional traffic volume is projected to be approximately 275 vehicles (eastbound).

Based on the lane capacity, the v/c ratio is 0.26 during the AM peak hour and 0.46 during the PM peak hour.

Kennevale Drive
The 2026 total traffic volumes indicate that a two-way total of approximately 340 vehicles will use Kennevale Drive during the AM peak hour and 470 vehicles during the PM peak hour. The AM peak directional traffic volume is projected to be approximately 220 vehicles (westbound) and the PM peak directional traffic volume is projected to be approximately 270 vehicles (eastbound). Based on the lane capacity, the v/c ratio is 0.37 during the AM peak hour and 0.45 during the PM peak hour.

The majority of traffic being generated by the proposed development is anticipated to arrive/depart the study area via the arterial roadways (Strandherd Drive and Fallowfield Road) and Highway 416. Approximately 5-10 vehicles per hour of site traffic is expected to use each of the above residential collector streets during peak hours. Despite total traffic volumes that are anticipated to exceed the ATM thresholds of 300 vehicles per hour for collector roadways, all three collector roadways will operate with v/c ratios less than 0.60 (LOS A). The added traffic generated by the proposed development is not anticipated to have a significant impact on the existing vehicular operations along the neighbourhood collector roadways (Hélène Campbell Road, Maravista Drive, and Kennevale Drive).

6.7 Transit

Based on the trip generation presented in Section 5.1, the proposed development is anticipated to generate an additional 192 transit trips (94 in, 98 out) during the weekday AM peak hour and 251 transit trips (124 in, 127 out) during the weekday PM peak hour.

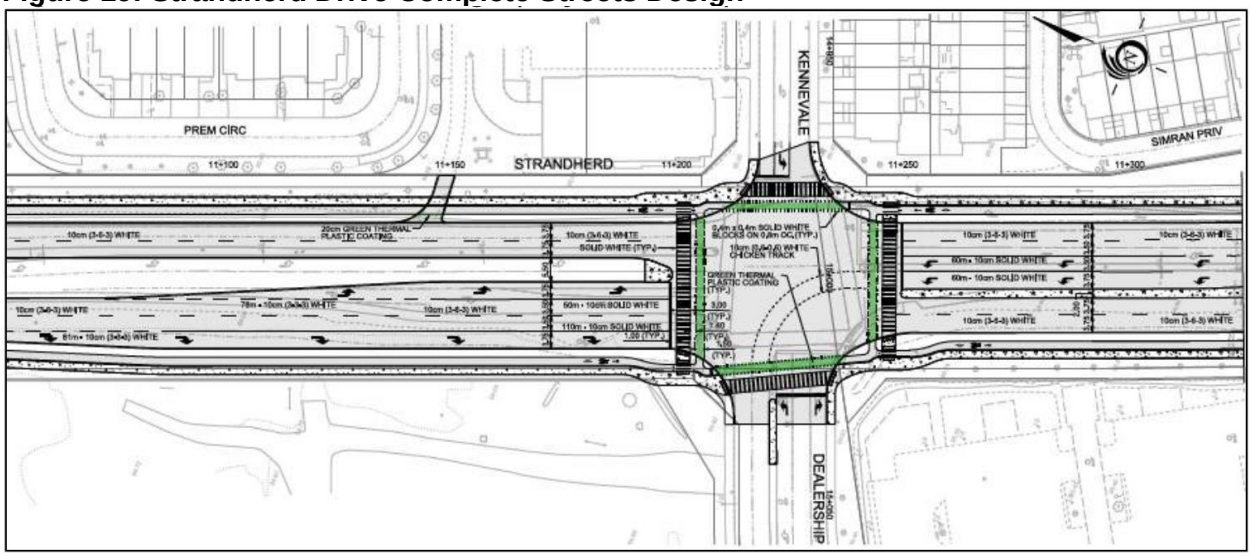
It is anticipated that most transit trips will arrive/depart the subject side via OC Transpo route 170 or route 179. It is anticipated that bus service will be extended via CrossKeys Place, CitiGate Drive, and Systemhouse Street. Stops would likely be added at the two intersections, CrossKeys Place/CitiGate Drive and Systemhouse Street/CitiGate Drive.

6.8 Intersection Design

6.8.1 Existing Intersection MMLOS Analysis

The Strandherd Drive widening has been completed between Fallowfield Road/CitiGate Drive and Maravista Drive/Systemhouse Street and includes complete streets principles. The City of Ottawa has prepared a complete street concept for Strandherd Drive between Maravista Drive and Jockvale Road. The concept at the Strandherd Drive/Dealership Drive/Kennevale Drive intersection is shown in **Figure 19** and includes cycle tracks, sidewalks, and added travel lanes. The City of Ottawa has completed its analysis and review of the “trade-offs” when developing this Complete Streets design and have already considered MMLOS factors in the development of its concept. It is anticipated that the site will have no major impacts on non-auto MMLOS results.

Figure 19: Strandherd Drive Complete Streets Design



6.8.2 Existing Intersection Operations

Intersection capacity analysis has been completed for the existing traffic condition. The intersection parameters used in the analysis are consistent with the City's TIA guidelines (saturation flow rate: 1800 vphpl, PHF: 0.9). The target for all unsignalized intersections within the City's jurisdiction is a delay of 35 seconds or less, which represents a LOS D and the target for all signalized intersections under the City's jurisdiction is a v/c ratio of 0.90 or less, which represents a LOS D. The target for all signalized intersections within the MTO's jurisdiction is a v/c ratio of 0.85 or less.

The results of the analysis are summarized in **Table 15** for the weekday AM and PM peak hours. Approaches where queuing issues have been identified are listed with the associated 50th and 95th percentile queue lengths in **Table 16**. Signal timing plans obtained from the City of Ottawa are included in **Appendix I**. Detailed reports are included in **Appendix K**.

The weekday traffic count performed at the Strandherd Drive/CitiGate Drive/Fallowfield Road intersection did not identify any pedestrians crossing north-south at this intersection, and there were only two pedestrians observed at this intersection over the entirety of the 8-hour count. The signal timing plan obtained from the City of Ottawa identifies that the north-south movement will be forced off early if there is no pedestrian actuation. The intersection was modeled with and without pedestrian actuation, to account for future increased pedestrian usage.

Similarly, the timing plan at the Strandherd Drive/Systemhouse Street/Maravista Drive intersection identifies that the east-west movement will be forced off early if there are no pedestrians crossing actuations on Strandherd Drive. The intersection was modeled with and without pedestrian actuation, to account for future increased pedestrian usage.

Intersection analysis was not completed for the roundabout at CitiGate Drive/CrossKeys Place, as it currently only has two approaches and is therefore not considered an intersection. The roundabout will be assessed as part of the total analysis.

Table 15: Existing Intersection Operations

Intersection	AM Peak			PM Peak		
	Max. v/c or delay	LOS	Mvmt	Max. v/c or delay	LOS	Mvmt
Existing Traffic						
Fallowfield Road/Highway 416 Southbound Off-Ramp	0.74	C	SBL	0.76	D	SBL
Fallowfield Road/Highway 416 Northbound Off-Ramp	0.79	C	NBR	0.66	B	NBL
Strandherd Drive/CitiGate Drive/Fallowfield Road(1)	0.82	D	WBT	0.70	B	EBL
Strandherd Drive/CitiGate Drive/Fallowfield Road(2)	0.89	D	WBT	0.70	B	EBL
Strandherd Drive/CrossKeys Place/Hélène Campbell Road	0.67	B	WBT	0.77	C	NBL
Strandherd Drive/Systemhouse Street/Maravista Drive(1)	0.58	A	WBT/R	0.68	B	EBT/R
Strandherd Drive/Systemhouse Street/Maravista Drive(2)	0.54	A	NBT/R	0.70	B	NBL
Strandherd Drive/Dealership Drive/Kennevale Drive	0.85	D	NBT	0.83	D	SBT
Fallowfield Road/O'Keefe Court/Cobble Hill Drive	**39 sec.**	**E**	**WBT**	17 sec.	C	EBT

1: Intersection modeled without pedestrians crossing Strandherd Drive
2: Intersection modeled with pedestrians crossing Strandherd Drive

Table 16: Existing Traffic - Queuing

Intersection	Mvmt	AM Peak			PM Peak		
		v/c	50th % Queue (m)	95th % Queue (m)	v/c	50th % Queue (m)	95th % Queue (m)
Existing Traffic							
Strandherd Drive/CitiGate Drive/Fallowfield Road(1)	EBL	0.74	74	#119	0.70	42	57
	WBT	0.82	165	#223	0.47	50	107
Strandherd Drive/CitiGate Drive/Fallowfield Road(2)	EBL	0.74	68	#120	0.70	39	55
	EBT	0.30	16	95	0.58	45	#192
	WBT	0.89	136	#318	0.51	23	#164
Strandherd Drive/CrossKeys Place/Hélène Campbell Road	WBT	0.67	25	#205	0.55	23	30
	EBT	0.35	33	57	0.64	84	155
	EBL	0.38	10	22	0.56	33	#85
Strandherd Drive/Systemhouse Street/Maravista Drive(1)	NBT	0.50	48	133	0.41	40	56
Strandherd Drive/Systemhouse Street/Maravista Drive(2)	NBT	0.54	57	#196	0.42	51	89

Intersection	Mvmt	AM Peak			PM Peak		
		v/c	50th % Queue (m)	95th % Queue (m)	v/c	50th % Queue (m)	95th % Queue (m)
Strandherd Drive/Dealership Drive/Kennevale Drive	NBT	0.85	183	#328	0.69	113	207
	SBT	0.39	64	156	0.83	180	#285

1: Intersection modeled without pedestrians crossing Strandherd Drive
2: Intersection modeled with pedestrians crossing Strandherd Drive
#: volume for the 95th percentile cycle exceeds capacity

Strandherd Drive/CitiGate Drive/Fallowfield Road

The westbound queue at Strandherd Drive/CitiGate Drive/Fallowfield Road is approximately 320m in the AM peak with north-south pedestrian actuation. Without north-south pedestrian actuation, this queue length improves to approximately 225m. The westbound queue extends past the Strandherd Drive/CrossKeys Place/Hélène Campbell Road intersection (located approximately 205m east of Strandherd Drive/CitiGate Drive/Fallowfield Road, measured from nearest edge to nearest edge) during the AM peak and is a result of heavy through volumes and limited capacity along Strandherd Drive. This is consistent with the findings of the 2012 CitiGate CTS for the 2019 background traffic scenario. A channelized westbound right turn was recommended for this intersection; however, it was not implemented as part of the Strandherd Drive modifications.

Strandherd Drive/CrossKeys Place/Hélène Campbell Road

The eastbound left movement at the Strandherd Drive/CrossKeys Place/Hélène Campbell Road intersection is anticipated to have a maximum queuing length of approximately 85m during the PM peak, exceeding the 60m storage length. This is a result of heavy through volumes and limited capacity along Strandherd Drive. A storage length of 60m is adequate based on the TAC storage length equation.

Strandherd Drive/Dealership Drive/Kennevale Drive

The maximum queuing length experienced by the northbound through movement at the Strandherd Drive/Dealership Drive/Kennevale Drive intersection is approximately 330m in the AM peak. This is a result of heavy volumes in a single through lane. The maximum queuing length experienced by the southbound through movement at the Strandherd Drive/Dealership Drive/Kennevale Drive intersection is approximately 285m in the PM peak. This is a result of heavy volumes in a single through lane. The Strandherd Drive widening project will increase through capacity along Strandherd Drive at this intersection.

Fallowfield Road/O'Keefe Court/Cobble Hill Drive

The Fallowfield Road/O'Keefe Court/Cobble Hill Drive intersection is experiencing a LOS E with delays of approximately 39 seconds on the westbound approach in the AM peak hour. A maximum queue length of 22m, or approximately three vehicles, occurs on the westbound approach. A review of Ontario Traffic Manual (OTM) criteria for traffic signalization warrants was conducted for this intersection. The signalization warrants were checked for current traffic volumes identified above. Based on OTM traffic signalization warrants, the Fallowfield Road/O'Keefe Court/Cobble Hill Drive intersection is only 46% met. OTM traffic signalization warrants are included in **Appendix J**. Given that the traffic signal warrant is not met, side street stop control is recommended for the existing traffic condition.

6.8.3 2021 Background Intersection Operations

Intersection capacity analysis has been completed for the 2021 background traffic condition. The intersection parameters used in the analysis are consistent with the City's TIA guidelines (saturation flow rate: 1800 vphpl, PHF: 1.0). The results of the analysis are summarized in **Table 17** for the weekday AM and PM peak hours. Approaches where queuing issues have been identified are listed with the associated 50th and 95th percentile queue lengths in **Table 18**.

Table 17: 2021 Background Intersection Operations

Intersection	AM Peak			PM Peak		
	Max. v/c or delay	LOS	Mvmt	Max. v/c or delay	LOS	Mvmt
2021 Background Traffic						
Fallowfield Road/Highway 416 Southbound Off-Ramp	0.75	C	SBL	0.74	C	SBL
Fallowfield Road/Highway 416 Northbound Off-Ramp	0.79	C	NBR	0.63	B	NBL
Strandherd Drive/CitiGate Drive/Fallowfield Road(1)	0.80	C	WBT	0.68	B	EBL
Strandherd Drive/CitiGate Drive/Fallowfield Road(2)	0.87	D	WBT	0.68	B	EBL
Strandherd Drive/CrossKeys Place/Hélène Campbell Road	0.64	B	WBT	0.74	C	NBL
Strandherd Drive/Systemhouse Street/Maravista Drive(1)	0.56	A	WBT/R	0.64	B	SBL
Strandherd Drive/Systemhouse Street/Maravista Drive(2)	0.55	A	NBT	0.68	B	NBL/ SBL
Strandherd Drive/Dealership Drive/Kennevale Drive	0.83	D	NBT	0.84	D	SBT
Fallowfield Road/O'Keefe Court/Cobble Hill Drive	34 sec.	D	WB	17 sec.	C	EB

1: Intersection modeled without pedestrians crossing Strandherd Drive
2: Intersection modeled with pedestrians crossing Strandherd Drive

Table 18: 2021 Background Traffic - Queuing

Intersection	Mvmt	AM Peak			PM Peak		
		v/c	50th % Queue (m)	95th % Queue (m)	v/c	50th % Queue (m)	95th % Queue (m)
2021 Background Traffic							
Strandherd Drive/CitiGate Drive/Fallowfield Road(1)	EBL	0.77	68	#112	0.68	40	55
	WBT	0.80	160	#216	0.50	82	119
Strandherd Drive/CitiGate Drive/Fallowfield Road(2)	EBL	0.77	65	#109	0.68	37	53
	EBT	0.34	17	105	0.63	47	#235
	WBT	0.87	133	#311	0.57	20	#181

Intersection	Mvmt	AM Peak			PM Peak		
		v/c	50th % Queue (m)	95th % Queue (m)	v/c	50th % Queue (m)	95th % Queue (m)
Strandherd Drive/CrossKeys Place/Hélène Campbell Road	WBT	0.64	28	#203	0.58	20	26
	EBT	0.38	27	64	0.65	87	#140
	EBL	0.35	9	20	0.56	30	#75
Strandherd Drive/Systemhouse Street/Maravista Drive(1)	NBT	0.52	51	128	0.47	53	80
Strandherd Drive/Systemhouse Street/Maravista Drive(2)	NBT	0.55	60	#204	0.48	61	110
Strandherd Drive/Dealership Drive/Kennevale Drive	NBT	0.83	173	#317	0.69	114	204
	SBT	0.78	65	153	0.84	198	#311

1: Intersection modeled without pedestrians crossing Strandherd Drive
2: Intersection modeled with pedestrians crossing Strandherd Drive
#: volume for the 95th percentile cycle exceeds capacity

Under 2021 background traffic conditions, all study area intersections are anticipated to operate with a LOS D or better.

Note that some critical movements appear to operate slightly better under projected conditions than under existing conditions; this is a result of the PHF of 1.0 for future conditions as per the TIA guidelines.

With background growth and the addition of other study area development traffic, minor increases in queue lengths are anticipated.

6.8.4 2026 Background Intersection Operations

Intersection capacity analysis has been completed for the 2026 background traffic condition. The intersection parameters used in the analysis are consistent with the City's TIA guidelines (saturation flow rate: 1800 vphpl, PHF: 1.0). The results of the analysis are summarized in **Table 19** for the weekday AM and PM peak hours. Approaches where queuing issues have been identified are listed with the associated 50th and 95th percentile queue lengths in **Table 20**.

Table 19: 2026 Background Intersection Operations

Intersection	AM Peak			PM Peak		
	Max. v/c or delay	LOS	Mvmt	Max. v/c or delay	LOS	Mvmt
2026 Background Traffic						
Fallowfield Road/Highway 416 Southbound Off-Ramp	0.77	B	EBT/ SBL	0.83	D	SBL
Fallowfield Road/Highway 416 Northbound Off-Ramp	0.85	D	NBR	0.77	C	EBT
Strandherd Drive/CitiGate Drive/Fallowfield Road(1)	**1.08**	**F**	**WBT**	0.77	C	EBT
Strandherd Drive/CitiGate Drive/Fallowfield Road(2)	**1.33**	**F**	**WBT**	0.85	D	EBT

Intersection	AM Peak			PM Peak		
	Max. v/c or delay	LOS	Mvmt	Max. v/c or delay	LOS	Mvmt
Strandherd Drive/CrossKeys Place/Hélène Campbell Road	0.82	D	WBT	0.87	D	EBT
Strandherd Drive/Systemhouse Street/Maravista Drive(1)	0.75	C	NBT	0.89	D	SBT
Strandherd Drive/Systemhouse Street/Maravista Drive(2)	0.80	C	NBT	**0.92**	**E**	**SBT**
Strandherd Drive/Dealership Drive/Kennevale Drive	0.72	C	NBT	0.74	C	EBL
Fallowfield Road/O'Keefe Court/Cobble Hill Drive	**47 sec.**	**E**	**WB**	19 sec.	C	EB

1: Intersection modeled without pedestrians crossing Strandherd Drive
2: Intersection modeled with pedestrians crossing Strandherd Drive

Table 20: 2026 Background Traffic - Queuing

Intersection	Mvmt	AM Peak			PM Peak		
		v/c	50th % Queue (m)	95th % Queue (m)	v/c	50th % Queue (m)	95th % Queue (m)
2026 Background Traffic							
Strandherd Drive/CitiGate Drive/Fallowfield Road(1)	EBL	0.88	78	#154	0.71	45	59
	EBT	0.46	19	66	0.77	87	#254
	WBT	1.08	~248	#291	0.71	79	177
	SBL	0.45	19	35	0.53	27	#49
Strandherd Drive/CitiGate Drive/Fallowfield Road(2)	EBL	0.73	70	#124	0.71	41	58
	EBT	0.49	31	#174	0.85	89	#336
	WBT	1.33	~262	#411	0.82	36	#269
	SBL	0.49	19	#45	0.57	27	#67
Strandherd Drive/CrossKeys Place/Hélène Campbell Road	WBT	0.82	74	#301	0.81	34	#178
	EBL	0.35	8	20	0.56	31	#58
	EBT	0.53	81	113	0.87	187	#260
Strandherd Drive/Systemhouse Street/Maravista Drive(1)	NBT	0.75	178	#225	0.84	130	152
	SBT	0.49	76	10	0.89	47	#211
Strandherd Drive/Systemhouse Street/Maravista Drive(2)	NBT	0.80	137	#298	0.89	110	#176
	SBT	0.52	80	#139	0.92	101	#259
Strandherd Drive/Dealership Drive/Kennevale Drive	NBT	0.72	115	172	0.70	103	139
	SBT	0.31	79	101	0.71	170	209

1: Intersection modeled without pedestrians crossing Strandherd Drive
2: Intersection modeled with pedestrians crossing Strandherd Drive
#: volume for the 95th percentile cycle exceeds capacity
~: approach is above capacity

<u>Strandherd Drive/CitiGate Drive/Fallowfield Road</u>

With north-south pedestrian actuation, the westbound through movement at the Strandherd Drive/CitiGate Drive/Fallowfield Road intersection is anticipated to operate with a v/c ratio of 1.33 (LOS F) in the AM peak. Without north-south pedestrian actuation, this v/c ratio improves to 1.08.

In order to achieve a LOS D, a reduction of 300 westbound through vehicles, or a reduction of 150 vehicles for both the westbound through and eastbound left movements would be required in the AM peak.

Compared to 2021 background traffic, an increase of approximately 100m for the maximum westbound and eastbound queuing lengths is anticipated.

Additional through capacity is required on Strandherd Drive to accommodate background traffic. This is consistent with the recommendations of the approved 2012 CTS for the CitiGate lands, and the 1991 Strandherd Drive ESR to protect for a six-lane cross section between Highway 416 and Jockvale Road. The footings for the rail overpass have been designed for a bridge expansion to six lanes. This additional capacity could be provided via general travel lanes or an extension of the planned Chapman Mills bus rapid transit (BRT) corridor west of Borrisokane. This is identified for the City's consideration as funding becomes available.

Strandherd Drive/CrossKeys Place/Hélène Campbell Road
Compared to 2021 background traffic, an increase of approximately 100m for the maximum westbound and eastbound queuing lengths is anticipated.

Strandherd Drive/Systemhouse Street/Maravista Drive
With east-west pedestrian actuation, the Strandherd Drive/Systemhouse Street/Maravista Drive intersection is anticipated to operate with a LOS E in the PM peak. If the southbound through movement was reduced by 25 vehicles, the v/c ratio would improve to 0.90 (LOS D).

Compared to 2021 background traffic, an increase of approximately 100m for the maximum northbound queuing length is anticipated.

Strandherd Drive/Dealership Drive/Kennevale Drive
Compared to 2021 background traffic, a decrease of approximately 100-150m for the maximum northbound and southbound queuing lengths is anticipated, due to the Strandherd Drive widening adding through lane capacity.

Fallowfield Road/O'Keefe Court/Cobble Hill Drive
The Fallowfield Road/O'Keefe Court/Cobble Hill Drive intersection is anticipated to operate with delays of approximately 47 seconds on the westbound approach in the AM peak hour. A maximum queue length of 24m, or approximately three vehicles, is anticipated on the westbound approach. A review of Ontario Traffic Manual (OTM) criteria for traffic signalization warrants was conducted for this intersection. The signalization warrants were checked for projected traffic volumes identified above. Based on OTM traffic signalization warrants, the Fallowfield Road/O'Keefe Court/Cobble Hill Drive intersection will only 46% met in the 2026 background year. Given that the traffic signal warrant is not met, side street stop control is recommended for the 2026 background traffic condition.

6.8.5 2031 Background Intersection Operations

Intersection capacity analysis has been completed for the 2031 background traffic condition for the 416 ramp terminals in accordance with the MTO's TIS guidelines. The intersection parameters

used in the analysis are consistent with the City's TIA guidelines (saturation flow rate: 1800 vphpl, PHF: 1.0). The results of the analysis are summarized in **Table 21** for the weekday AM and PM peak hours. Approaches where queuing issues have been identified are listed with the associated 50th and 95th percentile queue lengths in **Table 22**.

Table 21: 2031 Background Intersection Operations

Intersection	AM Peak			PM Peak		
	Max. v/c or delay	LOS	Mvmt	Max. v/c or delay	LOS	Mvmt
2031 Background Traffic						
Fallowfield Road/Highway 416 Southbound Off-Ramp	**1.27**	**F**	**EBT**	0.89	D	SBL
Fallowfield Road/Highway 416 Northbound Off-Ramp	**1.15**	**F**	**EBT**	0.88	D	EBT

Table 22: 2031 Background Traffic - Queuing

Intersection	Mvmt	AM Peak			PM Peak		
		v/c	50th % Queue (m)	95th % Queue (m)	v/c	50th % Queue (m)	95th % Queue (m)
2031 Background Traffic							
Fallowfield Road/Highway 416 Southbound Off-Ramp	EBT	1.27	~321	#362	0.72	107	132
	SBL	0.60	67	86	0.89	112	#149
	WBT	0.71	98	151	0.84	118	135
Fallowfield Road/Highway 416 Northbound Off-Ramp	EBT	1.15	~360	m270	0.88	104	#303
	NBR	1.01	~85	#147	0.70	31	50

#: volume for the 95th percentile cycle exceeds capacity
~: approach is above capacity
m: queue is metered by an upstream signal

Under 2031 background traffic volumes, both Highway 416 off-ramps exceed the Auto LOS threshold. With an increased cycle length of 130 seconds in the AM and PM peaks, the following table shows the improvements to the intersections within the study area.

Table 23: 2031 Background Intersection Operations – 130 Second Cycle Length

Intersection	AM Peak			PM Peak		
	Max. v/c or delay	LOS	Mvmt	Max. v/c or delay	LOS	Mvmt
2031 Background Traffic – 130 second cycle length						
Fallowfield Road/Highway 416 Southbound Off-Ramp	**0.99**	**E**	**SBL**	0.86	D	WBT
Fallowfield Road/Highway 416 Northbound Off-Ramp	**1.16**	**F**	**NBR**	0.85	D	EBT

Additional through lane capacity is required on Fallowfield Road at the 416 off-ramps. Note that the 416 overpass on Fallowfield Road is built to six lanes.

Fallowfield Road/Highway 416 Southbound Off-Ramp

With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Southbound Off-Ramp is anticipated to operate with a v/c of 0.99 in the AM peak. In order to achieve MTO's target v/c ratio of 0.85, a reduction of 400 eastbound through vehicles, or a reduction of 300 eastbound through and 100 southbound left vehicles would be required in the AM peak, and a reduction of 100 eastbound through vehicles would be required in the PM peak, based on current geometry.

Fallowfield Road/Highway 416 Northbound Off-Ramp

With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Northbound Off-Ramp is anticipated to operate with a v/c of 1.16 in the AM peak. In order to achieve the MTO target v/c ratio 0.85, a reduction of 750 eastbound through vehicles would be required in the AM peak, based on current geometry.

6.8.6 2021 Total Intersection Operations

Intersection capacity analysis has been completed for the 2021 total traffic condition. The intersection parameters used in the analysis are consistent with the City's TIA guidelines (saturation flow rate: 1800 vphpl, PHF: 1.0). The results of the analysis are summarized in **Table 24** for the weekday AM and PM peak hours. Approaches where queuing issues have been identified are listed with the associated 50th and 95th percentile queue lengths in **Table 25**.

Table 24: 2021 Total Intersection Operations

Intersection	AM Peak			PM Peak		
	Max. v/c or delay	LOS	Mvmt	Max. v/c or delay	LOS	Mvmt
2021 Total Traffic						
Fallowfield Road/Highway 416 Southbound Off-Ramp	0.79	C	SBL	0.90	D	SBL
Fallowfield Road/Highway 416 Northbound Off-Ramp	0.81	D	NBR	0.69	B	EBT
Strandherd Drive/CitiGate Drive/Fallowfield Road(1)	**0.99**	**E**	**WBT**	0.71	C	EBL
Strandherd Drive/CitiGate Drive/Fallowfield Road(2)	**1.18**	**F**	**WBT**	0.77	C	EBT
Strandherd Drive/CrossKeys Place/Hélène Campbell Road	0.72	C	WBT/ NBL	0.88	D	NBL
Strandherd Drive/Systemhouse Street/Maravista Drive(1)	0.56	A	NBT	0.66	B	NBL/ SBT
Strandherd Drive/Systemhouse Street/Maravista Drive(2)	0.59	A	NBT	0.69	B	NBL
Strandherd Drive/Dealership Drive/Kennevale Drive	0.84	D	NBT	0.86	D	SBT
Fallowfield Road/O'Keefe Court/Cobble Hill Drive	**40 sec.**	**E**	**WB**	20 sec.	C	EB

Intersection	AM Peak			PM Peak		
	Max. v/c or delay	LOS	Mvmt	Max. v/c or delay	LOS	Mvmt
CitiGate Drive/Systemhouse Street/Site Access	9 sec.	A	EB	10 sec.	B	EB
Northern CitiGate Drive Site Access	9 sec.	A	EB	9 sec.	A	EB
CitiGate Drive/CrossKeys Place(3)	3 sec.	A	EB	3 sec.	A	SB
Southern CrossKeys Place Site Access	9 sec.	A	NB	9 sec.	A	NB
Northern CrossKeys Place Site Access	8 sec.	A	NB	9 sec.	A	NB

1: Intersection modeled without pedestrians crossing Strandherd Drive
2: Intersection modeled with pedestrians crossing Strandherd Drive
3: Roundabout – results taken from Rodel analysis

Table 25: 2021 Total Traffic - Queuing

Intersection	Mvmt	AM Peak			PM Peak		
		v/c	50th % Queue (m)	95th % Queue (m)	v/c	50th % Queue (m)	95th % Queue (m)
2021 Total Traffic							
Strandherd Drive/CitiGate Drive/Fallowfield Road(1)	EBL	0.88	76	#111	0.71	40	55
	WBT	0.99	~205	#250	0.66	121	144
Strandherd Drive/CitiGate Drive/Fallowfield Road(2)	EBL	0.77	65	#109	0.68	37	53
	EBT	0.45	46	#137	0.77	118	#276
	WBT	1.18	~226	#345	0.76	126	#224
Strandherd Drive/CrossKeys Place/Hélène Campbell Road	WBT	0.72	45	#219	0.70	106	34
	EBT	0.44	38	71	0.79	95	#180
	EBL	0.35	9	m21	0.69	32	m#66
Strandherd Drive/Systemhouse Street/Maravista Drive(1)	NBT	0.55	58	142	0.51	60	79
Strandherd Drive/Systemhouse Street/Maravista Drive(2)	NBT	0.59	64	#212	0.53	65	110
Strandherd Drive/Dealership Drive/Kennevale Drive	NBT	0.84	177	#322	0.70	118	#220
	SBT	0.39	84	163	0.84	198	#311

1: Intersection modeled without pedestrians crossing Strandherd Drive
2: Intersection modeled with pedestrians crossing Strandherd Drive
#: volume for the 95th percentile cycle exceeds capacity

With the addition of site generated traffic, minor increases in queue lengths are anticipated at all study area intersections.

Fallowfield Road/Highway 416 Southbound Off-Ramp

The Fallowfield Road/Highway 416 Southbound Off-Ramp is anticipated to operate with a v/c ratio of 0.90 in the PM peak. With adjusted signal timing (re-assigning 13 seconds from the east-west phase to the southbound phase) and the existing cycle length of 120 seconds, the Fallowfield Road/Highway 416 Southbound Off-Ramp is anticipated to operate with a v/c of 0.69 in the PM peak.

Strandherd Drive/CitiGate Drive/Fallowfield Road

The Strandherd Drive/CitiGate Drive/Fallowfield Road intersection is anticipated to operate with a v/c of 1.18 in the AM peak when the north-south pedestrian crossing is actuated. Without north-south pedestrian actuation, this v/c ratio is anticipated to improve to 0.99 in the AM peak. With adjusted signal timing and the existing cycle length of 120 seconds, the Strandherd Drive/CitiGate Drive/Fallowfield Road intersection is anticipated to operate with a v/c ratio of 0.91 (LOS E) in the AM peak, without north-south pedestrian actuation. Due to conflicting eastbound left and westbound through movements, a LOS D is unachievable with the current cycle length of 120 seconds. With an increased cycle length of 130 seconds, the Strandherd Drive/CitiGate Drive/Fallowfield Road intersection is anticipated to operate with a v/c ratio of 0.90 (LOS D). As the network is co-ordinated, increasing the cycle length at this intersection would require increasing the cycle lengths at the adjacent study area intersections. For a cycle length of 130 seconds at all signalized intersections within the study area during the AM peak, all study area intersections are anticipated to operate with a LOS D or better.

Fallowfield Road/O'Keefe Court/Cobble Hill Drive

The Fallowfield Road/O'Keefe Court/Cobble Hill Drive intersection is anticipated to operate with a LOS E and delays of approximately 40 seconds on the westbound approach in the AM peak hour. A maximum queue length of 21m, or approximately three vehicles, is anticipated on the westbound approach. A review of Ontario Traffic Manual (OTM) criteria for traffic signalization warrants was conducted for this intersection. The signalization warrants were checked for projected traffic volumes identified above. Based on OTM traffic signalization warrants, the Fallowfield Road/O'Keefe Court/Cobble Hill Drive intersection will only 46% met. Given that the traffic signal warrant is not met, side street stop control is recommended for the 2021 total traffic condition.

6.8.7 2026 Total Intersection Operations

Intersection capacity analysis has been completed for the 2026 total traffic condition. The intersection parameters used in the analysis are consistent with the City's TIA guidelines (saturation flow rate: 1800 vphpl, PHF: 1.0). The results of the analysis are summarized in **Table 26** for the weekday AM and PM peak hours.

Table 26: 2026 Total Intersection Operations

Intersection	AM Peak			PM Peak		
	Max. v/c or delay	LOS	Mvmt	Max. v/c or delay	LOS	Mvmt
2026 Total Traffic						
Fallowfield Road/Highway 416 Southbound Off-Ramp	0.84	D	EBT	**0.99**	**E**	**SBL**
Fallowfield Road/Highway 416 Northbound Off-Ramp	0.90	D	NBR	0.88	D	EBT
Strandherd Drive/CitiGate Drive/Fallowfield Road(1)	**1.07**	**F**	**WBT**	**0.92**	**E**	**EBT**
Strandherd Drive/CitiGate Drive/Fallowfield Road(2)	**1.71**	**F**	**WBT**	**1.06**	**F**	**WBT**
Strandherd Drive/CrossKeys Place/Hélène Campbell Road	**0.92**	**E**	**WBT**	**1.05**	**F**	**EBT**
Strandherd Drive/Systemhouse Street/Maravista Drive(1)	0.78	C	NBT	**1.03**	**F**	**SBT**
Strandherd Drive/Systemhouse Street/Maravista Drive(2)	0.83	D	NBT	0.82	D	NBT
Strandherd Drive/Dealership Drive/Kennevale Drive	0.73	C	NBT	0.74	C	EBL
Fallowfield Road/O'Keefe Court/Cobble Hill Drive	**59 sec.**	**F**	**WB**	22 sec.	C	EB
CitiGate Drive/Systemhouse Street/Site Access	9 sec.	A	EB	9 sec.	B	EB
Northern CitiGate Drive Site Access	9 sec.	A	EB	10 sec.	A	EB
CitiGate Drive/CrossKeys Place(3)	3 sec.	A	EB	3 sec.	A	SB
Southern CrossKeys Place Site Access	9 sec.	A	NB	9 sec.	A	NB
Northern CrossKeys Place Site Access	8 sec.	A	NB	9 sec.	A	NB

1: Intersection modeled without pedestrians crossing Strandherd Drive
2: Intersection modeled with pedestrians crossing Strandherd Drive
3: Roundabout – results taken from Rodel analysis

With an increased cycle length of 130 seconds in the AM and PM peaks, the following table shows the improvements to the signalized intersections within the study area.

Table 27: 2026 Total Intersection Operations – 130 Second Cycle Length

Intersection	AM Peak			PM Peak		
	Max. v/c or delay	LOS	Mvmt	Max. v/c or delay	LOS	Mvmt
2026 Total Traffic – 130 second cycle length						
Fallowfield Road/Highway 416 Southbound Off-Ramp	0.85	D	SBL	0.80	C	SBL
Fallowfield Road/Highway 416 Northbound Off-Ramp	**0.91**	**E**	**NBR**	0.84	D	EBT
Strandherd Drive/CitiGate Drive/Fallowfield Road(1)	**0.99**	**E**	**WBT**	0.86	D	EBT
Strandherd Drive/CitiGate Drive/Fallowfield Road(2)	**1.72**	**F**	**WBT**	**1.10**	**F**	**WBT**
Strandherd Drive/CrossKeys Place/Hélène Campbell Road	**0.91**	**E**	**WBT**	**0.98**	**E**	**EBT**
Strandherd Drive/Systemhouse Street/Maravista Drive(1)	0.72	C	NBT	0.82	D	SBT
Strandherd Drive/Systemhouse Street/Maravista Drive(2)	0.77	C	NBT	0.76	C	NBT
Strandherd Drive/Dealership Drive/Kennevale Drive	0.67	B	NBT	0.76	C	EBL

1: Intersection modeled without pedestrians crossing Strandherd Drive
2: Intersection modeled with pedestrians crossing Strandherd Drive

Fallowfield Road/Highway 416 Southbound Off-Ramp

With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Southbound Off-Ramp is anticipated to operate with a v/c ratio 0.85 in the AM peak.

Fallowfield Road/Highway 416 Northbound Off-Ramp

With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Northbound Off-Ramp is anticipated to operate with a v/c of 0.91 in the AM peak. In order to achieve the MTO's target v/c ratio of 0.85, a reduction of 125 eastbound through vehicles would be required in the AM peak, based on the current geometry.

Strandherd Drive/CitiGate Drive/Fallowfield Road

With an increased cycle length and north-south pedestrian actuation, the westbound through movement at the Strandherd Drive/CitiGate Drive/Fallowfield Road intersection is anticipated to operate with a v/c ratio of 1.72 (LOS F) in the AM peak and 1.10 in the PM peak. Without north-south pedestrian actuation, this v/c ratio improves to 0.99 in the AM peak and 0.86 in the PM peak. In order to achieve a LOS D, a reduction of 200 westbound through vehicles, or a reduction of 100 vehicles for both the westbound through and eastbound left movements would be required in the AM peak.

Consideration could also be given to re-assigning the northbound lanes on CitiGate Drive and removing the protected northbound/southbound left turn phase in order to free up capacity and assign more time to the east-west through traffic. The 2012 CTS projected ultimate northbound

left turn volumes of 325 vehicles in the PM peak which justified duals left turn lanes. With the proposed development the previously projected volume is not expected to be achieved and the need for dual northbound left turn lanes is no longer anticipated. This is identified for the City's consideration as funding permits.

Strandherd Drive/CrossKeys Place/Hélène Campbell Road

With an increased cycle length to 130 seconds, the Strandherd Drive/CrossKeys Place/Hélène Campbell Road intersection is anticipated to operate with a v/c of 0.91 in the AM peak and 0.98 in the PM peak. In order to achieve the target LOS D, a reduction of 5 westbound vehicles would be required in the AM peak and a reduction of 150 eastbound vehicles would be required in the PM peak.

Strandherd Drive/Systemhouse Street/Maravista Drive

With an increased cycle length to 130 seconds, the Strandherd Drive/Systemhouse Street/Maravista Drive intersection is anticipated to operate with a LOS D in the PM peak.

Strandherd Drive/Dealership Drive/Kennevale Drive

With an increased cycle length to 130 seconds, the Strandherd Drive/Dealership Drive/Kennevale Drive intersection is anticipated to operate with a LOS C in the PM peak.

Fallowfield Road/O'Keefe Court/Cobble Hill Drive

The Fallowfield Road/O'Keefe Court/Cobble Hill Drive intersection is anticipated to operate with delays of approximately 59 seconds on the westbound approach in the AM peak hour. A maximum queue length of 24m, or approximately three vehicles, is anticipated on the westbound approach. A review of Ontario Traffic Manual (OTM) criteria for traffic signalization warrants was conducted for this intersection. The signalization warrants were checked for projected traffic volumes identified above. Based on OTM traffic signalization warrants, the Fallowfield Road/O'Keefe Court/Cobble Hill Drive intersection will only 46% met under 2026 total traffic conditions. OTM traffic signalization warrants are included in **Appendix J**. Given that the traffic signal warrant is not met, side street stop control is recommended for the 2026 total traffic condition.

CitiGate Drive/Systemhouse Street/Site Access

The CitiGate Drive/Systemhouse Street/Site Access intersection is anticipated to operate with delays of 9 seconds under 2026 total traffic conditions, with stop control at the site access. When CitiGate Drive is extended further south, a roundabout control is recommended at this intersection through future site plan applications for lands to the south.

Northern CitiGate Drive Site Access

A review of left turn warrants was conducted at the northern CitiGate Drive site access. Based on advancing and opposing volumes, no northbound left turn lane is required at this access under 2026 total traffic conditions.

6.8.8 2031 Total Intersection Operations

Intersection capacity analysis has been completed for the 2031 total traffic condition. The intersection parameters used in the analysis are consistent with the City's TIA guidelines (saturation flow rate: 1800 vphpl, PHF: 1.0). The results of the analysis are summarized in **Table 28** for the weekday AM and PM peak hours.

Table 28: 2031 Total Intersection Operations

Intersection	AM Peak			PM Peak		
	Max. v/c or delay	LOS	Mvmt	Max. v/c or delay	LOS	Mvmt
2031 Total Traffic						
Fallowfield Road/Highway 416 Southbound Off-Ramp	**1.28**	**F**	**EBT**	**1.05**	**F**	**SBL**
Fallowfield Road/Highway 416 Northbound Off-Ramp	**1.23**	**F**	**EBT**	**1.00**	**E**	**EBT**

With an increased cycle length of 130 seconds in the AM and PM peaks, the following table shows the improvements to the signalized intersections within the study area.

Table 29: 2031 Total Intersection Operations – 130 Second Cycle Length

Intersection	AM Peak			PM Peak		
	Max. v/c or delay	LOS	Mvmt	Max. v/c or delay	LOS	Mvmt
2031 Total Traffic – 130 second cycle length						
Fallowfield Road/Highway 416 Southbound Off-Ramp	**1.07**	**F**	**SBL**	**0.93**	**E**	**SBL/ WBT**
Fallowfield Road/Highway 416 Northbound Off-Ramp	**1.18**	**F**	**EBT/ NBR**	**0.94**	**E**	**EBT**

Consistent with the 2031 background traffic analysis, the total traffic analysis demonstrates that additional through lane capacity is required on Fallowfield Road at the 416 off-ramps.

Fallowfield Road/Highway 416 Southbound Off-Ramp

With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Southbound Off-Ramp is anticipated to operate with a v/c of 1.07 in the AM peak and 0.95 in the PM peak. In order to achieve the MTO target v/c ratio 0.85, a reduction of 400 eastbound through vehicles and 150 southbound left vehicles would be required in the AM peak and a reduction of 200 westbound through and 100 southbound left vehicles would be required in the PM peak, based on the current geometry.

Fallowfield Road/Highway 416 Northbound Off-Ramp

With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Northbound Off-Ramp is anticipated to operate with a v/c of 1.18 in the AM peak and 0.94 in the PM peak. In order to achieve the MTO v/c ratio target of 0.85, a reduction of 800 eastbound through vehicles and 75 northbound right vehicles would be required in the AM peak and a reduction of 250 eastbound through vehicles would be required in the PM peak.

7.0 CONCLUSIONS AND RECOMMENDATIONS

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

Development Design & Parking

- Pedestrian facilities will be provided between the building entrances and the parking lot. New pedestrian walkways will be constructed, providing connectivity to the existing pedestrian facilities along CrossKeys Place and CitiGate Drive. Spine walkways through the parking lots are provided, with raised crosswalks along the main east/west and north/south drive aisles, as shown on the site plan. A multi-use pathway is provided, connecting to the existing facility at the CitiGate Drive/CrossKeys Place roundabout.
- It is anticipated that bus service will be extended via CrossKeys Place, CitiGate Drive, and Systemhouse Street. Stops would likely be added at the two intersections, CrossKeys Place/CitiGate Drive and Systemhouse Street/CitiGate Drive.
- Bicycle parking for the proposed development will be in accordance with the minimum requirement of the City's Zoning By-law (ZBL), as described in section 6.2. Bike racks will be located to the north of the building's front entrance, with additional bike parking located at the rear of the building (southwest corner). In addition to the MUP connection at the roundabout, a bike path is proposed which will connect the bike rack area to the CrossKeys Place extension at the southerly CrossKeys Place access, as shown on the site plan.
- All required TDM-supportive design and infrastructure measures in the TDM checklist are met.
- The approximately 2,035 proposed vehicular parking spaces meet the minimum requirement of the ZBL.

Boundary Street Design

- The planned CitiGate Drive extension meets the target PLOS, TkLOS and Auto LOS, however it does not meet the target BLOS.
- Along the east side of CitiGate Drive there is a planned multi-use pathway which earns a BLOS of A. The west side of CitiGate Drive will offer mixed traffic for cyclists, which earns a BLOS of F with an operating speed of 60km/h. This is considered a reasonable trade-off as cyclists will have the option of using the MUP along the east side of CitiGate Drive.

Access Intersection Design

- The proposed development will be served by two accesses along the CitiGate Drive extension and two accesses along the private CrossKeys Place extension. All accesses will be stop controlled.
- The private CrossKeys Place extension and the northerly CitiGate Drive access range between 8m-8.6m in width, measured at the property line. The southern CitiGate Drive access, which serves trucks, is approximately 10.7m in width, measured at the property line.
- The proposed accesses meet all requirements of the City's *Private Approach By-Law,* and the TAC criteria for corner clearance and clear throat.

Transportation Demand Management

- The developer has agreed to encourage the future tenant(s) to implement and promote ride sharing.

Neighbourhood Traffic Management

- The majority of traffic being generated by the proposed development is anticipated to arrive/depart the study area via the arterial roadways (Strandherd Drive and Fallowfield Road) and Highway 416.
- Hélène Campbell Road, Maravista Drive, and Kennevale Drive will operate with v/c ratios less than 0.60 (LOS A) under 2026 total traffic conditions. The added traffic generated by the proposed development is not anticipated to have a significant impact on the existing vehicular operations along the neighbourhood collector roadways (Hélène Campbell Road, Maravista Drive, and Kennevale Drive).

Transit

- The proposed development is anticipated to generate an additional 192 transit trips (94 in, 98 out) during the weekday AM peak hour and 251 transit trips (124 in, 127 out) during the weekday PM peak hour.

Intersection MMLOS Analysis

- A Complete Streets Design has been completed for Strandherd Drive. The City of Ottawa has completed its analysis and review of the "trade-offs" when developing this Complete Streets design and have already considered MMLOS factors in the development of its concept. It is anticipated that the site will have no major impacts on non-auto MMLOS results.

Existing Intersection Operations

- Under existing traffic conditions, the Fallowfield Road/O'Keefe Court/Cobble Hill Drive is operating with a LOS E in the AM peak hour. All other study area intersections are anticipated to operate with a LOS D or better.
- The Fallowfield Road/O'Keefe Court/Cobble Hill Drive intersection is experiencing delays of approximately 39 seconds on the westbound approach in the AM peak hour. A maximum queue length of 22m, or approximately three vehicles, occurs on the westbound approach. Given that the traffic signal warrant is only 46% met, side street stop control is recommended for the existing traffic condition.

2021 Background Intersection Operations

- Under 2021 background traffic conditions, all study area intersections are anticipated to operate with a LOS D or better.
- With background growth and the addition of other study area development traffic, minor increases in queue lengths are anticipated.

2026 Background Intersection Operations

- Additional through capacity is required on Strandherd Drive to accommodate background traffic. This is consistent with the recommendations of the approved 2012 CTS for the CitiGate lands, and the 1991 Strandherd Drive ESR to protect for a six-lane cross section between Highway 416 and Jockvale Road. The footings for the rail overpass have been designed for a bridge expansion to six lanes. This additional capacity could be provided via general travel lanes or the extension of the planned Chapman Mills bus rapid transit (BRT) corridor west of Borrisokane.
- The Fallowfield Road/O'Keefe Court/Cobble Hill Drive intersection is anticipated to operate with delays of approximately 47 seconds on the westbound approach in the AM peak hour. A maximum queue length of 24m, or approximately three vehicles, is

anticipated on the westbound approach. Given that the traffic signal warrant is not met, side street stop control is recommended for the 2026 background traffic condition.

2031 Background Intersection Operations

- Additional through lane capacity is required on Fallowfield Road at the 416 off-ramps. Note that the 416 overpass on Fallowfield Road is built to six lanes.
- With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Southbound Off-Ramp is anticipated to operate with a v/c of 0.99 in the AM peak. In order to achieve MTO's target v/c ratio of 0.85, a reduction of 400 eastbound through vehicles, or a reduction of 300 eastbound through and 100 southbound left vehicles would be required in the AM peak, and a reduction of 100 eastbound through vehicles would be required in the PM peak, based on current geometry.
- With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Northbound Off-Ramp is anticipated to operate with a v/c of 1.16 in the AM peak. In order to achieve the MTO target v/c ratio 0.85, a reduction of 750 eastbound through vehicles would be required in the AM peak, based on current geometry.

2021 Total Intersection Operation

- With the addition of site generated traffic, minor increases in queue lengths are anticipated at all study area intersections.
- For a cycle length of 130 seconds at all signalized intersections within the study area during the AM peak, all signalized study area intersections are anticipated to operate with a LOS D or better.
- The Fallowfield Road/O'Keefe Court/Cobble Hill Drive intersection is anticipated to operate with a LOS E and delays of approximately 40 seconds on the westbound approach in the AM peak hour. A maximum queue length of 21m, or approximately three vehicles, is anticipated on the westbound approach. Given that the traffic signal warrant is not met, side street stop control is recommended for the 2021 total traffic condition.

2026 Total Intersection Operations

- With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Southbound Off-Ramp, Strandherd Drive/Systemhouse Street/Maravista Drive, and Strandherd Drive/Dealership Drive/Kennevale Drive intersections are anticipated to operate with a LOS D or better in the AM and PM peaks.
- With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Northbound Off-Ramp is anticipated to operate with a v/c of 0.91 in the AM peak. In order to achieve the MTO's target v/c ratio of 0.85, a reduction of 125 eastbound through vehicles would be required in the AM peak.
- Consideration could be given to re-assigning the northbound lanes on CitiGate Drive and removing the protected northbound/southbound left turn phase in order to free up capacity and assign more time to the east-west through traffic.
- The Fallowfield Road/O'Keefe Court/Cobble Hill Drive intersection is anticipated to operate with delays of approximately 59 seconds on the westbound approach in the AM peak hour. A maximum queue length of 24m, or approximately three vehicles, is anticipated on the westbound approach. Given that the traffic signal warrant is not met, side street stop control is recommended for the 2026 total traffic condition.
- The CitiGate Drive/Systemhouse Street/Site Access intersection is anticipated to operate with delays of 9 seconds under 2026 total traffic conditions, with stop control at the site

access. When CitiGate Drive is extended further south, a roundabout control is recommended at this intersection through future site plan applications for lands to the south.

- A review of left turn warrants was conducted at the northern CitiGate Drive site access. Based on advancing and opposing volumes, no northbound left turn lane is required at this access under 2026 total traffic conditions.

2031 Total Intersection Operations

- Consistent with the 2031 background traffic analysis, the total traffic analysis demonstrates that additional through lane capacity is required on Fallowfield Road at the 416 off-ramps.
- With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Southbound Off-Ramp is anticipated to operate with a v/c of 1.07 in the AM peak and 0.95 in the PM peak. In order to achieve the MTO target v/c ratio 0.85, a reduction of 400 eastbound through vehicles and 150 southbound left vehicles would be required in the AM peak and a reduction of 200 westbound through and 100 southbound left vehicles would be required in the PM peak.
- With an increased cycle length to 130 seconds, the Fallowfield Road/Highway 416 Northbound Off-Ramp is anticipated to operate with a v/c of 1.18 in the AM peak and 0.94 in the PM peak. In order to achieve the MTO v/c ratio target of 0.85, a reduction of 800 eastbound through vehicles and 75 northbound right vehicles would be required in the AM peak and a reduction of 250 eastbound through vehicles would be required in the PM peak.

NOVATECH

Prepared by:

Rochelle Fortier, B.Eng.
E.I.T. | Transportation/Traffic

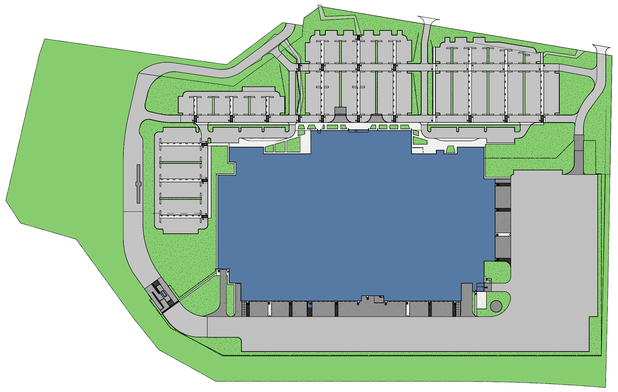
Reviewed by:

LICENSED PROFESSIONAL ENGINEER
J.L. LUONG
100061569
April 9, 2020
PROVINCE OF ONTARIO

Jennifer Luong, P.Eng.
Senior Project Manager | Transportation/Traffic

APPENDIX A

Site Plan



SITE AREAS	
Name	Area
ASPHALT	87 049,82 m²
BUILDING	58 369,81 m²
CONCRETE	10 014,91 m²
LANDSCAPE	95 926,06 m²
SIDEWALK	8 160,86 m²
	259 521,46 m²

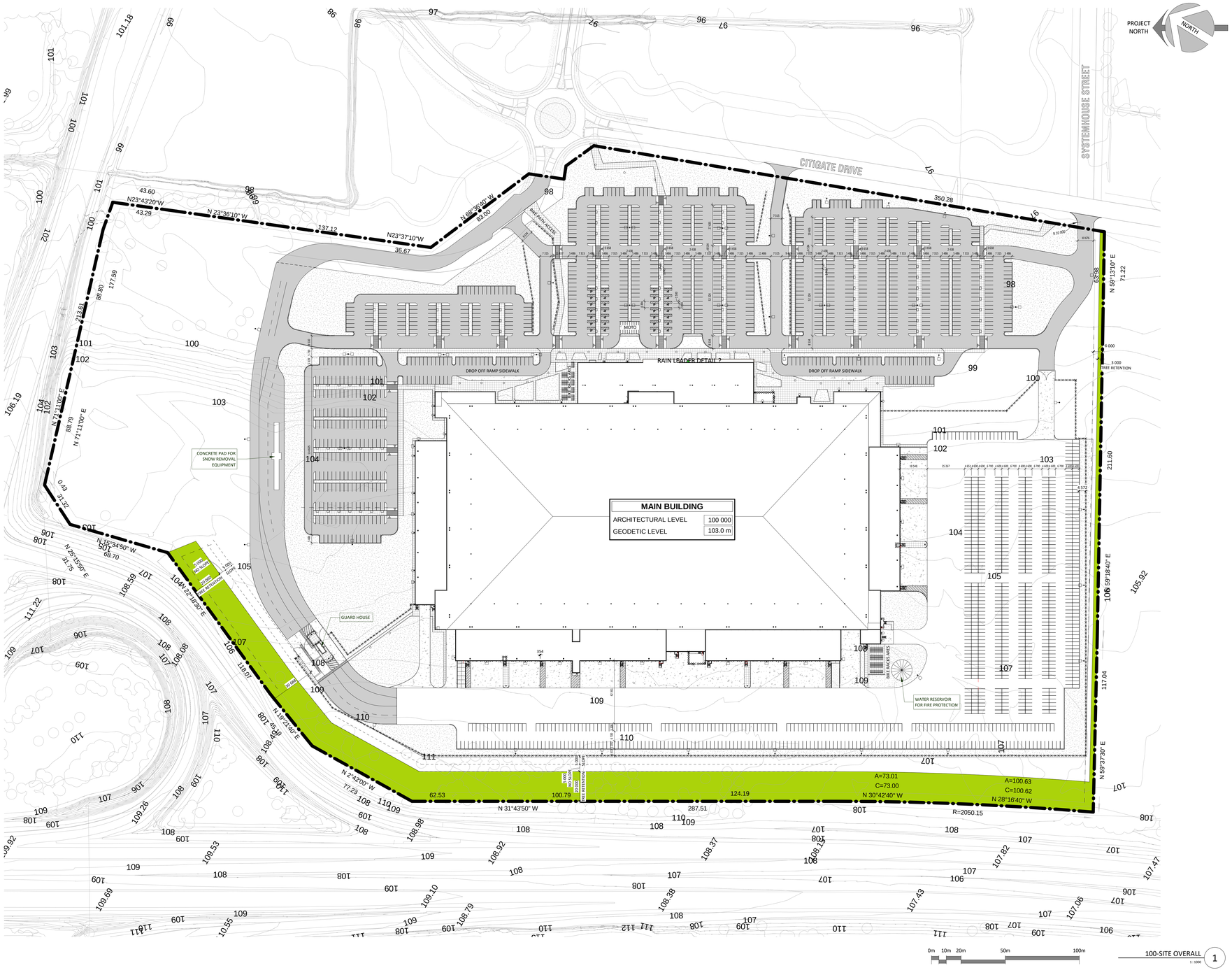
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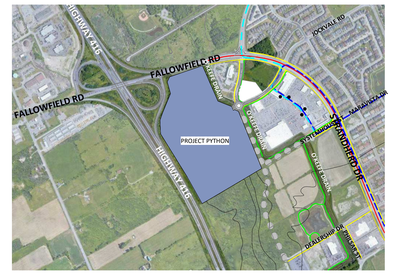
- ASPHALT
- BUILDING
- CONCRETE
- LANDSCAPE
- SIDEWALK

SITE AREA CALCULATION — 2

1 : 2500

PROTOTYPE REF: /





LEGEND - SITE SYMBOLS

DETAIL

ALD	ASPHALT PAVING, SEE CIVIL
BG6	152 mm CONCRETE FILLED GALVANIZED BOLLARD C/W YELLOW PLASTIC SLEEVE
BG8	203 mm CONCRETE FILLED GALVANIZED BOLLARD C/W YELLOW PLASTIC SLEEVE
CC	CONCRETE CURB, SEE CIVIL
CS	CONCRETE SLAB (DOLLY PAD), SEE CIVIL
EV	CHARGER FOR ELECTRIC/HYBRID VEHICLES, 120 V/208 V, SEE ELECTRIC
FF	FENCE "FROST", REFER TO SITE DETAILS
G	GRASS AND OTHER LANDSCAPING, SEE LANDSCAPE
GS	GALVANIZED STAIR
H	PARKING SIGN FOR HANDICAPPED ACCORDING TO CITY/MTO STANDARDS AND CLIENT STANDARDS
LMP	LAMP, SEE ELECTRICAL PLAN
MH	MAN HOLE, SEE CIVIL PLAN
PL	PAINTED LINE - EXTERIOR YELLOW ON ASPHALT/ WHITE ON CONCRETE
PV	UNISTONE
RMP	HANDICAP RAMP; SEE SPECIFICATIONS / CIVIL PLAN
SDW	SIDEWALK TYPE - 1525 mm WIDE, EXPANSION JOINT @ 1525 mm O.C., SEE SPECIFICATIONS / CIVIL PLAN

SITE DEVELOPMENT STATISTICS

LOT AREA	±259 522 m²	±64,129 ac.
LOT FRONTAGE	350,274m	1149,19ft
LOT DEPT IRREGULAR	± 328,64m	1078,22ft

SITE STATISITICS

LOT COVERAGE	22.5%
BUILDING HEIGHT	27m

BUILDING GROUND FLOOR AREA

TOTAL GROUND FLOOR AREA	±58 396 m²	±628 569 ft²
- GUARD HOUSE	±26 m²	±279 ft²
- GROUND FLOOR LEVEL1	±58 370 m²	±628 289 ft²

BUILDING GROSS FLOOR AREA

-PRESTIGE OFFICES	±1 105 m²	±11 895 ft²
- LIGHT INDUSTRIAL	±250 752 m²	±2 699 076 ft²

PARKING CARS	REQ.: 2 033
Parking Type	# Stalls
Car Space - 2 400 x 4 600	689
Car Space - 2 600 x 5 200	322
Car Space - 2 743 x 5 486	995
Handicap - 4 420 x 5 486	28
Grand total NOTE: 198 tandem spaces	2034

PARKING BICYCLE	REQ.: 171
Bicycle Space - 762 x 1830	176

PARKING MOTORCYCLE	
Motorcycle	16

ZONING PROVISIONS: LIGHT INDUSTRIAL ZONE

PROJECT DESCRIPTION

PROJECT : PYTHON
ADDRESS : 222 CITIGATE DRIVE OTTAWA, ONTARIO
DEVELOPER : PYTHON LP, C/O NOVATECH ENGINEERING CONSULTANTS, 240 MICHAEL COPELAND DR, KANATA, ON K2M1P6
APPLICANT : NOVATECH ENGINEERING CONSULTANTS, 240 MICHAEL COPELAND DR, KANATA, ON K2M1P6
PROPERTY IDENTIFICATION : BLOCK 13, PLAN 4M1538, CITY OF OTTAWA, BEING ALL OF PIN 04467-1618(LT)

ZONE PERFORMANCE STANDARDS CITY OF OTTAWA ZONING BY-LAW 2008-250	IP6 REQUIRED	PROVIDED
MINIMUM LOT AREA (m²)	10 000m²	± 259 578 m²
MINIMUM LOT WIDTH (m²)	100 m	± 366.18 m
MAXIMUM LOT COVERAGE (m²)	55%	23%
MINIMUM FRONT YARD SETBACK (m) EAST	3 m	± 132 m
MINIMUM CORNER YARD SETBACK (m) NORTH	3 m	± 110 m
MINIMUM INTERIOR YARD SETBACK (m) SOUTH	3 m	± 128 m
MINIMUM REAR YARD SETBACK (m) WEST	6 m	± 94 m
MAXIMUM BUILDING HEIGHT	45 m	27 m

PARKING AND LOADING (SEC. 100-114)

PERFORMANCE STANDARDS	PARKING RATE	AREA	REQUIRED	PROVIDED
MINIMUM PARKING SPACE RATES (OFFICE)	2.4 / 100 m²	1 105 m²	27	33
MINIMUM PARKING SPACE RATES (LIGHT INDUSTRIAL)	0.8 / 100 m²	250 752 m²	2006	2006
MINIMUM ACCESSIBLE PARKING SPACE RATES	500 AND OVER	N/A	6	28
MOTORCYCLE PARKING SPACE RATES (OFFICE)	-	-	N/A	16
MINIMUM BICYCLE PARKING SPACE RATES (OFFICE)	1 / 250 m²	1 105 m²	4	9
MINIMUM BICYCLE PARKING SPACE RATES (LIGHT INDUSTRIAL)	1 / 1 500 m²	250 752 m²	167	167
MINIMUM LOADING SPACE RATES (LIGHT INDUSTRIAL)	3 / 25 000 m²	250 752 m²	30	52

No.	Date	Revision	By
1	2020.04.06	SPA	

2020-04-08 1:37:03 PM

PROJECT PYTHON

Copyright GKC Architects - Not to be used for any other project without the architects' written consent. All dimensions and conditions must be verified on site. Do not scale drawings. Any discrepancies or omissions in the drawing shall be reported to the architect immediately in writing. All work to conform to most recent applicable norms, bylaws and codes for all given trades.

ARCHITECTURE

OVERALL SITE PLAN

DRAWN BY: Author CHECKED BY: Checker

SCALE: As indicated

FOLIO: 20010 **A100** R1

GKC ARCHITECTS
100 - 7275 ST-URBAIN MONTRÉAL QC H2R 2Y5 T:514.737.6255 WWW.GKC.CA

APPENDIX B

TIA Screening Form

City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	
Description of Location	**Southeast of the Fallowfield Road/Highway 416 interchange, located within the CitiGate Business Park (Block 13)**
Land Use Classification	**Office & Light Industrial**
Development Size (units)	
Development Size (m^2)	**Approximately 2,700,000 sq. ft. GFA (250,000 m^2)**
Number of Accesses and Locations	**Two accesses from future CrossKeys Place, two accesses from future CitiGate Drive**
Phase of Development	**1**
Buildout Year	**2021**

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

2. Trip Generation Trigger

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

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

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

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

3. Location Triggers

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

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

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

4. Safety Triggers

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

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

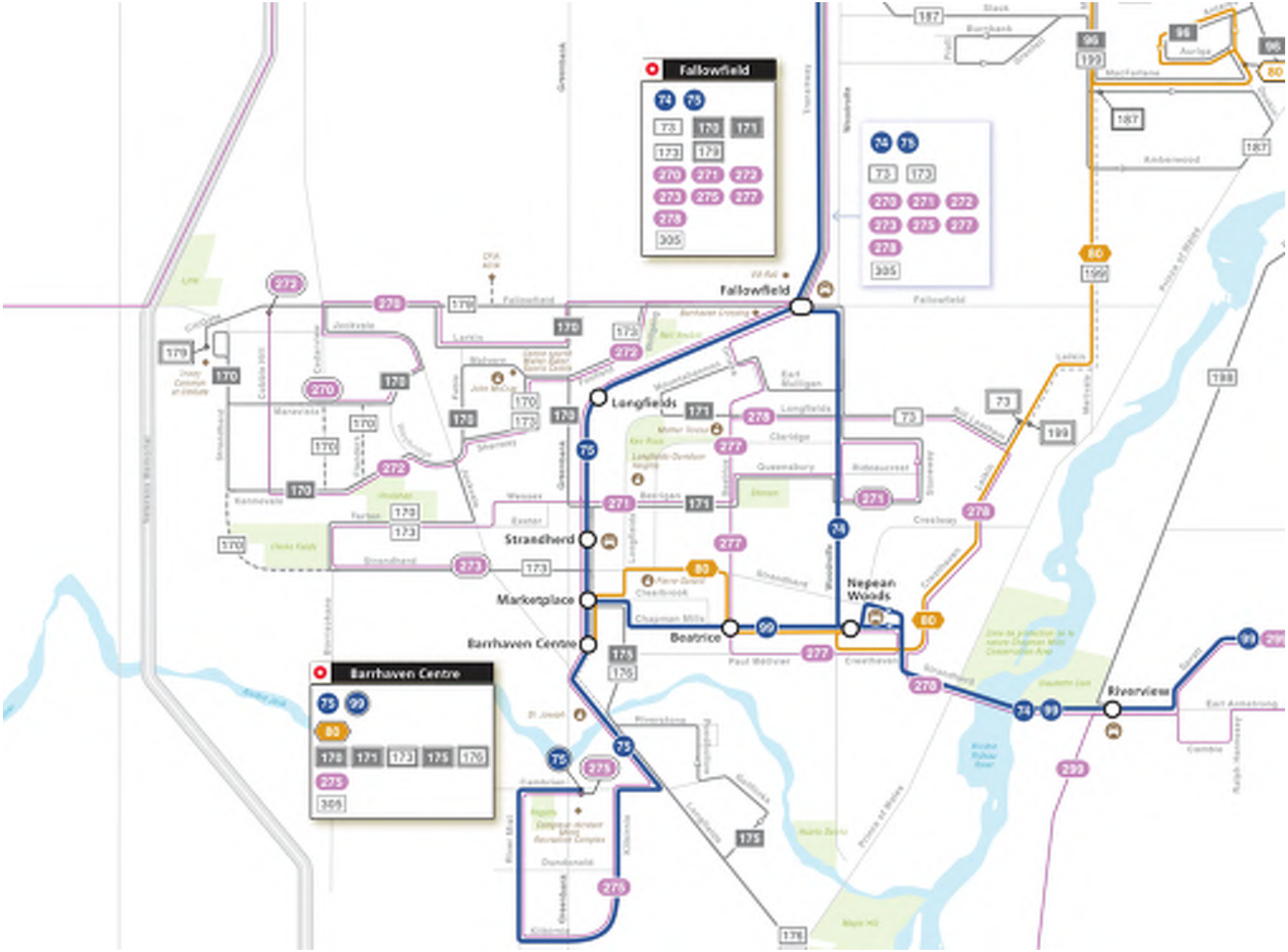
5. Summary

	Yes	No
Does the development satisfy the Trip Generation Trigger?	X	
Does the development satisfy the Location Trigger?		X
Does the development satisfy the Safety Trigger?	X	

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

APPENDIX C

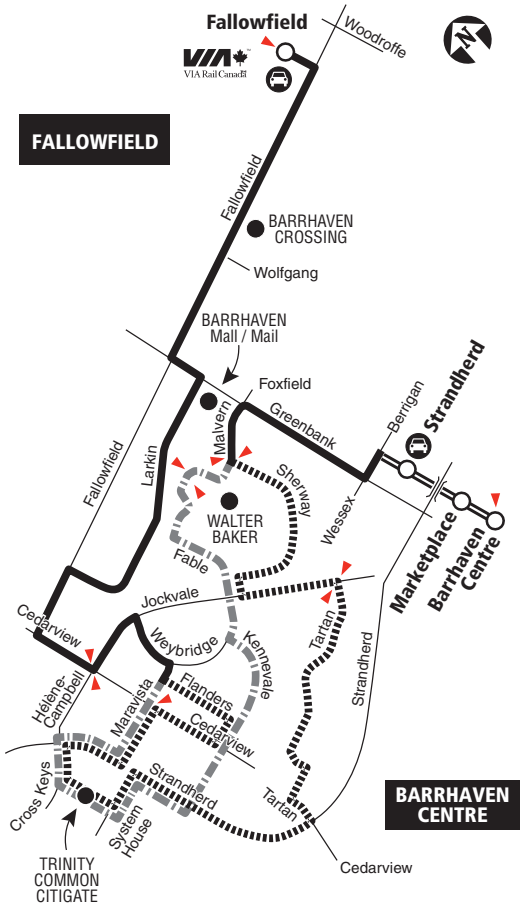
OC Transpo System Information


Fallowfield
74 75
73 170 171
173 179
270 271 272
273 275 277
278
305
Barrhaven Centre
75 99
80
170 171 173 175 176
225
305
Fallowfield
Longfields
Strandherd
Marketplace
Barrhaven Centre
Beatrice
Nepean Woods
Riverview

170 FALLOWFIELD / BARRHAVEN CENTRE

Local

7 days a week / 7 jours par semaine
All day service
Service toute la journée



	Transitway & Station
	Evenings and weekends only / Soirs et fins de semaine seulement
	No service evenings and weekends / Pas de service le soir et les fins de semaine
	Park & Ride / Parc-o-bus
	Timepoint / Heures de passage

2019.06

Schedule / Horaire.....613-560-1000
Text / Texto 560560
plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres

Customer Service
Service à la clientèle **613-741-4390**
Lost and Found / Objets perdus..... **613-563-4011**
Security / Sécurité..... **613-741-2478**

Effective June 25, 2017
En vigueur 25 juin 2017

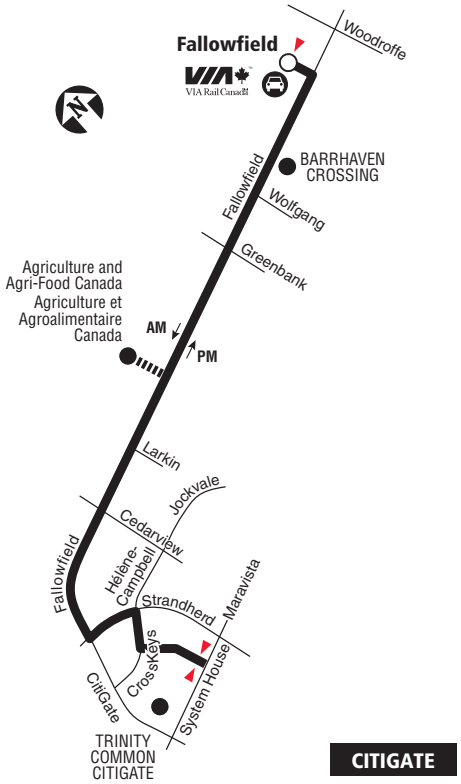
OC Transpo
INFO 613-741-4390
octranspo.com

179 FALLOWFIELD / CITIGATE

Local

Monday to Friday / Lundi au vendredi
Peak periods only
Périodes de pointe seulement

FALLOWFIELD



CITIGATE

Transitway & Station
Some trips / Quelques trajets
Park & Ride / Parc-o-bus
Timepoint / Heures de passage

2019.06

Schedule / Horaire.....613-560-1000
Text / Texto 560560
plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres

Customer Service
Service à la clientèle **613-842-3600**
Lost and Found / Objets perdus..... **613-563-4011**
Security / Sécurité..... **613-741-2478**

Effective June 25, 2017
En vigueur 25 juin 2017

OC Transpo
INFO 613-741-4390
octranspo.com

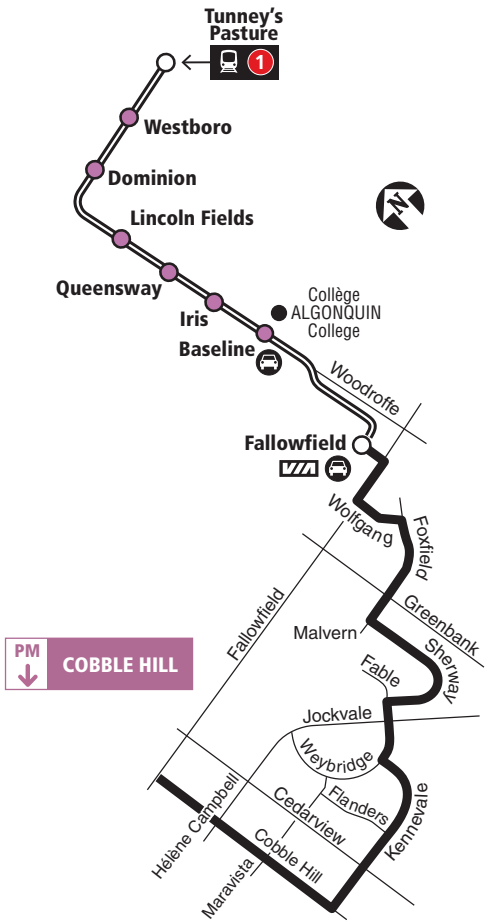
272 Connexion

COBBLE HILL
TUNNEY'S PASTURE

Monday to Friday / Lundi au vendredi

Peak periods only
Périodes de pointe seulement

AM ↑ TUNNEY'S PASTURE



PM ↓ COBBLE HILL

Transitway & Station

Limited stops: Off only in AM / No stop in PM
Arrêts limités : Débarquement en AM seul. / Aucun arrêt en PM

Park & Ride / Parc-o-bus

2020.01

Schedule / Horaire.....613-560-1000
Text / Texto 560560

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

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

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

Security / Sécurité..... **613-741-2478**

Effective January 5, 2020
En vigueur 5 janvier 2020

OC Transpo

INFO 613-741-4390
octranspo.com

APPENDIX D

Traffic Count Data

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
37872

CROSSKEYS PL/HELENE CAMPBELL RD @ STRANDHERD DR

Count Date: Wednesday, May 30, 2018 **Start Time:** 07:00

	STRANDHERD DR			CROSSKEYS PL/HELENE CAMPBELL RD			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	0	0	**0**	0	1	**1**	**1**
08:00 09:00	2	1	**3**	1	2	**3**	**6**
09:00 10:00	0	0	**0**	1	0	**1**	**1**
11:30 12:30	0	2	**2**	1	2	**3**	**5**
12:30 13:30	0	1	**1**	0	2	**2**	**3**
15:00 16:00	0	2	**2**	1	0	**1**	**3**
16:00 17:00	0	1	**1**	0	1	**1**	**2**
17:00 18:00	4	1	**5**	5	5	**10**	**15**
Total	6	8	**14**	9	13	**22**	**36**

Comment:

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

Work Order
37872

Turning Movement Count - Pedestrian Volume Report

CROSSKEYS PL/HELENE CAMPBELL RD @ STRANDHERD DR

Count Date: Wednesday, May 30, 2018 **Start Time:** 07:00

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	0	0	**0**	0	0	**0**	**0**
07:15 07:30	0	0	**0**	0	0	**0**	**0**
07:30 07:45	0	1	**1**	1	0	**1**	**2**
07:45 08:00	0	0	**0**	0	0	**0**	**0**
07:00 08:00	0	1	**1**	1	0	**1**	**2**
08:00 08:15	1	0	**1**	0	1	**1**	**2**
08:15 08:30	0	1	**1**	1	0	**1**	**2**
08:30 08:45	2	0	**2**	0	0	**0**	**2**
08:45 09:00	0	0	**0**	0	0	**0**	**0**
08:00 09:00	3	1	**4**	1	1	**2**	**6**
09:00 09:15	1	0	**1**	0	0	**0**	**1**
09:15 09:30	2	0	**2**	0	0	**0**	**2**
09:30 09:45	3	1	**4**	1	0	**1**	**5**
09:45 10:00	0	0	**0**	1	0	**1**	**1**
09:00 10:00	6	1	**7**	2	0	**2**	**9**
11:30 11:45	1	0	**1**	0	0	**0**	**1**
11:45 12:00	4	0	**4**	0	0	**0**	**4**
12:00 12:15	2	0	**2**	0	0	**0**	**2**
12:15 12:30	5	0	**5**	0	0	**0**	**5**
11:30 12:30	12	0	**12**	0	0	**0**	**12**
12:30 12:45	0	0	**0**	0	0	**0**	**0**
12:45 13:00	2	0	**2**	0	0	**0**	**2**
13:00 13:15	4	0	**4**	0	0	**0**	**4**
13:15 13:30	1	0	**1**	0	0	**0**	**1**
12:30 13:30	7	0	**7**	0	0	**0**	**7**
15:00 15:15	4	0	**4**	0	0	**0**	**4**
15:15 15:30	1	0	**1**	0	0	**0**	**1**
15:30 15:45	1	0	**1**	0	0	**0**	**1**
15:45 16:00	2	0	**2**	1	0	**1**	**3**
15:00 16:00	8	0	**8**	1	0	**1**	**9**
16:00 16:15	1	4	**5**	2	0	**2**	**7**
16:15 16:30	6	2	**8**	2	0	**2**	**10**
16:30 16:45	1	1	**2**	1	3	**4**	**6**
16:45 17:00	2	0	**2**	0	1	**1**	**3**
16:00 17:00	10	7	**17**	5	4	**9**	**26**
17:00 17:15	1	0	**1**	0	0	**0**	**1**
17:15 17:30	4	0	**4**	0	0	**0**	**4**
17:30 17:45	2	0	**2**	0	0	**0**	**2**
17:45 18:00	2	2	**4**	0	0	**0**	**4**
17:00 18:00	9	2	**11**	0	0	**0**	**11**
Total	55	12	**67**	10	5	**15**	**82**

Comment:

Transportation Services - Traffic Services

Work Order 37872

Turning Movement Count - Full Study Summary Report

CROSSKEYS PL/HELENE CAMPBELL RD @ STRANDHERD DR

Survey Date: Wednesday, May 30, 2018

Total Observed U-Turns

Northbound: 4 Southbound: 5

Eastbound: 0 Westbound: 0

AADT Factor .90

Full Study

	STRANDHERD DR									CROSSKEYS PL/HELENE CAMPBELL RD									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	20	1185	14	**1219**	36	600	59	**695**	**1914**	108	11	10	**129**	23	22	176	**221**	**350**	**2264**
08:00 09:00	19	1078	20	**1117**	35	625	76	**736**	**1853**	89	21	8	**118**	20	26	189	**235**	**353**	**2206**
09:00 10:00	35	769	17	**821**	34	485	143	**662**	**1483**	94	13	11	**118**	21	55	98	**174**	**292**	**1775**
11:30 12:30	45	588	9	**642**	36	585	212	**833**	**1475**	185	52	35	**272**	22	71	64	**157**	**429**	**1904**
12:30 13:30	50	559	12	**621**	34	583	178	**795**	**1416**	221	48	27	**296**	23	44	53	**120**	**416**	**1832**
15:00 16:00	39	691	12	**742**	80	847	237	**1164**	**1906**	224	68	22	**314**	18	69	74	**161**	**475**	**2381**
16:00 17:00	46	758	23	**827**	128	945	274	**1347**	**2174**	238	98	35	**371**	16	90	73	**179**	**550**	**2724**
17:00 18:00	42	698	15	**755**	128	938	289	**1355**	**2110**	192	96	28	**316**	17	102	92	**211**	**527**	**2637**
Sub Total	296	6326	122	**6744**	511	5608	1468	**7587**	**14331**	1351	407	176	**1934**	160	479	819	**1458**	**3392**	**17723**
U Turns				**4**				**5**	**9**				**0**				**0**	**0**	**9**
Total	296	6326	122	**6748**	511	5608	1468	**7592**	**14340**	1351	407	176	**1934**	160	479	819	**1458**	**3392**	**17732**
EQ 12Hr	411	8793	170	**9380**	710	7795	2041	**10553**	**19933**	1878	566	245	**2688**	222	666	1138	**2027**	**4715**	**24648**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	370	7914	153	**8442**	639	7016	1836	**9498**	**17940**	1690	509	220	**2419**	200	599	1025	**1824**	**4243**	**22183**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**.90**						
AVG 24Hr	485	10367	200	**11059**	837	9190	2406	**12442**	**23501**	2214	667	288	**3169**	262	785	1342	**2389**	**5558**	**29059**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

Comments:

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

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
37594

FALLOWFIELD RD @ STRANDHERD DR

Count Date: Thursday, March 08, 2018 **Start Time:** 07:00

	FALLOWFIELD RD			STRANDHERD DR			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	0	0	**0**	0	0	**0**	**0**
08:00 09:00	0	0	**0**	0	0	**0**	**0**
09:00 10:00	0	0	**0**	0	0	**0**	**0**
11:30 12:30	0	0	**0**	0	0	**0**	**0**
12:30 13:30	0	0	**0**	0	0	**0**	**0**
15:00 16:00	0	0	**0**	0	0	**0**	**0**
16:00 17:00	0	0	**0**	0	0	**0**	**0**
17:00 18:00	0	0	**0**	0	0	**0**	**0**
Total	0	0	**0**	0	0	**0**	**0**

Comment:

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

Work Order
37594

Turning Movement Count - Pedestrian Volume Report

FALLOWFIELD RD @ STRANDHERD DR

Count Date: Thursday, March 08, 2018 **Start Time:** 07:00

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	0	0	**0**	0	0	**0**	**0**
07:15 07:30	0	0	**0**	0	0	**0**	**0**
07:30 07:45	0	0	**0**	0	0	**0**	**0**
07:45 08:00	0	0	**0**	0	0	**0**	**0**
07:00 08:00	0	0	**0**	0	0	**0**	**0**
08:00 08:15	0	0	**0**	0	0	**0**	**0**
08:15 08:30	0	0	**0**	0	0	**0**	**0**
08:30 08:45	0	0	**0**	0	0	**0**	**0**
08:45 09:00	0	0	**0**	0	0	**0**	**0**
08:00 09:00	0	0	**0**	0	0	**0**	**0**
09:00 09:15	0	0	**0**	0	0	**0**	**0**
09:15 09:30	0	0	**0**	0	0	**0**	**0**
09:30 09:45	0	0	**0**	0	0	**0**	**0**
09:45 10:00	0	0	**0**	0	0	**0**	**0**
09:00 10:00	0	0	**0**	0	0	**0**	**0**
11:30 11:45	0	0	**0**	0	0	**0**	**0**
11:45 12:00	0	0	**0**	0	0	**0**	**0**
12:00 12:15	0	0	**0**	0	0	**0**	**0**
12:15 12:30	0	0	**0**	0	0	**0**	**0**
11:30 12:30	0	0	**0**	0	0	**0**	**0**
12:30 12:45	0	0	**0**	0	0	**0**	**0**
12:45 13:00	0	0	**0**	0	0	**0**	**0**
13:00 13:15	0	0	**0**	0	0	**0**	**0**
13:15 13:30	0	0	**0**	0	0	**0**	**0**
12:30 13:30	0	0	**0**	0	0	**0**	**0**
15:00 15:15	2	0	**2**	0	0	**0**	**2**
15:15 15:30	0	0	**0**	0	0	**0**	**0**
15:30 15:45	0	0	**0**	0	0	**0**	**0**
15:45 16:00	0	0	**0**	0	0	**0**	**0**
15:00 16:00	2	0	**2**	0	0	**0**	**2**
16:00 16:15	0	0	**0**	0	0	**0**	**0**
16:15 16:30	0	0	**0**	0	0	**0**	**0**
16:30 16:45	0	0	**0**	0	0	**0**	**0**
16:45 17:00	0	0	**0**	0	0	**0**	**0**
16:00 17:00	0	0	**0**	0	0	**0**	**0**
17:00 17:15	0	0	**0**	0	0	**0**	**0**
17:15 17:30	0	0	**0**	0	0	**0**	**0**
17:30 17:45	0	0	**0**	0	0	**0**	**0**
17:45 18:00	0	0	**0**	0	0	**0**	**0**
17:00 18:00	0	0	**0**	0	0	**0**	**0**
Total	2	0	**2**	0	0	**0**	**2**

Comment:

Transportation Services - Traffic Services

Work Order
37594

Turning Movement Count - Full Study Summary Report

FALLOWFIELD RD @ STRANDHERD DR

Survey Date: Thursday, March 08, 2018

Total Observed U-Turns

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

AADT Factor
1.00

Full Study

	FALLOWFIELD RD									STRANDHERD DR									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	7	1	2	**10**	29	3	304	**336**	**346**	565	618	12	**1195**	2	1239	40	**1281**	**2476**	**2822**
08:00 09:00	13	4	0	**17**	35	5	472	**512**	**529**	475	602	17	**1094**	0	1438	47	**1485**	**2579**	**3108**
09:00 10:00	11	0	5	**16**	45	5	257	**307**	**323**	246	514	8	**768**	2	858	44	**904**	**1672**	**1995**
11:30 12:30	6	1	6	**13**	67	2	159	**228**	**241**	177	626	23	**826**	0	620	52	**672**	**1498**	**1739**
12:30 13:30	8	4	2	**14**	64	3	195	**262**	**276**	169	655	13	**837**	1	602	74	**677**	**1514**	**1790**
15:00 16:00	26	0	3	**29**	100	9	354	**463**	**492**	242	967	13	**1222**	1	738	68	**807**	**2029**	**2521**
16:00 17:00	16	2	3	**21**	104	11	550	**665**	**686**	341	1125	29	**1495**	1	853	63	**917**	**2412**	**3098**
17:00 18:00	13	4	0	**17**	90	3	448	**541**	**558**	306	1098	12	**1416**	0	766	72	**838**	**2254**	**2812**
Sub Total	100	16	21	**137**	534	41	2739	**3314**	**3451**	2521	6205	127	**8853**	7	7114	460	**7581**	**16434**	**19885**
U Turns				**0**				**0**	**0**				**2**				**0**	**2**	**2**
Total	100	16	21	**137**	534	41	2739	**3314**	**3451**	2521	6205	127	**8855**	7	7114	460	**7581**	**16436**	**19887**
EQ 12Hr	139	22	29	**190**	742	57	3807	**4606**	**4796**	3504	8625	177	**12308**	10	9888	639	**10538**	**22846**	**27642**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	139	22	29	**190**	742	57	3807	**4606**	**4796**	3504	8625	177	**12308**	10	9888	639	**10538**	**22846**	**27642**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**1.00**						
AVG 24Hr	182	29	38	**249**	972	75	4987	**6034**	**6283**	4590	11299	231	**16124**	13	12954	838	**13804**	**29928**	**36211**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

Comments:

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

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
37426

MARAVISTA DR @ STRANDHERD DR

Count Date: Thursday, January 18, 2018 **Start Time:** 07:00

	STRANDHERD DR			MARAVISTA DR			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	0	0	**0**	0	0	**0**	**0**
08:00 09:00	0	0	**0**	0	0	**0**	**0**
09:00 10:00	0	0	**0**	0	0	**0**	**0**
11:30 12:30	1	0	**1**	0	0	**0**	**1**
12:30 13:30	0	0	**0**	0	0	**0**	**0**
15:00 16:00	0	0	**0**	0	0	**0**	**0**
16:00 17:00	0	0	**0**	0	0	**0**	**0**
17:00 18:00	0	0	**0**	0	0	**0**	**0**
Total	1	0	**1**	0	0	**0**	**1**

Comment:

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

Work Order
37426

Turning Movement Count - Pedestrian Volume Report

MARAVISTA DR @ STRANDHERD DR

Count Date: Thursday, January 18, 2018 **Start Time:** 07:00

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	0	0	**0**	0	0	**0**	**0**
07:15 07:30	0	0	**0**	0	0	**0**	**0**
07:30 07:45	0	0	**0**	0	0	**0**	**0**
07:45 08:00	0	1	**1**	0	0	**0**	**1**
07:00 08:00	0	1	**1**	0	0	**0**	**1**
08:00 08:15	0	0	**0**	0	0	**0**	**0**
08:15 08:30	0	0	**0**	0	0	**0**	**0**
08:30 08:45	0	1	**1**	0	0	**0**	**1**
08:45 09:00	0	0	**0**	0	0	**0**	**0**
08:00 09:00	0	1	**1**	0	0	**0**	**1**
09:00 09:15	0	0	**0**	0	0	**0**	**0**
09:15 09:30	0	0	**0**	0	0	**0**	**0**
09:30 09:45	0	1	**1**	0	0	**0**	**1**
09:45 10:00	0	0	**0**	0	0	**0**	**0**
09:00 10:00	0	1	**1**	0	0	**0**	**1**
11:30 11:45	0	0	**0**	0	0	**0**	**0**
11:45 12:00	0	0	**0**	0	0	**0**	**0**
12:00 12:15	0	2	**2**	0	0	**0**	**2**
12:15 12:30	0	0	**0**	0	0	**0**	**0**
11:30 12:30	0	2	**2**	0	0	**0**	**2**
12:30 12:45	0	0	**0**	0	0	**0**	**0**
12:45 13:00	0	0	**0**	0	0	**0**	**0**
13:00 13:15	1	3	**4**	0	1	**1**	**5**
13:15 13:30	0	1	**1**	0	0	**0**	**1**
12:30 13:30	1	4	**5**	0	1	**1**	**6**
15:00 15:15	1	2	**3**	0	0	**0**	**3**
15:15 15:30	0	0	**0**	0	0	**0**	**0**
15:30 15:45	0	1	**1**	0	0	**0**	**1**
15:45 16:00	0	4	**4**	0	0	**0**	**4**
15:00 16:00	1	7	**8**	0	0	**0**	**8**
16:00 16:15	0	0	**0**	0	0	**0**	**0**
16:15 16:30	0	2	**2**	0	0	**0**	**2**
16:30 16:45	0	1	**1**	0	0	**0**	**1**
16:45 17:00	0	1	**1**	0	0	**0**	**1**
16:00 17:00	0	4	**4**	0	0	**0**	**4**
17:00 17:15	0	3	**3**	0	0	**0**	**3**
17:15 17:30	0	0	**0**	0	0	**0**	**0**
17:30 17:45	0	0	**0**	0	0	**0**	**0**
17:45 18:00	0	1	**1**	0	0	**0**	**1**
17:00 18:00	0	4	**4**	0	0	**0**	**4**
Total	2	24	**26**	0	1	**1**	**27**

Comment:

Transportation Services - Traffic Services

Work Order 37426

Turning Movement Count - Full Study Summary Report

MARAVISTA DR @ STRANDHERD DR

Survey Date: Thursday, January 18, 2018

Total Observed U-Turns

Northbound: 2 Southbound: 36

Eastbound: 0 Westbound: 0

AADT Factor 1.00

Full Study

	STRANDHERD DR									MARAVISTA DR									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	95	937	9	**1041**	18	465	9	**492**	**1533**	52	7	28	**87**	7	22	110	**139**	**226**	**1759**
08:00 09:00	104	1034	15	**1153**	26	482	5	**513**	**1666**	59	9	49	**117**	11	26	104	**141**	**258**	**1924**
09:00 10:00	159	630	12	**801**	29	444	20	**493**	**1294**	52	7	59	**118**	9	31	72	**112**	**230**	**1524**
11:30 12:30	258	431	15	**704**	37	480	31	**548**	**1252**	83	18	165	**266**	17	29	35	**81**	**347**	**1599**
12:30 13:30	233	418	12	**663**	38	578	19	**635**	**1298**	72	12	183	**267**	8	24	28	**60**	**327**	**1625**
15:00 16:00	234	506	19	**759**	72	739	16	**827**	**1586**	68	40	216	**324**	18	40	30	**88**	**412**	**1998**
16:00 17:00	235	625	21	**881**	123	842	26	**991**	**1872**	69	58	196	**323**	13	49	43	**105**	**428**	**2300**
17:00 18:00	243	556	7	**806**	134	848	25	**1007**	**1813**	63	56	198	**317**	10	56	40	**106**	**423**	**2236**
Sub Total	1561	5137	110	**6808**	477	4878	151	**5506**	**12314**	518	207	1094	**1819**	93	277	462	**832**	**2651**	**14965**
U Turns				**2**				**36**	**38**				**0**				**0**	**0**	**38**
Total	1561	5137	110	**6810**	477	4878	151	**5542**	**12352**	518	207	1094	**1819**	93	277	462	**832**	**2651**	**15003**
EQ 12Hr	2170	7140	153	**9466**	663	6780	210	**7703**	**17169**	720	288	1521	**2528**	129	385	642	**1156**	**3684**	**20853**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	2170	7140	153	**9466**	663	6780	210	**7703**	**17169**	720	288	1521	**2528**	129	385	642	**1156**	**3684**	**20853**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**1.00**						
AVG 24Hr	2842	9354	200	**12400**	869	8882	275	**10091**	**22491**	943	377	1992	**3312**	169	504	841	**1515**	**4827**	**27318**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

Comments:

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

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
37427

STRANDHERD @ KENNEVALE DR

Count Date: Thursday, January 18, 2018 **Start Time:** 07:00

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

Comment:

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

Work Order
37427

Turning Movement Count - Pedestrian Volume Report

STRANDHERD @ KENNEVALE DR

Count Date: Thursday, January 18, 2018 **Start Time:** 07:00

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	0	0	**0**	0	0	**0**	**0**
07:15 07:30	0	0	**0**	0	0	**0**	**0**
07:30 07:45	0	0	**0**	0	0	**0**	**0**
07:45 08:00	0	0	**0**	0	0	**0**	**0**
07:00 08:00	0	0	**0**	0	0	**0**	**0**
08:00 08:15	0	0	**0**	0	0	**0**	**0**
08:15 08:30	0	0	**0**	0	0	**0**	**0**
08:30 08:45	0	0	**0**	0	0	**0**	**0**
08:45 09:00	1	0	**1**	0	0	**0**	**1**
08:00 09:00	1	0	**1**	0	0	**0**	**1**
09:00 09:15	0	0	**0**	0	0	**0**	**0**
09:15 09:30	0	0	**0**	0	0	**0**	**0**
09:30 09:45	0	0	**0**	0	0	**0**	**0**
09:45 10:00	0	0	**0**	0	0	**0**	**0**
09:00 10:00	0	0	**0**	0	0	**0**	**0**
11:30 11:45	0	0	**0**	0	0	**0**	**0**
11:45 12:00	0	0	**0**	0	0	**0**	**0**
12:00 12:15	0	0	**0**	0	0	**0**	**0**
12:15 12:30	0	0	**0**	0	0	**0**	**0**
11:30 12:30	0	0	**0**	0	0	**0**	**0**
12:30 12:45	0	0	**0**	0	0	**0**	**0**
12:45 13:00	2	0	**2**	0	0	**0**	**2**
13:00 13:15	0	0	**0**	0	0	**0**	**0**
13:15 13:30	0	0	**0**	0	0	**0**	**0**
12:30 13:30	2	0	**2**	0	0	**0**	**2**
15:00 15:15	0	0	**0**	0	0	**0**	**0**
15:15 15:30	0	0	**0**	0	0	**0**	**0**
15:30 15:45	0	0	**0**	0	0	**0**	**0**
15:45 16:00	1	0	**1**	0	0	**0**	**1**
15:00 16:00	1	0	**1**	0	0	**0**	**1**
16:00 16:15	0	0	**0**	0	0	**0**	**0**
16:15 16:30	1	0	**1**	0	0	**0**	**1**
16:30 16:45	1	0	**1**	0	1	**1**	**2**
16:45 17:00	0	0	**0**	0	0	**0**	**0**
16:00 17:00	2	0	**2**	0	1	**1**	**3**
17:00 17:15	0	0	**0**	0	0	**0**	**0**
17:15 17:30	0	0	**0**	0	0	**0**	**0**
17:30 17:45	0	0	**0**	0	0	**0**	**0**
17:45 18:00	0	0	**0**	0	0	**0**	**0**
17:00 18:00	0	0	**0**	0	0	**0**	**0**
Total	6	0	**6**	0	1	**1**	**7**

Comment:

Transportation Services - Traffic Services

Work Order
37427

Turning Movement Count - Full Study Summary Report

STRANDHERD @ KENNEVALE DR

Survey Date: Thursday, January 18, 2018

Total Observed U-Turns

Northbound: 10 Southbound: 4

Eastbound: 0 Westbound: 0

AADT Factor
1.00

Full Study

	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	14	945	57	**1016**	35	466	19	**520**	**1536**	4	1	6	**11**	80	3	100	**183**	**194**	**1730**
08:00 09:00	23	1039	93	**1155**	53	477	23	**553**	**1708**	8	2	8	**18**	96	2	105	**203**	**221**	**1929**
09:00 10:00	28	696	65	**789**	47	448	14	**509**	**1298**	17	4	10	**31**	52	1	56	**109**	**140**	**1438**
11:30 12:30	14	603	57	**674**	69	589	21	**679**	**1353**	22	5	15	**42**	61	5	60	**126**	**168**	**1521**
12:30 13:30	16	567	60	**643**	60	683	18	**761**	**1404**	23	0	6	**29**	60	1	63	**124**	**153**	**1557**
15:00 16:00	20	670	100	**790**	83	866	23	**972**	**1762**	25	7	20	**52**	111	5	74	**190**	**242**	**2004**
16:00 17:00	11	749	132	**892**	72	983	13	**1068**	**1960**	29	8	20	**57**	128	5	80	**213**	**270**	**2230**
17:00 18:00	12	718	98	**828**	70	989	11	**1070**	**1898**	17	3	17	**37**	106	5	71	**182**	**219**	**2117**
Sub Total	138	5987	662	**6787**	489	5501	142	**6132**	**12919**	145	30	102	**277**	694	27	609	**1330**	**1607**	**14526**
U Turns				**10**				**4**	**14**				**0**				**0**	**0**	**14**
Total	138	5987	662	**6797**	489	5501	142	**6136**	**12933**	145	30	102	**277**	694	27	609	**1330**	**1607**	**14540**
EQ 12Hr	192	8322	920	**9448**	680	7646	197	**8529**	**17977**	202	42	142	**385**	965	38	847	**1849**	**2234**	**20211**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	192	8322	920	**9448**	680	7646	197	**8529**	**17977**	202	42	142	**385**	965	38	847	**1849**	**2234**	**20211**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**1.00**						
AVG 24Hr	251	10902	1205	**12377**	890	10017	259	**11173**	**23550**	264	55	186	**504**	1264	49	1109	**2422**	**2926**	**26476**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

Comments:

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

Turning Movement Count

Summary Report Including AM/PM Peak Hours, PHF, AADT and Expansion Factors

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Citigate Drive & CrossKeys Place (Roundabout) — Nepean, ON

Survey Date: Thursday, 23 August 2018 **Start Time:** 0700 **AADT Factor:** 0.9

Weather-AM/PM Clear 12C/Clear 26C **Survey Duration:** 8 Hrs. **Survey Hours:** 0700-1000, 1130-1330 & 1500-1800

	N/A (Eastbound)					CrossKeys Pl. (Westbound)						N/A (Northbound)					Citigate Dr. (Southbound)						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0700-0800	0	0	0	0	0	0	0	20	3	23	23	0	0	0	0	0	17	0	0	0	17	17	40
0800-0900	0	0	0	0	0	0	0	15	2	17	17	0	0	0	0	0	24	0	0	0	24	24	41
0900-1000	0	0	0	0	0	0	0	11	9	20	20	0	0	0	0	0	28	0	0	1	29	29	49
1130-1230	0	0	0	0	0	0	0	24	17	41	41	0	0	0	0	0	44	0	0	2	46	46	87
1230-1330	0	0	0	0	0	0	0	26	22	48	48	0	0	0	0	0	49	0	0	1	50	50	98
1500-1600	0	0	0	0	0	0	0	11	22	33	33	0	0	0	0	0	58	0	0	2	60	60	93
1600-1700	0	0	0	0	0	0	0	15	13	28	28	0	0	0	0	0	64	0	0	0	64	64	92
1700-1800	0	0	0	0	0	0	0	7	21	28	28	0	0	0	0	0	71	0	0	0	71	71	99
Totals	0	0	0	0	0	0	0	129	109	238	238	0	0	0	0	0	355	0	0	6	361	361	599

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

➡ Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts ⬅

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 ➡12 expansion factor of 1.39

Equ. 12 Hr	0	0	0	0	0	0	0	179	152	331	331	0	0	0	0	0	493	0	0	8	502	502	833

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 0.9

AADT 12-hr	0	0	0	0	0	0	0	161	136	298	298	0	0	0	0	0	444	0	0	8	452	452	749

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 ➡24 expansion factor of 1.31

AADT 24 Hr	0	0	0	0	0	0	0	211	179	390	390	0	0	0	0	0	582	0	0	10	592	592	982

AM Peak Hour Factor ➡ 0.68 — Highest Hourly Vehicle Volume between 0700h & 1000h

AM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
0900-1000	0	0	0	0	0	0	0	11	9	20	20	0	0	0	0	0	28	0	0	1	29	29	49

OFF Peak Hour Factor ➡ 0.82 — Highest Hourly Vehicle Volume between 1130h & 1330h

Off Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1230-1330	0	0	0	0	0	0	0	26	22	48	48	0	0	0	0	0	49	0	0	1	50	50	98

PM Peak Hour Factor ➡ 0.80 — Highest Hourly Vehicle Volume between 1500h & 1800h

PM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1630-1730	0	0	0	0	0	0	0	13	18	31	31	0	0	0	0	0	72	0	0	0	72	72	103

Comments

The west leg and south leg of the roundabout have not been constructed.

Notes:

1. Includes all vehicle types except bicycles and electric scooters.
2. Expansion factors are not applied to turning movement counts if they are less than 8-hours in duration.
3. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

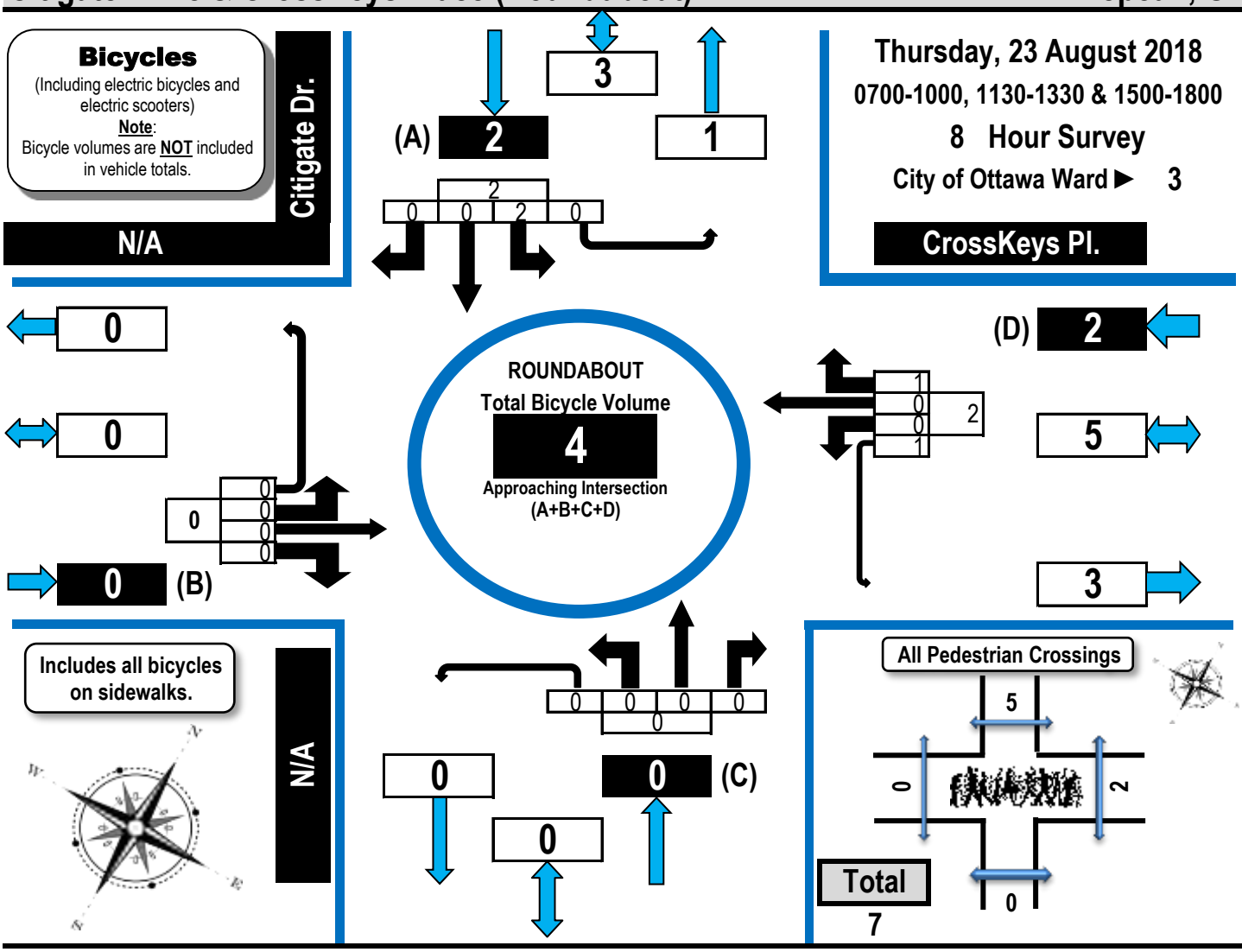
Disclaimer:

The information contained in this data summary is for information purposes only, and may not apply to your situation. Every effort is made to ensure the traffic count information is accurate for the survey date provided on the summary and flow diagram forms. The author, publisher, and distributor provide no warranty about the content or accuracy of either the data summary or flow diagrams. Information provided is subjective. The author, publisher, and distributor shall not be liable for any loss of profit or any other commercial damages resulting from use of this data.

Turning Movement Count
Bicycle Summary
Flow Diagram

Bicycles, Electric Bicycles, and Electric Scooters

Citigate Drive & CrossKeys Place (Roundabout) — Nepean, ON



Citigate Drive & CrossKeys Place (Roundabout) — Nepean, ON

Survey Date: Thursday, 23 August 2018 **Start Time:** 0700
Weather: Clear 12C/Clear 26C **Survey Duration:** 8 Hrs. **Survey Hours:** 0700-1000, 1130-1330 & 1500-1800
(AM/PM)

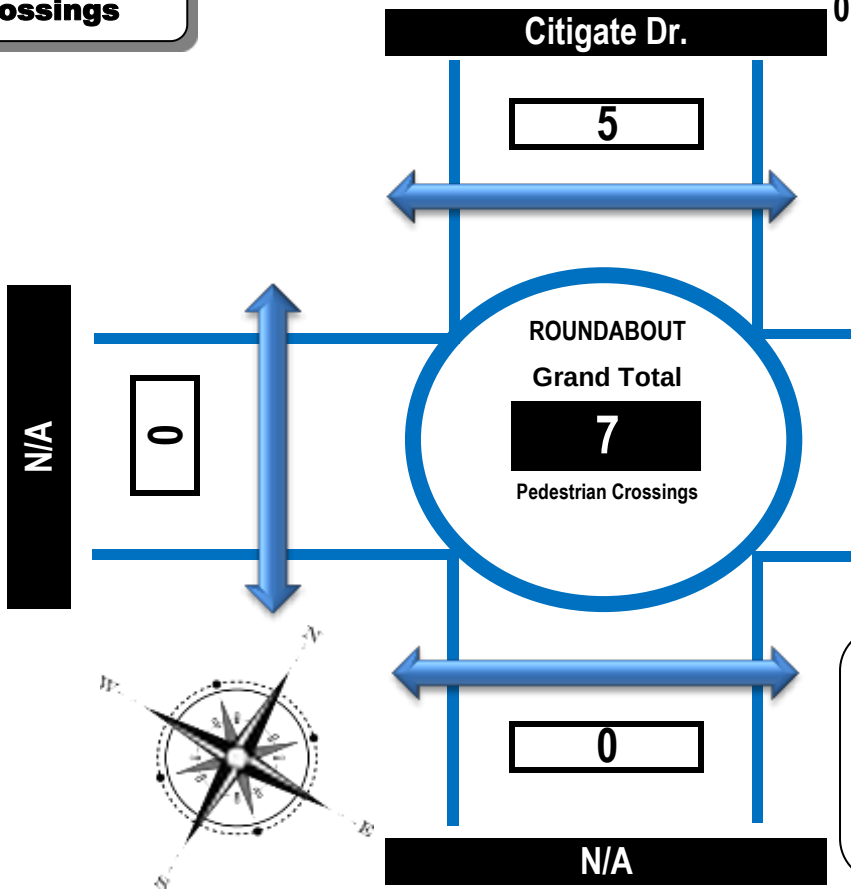
	N/A Eastbound					CrossKeys Pl. Westbound					N/A Northbound					Citigate Dr. Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0700-0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900-1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1130-1230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1230-1330	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	2	0	0	0	2	4
1500-1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600-1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	2	0	0	0	2	4

Turning Movement Count
Pedestrian Crossings Summary and Flow Diagram

Citigate Drive & CrossKeys Place (Roundabout) — Nepean, ON

Pedestrian Crossings

Thursday, 23 August 2018
0700-1000, 1130-1330 & 1500-1800
8 Hours
City of Ottawa Ward ► 3



Note
*The values in the summary table below and the flow diagram represent the number of pedestrian crossing**s** **NOT** the number of individual pedestrian**s** crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Citigate Drive & CrossKeys Place (Roundabout) — Nepean, ON

Survey Date: Thursday, 23 August 2018 **Start Time:** 0700
Weather: Clear 12C/Clear 26C **Survey Duration:** 8 Hrs. **Survey Hours:** 0700-1000, 1130-1330 & 1500-1800
(AM/PM)

Time Period	West Side Crossing N/A	East Side Crossing CrossKeys Pl.	Street Total	South Side Crossing N/A	North Side Crossing Citigate Dr.	Street Total	Grand Total
0700-0800	0	0	0	0	1	1	1
0800-0900	0	0	0	0	0	0	0
0900-1000	0	0	0	0	0	0	0
1130-1230	0	0	0	0	1	1	1
1230-1330	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	0
1600-1700	0	0	0	0	1	1	1
1700-1800	0	2	2	0	2	2	4
Totals	0	2	2	0	5	5	7

Turning Movement Count
Summary Report Including AM, OFF Peak, PM, Evening Peak Hours, and PHF

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Fallowfield Road & Highway 416 S/B On & Off Ramps — Nepean, ON

Survey Date: Tuesday, 3 March 2020 **Start Time:** 0600 **AADT Factor:** 1.0

Weather AM: Clear -1° C **Survey Duration:** 10 Hrs. **Survey Hours:** 0600-1000, 1130-1330, & 1500-1900

Weather PM: Light Rain +3° C **Surveyor(s):** T. Carmody

	Fallowfield Rd. Eastbound					Fallowfield Rd. Westbound						Hwy 416 S/B On Ramp Northbound					Hwy 416 S/B On/Off Ramps Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0600-0700	0	742	72	0	**814**	0	489	34	0	**523**	**1337**	0	0	0	0	**0**	242	0	180	0	**422**	**422**	**1759**
0700-0800	0	1257	135	0	**1392**	0	771	47	0	**818**	**2210**	0	0	0	0	**0**	365	0	114	0	**479**	**479**	**2689**
0800-0900	0	1014	112	0	**1126**	0	851	59	0	**910**	**2036**	0	0	0	0	**0**	327	0	105	0	**432**	**432**	**2468**
0900-1000	0	794	89	0	**883**	0	644	40	0	**684**	**1567**	0	0	0	0	**0**	244	0	110	0	**354**	**354**	**1921**
1130-1200	0	308	43	0	**351**	0	257	45	0	**302**	**653**	0	0	0	0	**0**	157	0	65	0	**222**	**222**	**875**
1200-1300	0	668	74	0	**742**	0	556	113	0	**669**	**1411**	0	0	0	0	**0**	372	0	120	0	**492**	**492**	**1903**
1300-1330	0	286	36	0	**322**	0	300	44	0	**344**	**666**	0	0	0	0	**0**	155	0	56	0	**211**	**211**	**877**
1500-1600	0	775	162	0	**937**	0	927	143	0	**1070**	**2007**	0	0	0	0	**0**	633	0	249	0	**882**	**882**	**2889**
1600-1700	0	876	206	0	**1082**	0	1072	209	0	**1281**	**2363**	0	0	0	0	**0**	731	0	307	0	**1038**	**1038**	**3401**
1700-1800	0	735	147	0	**882**	0	768	188	0	**956**	**1838**	0	0	0	0	**0**	761	0	259	0	**1020**	**1020**	**2858**
1800-1900	0	548	80	0	**628**	0	678	92	0	**770**	**1398**	0	0	0	0	**0**	539	0	167	0	**706**	**706**	**2104**
Totals	**0**	**8003**	**1156**	**0**	**9159**	**0**	**7313**	**1014**	**0**	**8327**	**17486**	**0**	**0**	**0**	**0**	**0**	**4526**	**0**	**1732**	**0**	**6258**	**6258**	**23744**

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

AM Peak Hour Factor ➡ 0.97												Highest Hourly Vehicle Volume Between 0500h & 1000h											
AM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
0715-0815	0	1272	138	0	**1410**	0	805	52	0	**857**	**2267**	0	0	0	0	**0**	373	0	107	0	**480**	**480**	**2747**
OFF Peak Hour Factor ➡ 0.95												Highest Hourly Vehicle Volume Between 1000h & 1500h											
OFF Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1200-1300	0	668	74	0	**742**	0	556	113	0	**669**	**1411**	0	0	0	0	**0**	372	0	120	0	**492**	**492**	**1903**
PM Peak Hour Factor ➡ 0.92												Highest Hourly Vehicle Volume Between 1500h & 1900h											
PM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1615-1715	0	875	212	0	**1087**	0	1036	218	0	**1254**	**2341**	0	0	0	0	**0**	746	0	314	0	**1060**	**1060**	**3401**
EVNG Peak Hour Factor ➡ N/A												Highest Hourly Vehicle Volume Between 1900h & 0000h											
EVNG Pk Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
N/A	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	0	0	0	**0**	0	0	0	0	**0**	**0**	**0**

Comments:

Westbound traffic would occasionally back up from Moodie Drive to the southbound Highway 416 off-ramp during the PM peak period; however, it would clear relatively quickly.

Notes:

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

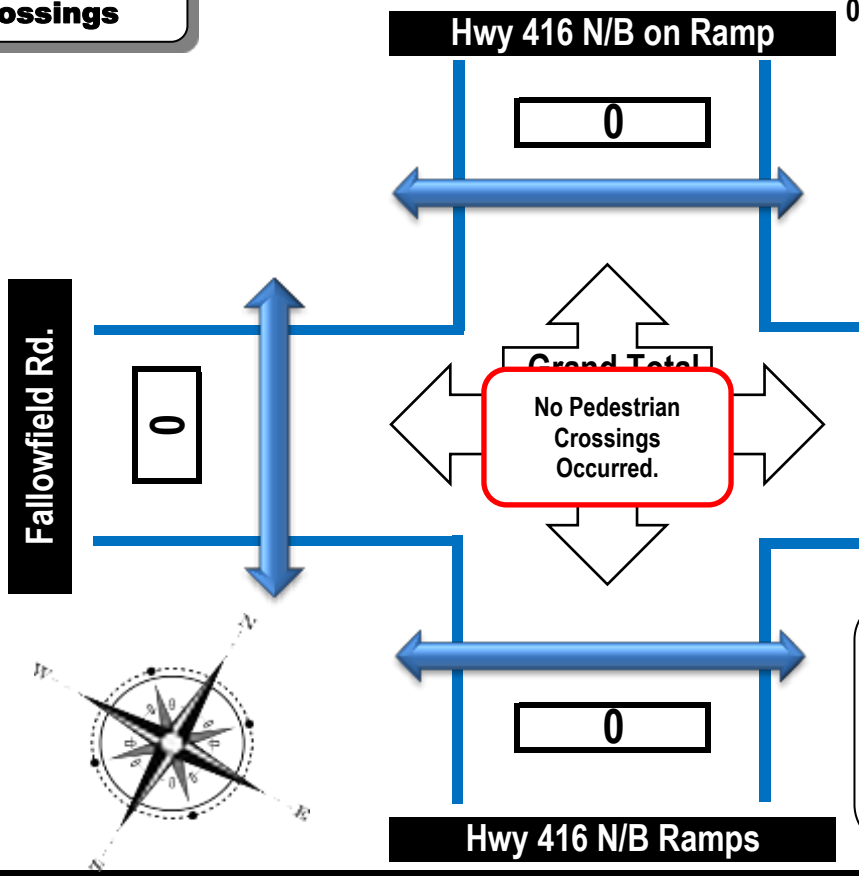
Turning Movement Count

Pedestrian Crossings Summary
and Flow Diagram

Fallowfield Road & Highway 416 N/B On & Off Ramps — Nepean, ON

Pedestrian Crossings

Tuesday, 3 March 2020
0600-1000, 1130-1330 & 1500-1900
10 Hour Survey
City of Ottawa Ward ▶ 3



Note

*The values in the summary table below and the flow diagram represent the number of pedestrian crossing**s** **NOT** the number of individual pedestrian**s** crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Time Period	West Side Crossing Fallowfield Rd.	East Side Crossing Fallowfield Rd.	Street Total	South Side Crossing Hwy 416 N/B Ramps	North Side Crossing Hwy 416 N/B on Ramp	Street Total	Grand Total
0600-0700	0	0	0	0	0	0	0
0700-0800	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0
0900-1000	0	0	0	0	0	0	0
1130-1200	0	0	0	0	0	0	0
1200-1300	0	0	0	0	0	0	0
1300-1330	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	0
1600-1700	0	0	0	0	0	0	0
1700-1800	0	0	0	0	0	0	0
1800-1900	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0

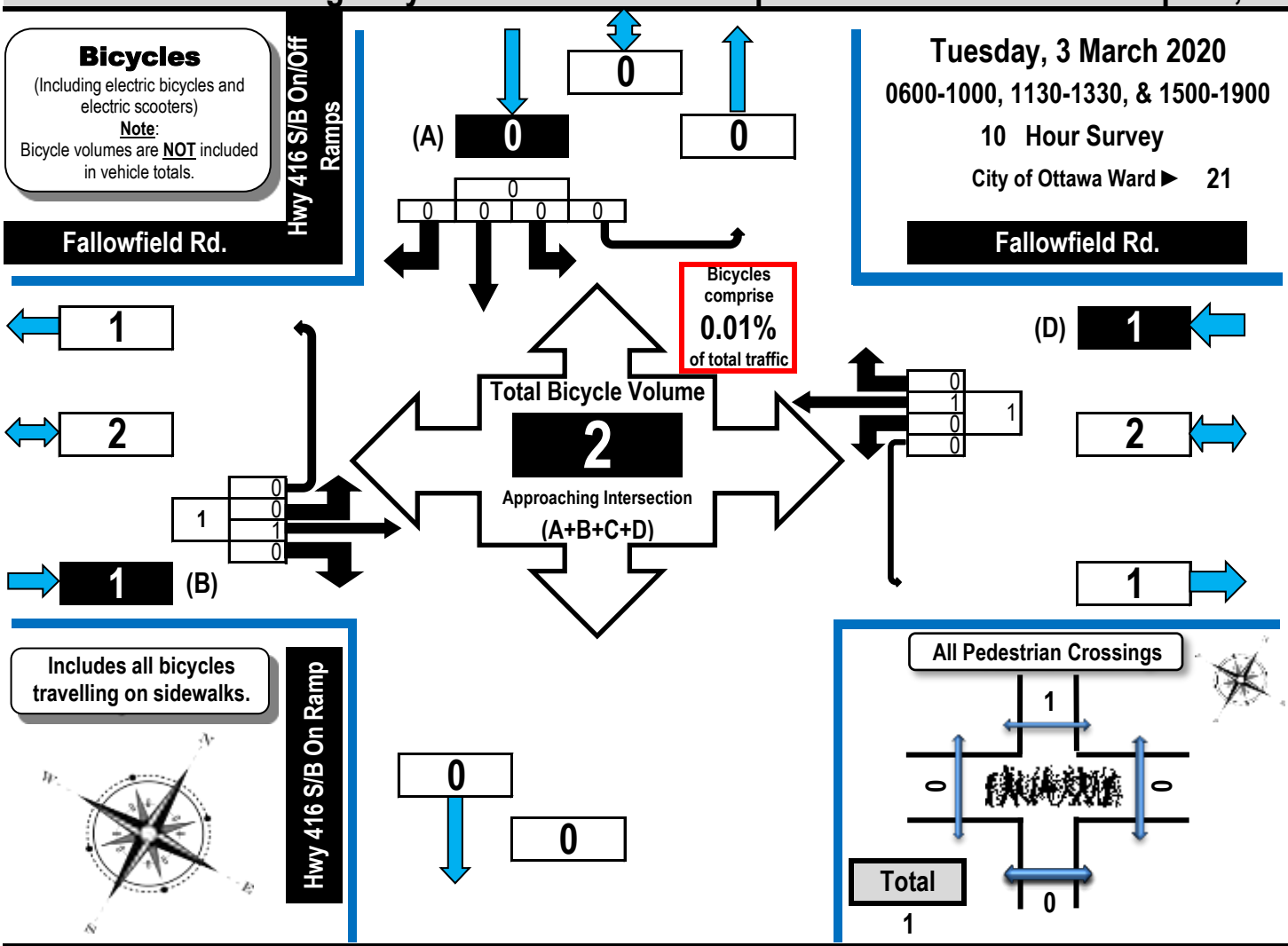
No Pedestrian Crossings Occurred.

Comments:
No pedestrian crossings were observed.

Turning Movement Count
Bicycle Summary
Flow Diagram

Fallowfield Road & Highway 416 S/B On & Off Ramps — Nepean, ON

Bicycles
(Including electric bicycles and electric scooters)
Note:
Bicycle volumes are NOT included in vehicle totals.



	Fallowfield Rd. Eastbound					Fallowfield Rd. Westbound					Hwy 416 S/B On Ramp Northbound					Hwy 416 S/B On/Off Ramps Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700-0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900-1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1130-1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200-1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300-1330	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
1500-1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600-1700	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800-1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2

Turning Movement Count
Summary Report Including AM, OFF Peak, PM, Evening Peak Hours, and PHF

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Fallowfield Road & Highway 416 N/B On & Off Ramps — Nepean, ON

Survey Date: Tuesday, 3 March 2020 **Start Time:** 0600 **AADT Factor:** 1.0

Weather AM: Clear -1° C **Survey Duration:** 10 Hrs. **Survey Hours:** 0600-1000, 1130-1330 & 1500-1900

Weather PM: Light Rain +3° C **Surveyor(s):** T. Carmody

	Fallowfield Rd. Eastbound					Fallowfield Rd. Westbound						Hwy 416 N/B Ramps Northbound					Hwy 416 N/B on Ramp Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0600-0700	0	666	318	0	**984**	0	398	592	0	**990**	**1974**	125	0	104	0	**229**	0	0	0	0	**0**	**229**	**2203**
0700-0800	0	1317	305	0	**1622**	0	652	1042	0	**1694**	**3316**	166	0	207	0	**373**	0	0	0	0	**0**	**373**	**3689**
0800-0900	0	1169	172	0	**1341**	0	761	1187	0	**1948**	**3289**	149	0	147	0	**296**	0	0	0	0	**0**	**296**	**3585**
0900-1000	0	839	199	0	**1038**	0	598	549	0	**1147**	**2185**	86	0	0	0	**86**	0	0	0	0	**0**	**86**	**2271**
1130-1200	0	402	63	0	**465**	0	269	205	0	**474**	**939**	33	0	50	0	**83**	0	0	0	0	**0**	**83**	**1022**
1200-1300	0	918	122	0	**1040**	0	614	380	0	**994**	**2034**	55	0	113	0	**168**	0	0	0	0	**0**	**168**	**2202**
1300-1330	0	385	56	0	**441**	0	303	172	0	**475**	**916**	41	0	45	0	**86**	0	0	0	0	**0**	**86**	**1002**
1500-1600	0	1273	135	0	**1408**	0	971	448	0	**1419**	**2827**	99	0	88	0	**187**	0	0	0	0	**0**	**187**	**3014**
1600-1700	0	1456	151	0	**1607**	0	1142	448	0	**1590**	**3197**	139	0	102	0	**241**	0	0	0	0	**0**	**241**	**3438**
1700-1800	0	1365	131	0	**1496**	0	840	379	0	**1219**	**2715**	116	0	85	0	**201**	0	0	0	0	**0**	**201**	**2916**
1800-1900	0	995	92	0	**1087**	0	696	316	0	**1012**	**2099**	74	0	78	0	**152**	0	0	0	0	**0**	**152**	**2251**
Totals	**0**	**10785**	**1744**	**0**	**12529**	**0**	**7244**	**5718**	**0**	**12962**	**25491**	**1083**	**0**	**1019**	**0**	**2102**	**0**	**0**	**0**	**0**	**0**	**2102**	**27593**

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

AM Peak Hour Factor ➡ 0.96												Highest Hourly Vehicle Volume Between 0500h & 1000h											
AM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
0715-0815	0	1376	269	0	**1645**	0	700	1143	0	**1843**	**3488**	157	0	199	0	**356**	0	0	0	0	**0**	**356**	**3844**
OFF Peak Hour Factor ➡ 0.92												**Highest Hourly Vehicle Volume Between 1000h & 1500h**											
OFF Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1200-1300	0	918	122	0	**1040**	0	614	380	0	**994**	**2034**	55	0	113	0	**168**	0	0	0	0	**0**	**168**	**2202**
PM Peak Hour Factor ➡ 0.94												**Highest Hourly Vehicle Volume Between 1500h & 1900h**											
PM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1600-1700	0	1456	151	0	**1607**	0	1142	448	0	**1590**	**3197**	139	0	102	0	**241**	0	0	0	0	**0**	**241**	**3438**
EVNG Peak Hour Factor ➡ N/A												**Highest Hourly Vehicle Volume Between 1900h & 0000h**											
EVNG Pk Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
N/A	0	0	0	0	**0**	0	0	0	0	**0**	**0**	0	0	0	0	**0**	0	0	0	0	**0**	**0**	**0**

Comments:

No pedestrian crossings were observed.

Notes:

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

Turning Movement Count

Pedestrian Crossings Summary and Flow Diagram

Fallowfield Road & Highway 416 S/B On & Off Ramps — Nepean, ON

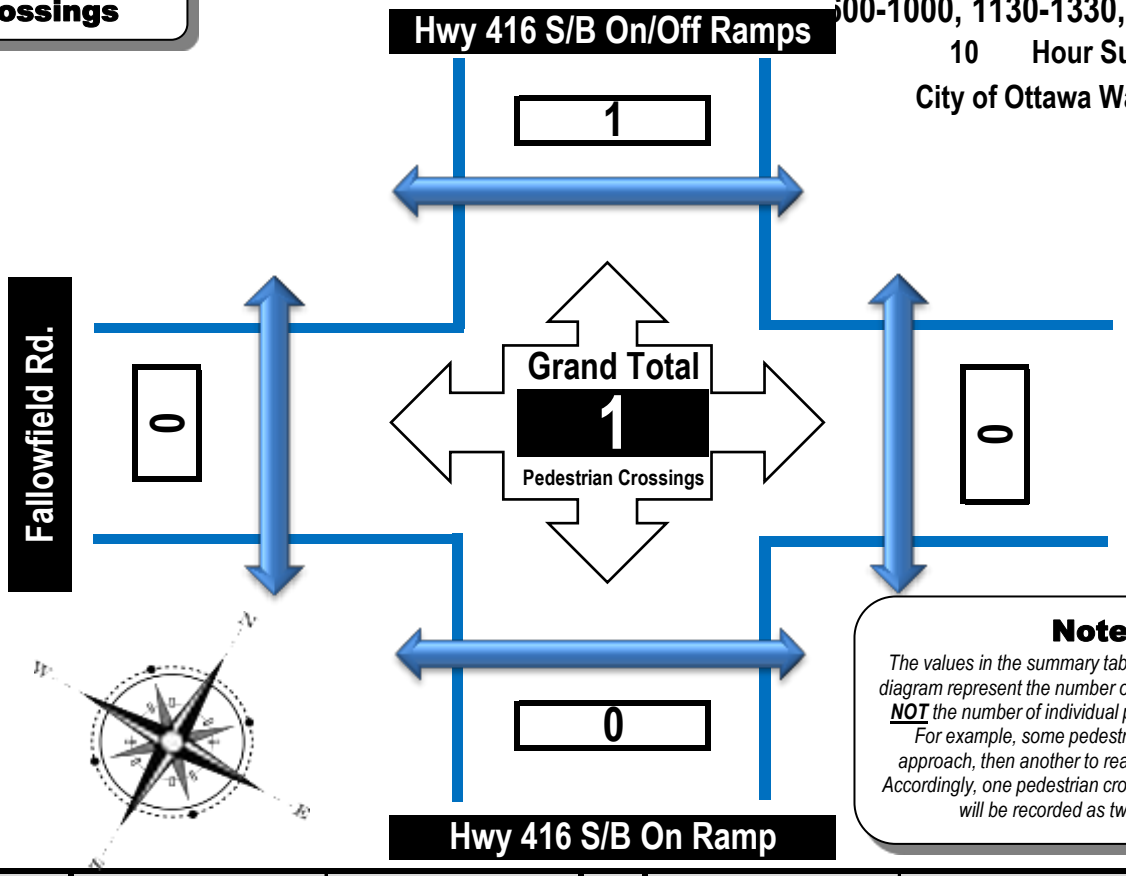
Pedestrian Crossings

Tuesday, 3 March 2020

0600-1000, 1130-1330, & 1500-19(

10 Hour Survey

City of Ottawa Ward ► 21



Note

*The values in the summary table below and the flow diagram represent the number of pedestrian crossings **NOT** the number of individual pedestrians crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Time Period	West Side Crossing Fallowfield Rd.	East Side Crossing Fallowfield Rd.	Street Total	South Side Crossing Hwy 416 S/B On Ramp	North Side Crossing Hwy 416 S/B On/Off Ramps	Street Total	Grand Total
0600-0700	0	0	0	0	0	0	0
0700-0800	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0
0900-1000	0	0	0	0	0	0	0
1130-1200	0	0	0	0	0	0	0
1200-1300	0	0	0	0	0	0	0
1300-1330	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	0
1600-1700	0	0	0	0	0	0	0
1700-1800	0	0	0	0	1	1	1
1800-1900	0	0	0	0	0	0	0
Totals	0	0	0	0	1	1	1

Comments:

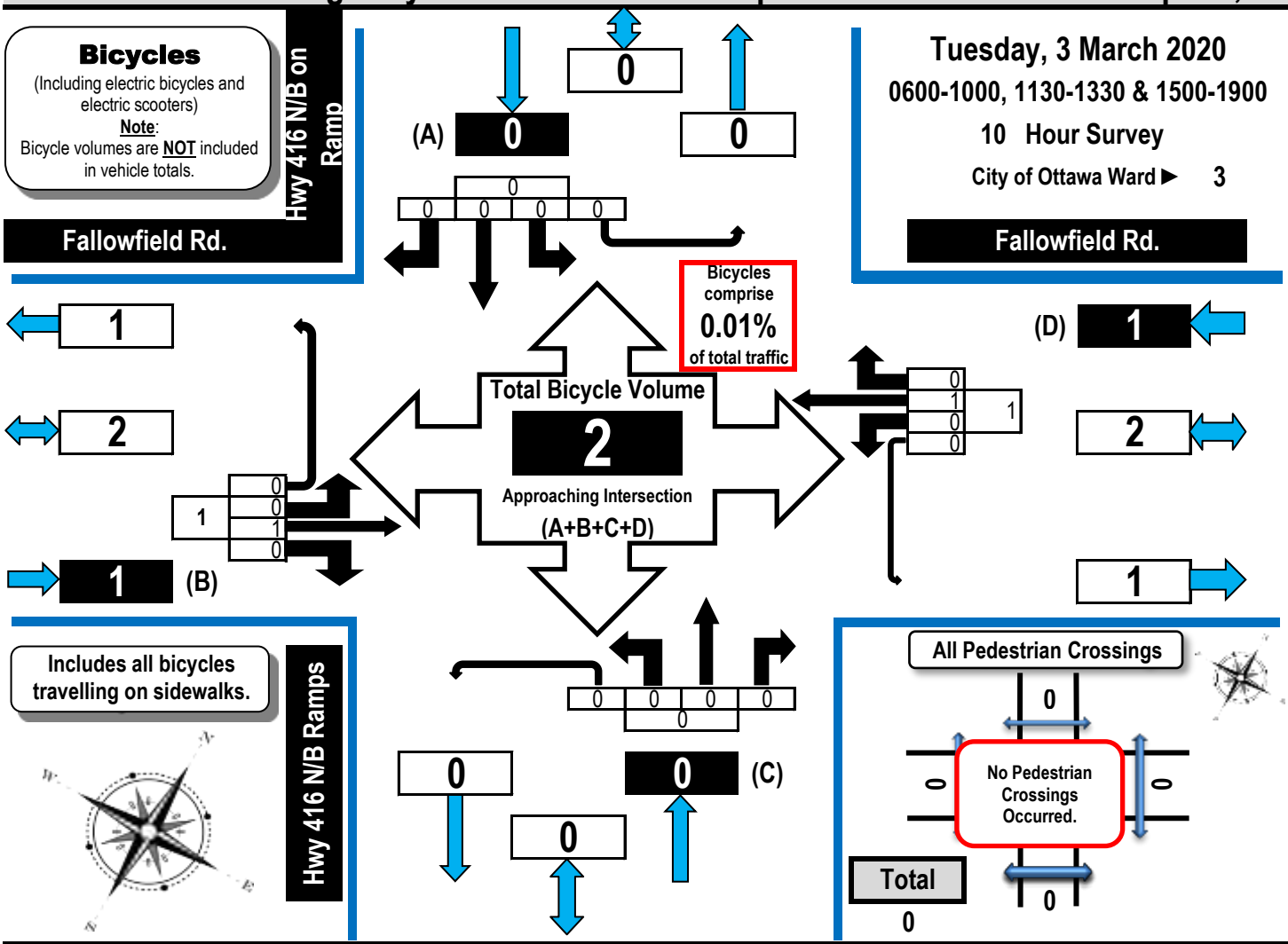
Westbound traffic would occasionally back up from Moodie Drive to the southbound Highway 416 off-ramp during the PM peak period; however, it would clear relatively quickly.

Turning Movement Count
Bicycle Summary
Flow Diagram

Fallowfield Road & Highway 416 N/B On & Off Ramps — Nepean, ON

Bicycles
(Including electric bicycles and electric scooters)
Note:
Bicycle volumes are NOT included in vehicle totals.

Tuesday, 3 March 2020
0600-1000, 1130-1330 & 1500-1900
10 Hour Survey
City of Ottawa Ward ▶ 3



Includes all bicycles travelling on sidewalks.

All Pedestrian Crossings

Total 0

	Fallowfield Rd. Eastbound					Fallowfield Rd. Westbound					Hwy 416 N/B Ramps Northbound					Hwy 416 N/B on Ramp Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700-0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900-1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1130-1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200-1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1300-1330	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
1500-1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600-1700	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800-1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2

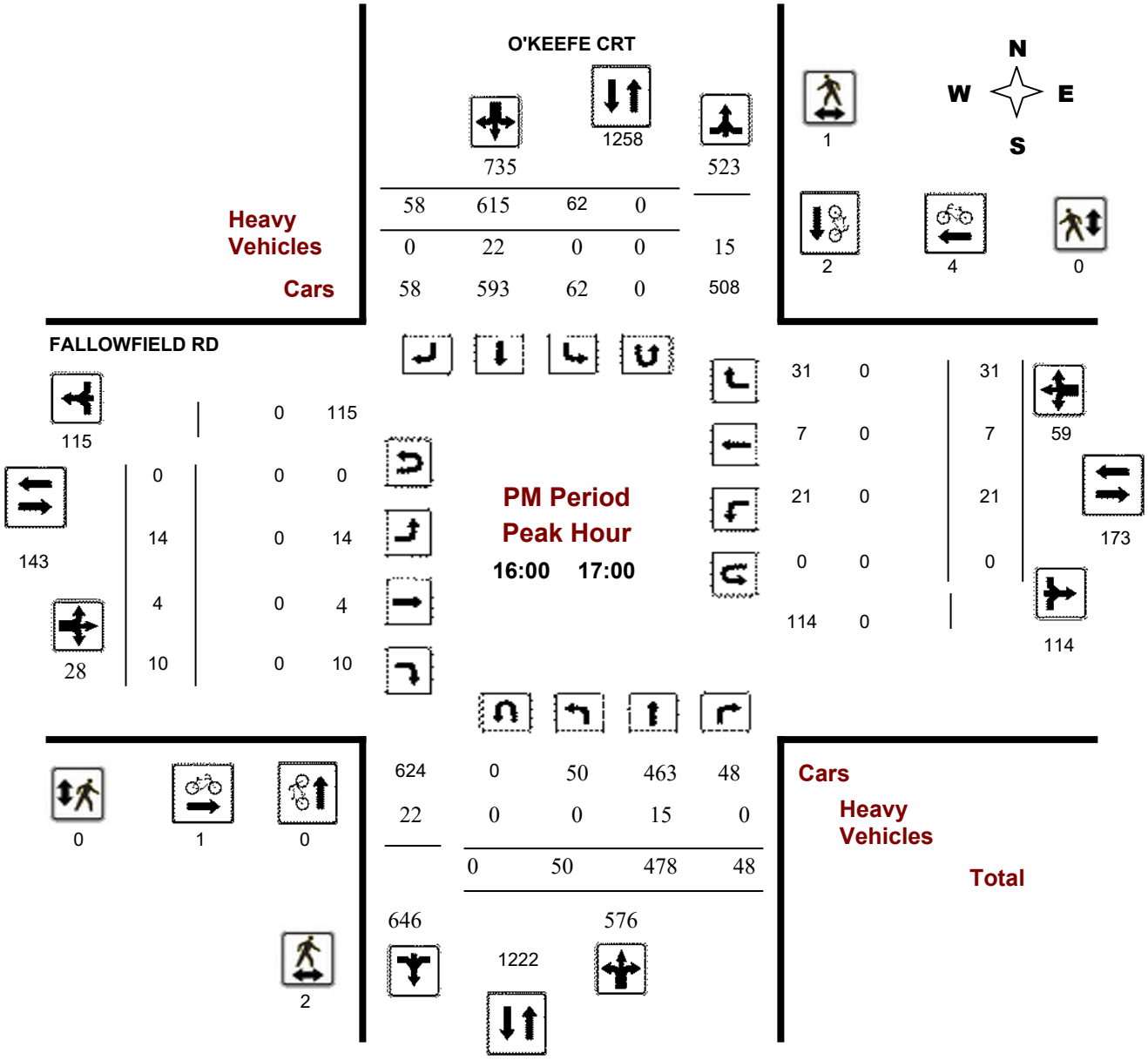
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

FALLOWFIELD RD @ O'KEEFE CRT

Survey Date: Tuesday, June 05, 2018 **WO No:** 37862

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

FALLOWFIELD RD @ O'KEEFE CRT

Survey Date: Tuesday, June 05, 2018 **WO No:** 37862

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

Full Study Cyclist Volume

Time Period		O'KEEFE CRT			FALLOWFIELD RD			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	1	0	1	0	0	0	1
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	0	0	0	1	1	1
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	0	0	0	0
09:00	09:15	0	0	0	0	0	0	0
09:15	09:30	0	0	0	0	0	0	0
09:30	09:45	0	0	0	0	0	0	0
09:45	10:00	0	0	0	0	0	0	0
11:30	11:45	1	0	1	0	0	0	1
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	2	2	2
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	2	0	2	2
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	1	1	0	0	0	1
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	1	1	1	0	1	2
16:15	16:30	0	1	1	0	0	0	1
16:30	16:45	0	0	0	0	4	4	4
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	1	0	1	0	0	0	1
17:45	18:00	1	1	2	0	0	0	2
Total		4	4	**8**	3	7	10	18

Transportation Services - Traffic Services

Turning Movement Count - Study Results

FALLOWFIELD RD @ O'KEEFE CRT

Survey Date: Tuesday, June 05, 2018 **WO No:** 37862

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

Full Study Pedestrian Volume

	O'KEEFE CRT			FALLOWFIELD RD			
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	**Total**	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	**Total**	**Grand Total**
07:00 07:15	0	0	**0**	0	0	**0**	**0**
07:15 07:30	0	0	**0**	0	0	**0**	**0**
07:30 07:45	0	0	**0**	0	0	**0**	**0**
07:45 08:00	0	0	**0**	0	0	**0**	**0**
08:00 08:15	0	0	**0**	0	0	**0**	**0**
08:15 08:30	0	1	**1**	0	0	**0**	**1**
08:30 08:45	0	0	**0**	0	0	**0**	**0**
08:45 09:00	1	2	**3**	0	0	**0**	**3**
09:00 09:15	0	0	**0**	0	0	**0**	**0**
09:15 09:30	0	0	**0**	1	0	**1**	**1**
09:30 09:45	0	1	**1**	0	0	**0**	**1**
09:45 10:00	1	1	**2**	0	0	**0**	**2**
11:30 11:45	0	0	**0**	0	0	**0**	**0**
11:45 12:00	0	0	**0**	0	0	**0**	**0**
12:00 12:15	2	0	**2**	0	0	**0**	**2**
12:15 12:30	0	0	**0**	0	0	**0**	**0**
12:30 12:45	0	0	**0**	0	0	**0**	**0**
12:45 13:00	0	1	**1**	0	0	**0**	**1**
13:00 13:15	0	0	**0**	0	0	**0**	**0**
13:15 13:30	0	1	**1**	0	0	**0**	**1**
15:00 15:15	0	0	**0**	0	0	**0**	**0**
15:15 15:30	0	0	**0**	0	0	**0**	**0**
15:30 15:45	1	0	**1**	0	0	**0**	**1**
15:45 16:00	0	0	**0**	0	0	**0**	**0**
16:00 16:15	0	0	**0**	0	0	**0**	**0**
16:15 16:30	1	0	**1**	0	0	**0**	**1**
16:30 16:45	0	1	**1**	0	0	**0**	**1**
16:45 17:00	1	0	**1**	0	0	**0**	**1**
17:00 17:15	0	0	**0**	0	0	**0**	**0**
17:15 17:30	0	0	**0**	0	0	**0**	**0**
17:30 17:45	0	0	**0**	0	0	**0**	**0**
17:45 18:00	0	0	**0**	0	0	**0**	**0**
Total	7	8	**15**	1	0	**1**	**16**

APPENDIX E

Collision Records

City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2014 **To:** December 31, 2018

Location: CROSSKEYS PL/HELENE CAMPBELL RD @ STRANDHERD DR

Traffic Control: Traffic signal

Total Collisions: 13

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Dec-17, Sat,13:57	Snow	Sideswipe	P.D. only	Loose snow	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Aug-03, Thu,11:25	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Sep-25, Mon,10:36	Clear	Angle	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Truck - dump	Other motor vehicle	
2017-Nov-22, Wed,18:45	Clear	Sideswipe	P.D. only	Dry	East	Unknown	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jan-13, Sat,09:20	Clear	Rear end	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Jan-25, Thu,05:27	Clear	SMV other	P.D. only	Wet	North	Turning right	Automobile, station wagon	Ran off road	

2018-Mar-16, Fri,17:00	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Passenger van	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2018-Jun-12, Tue,08:13	Clear	Sideswipe	P.D. only	Dry	South	Going ahead	Passenger van	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
2018-Jul-26, Thu,16:20	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Delivery van	Other motor vehicle
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2018-Aug-06, Mon,07:45	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Sep-23, Sun,08:45	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Pick-up truck	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Oct-27, Sat,14:49	Clear	Rear end	P.D. only	Dry	West	Stopped	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Nov-26, Mon,14:43	Rain	Rear end	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle

Location: FALLOWFIELD RD @ HWY 416 FALLOWFI IC66R24

Traffic Control: Stop sign

Total Collisions: 12

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Jan-12, Sun,03:17	Rain	Angle	P.D. only	Wet	East	Going ahead	Pick-up truck	Other motor vehicle	
					North	Turning right	Truck and trailer	Other motor vehicle	
2014-Jan-27, Mon,10:15	Snow	Rear end	Non-fatal injury	Loose snow	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Jun-23, Tue,17:21	Clear	Angle	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Pick-up truck	Other motor vehicle	
2015-Nov-18, Wed,09:35	Clear	Angle	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Dec-04, Fri,17:22	Clear	Angle	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Sep-06, Tue,13:56	Clear	Angle	Non-fatal injury	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					North	Turning left	Pick-up truck	Other motor vehicle	
2016-Nov-03, Thu,15:30	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	

					East	Stopped	Passenger van	Other motor vehicle
2017-Jul-21, Fri,17:59	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Turning left	Automobile, station wagon	Other motor vehicle
2017-Dec-18, Mon,12:30	Snow	Rear end	P.D. only	Slush	East	Unknown	Unknown	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Sep-23, Sun,13:17	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2018-Sep-23, Sun,16:38	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Turning left	Automobile, station wagon	Other motor vehicle
2018-Nov-06, Tue,17:07	Clear	Rear end	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle

Location: FALLOWFIELD RD @ HWY 416 FALLOWFI IC66R34

Traffic Control: Traffic signal **Total Collisions:** 8

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped

2015-Nov-22, Sun,14:50	Clear	Rear end	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle
					South	Turning left	Pick-up truck	Other motor vehicle
2016-Oct-24, Mon,15:31	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2016-Nov-21, Mon,16:51	Snow	Angle	P.D. only	Loose snow	North	Turning right	Pick-up truck	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2017-Mar-23, Thu,16:58	Clear	Rear end	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle
					West	Stopped	Delivery van	Other motor vehicle
2017-Apr-08, Sat,12:17	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2017-Dec-10, Sun,17:49	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
2018-Oct-06, Sat,03:00	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle

2018-Dec-14, Fri,12:00	Rain	Rear end	P.D. only	Ice	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Truck - tractor	Other motor vehicle	

Location: FALLOWFIELD RD @ MOODIE DR

Traffic Control: Traffic signal

Total Collisions: 46

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Feb-14, Fri,18:00	Clear	Rear end	P.D. only	Slush	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2014-May-07, Wed,08:15	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Pick-up truck	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Oct-13, Mon,22:26	Clear	SMV other	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Ran off road	
2015-Jan-05, Mon,09:20	Clear	Turning movement	P.D. only	Wet	East	Turning left	School bus	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Jan-09, Fri,15:10	Clear	Rear end	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Unknown	Unknown	Other motor vehicle	
2015-Feb-02, Mon,12:22	Drifting Snow	Rear end	P.D. only	Packed snow	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Delivery van	Other motor vehicle	

2015-Mar-23, Mon,06:44	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Delivery van	Other motor vehicle
					South	Stopped	School bus	Other motor vehicle
2015-Jul-24, Fri,16:45	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2015-Aug-25, Tue,16:14	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Pick-up truck	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
2015-Nov-19, Thu,07:30	Clear	Rear end	P.D. only	Wet	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
2016-Mar-21, Mon,15:37	Clear	Rear end	Non-fatal injury	Dry	South	Going ahead	Pick-up truck	Other motor vehicle
					South	Stopped	Pick-up truck	Other motor vehicle
					South	Stopped	Pick-up truck	Other motor vehicle
2016-Apr-02, Sat,13:37	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Turning left	Automobile, station wagon	Other motor vehicle
2016-May-10, Tue,19:41	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Pick-up truck	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle

2016-May-13, Fri,00:05	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2016-May-26, Thu,08:10	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Pick-up truck	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2016-Jul-05, Tue,15:47	Clear	Rear end	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2016-Sep-23, Fri,07:45	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2016-Oct-25, Tue,13:50	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2016-Dec-16, Fri,09:43	Clear	Rear end	P.D. only	Ice	East	Slowing or stopping	Pick-up truck	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2017-Jan-05, Thu,08:07	Clear	Rear end	P.D. only	Ice	East	Going ahead	Pick-up truck	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle

2017-Apr-07, Fri,07:51	Clear	Rear end	P.D. only	Wet	East	Going ahead	Pick-up truck	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
2017-Apr-17, Mon,19:34	Clear	Rear end	Non-fatal injury	Dry	West	Unknown	Unknown	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2017-May-01, Mon,16:33	Rain	Rear end	P.D. only	Wet	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2017-Jun-15, Thu,16:36	Clear	Rear end	P.D. only	Dry	West	Changing lanes	School bus	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2017-Jun-21, Wed,06:57	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Pick-up truck	Other motor vehicle
2017-Jul-08, Sat,10:50	Clear	Rear end	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2017-Jul-14, Fri,07:43	Clear	Sideswipe	Non-fatal injury	Dry	South	Changing lanes	Passenger van	Other motor vehicle
					South	Going ahead	Truck - dump	Other motor vehicle

2017-Sep-08, Fri,16:36	Clear	Rear end	Non-fatal injury	Wet	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2017-Sep-22, Fri,17:13	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2017-Sep-27, Wed,13:48	Clear	Rear end	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2017-Nov-17, Fri,14:00	Clear	Rear end	P.D. only	Dry	North	Going ahead	Passenger van	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2017-Dec-10, Sun,18:50	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Dec-19, Tue,06:55	Snow	Turning movement	P.D. only	Loose snow	South	Turning left	Other school vehicle/bus	Other motor vehicle
					North	Going ahead	Pick-up truck	Other motor vehicle
2018-Jan-04, Thu,18:37	Drifting Snow	Rear end	P.D. only	Ice	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Slowing or stopping	Pick-up truck	Other motor vehicle

2018-Feb-12, Mon,17:27	Clear	Turning movement	P.D. only	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Mar-27, Tue,16:39	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
					West	Stopped	Passenger van	Other motor vehicle
					West	Stopped	Delivery van	Other motor vehicle
2018-Mar-27, Tue,17:45	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2018-Apr-29, Sun,14:28	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2018-May-15, Tue,16:33	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2018-Jul-05, Thu,16:44	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle

2018-Aug-12, Sun,14:32	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2018-Sep-03, Mon,09:20	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2018-Sep-20, Thu,16:36	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2018-Oct-30, Tue,17:21	Clear	Sideswipe	P.D. only	Dry	West	Merging	Pick-up truck	Other motor vehicle
					West	Going ahead	Passenger van	Other motor vehicle
2018-Dec-17, Mon,14:33	Clear	Sideswipe	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Dec-23, Sun,13:46	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle

Location: FALLOWFIELD RD @ O'KEEFE CRT

Traffic Control: Stop sign

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Sep-28, Mon,07:47	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	

					East	Going ahead	Pick-up truck	Other motor vehicle	

Location: FALLOWFIELD RD @ STRANDHERD DR

Traffic Control: Traffic signal **Total Collisions:** 35

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Mar-26, Wed,17:53	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	
					East	Stopped	Pick-up truck	Other motor vehicle	
					East	Stopped	Pick-up truck	Other motor vehicle	
2014-Jun-08, Sun,04:47	Clear	SMV other	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Curb	
2014-Aug-29, Fri,08:56	Clear	Rear end	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	
					South	Turning right	Pick-up truck	Other motor vehicle	
2014-Oct-20, Mon,08:45	Clear	SMV other	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Pedestrian	1
2015-Feb-24, Tue,12:48	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Jul-22, Wed,20:20	Clear	Rear end	P.D. only	Dry	East	Turning left	Pick-up truck	Other motor vehicle	
					East	Turning left	Automobile, station wagon	Other motor vehicle	

2015-Aug-14, Fri,16:39	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Jan-13, Wed,15:11	Clear	Sideswipe	P.D. only	Wet	West	Changing lanes	Pick-up truck	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2016-Jan-19, Tue,06:27	Clear	Rear end	P.D. only	Ice	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2016-Feb-20, Sat,03:57	Rain	Rear end	P.D. only	Slush	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2016-Jun-18, Sat,13:50	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2017-Jan-12, Thu,06:25	Rain	Approaching	P.D. only	Wet	West	Unknown	Unknown	Other motor vehicle
					East	Going ahead	Pick-up truck	Other motor vehicle
2017-Feb-26, Sun,14:09	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Changing lanes	Pick-up truck	Other motor vehicle

2017-Apr-20, Thu,08:40	Clear	Rear end	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					East	Turning left	Pick-up truck	Other motor vehicle
2017-Jun-05, Mon,14:45	Clear	Rear end	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle
					South	Turning right	Automobile, station wagon	Other motor vehicle
					South	Turning right	Automobile, station wagon	Other motor vehicle
2017-Jul-14, Fri,18:11	Clear	Rear end	P.D. only	Dry	South	Turning right	Pick-up truck	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
					South	Merging	Automobile, station wagon	Other motor vehicle
2017-Jul-26, Wed,07:34	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Aug-12, Sat,18:56	Rain	Rear end	Non-fatal injury	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2017-Aug-15, Tue,14:45	Clear	Angle	Non-fatal injury	Dry	East	Going ahead	Passenger van	Other motor vehicle
					North	Turning left	Pick-up truck	Other motor vehicle
2017-Sep-20, Wed,20:10	Clear	Rear end	P.D. only	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle

					West	Turning right	Automobile, station wagon	Other motor vehicle
2017-Oct-17, Tue,17:28	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2017-Nov-17, Fri,12:02	Clear	Rear end	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle
					West	Stopped	Passenger van	Other motor vehicle
2018-Jan-08, Mon,12:55	Snow	Rear end	Non-fatal injury	Slush	East	Slowing or stopping	Pick-up truck	Skidding/sliding
					East	Stopped	Automobile, station wagon	Other motor vehicle
2018-Feb-08, Thu,15:46	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Pick-up truck	Other motor vehicle
2018-Feb-09, Fri,17:45	Clear	Rear end	Non-fatal injury	Wet	West	Slowing or stopping	Automobile, station wagon	Skidding/sliding
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2018-Feb-16, Fri,15:35	Clear	Rear end	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					East	Turning left	Automobile, station wagon	Other motor vehicle
2018-Mar-09, Fri,10:55	Snow	Angle	Non-fatal injury	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle

					South	Turning left	Pick-up truck	Other motor vehicle
2018-Apr-26, Thu,16:11	Clear	Rear end	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle
					South	Turning right	Passenger van	Other motor vehicle
2018-Jun-19, Tue,21:05	Clear	Angle	Non-fatal injury	Dry	South	Going ahead	Motorcycle	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Jun-24, Sun,14:01	Clear	Rear end	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle
					South	Turning right	Automobile, station wagon	Other motor vehicle
2018-Aug-16, Thu,12:28	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2018-Sep-10, Mon,07:45	Clear	Sideswipe	P.D. only	Dry	West	Unknown	Unknown	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Sep-17, Mon,14:10	Clear	Rear end	P.D. only	Dry	South	Turning right	Pick-up truck	Other motor vehicle
					South	Turning right	Automobile, station wagon	Other motor vehicle
2018-Oct-24, Wed,08:45	Clear	Rear end	Non-fatal injury	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle

					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Dec-22, Sat,08:04	Snow	Turning movement	P.D. only	Loose snow	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Turning left	Automobile, station wagon	Other motor vehicle	

Location: KENNEVALE DR @ STRANDHERD DR

Traffic Control: Traffic signal **Total Collisions:** 36

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Jan-04, Sat,13:21	Clear	SMV other	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Pole (utility, power)	
2014-Mar-17, Mon,18:08	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Pick-up truck	Other motor vehicle	
2014-Mar-17, Mon,22:03	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Unknown	Unknown	Other motor vehicle	
2014-Jun-12, Thu,08:30	Rain	Rear end	Non-fatal injury	Wet	West	Slowing or stopping	Pick-up truck	Other motor vehicle	
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2014-Jun-23, Mon,17:05	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Passenger van	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	

2014-Jul-18, Fri,13:13	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Aug-21, Thu,17:41	Clear	Rear end	P.D. only	Wet	West	Slowing or stopping	Passenger van	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2014-Oct-01, Wed,10:29	Clear	Other	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Debris falling off vehicle
					South	Going ahead	Unknown	Other
2014-Oct-01, Wed,18:33	Clear	Rear end	P.D. only	Dry	South	Going ahead	Pick-up truck	Other motor vehicle
					South	Stopped	Pick-up truck	Other motor vehicle
					South	Stopped	Pick-up truck	Other motor vehicle
					South	Stopped	Pick-up truck	Other motor vehicle
2015-Aug-23, Sun,10:17	Clear	Turning movement	Non-fatal injury	Dry	North	Turning left	Passenger van	Other motor vehicle
					South	Going ahead	Pick-up truck	Other motor vehicle
2015-Aug-24, Mon,17:45	Clear	Angle	P.D. only	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle

2015-Nov-06, Fri,18:31	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Stopped	Passenger van	Other motor vehicle
2015-Nov-10, Tue,15:58	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					South	Stopped	Pick-up truck	Other motor vehicle
2015-Dec-08, Tue,07:35	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Passenger van	Other motor vehicle
					North	Slowing or stopping	Pick-up truck	Other motor vehicle
2016-Jan-17, Sun,15:45	Snow	Turning movement	P.D. only	Loose snow	South	Turning left	Pick-up truck	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Jan-30, Sat,10:18	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2016-Apr-08, Fri,15:40	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Nov-09, Wed,18:03	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle

					East	Stopped	Automobile, station wagon	Other motor vehicle
2017-Jan-28, Sat,15:55	Clear	Rear end	P.D. only	Wet	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					North	Stopped	Passenger van	Other motor vehicle
2017-Jan-30, Mon,08:30	Clear	Rear end	P.D. only	Ice	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2017-Apr-27, Thu,08:50	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
2017-May-01, Mon,22:33	Clear	Other	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Pole (sign, parking meter)
					South	Stopped	Pick-up truck	Other motor vehicle
2017-May-02, Tue,16:00	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2017-May-27, Sat,17:52	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Stopped	Pick-up truck	Other motor vehicle

2017-Jun-08, Thu,17:15	Clear	Turning movement	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Turning left	Automobile, station wagon	Other motor vehicle
2017-Jun-19, Mon,06:53	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Delivery van	Other motor vehicle
2017-Oct-07, Sat,16:48	Clear	Turning movement	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Oct-28, Sat,18:35	Rain	Angle	P.D. only	Wet	West	Turning right	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Jan-15, Mon,03:35	Clear	SMV other	P.D. only	Slush	North	Going ahead	Automobile, station wagon	Skidding/sliding
2018-Mar-17, Sat,13:00	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Turning right	Automobile, station wagon	Other motor vehicle
2018-Apr-02, Mon,12:57	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
2018-Oct-07, Sun,13:53	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle

					South	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Oct-09, Tue,16:15	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Dec-03, Mon,07:20	Rain	Rear end	P.D. only	Wet	West	Going ahead	Truck-other	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Dec-17, Mon,15:00	Snow	Turning movement	P.D. only	Wet	South	Turning left	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Dec-19, Wed,16:00	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: MARAVISTA DR @ STRANDHERD DR

Traffic Control: Traffic signal **Total Collisions:** 18

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Feb-17, Tue,07:23	Clear	Angle	P.D. only	Ice	West	Turning right	Pick-up truck	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-May-29, Fri,11:34	Clear	Angle	Non-fatal injury	Dry	South	Turning right	Automobile, station wagon	Cyclist	

					West	Going ahead	Bicycle	Other motor vehicle
2016-May-31, Tue,14:10	Clear	Rear end	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle
					North	Stopped	Pick-up truck	Other motor vehicle
2017-Mar-13, Mon,15:20	Clear	Rear end	P.D. only	Dry	East	Stopped	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Mar-24, Fri,21:54	Freezing Rain	SMV other	P.D. only	Slush	East	Going ahead	Automobile, station wagon	Skidding/sliding
2017-May-18, Thu,17:23	Clear	Angle	Non-fatal injury	Dry	South	Going ahead	Pick-up truck	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2017-Jun-01, Thu,16:49	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Pick-up truck	Other motor vehicle
2017-Sep-26, Tue,19:50	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Pick-up truck	Other motor vehicle
					North	Stopped	Pick-up truck	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle

2017-Oct-12, Thu,12:32	Clear	Angle	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle
					North	Making "U" turn	Automobile, station wagon	Other motor vehicle
2017-Nov-04, Sat,18:19	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
2018-Jan-03, Wed,17:07	Clear	Sideswipe	P.D. only	Wet	East	Changing lanes	Automobile, station wagon	Other motor vehicle
					East	Turning left	Automobile, station wagon	Other motor vehicle
2018-Jan-08, Mon,12:00	Snow	Rear end	Non-fatal injury	Loose snow	East	Unknown	Unknown	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2018-Jul-01, Sun,17:16	Clear	Rear end	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Stopped	Passenger van	Other motor vehicle
2018-Sep-04, Tue,09:40	Clear	Rear end	P.D. only	Dry	East	Stopped	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Nov-16, Fri,16:00	Snow	SMV other	P.D. only	Loose snow	South	Going ahead	Automobile, station wagon	Skidding/sliding
2018-Dec-10, Mon,19:00	Clear	Sideswipe	P.D. only	Dry	West	Overtaking	Automobile, station wagon	Other motor vehicle

					West	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Dec-21, Fri,13:58	Rain	Rear end	P.D. only	Wet	North	Stopped	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Dec-23, Sun,21:25	Clear	Rear end	P.D. only	Loose snow	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle

APPENDIX F

Excerpts from Relevant Traffic Studies

4. STUDY AREA

4.1. INTERSECTION ANALYSIS

The TIA will examine the intersections of at: Strandherd Drive at Andora Avenue, Strandherd Drive at Fraser Fields Way and Strandherd Drive at Borrisokane Road.

5. TIME PERIODS

The weekday morning and afternoon peak hours are considered the appropriate time periods for operational analysis for this subdivision.

6. HORIZON YEARS

For the purposes of the operational analysis it is assumed that the subject development will be fully built and occupied by 2020. This will necessitate the analysis of 2020 and 2025 horizons.

7. BACKGROUND GROWTH

For this TIA it is proposed that a 2% background growth rate be applied to account for background traffic growth beyond the Study Area. This is considered an appropriate background growth rate as there is a substantial amount of traffic growth being accounted for as part of the explicit traffic growth from nearby proposed developments including Citi-Gate, 4401 Fallowfield Road, and 4025 Strandherd Drive.

8. EXEMPTIONS REVIEW

The following exemptions are anticipated:

- 4.1.2 Circulation and Access – only required for site plans, this is a draft plan of subdivision
- 4.2 Parking – this is a draft plan of subdivision
- 4.6.1 it is not anticipated that traffic will utilize the adjacent road network of the subdivision to the north of the proposed development.

9. DEVELOPMENT-GENERATED TRAVEL DEMAND

9.1. TRIP GENERATION

9.1.1. TRIP GENERATION RATES

Appropriate trip generation rates for the proposed development were obtained from the TRANS Trip Generation Study and have been summarized in Table 3.

Table 3: TRANS Trip Generation Study Vehicle Trip Generation Rates

Land Use	Data Source	Vehicle Trip Rates	
		AM Peak	PM Peak
Single – Detached	LUC 210	0.70	0.90
Townhouses	LUC 224	0.54	0.71
Reference : TRANS Trip Generation Residential Trip Rates – Table 6.3			

The above trip generation rates are used estimate the number of vehicles trips. To understand the number of person trips it is necessary to convert the above vehicle trip rates to person trip rates.

The following base mode shares for suburban areas were obtained from the TRANS Trip Generation Study and have been summarized in Table 4.

Table 4: TRANS Trip Generation Report Mode Shares - Suburban

Land Use	Data Source	Peak Hour	Suburban Mode Shares		
			Vehicle Trips	Transit Share	Non-Motorized
Single – Detached	LUC 210	AM	55%	25%	9%
		PM	64%	19%	6%
Townhouses	LUC 224	AM	55%	27%	8%
		PM	61%	22%	6%
Reference : TRANS Trip Generation Residential Trip Rates – Table 3.13					

Using the above vehicle mode share percentages person trip generation rates were developed by taking the vehicle trip rates in Table 3 and divided them by the vehicle mode share percent in Table 4. The person trip generation rates are documented in Table 5.

Table 5: TRANS Trip Generation Report Person Trip Generation Rates

Land Use	Data Source	Vehicle Trip Rates	
		AM Peak	PM Peak
Single – Detached	LUC 210	1.27	1.41
Townhouses	LUC 224	0.98	1.16

To determine the trip generation characteristics of the proposed development the rates presented in Table 5 were used with the proposed unit counts to determine the person trip generation. Table 6 summarizes the AM and PM peak hour person trips by land use.

Table 6: Modified Person Trip Generation Rates

Land Use	Units	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
		In	Out	Total	In	Out	Total
Single – Detached	125	46	113	159	109	67	176
Townhouses	75	27	47	74	46	41	87
Total Person Trips		**73**	**160**	**233**	**155**	**108**	**263**

9.1.2. MODE SHARES

While the TRANS Trip Generation Study presents mode shares for aggregate areas (i.e. Suburban, Urban Area, Core Area, etc.) these are broad areas. To further refine the mode share the TRANS O-D Survey has been reviewed. The mode share targets for the development have been summarized in Table 7 below.

Table 7: Mode Share Targets for the Development

Travel Mode	Mode Share Target
Auto Driver	55%
Auto Passenger	15%
Transit	15%
Walking	7.5%
Cycling	7.5%

The modes shares presented in Table 7 have been estimated using the 2011 OD Survey Data for the South Nepean traffic zone. As this is a proposed residential subdivision, in an established suburban area, the mode share is not anticipated change greatly during the study horizons. While a Bus Rapid Transit facility is proposed along the Future Chapman Mills Drive Extension, it is assumed that this development could be fully built-out prior to the completion of that transit facility. Therefore, the existing mode shares have been carried forward as the Mode Share Targets for the purposes of this analysis.

Using the mode share and total person trips, both documented above, the person trips by mode were estimated. The person trips shown in Table 6 for the proposed site were reduced by modal share values above, with the total site-generated traffic summarized in Table 8.

Table 8: Total Site Trip Generation

Travel Mode	Mode Share	AM Peak (Person Trips/hr)			PM Peak (Person Trips/hr)		
		In	Out	Total	In	Out	Total
Auto Driver	55%	41	88	129	86	60	146
Auto Passenger	15%	11	24	35	23	16	39
Transit	15%	11	24	35	23	16	39
Non-motorized	15%	10	24	34	23	16	39
Total Person Trips	100%	73	160	233	155	108	263

As shown in Table 8, the resulting number of potential 'new' two-way vehicle trips for the proposed development is approximately 129 and 146 veh/h during the weekday morning and afternoon peak hours, respectively.

9.2. TRIP DISTRIBUTION

The vehicle traffic distribution was developed using the 2011 NCR Household Origin – Destination Survey. The resultant distribution is outlined in Table 9.

Table 9: Traffic Distribution

To/From	AM Peak Hour
North	80%
South	5%
East	5%
West	10%
Total	**100%**

9.3. TRIP ASSIGNMENT

New site generated trips were assigned to the Study Area intersections using the above distribution, turning movement splits, proximity / connectivity to major transportation infrastructure (i.e. Highway 417), and the proposed access configuration. Figure 8 below displays the percentage assignment and Figure 9 shows the resulting volume assignment of the new site generated trip used in this analysis.

Figure 8: Percent Assignment

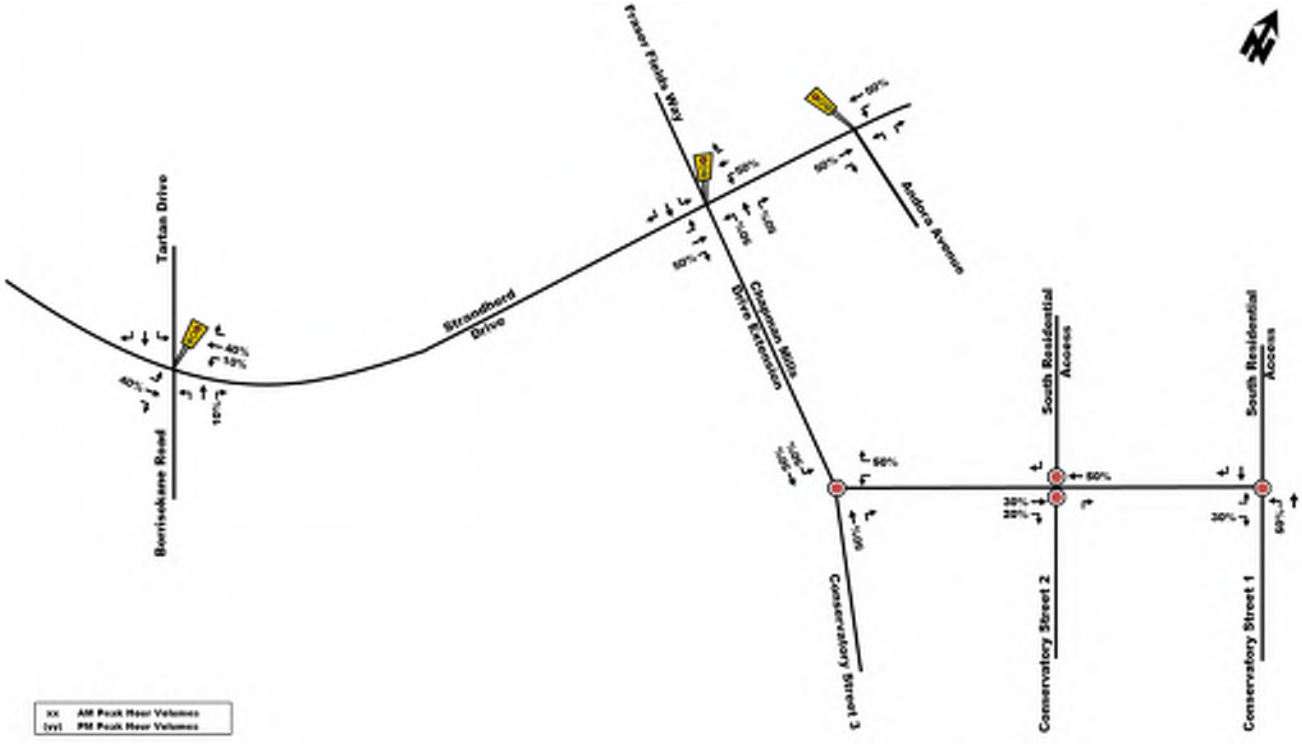
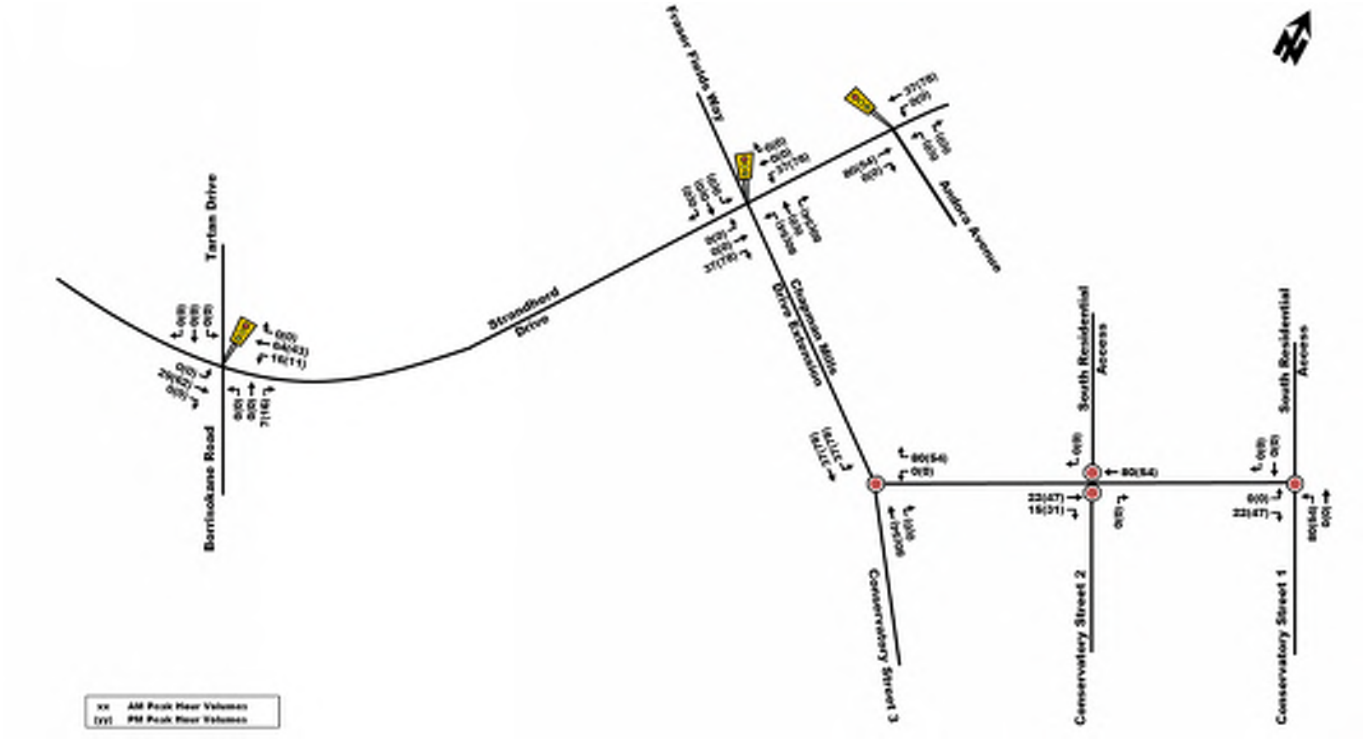


Figure 9: Site Generated Trip Volumes



10. BACKGROUND NETWORK TRAFFIC

10.1. CHANGES TO THE BACKGROUND TRANSPORTATION NETWORK

Please see Section 3.1.

10.2. OTHER AREA DEVELOPMENTS

The City of Ottawa's Development Applications webtool has been used to determine if there are proposed developments within the area of influence of the proposed development. These developments have been discussed in greater detail in Section 3.2. Figure 10, Figure 11, and Figure 12 document the traffic impact of each of the Citi-Gate Development, 4401 Fallowfield, and 4025 Strandherd Drive, on the subject development.

3.4 SITE TRAFFIC GENERATION

3.4.1 Land Use and Trip Generation Rates

The *Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition)* was used to estimate traffic generated by the subject site. The ITE land use codes 210 – Single Family Homes, 230 – Condo / Townhomes, and 520 – Elementary School were thought to be most representative of the proposed land uses.

As the school board has an option on the school block for seven years, there are no concepts or drawings prepared for the school at this time. In order to assess the trip generation of the proposed school, the size of the future school was estimated using a similar sized property for an elementary school in Barrhaven South. It was assumed that the proposed school will be approximately 30,000 square feet in size.

Table 3 summarizes the trip rates obtained from the *ITE Trip Generation Manual* and the ensuing sections describe the methodology used to convert these trips to person trips across all modes of transportation.

Table 3 Trips Generated by the Proposed Residential Development

ITE LAND USE			MORNING PEAK HOUR			AFTERNOON PEAK HOUR		
			In	Out	Total	In	Out	Total
Step 1: ITE Trip Generation Rates								
210 – Single Family Homes	Units	116	0.20	0.58	0.78	0.66	0.38	1.04
230 – Condo / Townhomes	Units	92	0.09	0.43	0.52	0.41	0.20	0.61
520 – Elementary School	1000's sq. ft.	30	2.91	2.29	5.20	0.54	0.67	1.21
Step 2: Conversion from Auto Trips to Person Trips								
210 – Single Family Homes	Trip Gen		23	68	91	76	44	120
	Transit Share	10%	2	7	9	8	4	12
	Auto Occupancy	1.1	2	7	9	8	4	12
	Total Person Trips		27	82	109	92	52	144
230 – Condo / Townhomes	Trip Gen		8	40	48	38	18	56
	Transit Share	10%	1	4	5	4	2	6
	Auto Occupancy	1.1	1	4	5	4	2	6
	Total Person Trips		10	48	58	46	22	68
520 – Elementary School	Trip Gen		88	69	157	16	20	36
	Transit Share	10%	9	7	16	2	2	4
	Auto Occupancy	1.1	9	7	16	2	2	4
	Total Person Trips		106	83	189	20	24	44

ITE LAND USE			MORNING PEAK HOUR			AFTERNOON PEAK HOUR		
			In	Out	Total	In	Out	Total
Step 3: Person Trips by Modal Share								
210 – Single Family Homes	Auto	90%	24	74	98	83	47	130
	Passenger / Active Modes	10%	3	8	11	9	5	14
230 – Condo / Townhomes	Auto	90%	9	43	52	41	20	61
	Passenger / Active Modes	10%	1	5	6	5	2	7
520 – Elementary School	Auto	90%	95	75	170	18	22	40
	Passenger / Active Modes	10%	11	8	19	2	2	4
Step 4: Internal Capture Trips								
210 – Single Family Homes	Auto Trips		24	74	98	83	47	130
	Internal Capture	0%	0	0	0	0	0	0
	Net New Auto Trips		24	74	98	83	47	130
230 – Condo / Townhomes	Auto Trips		9	43	52	41	20	61
	Internal Capture	0%	0	0	0	0	0	0
	Net New Auto Trips		9	43	52	41	20	61
520 – Elementary School	Auto Trips		95	75	170	18	22	40
	Internal Capture	70%	67	53	120	13	15	28
	Net New Auto Trips		28	22	50	5	7	12
Step 5: Net New Auto Trips								
Total Development	Auto Trips		128	192	320	142	89	231
	Internal Capture		67	53	120	13	15	28
	Net New Auto Trips		61	139	200	129	74	203

3.4.2 Conversion of ITE Rates to Person Trips

The notion of quantifying the volume of "person" trips expected to be generated by a given development is becoming a commonly accepted practice. It is aimed at quantifying the expected demands across the primary modes of transportation.

In order to convert ITE rates to person trips, the rates obtained from the ITE Trip Generation Manual were adjusted to account for the transit modal share and auto occupancy thought to be inherent within the ITE rates. An assumed transit share of 10% was thought to be inherent within the ITE rates and an auto occupancy rate of 1.1 persons per vehicle was also assumed to be inherent within the ITE rates.

Step 2 of **Table 3** outlines the conversion from auto trips to person trips.

3.4.3 Net New Site Trips

To reflect Barrhaven South travel characteristics, the person trips were assigned to the four primary modal shares (i.e. auto, passenger, transit, and active moves). Based on the lack of transit service and active modes facilities in the immediate study area, it was assumed that the auto modal share will be 90%, with the remaining 10% encompassing passenger, transit, and active modes. The proposed development is anticipated to generate 356 and 256 person trips during the AM and PM peak hours, respectively. In terms of vehicle trips, the proposed development is anticipated to generate 200 and 203 net new auto trips (two-way) during the AM and PM peak hours, respectively.

Step 3 of **Table 3** summarizes the expected person trips by modal share.

3.4.4 Internal Capture

When predicting trips that are associated with different land use types the interaction between those land use types must be accounted for by applying the principals of internal capture adjustments. Internal capture trips are trips which are shared between two or more uses within a given area. A portion of the generated trips for each individual land use is therefore drawn from the adjacent land uses. Internal capture adjustments were made to account for vehicles that visit more than one land use within the subject development. Since these trips are contained within the development area, accounting for each trip separately on the roadway network would result in "double-counting". For this reason, complementary land uses ultimately had their net new trips adjusted to reflect these synergies.

As the catchment area of the elementary school will largely consist of the subject development, the majority of the trips that the elementary school will generate will originate from the immediate area. For this reason, the elementary school was assumed to have an internal capture rate of 70%.

Step 4 of **Table 3** summarizes the internal capture trips for the subject development and Step 5 summarizes the net new auto trips.

3.4.5 Traffic Distribution and Assignment

The distribution of traffic to / from the study area was determined through examination of the TRANS Committee's 2011 Origin-Destination (O-D) Survey for the South Nepean District.

Table 4 provides a summary of the estimated distribution for the traffic generated by the proposed development.

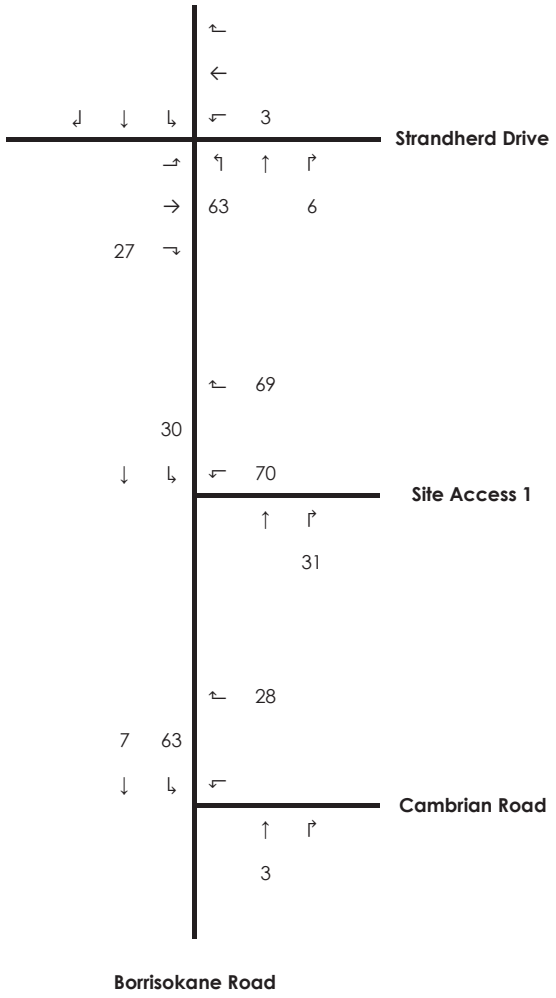
The anticipated site traffic generated by the proposed residential development was assigned to the boundary road network using a logical pattern of primary roads (i.e. along arterials and collectors) which can be seen in **Table 4** below.

Table 4 Traffic Distribution from the South Nepean District

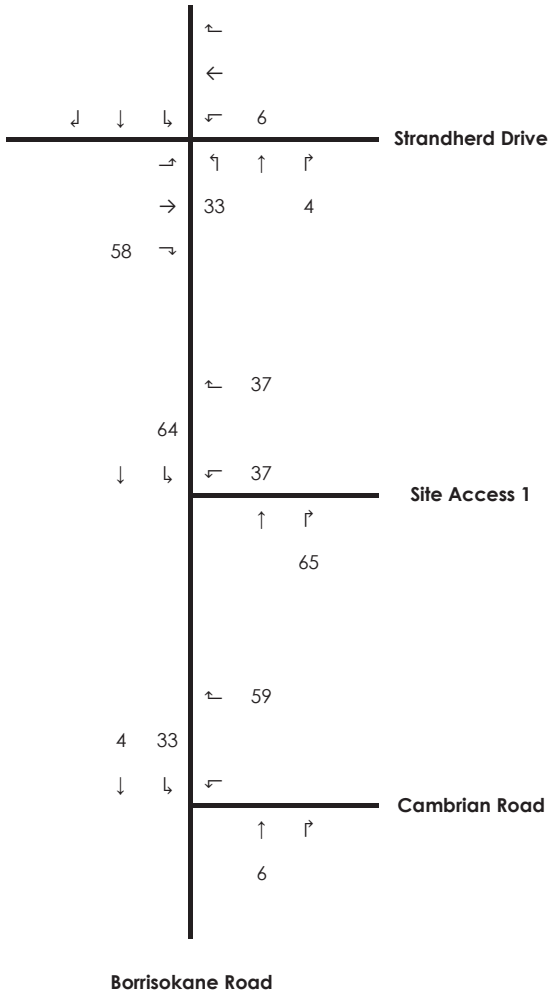
CARDINAL DIRECTION	VIA (TO / FROM)			
	% Distribution	Borrisokane North	Borrisokane South	Existing Greenbank North
North	25%	20%		5%
East	25%	12.5%		12.5%
South	5%		5%	
West	5%	5%		
Internal (South Nepean)	40%	12%		28%
Total	**100%**	**49.5%**	**5%**	**45.5%**

Figure 8 illustrates the assignment of total site traffic volumes to the boundary road network.

AM Peak Hour



PM Peak Hour



Stantec

Glenview

3387 Borrisokane Road

Figure 8: 3387 Borrisokane Road Site Traffic

3 DEMAND FORECASTING

3.1 Background Traffic Growth

To account for background traffic growth along Strandherd Drive, several planned developments have been considered. This includes volumes generated by the 4401 Fallowfield and the Citi-Gate developments. These volumes account for the majority of additional auto trips on Strandherd Drive. **Appendix D** contains excerpts from each report, detailing the site generated traffic for each proposed development.

This study assumes that the mode share will remain stable (a conservative estimate) as the City of Ottawa is targeting growth in transit ridership, particularly in neighbourhoods South of the Jock River. If there is to be a shift in mode share (i.e. increase in transit), then the number of vehicle trips would have to decrease to accomplish this goal. To account for this effect, the background growth rate in addition to the developments explicitly added to the network, is considered negligible in the following analysis.

A portion of the South Nepean Town Centre traffic demand was a third component of the background traffic model. It was estimated that 10% of the total traffic from the SNTC would be assigned to Chapman Mills Drive between Longfields Drive and Strandherd Drive. This was derived by examining the Chapman Mills EA Needs Assessment.

The implementation of the Chapman Mills Drive Extension will also impact existing traffic on Strandherd Drive. Existing traffic on Strandherd Drive was reassigned to estimate the impact of the diversion of traffic away from Strandherd Drive.

Figure 12 shows the projected Chapman Mills Drive Extension traffic volumes and the diverted traffic from Strandherd Drive onto Chapman Mills Drive

Figure 13 shows the future background traffic volumes for the 2025 horizon.

3.2 Site Trip Generation

The number of vehicle trips has been estimated, based on the proposed land uses, to project the impact of the proposed development on the surrounding road network.

Table 3 documents the proposed land uses, the ITE Land Use Codes, and the independent variables that are being proposed for the Clarke Development.

Table 3: Clarke Development Proposed Land Uses

Land Use	Data Source	Independent Variable
Single Family Homes (Stage 1)	ITE 210	146 Units
Townhouse / Condominium (Stage 1)	ITE 230	262 Units
Back to Back Townhouse (Stage 1)		12 Units
Condominium (Stage 1)		24 Units
Townhouse / Condominium (Stage 2)		132 Units
Single Family Homes (Stage 2)	ITE 210	25 Units
Elementary School (Stage 1)	ITE 520	585 Students
Shopping Centre (Local Commercial east of Chapman Mills) (Stage 1)	ITE 820	8,000 ft^2

The ITE Land Use Codes and independent variables described above were used to develop the baseline automobile trip generation. The baseline automobile trip generation is multiplied by 1.30 to estimate the number of peak hour person trips that could be generated by the proposed development. The 2011 NCR Household Origin – Destination Survey was reviewed to determine the mode share characteristics of the subject area, specifically, the South Nepean Area.

Table 4 documents the mode share based on O-D survey.

Table 4: South Nepean Existing Mode Share	
Travel Modes	**Mode Share**
Auto Driver	60%
Auto Passenger	15%
Transit	15%
Non-motorized	10%
Total Person Trips	100%

As described above, the gross total trip generation was derived based on the ITE Trip Generation Manual, 9th Edition, the proposed land uses, and the existing mode share.

Table 5 summarizes the total site trip generation.

Appendix E contains a detailed trip generation breakdown.

Table 5: Site Trip Generation						
Travel Mode	**AM Peak (veh/hr)**			**PM Peak (veh/hr)**		
	In	**Out**	**Total**	**In**	**Out**	**Total**
Single Family Homes	24	72	96	77	47	124
Elementary School	113	93	206	33	36	69
Townhouse / Condominium	20	99	119	93	46	139
Shopping Centre	16	11	27	41	45	86
Townhouse / Condominium – Stage 2	9	42	51	39	20	59
Single Family Homes – Stage 2	6	18	24	17	10	27
Shopping Centre Pass-by (35%)	-5	-5	-10	-15	-15	-30
Total 'New' Auto Trips	**183**	**330**	**513**	**285**	**189**	**474**

3.3 Vehicle Traffic Distribution and Assignment

The vehicle traffic distribution and assignment was developed using The 2011 NCR Household Origin – Destination Survey, South Nepean section. The resultant distribution is outlined in **Table 6.**

Table 6: Traffic Distribution	
To/From	**Percentage**
North	80%
South	5%
East	5%
West	10%
Total	100%

The new site generated trips were assigned to the study area intersections using the above distributions, the existing turning movement patterns, and the proposed access locations. **Figure 10** and **Figure 11** document the site generated traffic of Stage 1 and Stage 2, respectively.

3.4 Projected Intersection Volumes

The background traffic volumes were combined with the site traffic volumes to determine the weekday AM and PM peak hour total traffic forecasts. The future total traffic volumes for the 2025 horizon years with Stage 1 and with both Stage 1 and Stage 2 are shown in **Figure 14** and **Figure 15**, respectively.

Table 3 Trips Generated by the Proposed Development

Step 1: ITE Trip Generation Rates									
Land Parcel	**Land Use Code**	**Units / GFA (1000's SF)**	**AM Peak Hour**			**PM Peak Hour**		
			Inbound	**Outbound**	**Rate**	**Inbound**	**Outbound**	**Rate**
Residential - Singles	210 - Single Detached Houses	552	25%	75%	0.72	63%	37%	0.89
Residential - Towns	230 - Residential Condo / Townhouse	464	17%	83%	0.38	67%	33%	0.46
Commercial	820 - Shopping Centre	35	62%	38%	2.36	48%	52%	8.50

Step 2: Conversion to Person Trips								
Land Parcel	**Land Use Code**		**AM Peak Hour**			**PM Peak Hour**		
			Inbound	**Outbound**	**Total**	**Inbound**	**Outbound**	**Total**
Residential - Singles	210 - Single Detached Houses	Trip Gen	99	297	396	308	181	489
		Transit Share 10%	10	30	40	31	18	49
		Auto Occupancy 1.1	10	30	40	31	18	49
		Total Person Trips	119	357	476	370	217	587
Residential - Towns	230 - Residential Condo / Townhouse	Trip Gen	30	146	176	142	70	212
		Transit Share 10%	3	15	18	14	7	21
		Auto Occupancy 1.1	3	15	18	14	7	21
		Total Person Trips	36	176	212	170	84	254
Commercial	820 - Shopping Centre	Trip Gen	51	31	82	141	153	294
		Transit Share 10%	5	3	8	14	15	29
		Auto Occupancy 1.1	5	3	8	14	15	29
		Total Person Trips	61	37	98	169	183	352

Step 3: Modal Share Adjustments								
Land Parcel	**Land Use Code**		**AM Peak Hour**			**PM Peak Hour**		
			Inbound	**Outbound**	**Total**	**Inbound**	**Outbound**	**Total**
Residential - Singles	210 - Single Detached Houses	Auto 60%	71	214	285	222	130	352
		Passenger 10%	12	36	48	37	22	59
		Transit 30%	36	107	143	111	65	176
		Walk / Bike 0%	0	0	0	0	0	0
Residential - Towns	230 - Residential Condo / Townhouse	Trip Gen 60%	21	105	126	102	50	152
		Transit Share 10%	4	18	22	17	8	25
		Auto Occupancy 30%	11	53	64	51	26	77
		Total Person Trips 0%	0	0	0	0	0	0
Commercial	820 - Shopping Centre	Auto 60%	37	22	59	101	110	211
		Passenger 10%	6	4	10	17	18	35
		Transit 30%	18	11	29	51	55	106
		Walk / Bike 0%	0	0	0	0	0	0

Step 4: Pass-By and Internal Capture								
Land Parcel	**Land Use Code**		**AM Peak Hour**			**PM Peak Hour**		
			Inbound	**Outbound**	**Total**	**Inbound**	**Outbound**	**Total**
Residential - Singles	210 - Single Detached Houses	Auto Trips	71	214	285	222	130	352
		Pass-By 0	0	0	0	0	0	0
		Internal Capture 0	0	0	0	0	0	0
		Net New Auto Trips	71	214	285	222	130	352
Residential - Towns	230 - Residential Condo / Townhouse	Auto Trips	21	105	126	102	50	152
		Pass-By 0	0	0	0	0	0	0
		Internal Capture 0	0	0	0	0	0	0
		Net New Auto Trips	21	105	126	102	50	152
Commercial	820 - Shopping Centre	Auto Trips	37	22	59	101	110	211
		Pass-By 15	15	30	53	53	106	106
		Net New Auto Trips	22	7	30	48	57	106

Step 5: Net New Auto Trips							
Land Parcel	**Land Use Code**	**AM Peak Hour**			**PM Peak Hour**		
		Inbound	**Outbound**	**Total**	**Inbound**	**Outbound**	**Total**
Residential		92	319	411	324	180	504
Commercial		22	7	30	48	57	106

3.3.2 Conversion of ITE Rates to Person Trips

The notion of quantifying the volume of "person" trips expected to be generated by a given development is becoming a commonly accepted practice. It is aimed at quantifying the expected demands across the primary modes of transportation.

In order to convert ITE rates to person trips, the rates obtained from the ITE Trip Generation Manual were adjusted to account for the transit modal share and auto occupancy thought to be inherent within the ITE rates. An assumed transit share of 10% was thought to be inherent within the ITE rates and an auto occupancy rate of 1.1 persons per vehicle was also assumed to be inherent within the ITE rates. The proposed development is anticipated to generate 786 and 1193 person trips during the AM and PM peak hours, respectively.

Step 2 of **Table 3** outlines the conversion from auto trips to person trips.

3.3.3 Modal Share Adjustments

To reflect local Ottawa travel characteristics, the person trips were assigned to the four primary modal shares (i.e. auto, passenger, transit, and active moves) according to the TRANS Committee's 2011 Origin-Destination (O-D) Survey for the South Nepean District. In terms of auto trips, the proposed development is anticipated to generate 470 and 715 auto trips (two-way) during the AM and PM peak hours, respectively.

Step 3 of **Table 3** summarizes the expected person trips by modal share.

3.3.4 Pass-By Trips

Pass-by trips are considered intermediate stops between an origin and a destination. They are site trips that are drawn from existing traffic volumes on the road network that are "passing-by" the site. While the total number of trips generated by a given development remains the same, the turning movements at study area intersections / site accesses require adjustments to reflect pass-by traffic. The rate of pass-by traffic is based on the specific land use, and in this case, a pass-by rate was applied to the commercial portion of the development. As outlined in the *ITE Trip Generation Manual*, the pass-by rate for a commercial development of approximately 35,000 ft^2 is 50%.

Following the application of the pass-by rates, the proposed development is expected to generate approximately 441 and 610 net new auto trips (two-way) during the AM and PM peak hours, respectively.

Step 4 of **Table 3** summarizes the expected pass-by trips.

Figure 7 illustrates the site trips the proposed development is anticipated to generate prior to accounting for pass-by trips.

Figure 8 illustrates the pass-by trips the proposed development is anticipated to generate.

3.3.5 Traffic Distribution and Assignment

The distribution of traffic to / from the study area was determined through examination of the TRANS Committee's *2011 Origin-Destination (O-D) Survey* for the South Nepean District.

Table 4 and **Table 5** provide a summary of the estimated distribution for the traffic generated by the proposed development.

The anticipated site traffic generated by the proposed development was assigned to the boundary road network using a logical pattern of primary roads (i.e. along arterials and collectors) and in consideration of the future road network (i.e. the future Realigned Greenbank Road) which can be seen in both tables below.

Table 4 Residential Traffic Distribution from the South Nepean District

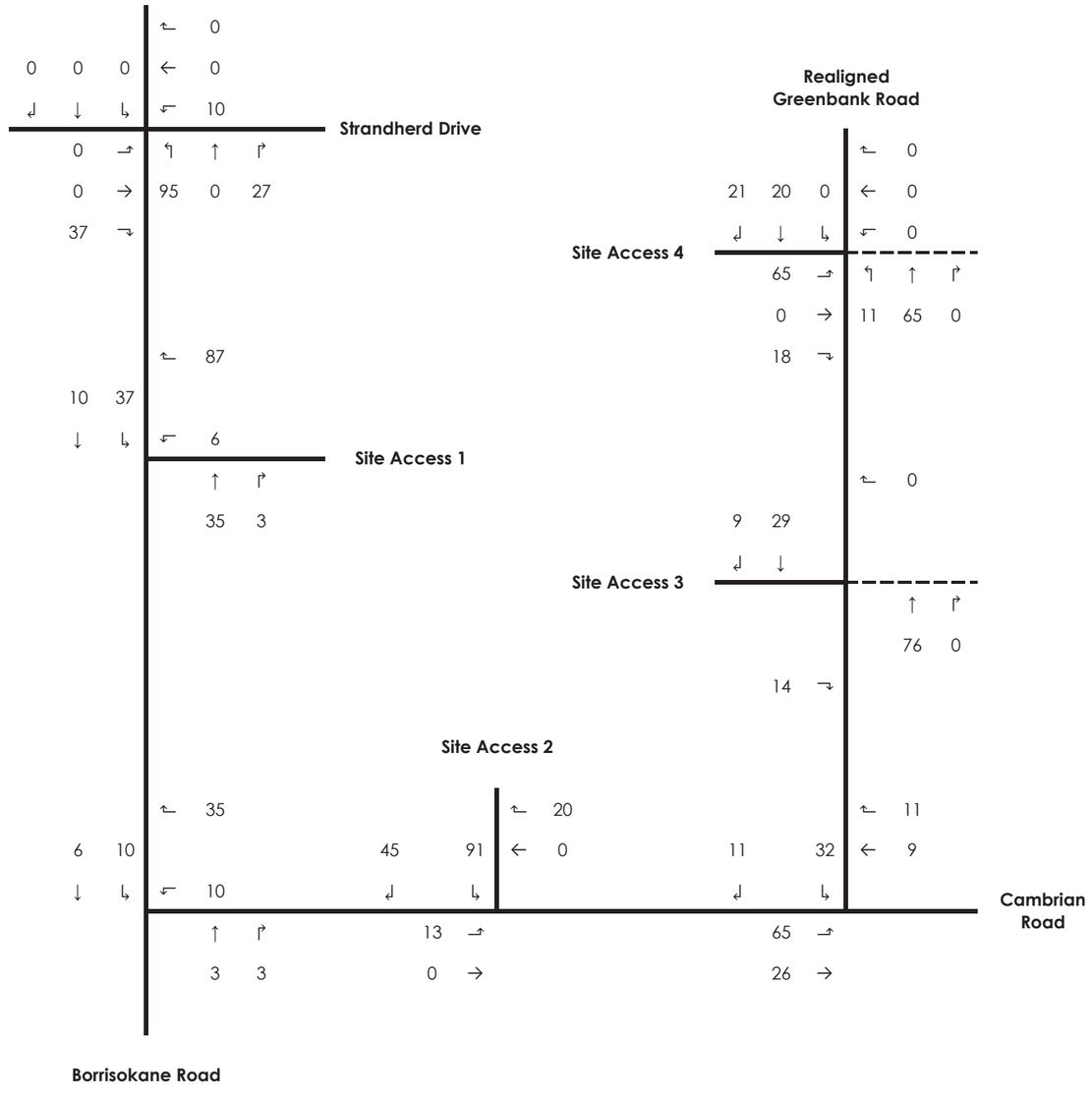
Cardinal Direction	Via (to / from)				
	% Distribution	Borrisokane North	Borrisokane South	Cambrian Road East	Realigned Greenbank North
North	25%	10%			15%
East	25%	12.5%		7.5%	5%
South	5%		5%		
West	5%	4.5%			0.5%
Internal (South Nepean)	40%	10%		10%	20%
Total	100%	37%	5%	17.5%	40.5%

Table 5 Commercial Traffic Distribution from the South Nepean District

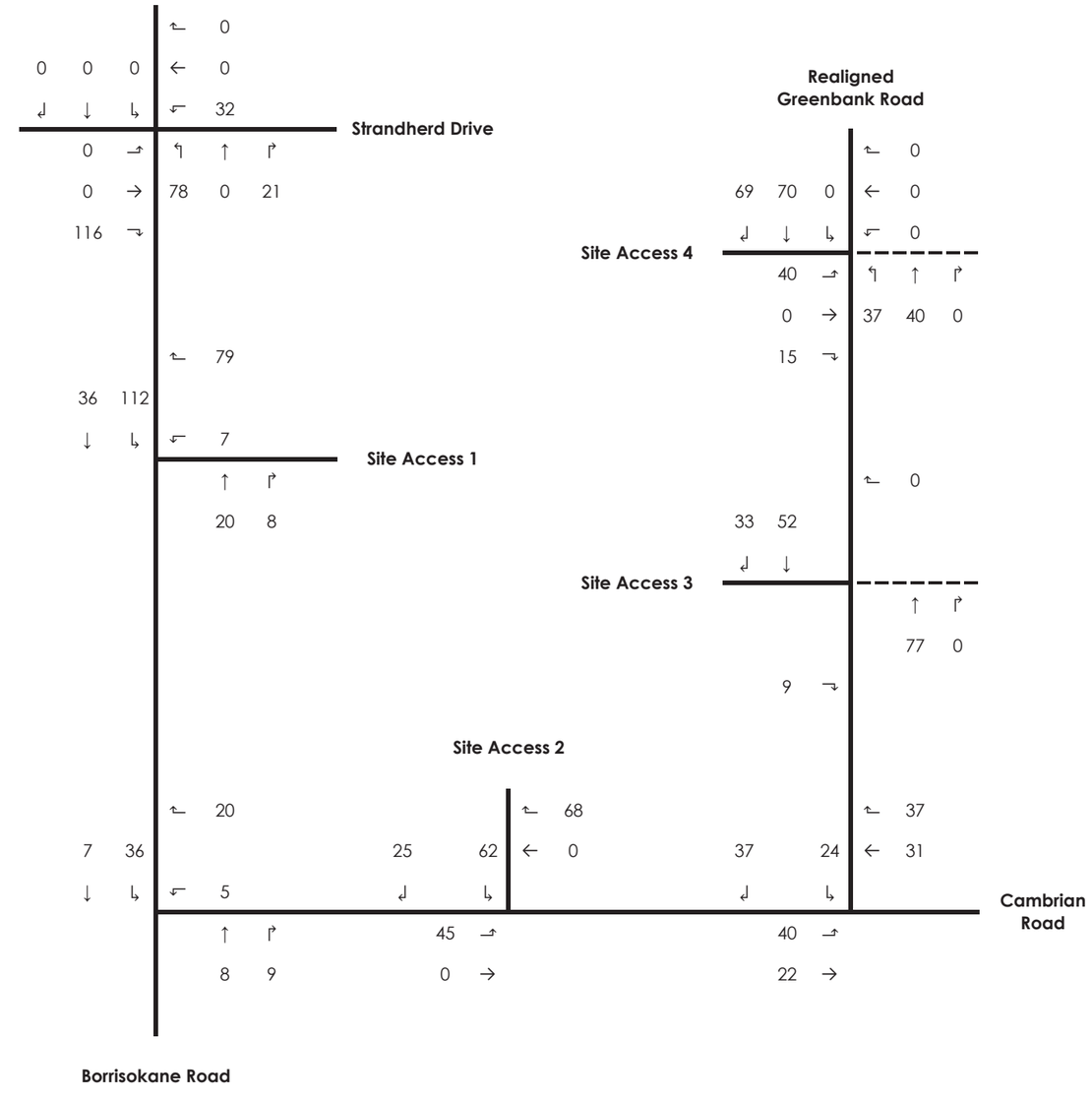
Cardinal Direction	Via (to / from)				
	% Distribution	Borrisokane North	Borrisokane South	Cambrian Road East	Realigned Greenbank North
North	25%	22.5%			2.5%
East	25%	12.5%		7.5%	5%
South	5%		5%		
West	5%	5%			
Internal (South Nepean)	40%	16%		16%	8%
Total	100%	56%	5%	23.5%	15.5%

Figure 9 illustrates the net new site traffic volumes for the proposed development.

AM Peak Hour



PM Peak Hour



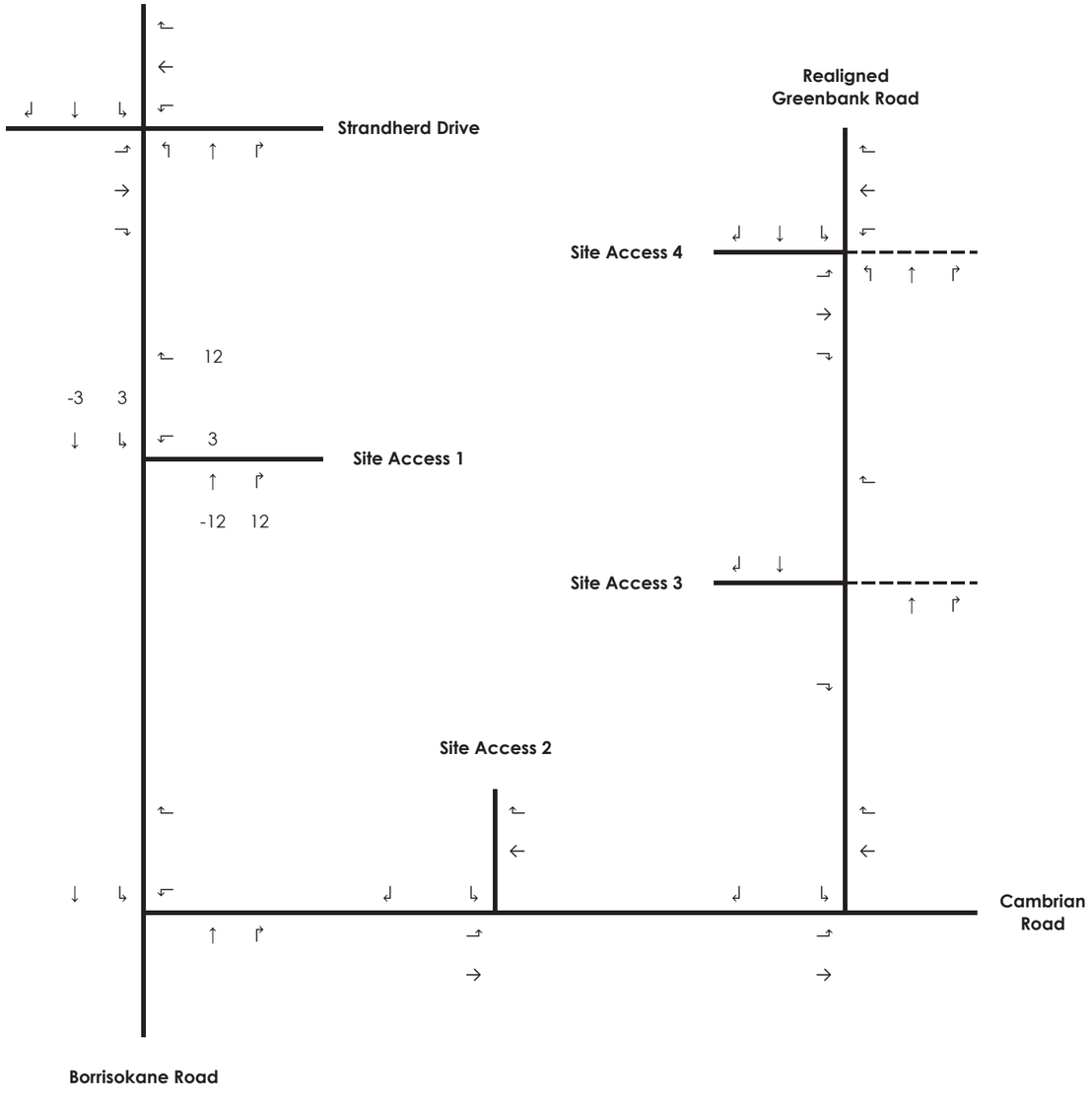
Stantec

Mattamy Homes

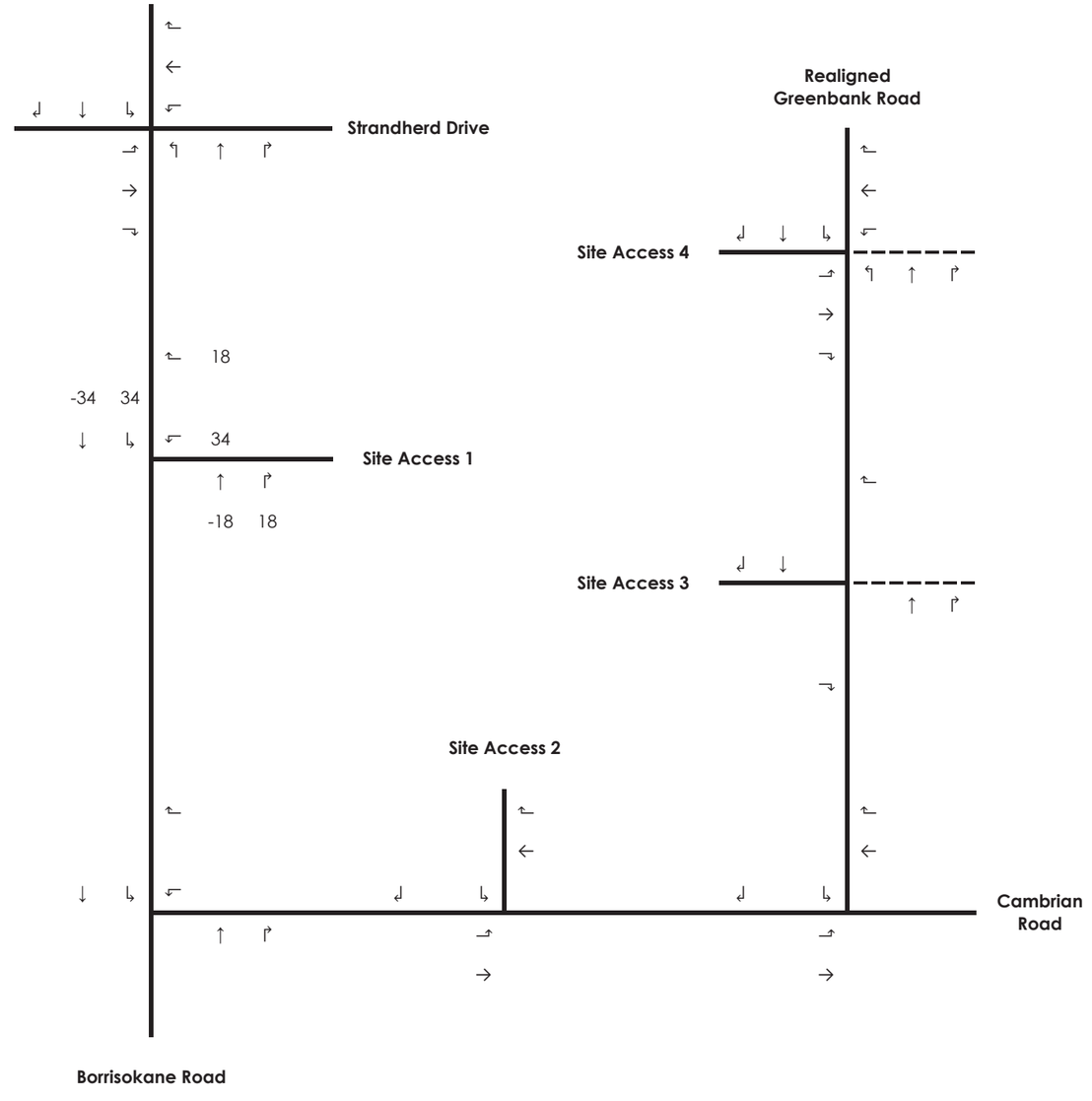
Half Moon Bay West

Figure 7: Site Traffic Volumes

AM Peak Hour



PM Peak Hour



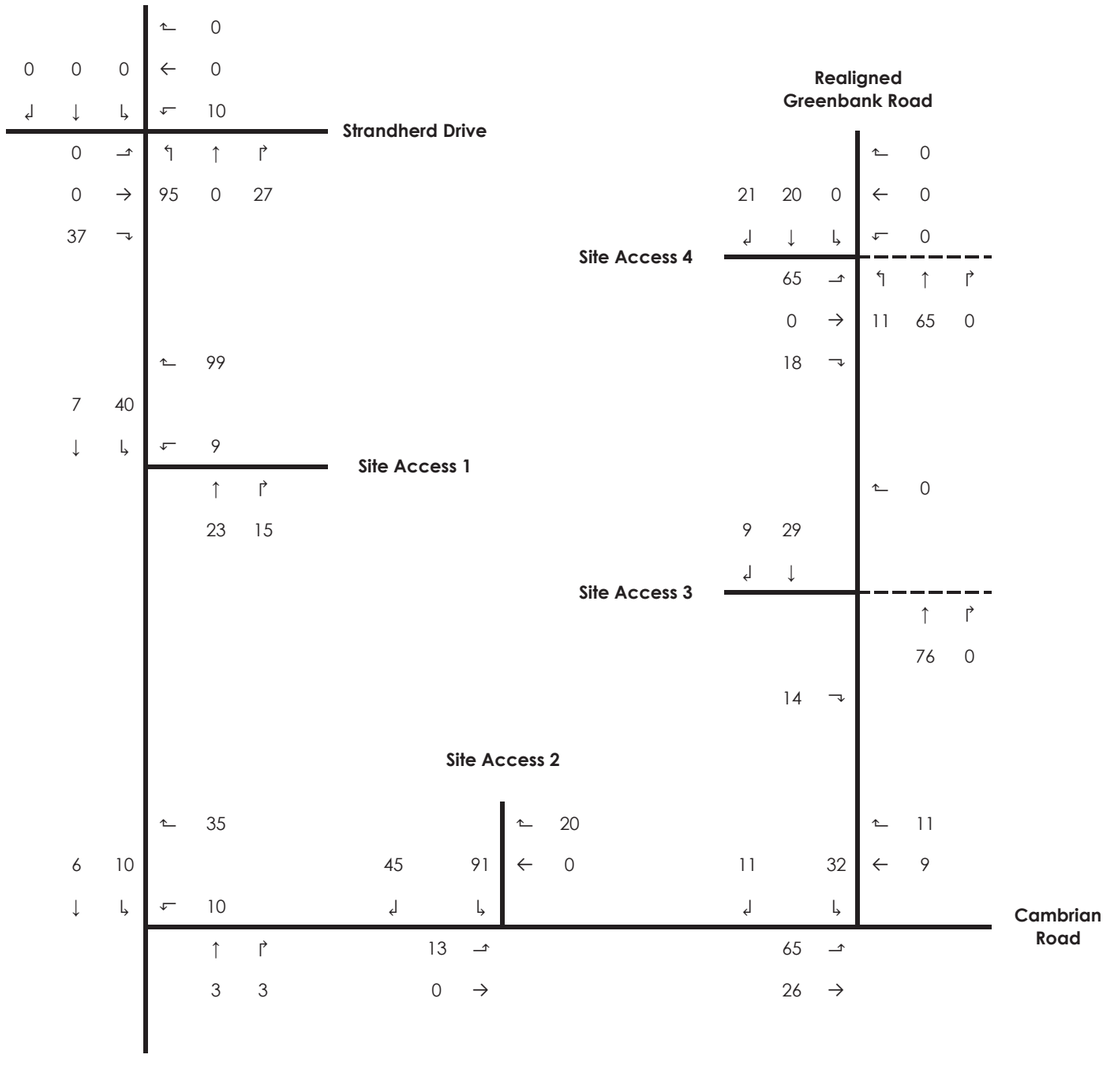
Stantec

Mattamy Homes

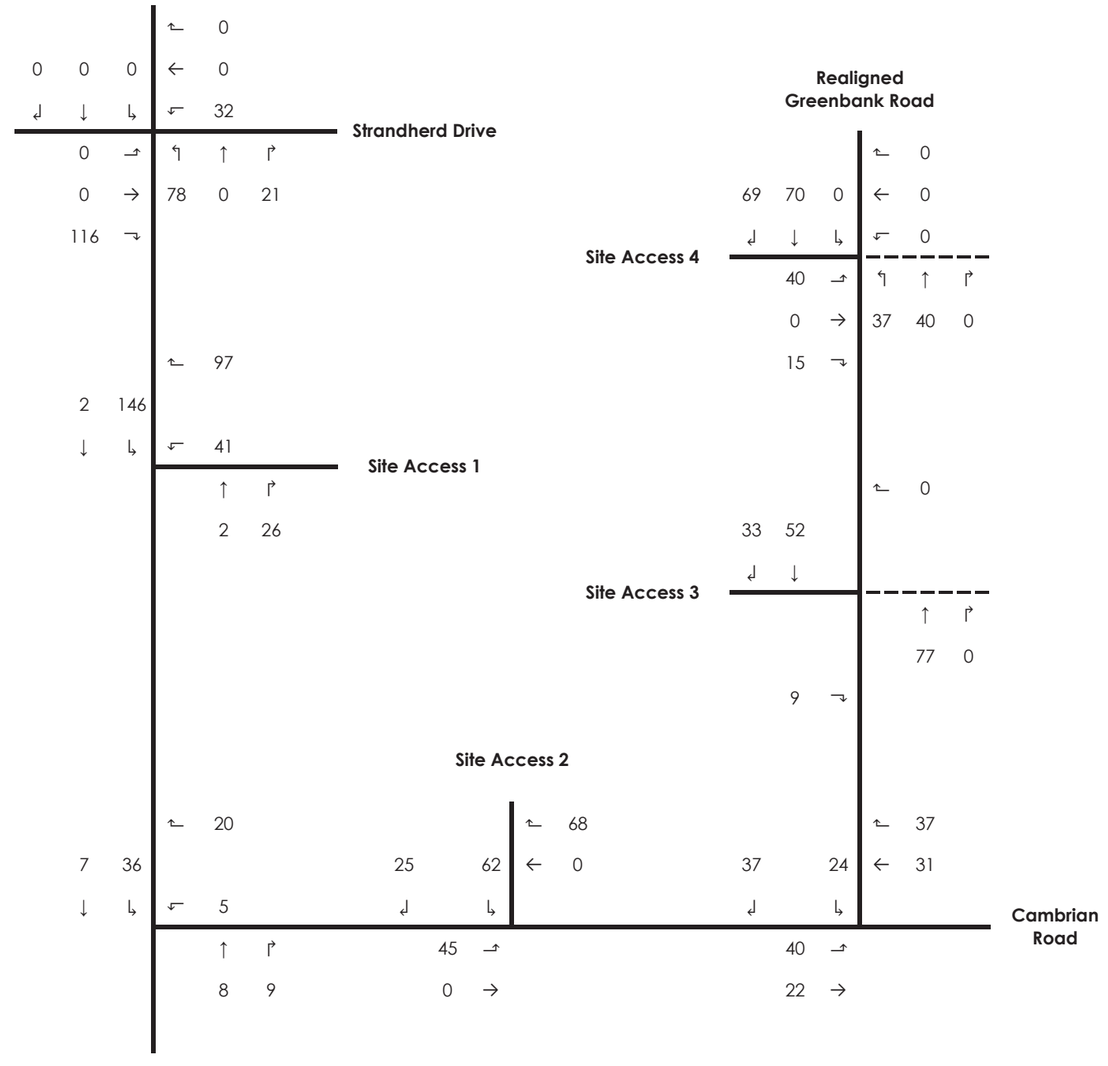
Half Moon Bay West

Figure 8: Pass-By Traffic Volumes

AM Peak Hour



PM Peak Hour



Stantec

Mattamy Homes

Half Moon Bay West

Figure 9: Net New Site Traffic Volumes

3 Forecasting

The purpose of the Forecasting section is to "generate the future transportation demand number required to analyze pre and post-development network performance to determine if a network modification is required to offset development impacts." [3]

3.1 Development-Generated Traffic

3.1.1 Base Trip Generation Rates

The peak hour vehicular traffic volumes from the subject development were determined using peak hour trip generation rates from the ITE Manual. A summary of the vehicular trip generation results for the proposed development has been summarized in Table 5.

The relevant extracts from the ITE Manual have been provided in Appendix E.

TABLE 5 – ITE Development Trip Generation Results

LAND USE (ITE CODE)	SIZE	PERIOD	GENERATED TRIPS (VPH)		
			IN	OUT	TOTAL
Hotel (310)	102 rooms	AM	32	22	54
		PM	31	30	61
		SAT	42	33	75

Note: The trip generation values indicated for the Saturday peak hour represent the peak generation of the hotel, which is not likely to coincide with the peak hour of adjacent street traffic.

vph = vehicles per hour; DU = Dwelling Units

Formula Rate and Splits for Hotels:

AM: T = 0.53(X) IN: 59%; OUT: 41%

PM: T = 0.60(X) IN: 51%; OUT: 49%

SAT: T = 0.69(X) + 4.32 IN: 56%; OUT: 44%

3.1.2 Person-Trips

The City's TIA Guidelines require trip generation to be expressed in terms of 'person-trips' rather than automobile trips in order to clearly identify the multi-modal demands of a development on the adjacent transportation network. Trip generation rates published by ITE are typically based on historical data from suburban areas with little to no access to public transit. The City of Ottawa TIA Guidelines suggest the use of a 1.28 conversion factor to obtain the equivalent number of person-trips when applying ITE data. This conversion factor is calculated under the assumption that a 1.15 auto occupancy rate is inherent to this data and that roughly 10% of trips are by non-auto modes and thus not captured in the rates. The results of applying these factors have been summarized in Table 6.

TABLE 6 – Development Person Trip Generation Results

LAND USE (ITE CODE)	FACTOR	PERIOD	GENERATED TRIPS (PPH)		
			IN	OUT	TOTAL
Hotel (310)	1.28	AM	41	28	69
		PM	40	38	78
		SAT	54	42	96

[3] Ottawa 2017 Transportation Impact Assessment Guidelines, p. 27

3.1.3 Mode Share

3.1.3.1 Existing Mode Share

The 2011 TRANS Origin-Destination Survey provides approximations of the existing modal share within the South Nepean Traffic Assessment Zone (TAZ). Of the available data, the weekday PM Peak inbound direction (i.e. To District) was determined to be the most appropriate existing mode share reference, as it coincides with the peak period of adjacent street traffic.

3.1.3.2 Targeted Mode Share for the Development

Given the type of development proposed and its context, the mode share specific to this development may vary from the average mode share experienced in the South Nepean Traffic Assessment Zone. As discussed below, adjustments were made to the Auto Driver Mode and Transit Mode shares to better represent the mode shares for the proposed development.

There are no transit service improvements in the vicinity of the subject development that are planned within the horizon periods of this study. Given the distance from express, city-wide transit service providing connections to the city's regional travel hubs, there may be a decreased likelihood that guests of the proposed hotel will travel by public transportation. Therefore, the Transit Modal Split (TMS) has been reduced substantially from 24% to 5%. The difference in mode shares from the reduction in the Transit Modal Split (TMS) was shifted over to the Auto Driver Mode. This assumption should be considered conservative.

Table 7 summarizes the existing mode share for the local South Nepean area, and appropriate adjustments based on the context of the subject site. Relevant extracts from the 2011 OD Survey are provided in Appendix F.

TABLE 7 – Proposed Mode Shares for South Nepean (2011 OD Survey)

TRAVEL MODE	EXISTING MODE SHARE (2011 OD SURVEY)	ADJUSTED MODE SHARE
Auto Driver	63%	82%
Transit	24%	5%
Auto Passenger	11%	No Change
Cycling	0%	
Walking	0%	
Other (e.g. taxi)	2%	
Total	100%	100%

3.1.4 Trip Reduction Factors

3.1.4.1 Deduction of Existing Development Trips

Not Applicable. The site has no existing trip generation.

3.1.4.2 Pass-By Traffic

Not Applicable. The site will not generate pass-by traffic.

3.1.4.3 Synergy/Internalization

Not Applicable. The site will have only one land use.

3.1.5 Trip Generation Summary

Table 8 summarizes the net number of person-trips the proposed development is expected to generate during the weekday morning and weekday afternoon peak hours of adjacent traffic.

The mode share target in Table 7 were applied to person trips results from Table 6 to estimate the number of development generated trips by mode, as shown in Table 8.

TABLE 8 – Development Generated Traffic by Mode

TRAVEL MODE	PEAK PERIOD TRIPS BY MODE								
	AM PK HR			PM PK HR			SAT PK HR		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Auto Driver (82%)	33	23	56	33	31	64	44	34	78
Transit (5%)	2	1	3	4	4	8	3	2	5
Auto Passenger (11%)	4	3	7	4	4	8	6	5	11
Cycling (0%)	0	0	0	0	0	0	0	0	0
Walking (0%)	0	0	0	0	0	0	0	0	0
Other (2%)	1	1	2	1	1	2	1	1	2

The proposed development was expected to generate approximately 47 morning peak hour, 55 afternoon peak hour and 66 Saturday vehicular trips at full buildout, based on the ITE Trip Generation Manual and modal share assumptions.

3.1.6 Trip Distribution

The trip distribution shown below was applied to development traffic (both background and site generated) within the study area. The distribution was based on previous studies and competed roadway infrastructure projects, and is summarized in Table 9.

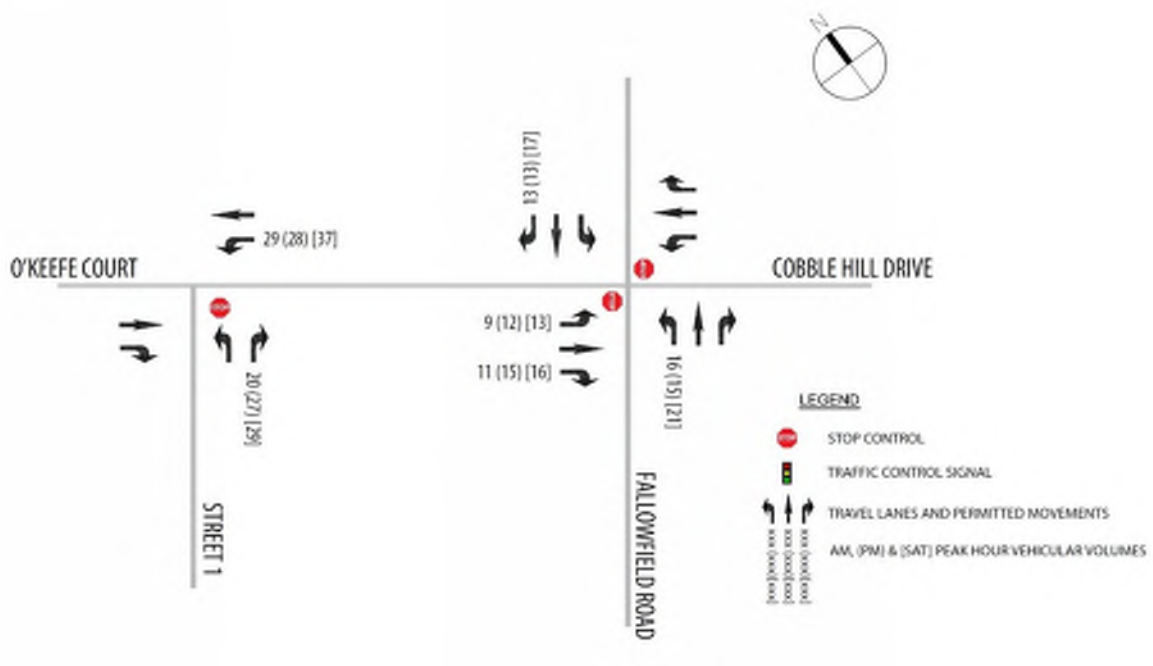
TABLE 9 – Development Generated Traffic by Mode

TO/ FROM	DISTRIBUTION
Fallowfield Road, North of O'Keefe Court	45%
Fallowfield Road, South of O'Keefe Court	55%
Total	100%

3.1.7 Trip Assignment

Utilizing the estimated number of new auto trips and applying the above distribution, future site-generated traffic volumes are illustrated in Exhibit 10 as follows:

EXHIBIT 10 - Site-Generated Traffic



- Based on the anticipated turning movement volumes illustrated in Exhibit 10 above, it was not expected that there will be any operational impacts at either of the proposed site access driveways or the O'Keefe Court and Street 1 intersection. All of the site generated traffic will be required to access/ egress the subject site via the Street 1 and O'Keefe Court intersection, and will be distributed between the two (2) driveways, thereby further reducing the risk of traffic operational issues.

3.2 Background Network Traffic

The purpose of this module of the TIA Guidelines is to develop future background traffic volumes by building on existing volumes through the application of site generated traffic volumes from the application of an annual growth rate to capture any non-specific background traffic growth that the study area may experience.

3.2.1 Transportation Network Plans

There are no changes to the transportation network planned within the study area in the Transportation Master Plan's (TMP) Affordable Network, and no background network road modifications are expected to be required to accommodate traffic generated from the subject site.

3.2.2 Background Growth

Two future background horizons were analyzed in the report, as required by City staff:

1. Year 2019 – Opening Day; Full occupancy of the proposed development
2. Year 2024 – Opening Day plus 5 years

A 2% background growth rate along Fallowfield Road was used in this study to account for regional growth along the adjacent road network. This growth rate was applied to through movements along Fallowfield Road to assess the need for interim modifications at the intersection of Fallowfield Road and O'Keefe Court that may be required in advance of the further development within the study area. Once the future adjacent developments discussed in Section 2.4.3 are

using land use code 310 for a Hotel in the ITE *Trip Generation Manual*, 10th Edition. Person trips were calculated using an ITE Trip to Person Trip factor of 1.28, consistent with the TIA Guidelines. The Person Trips generated by the proposed development are summarized in **Table 3**.

Table 3: Person Trip Generation (using the ITE Trip Generation Manual)

Land Use	ITE Code	Units/ GFA	AM Peak (PPH)			PM Peak (PPH)			Sat (PPH)		
			IN	OUT	TOT	IN	OUT	TOT	IN	OUT	TOT
Proposed Development											
Hotel	310	99 Rooms	34	23	57	32	30	62	51	40	91

The modal shares for the proposed development are anticipated to be consistent with the modal shares outlined in the 2011 *Trans O-D Survey Report*, for the South Nepean area. The modal share values applied to the trips generated by the proposed development are based on all trips to/from the South Nepean district with an origin or destination beyond that area. As discussed below, adjustments have been made to the Auto Driver Mode and Transit Mode shares to better represent the mode shares for the proposed development.

There are no transit service improvements in the vicinity of the subject site that are planned within the horizon year of this study. Given the distance from express, city-wide transit service providing connections to the city's regional travel hubs, there may be a decreased likelihood that guests of the proposed hotel will travel by public transportation. Therefore, the Transit Mode share has been reduced substantially from 25% to 5%. The difference in mode shares from the reduction in Transit Mode was added to the Auto Driver Mode. This assumption is considered conservative.

A full breakdown of the projected person trips by modal share are shown in **Table 4**.

Table 4: Person Trips by Modal Share

Travel Mode	Modal Share	AM Peak			PM Peak			Saturday		
		IN	OUT	TOT	IN	OUT	TOT	IN	OUT	TOT
Proposed Development										
Hotel Person Trips		*34*	*23*	*57*	*32*	*30*	*62*	*51*	*40*	*91*
Auto Driver	85%	**29**	**20**	**48**	**27**	**26**	**53**	**43**	**34**	**77**
Auto Passenger	10%	3	2	6	3	3	6	5	4	9
Transit	5%	2	1	3	2	1	3	3	2	5
Non-Auto	0%	0	0	0	0	0	0	0	0	0

From the previous table, the proposed development is projected to generate an additional 48 vehicle trips during the AM peak hour, 53 vehicle trips during the PM peak hour and 77 vehicle trips during the Saturday peak.

5.1.2 Trip Distribution

The distribution of trips generated by the hotel has been estimated based on the AADT along the study area roadways, consistent with the 2012 CitiGate CTS. The trip distribution for the proposed development is as follows:

- 30% to/from the north via Highway 416
- 10% to/from the east via Fallowfield Road
- 15% to/from the east via Strandherd Drive
- 25% to/from the south via Highway 416
- 20% to/from the west via Fallowfield Road

All trips coming from the north or south via Highway 416, and from the east or west via Fallowfield Road have been assigned to CitiGate Drive at the Strandherd Drive/CitiGate Drive/Fallowfield Road intersection. Of the 15% of the trips from the east via Strandherd Drive, 5% have been assumed to turn left onto CrossKeys Place at the Strandherd Drive/CrossKeys Place/Hélène Campbell Road intersection and use the roundabout at CrossKeys Place/CitiGate Drive, and 10% have been assigned to the left turning movement onto CitiGate Drive at the Strandherd Drive/CitiGate Drive/Fallowfield Road intersection.

Site generated traffic volumes are shown in **Figure 4**.

5.2 Background Traffic

5.2.1 General Background Growth Rate

A review of other recent transportation studies in the vicinity of the subject site was conducted in order to establish a base background growth rate.

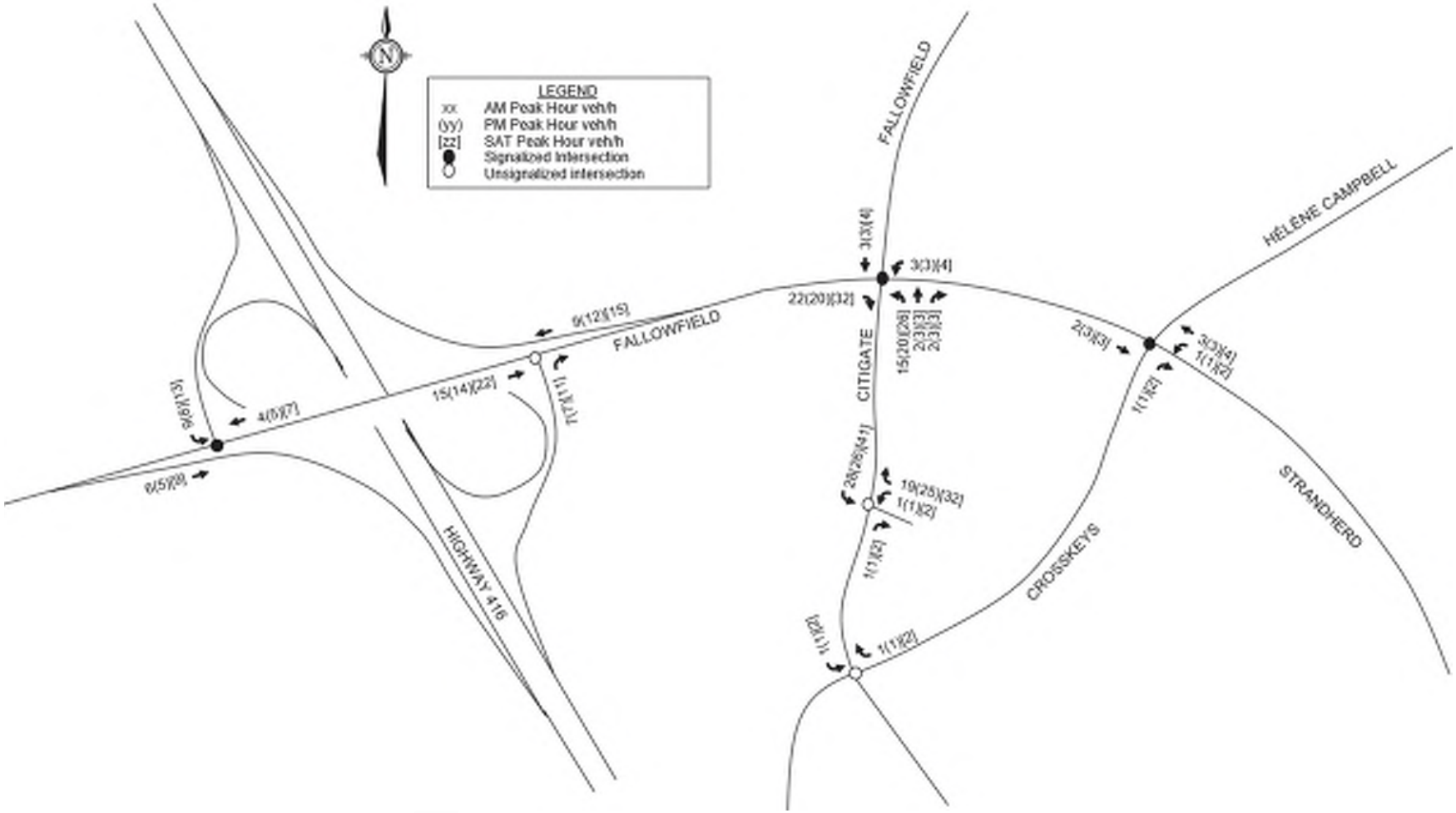
The CitiGate CTS completed by Novatech in 2012 assumed a background growth rate of 1% as a significant portion of adjacent development traffic was accounted for separately. This approach was consistent with the 4401 Fallowfield Road CTS published by IBI Group in 2015, and the CitiGate Retail Development TIS published by Parsons in 2015.

A 1% background growth factor is assumed for the purpose of this report, in light of the other study area developments that have been accounted for separately. This approach is consistent with other recent transportation studies in the area.

The 1% growth rate was applied to Strandherd Drive, Fallowfield Road, and the Highway 416 ramps. It was not applied to Hélène Campbell Road as the background growth rate is intended to account for growth in regional traffic which is not anticipated on lower class roads. The background growth rate was not applied to CitiGate Drive and CrossKeys Place, as growth on these roads is highly development-driven and has been accounted for separately.

Background growth within the study area for the 2020 build-out and 2025 horizon years is shown in **Figures 5** and **6**.

Figure 4: Site Generated Traffic Volumes



5.0 FORECASTING

5.1 Development-Generated Traffic

5.1.1 Trip Generation

The site is currently approved for a 3.15-hectare corporate campus (office space with an estimated 121,275 square feet). The previous Transportation Studies for this development estimated the office trip generation as an Office Park (ITE Land Use 750) using rates of 110 employees per acre and 350 ft^2 of GFA per employee.

The proposed development is planned to consist of:

- 38,600 square foot auto dealership;
- 84,300 square foot office; and,
- A future (up to) 120-room hotel.

Initial plans for the office included 86,100 square feet of GFA and this larger area has been carried into the trip generation for the site.

Trips for the proposed Office and Hotel were estimated using *Trip Generation*, *10th Edition* (Institute of Transportation Engineers, Washington, 2017). Person trips were estimated using an ITE Trip to Person Trip conversion factor of 1.28, consistent with the TIA Guidelines (See **Table 3**).

Table 3: Person Trip Generation (Office and Hotel Development)

Land Use	Units[3]	Person Trips Generated[4]								
		AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
Person Trip Generation for approved site (3.15 ha of corporate campus)[1]										
Block 4 Office	121.275	350	43	393	46	283	329	17	6	23
Person Trip Generation for Proposed Office and Hotel Sites[2]										
Office (ITE 710)	86.1	118	19	137	20	106	126	32	27	59
Hotel (ITE 310)	120	41	29	70	42	40	82	63	49	112
Total Person Trips (Proposed Office and Hotel Sites)		159	48	207	62	146	208	95	76	171

Notes:
1. Person trips generated by the approved site taken from *Citigate Blocks 3 & 4 Transportation Overview* (Novatech 2015)
2. Trip Generation for the associated Land Use from *Trip Generation 10th Edition* (Institute of Transportation Engineers, Washington, 2017). Trips have been increased by 28% to account for 10% non-auto mode share and average vehicle occupancy of 1.15.
3. Units are '1000 sq ft of GFA' for Block 4 and Office; Estimated Rooms for Hotel.
4. Person trips per hour for peak hours.

AM and PM peak hour trips for the auto dealership were estimated using *Trip Generation*, *10th Edition* (Institute of Transportation Engineers, Washington, 2017).

Since the number of Saturday ITE studies for an auto dealership is low (4), Saturday traffic counts at an Ottawa area auto dealership from 2017 were used to estimate the Saturday peak hour trips generated by the proposed auto dealership.

Traffic counts were conducted by Novatech on Saturday May 27th, 2017 at the Myers Hyundai Bells Corners automobile dealership (2164 Robertson Road, See **Appendix D**). These counts were used to estimate a Saturday auto dealership trip generation rate per 1000 square feet of GFA. The estimated trips generated by the proposed auto dealership are summarized in **Table 4**. As the auto dealership land use is largely auto dependent, it is assumed that the observed modal share at the Myers Hyundai Bells Corners site will be consistent with the subject site, and further adjustments are not required.

While the Saturday peak hour for auto dealership, office, and hotel are not expected to be simultaneous, this is considered conservative.

Table 4: Trip Generation (Auto Dealership)

Land Use	Units[2]	Vehicle Trips Generated[3]								
		AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
Automobile Sales (New)[1] (ITE 840)	38.6	53	19	72	37	56	93	59	41	100

Notes:
1. AM and PM peak hour trip generation for the auto dealership taken from *Trip Generation 10th Edition* (Institute of Transportation Engineers, Washington, 2017). Saturday peak hour trip generation has been taken from recent count at the Myers Bells Corners site (See Appendix D).
2. Units are '1000 sq ft of GFA'.
3. Trips per hour for peak hours.

Trips by Modal Share

2011 Trans O-D Survey Report, for the South Nepean area identifies the current modal share values for the area and are based on all trips to/from the South Nepean district with an origin or destination beyond that area.

The modal shares for the proposed hotel are anticipated to be in line with the modal shares outlined in the O-D Survey, however, with lower transit use considering:

- There are no transit service improvements in the vicinity of the subject site that are planned within the horizon year of this study; and,
- The distance from express, city-wide transit service providing connections to the city's regional travel hubs.

Therefore, the Transit Mode share for the hotel development has been reduced to 5% with the difference added to the Auto Driver Mode. This assumption is considered conservative.

The modal share identified in the 2015 Transportation Overview has been applied to the proposed office development.

A full breakdown of the projected modal share trips is shown in **Table 5**.

Table 5: Person Trips by Modal Share

Travel Mode	Modal Share	AM Peak			PM Peak			Saturday Peak		
		IN	OUT	TOT	IN	OUT	TOT	IN	OUT	TOT
Auto Dealership (See Table 4)										
Vehicle Trips		*53*	*19*	*72*	*37*	*56*	*93*	*59*	*41*	*100*
Auto Driver	Obs.	**53**	**19**	**72**	**37**	**56**	**93**	**59**	**41**	**100**
Office (See Table 3)										
Person Trips		*118*	*19*	*137*	*20*	*106*	*126*	*32*	*27*	*59*
Auto Driver	64%	**75**	**12**	**87**	**13**	**68**	**81**	**20**	**18**	**38**
Auto Passenger	16%	19	3	22	3	17	20	5	4	9
Transit	15%	18	3	21	3	16	19	5	4	9
Walking	2%	2	0	2	0	2	2	1	0	1
Bicycling	3%	4	1	5	1	3	4	1	1	2
Hotel (See Table 3)										
Person Trips		*41*	*29*	*70*	*42*	*40*	*82*	*63*	*49*	*112*
Auto Driver	85%	**35**	**25**	**60**	**36**	**34**	**70**	**54**	**42**	**96**
Auto Passenger	10%	4	3	7	4	4	8	6	5	11
Transit	5%	2	1	3	2	2	4	3	2	5
Walking	0%	0	0	0	0	0	0	0	0	0
Bicycling	0%	0	0	0	0	0	0	0	0	0
Total										
Auto Driver		**163**	**56**	**219**	**86**	**158**	**244**	**133**	**101**	**234**
Auto Passenger		23	6	29	7	21	28	11	9	20
Transit		20	4	24	5	18	23	8	6	14
Walking		2	0	2	0	2	2	1	0	1
Bicyling		4	1	5	1	3	4	1	1	2

The proposed development is estimated to generate 219 vehicle trips during the AM peak hour, 244 vehicle trips during the PM peak hour and 234 vehicle trips during the Saturday peak hour.

5.1.2 Trip Distribution / Assignment

The distribution of trips generated by the development has been estimated based on the observed and projected volumes along the study area roadways, particularly the observed traffic at the Dealership Drive intersection and at the Tomlinson office site.

The expected trip distributions for each development use are summarized in **Table 6**.

Table 6: Trip Distribution for Each Use

	Dealership	Office	Hotel
to/from the North	45%	60%	85%
to/from the East	10%	10%	0%
to/from the South	45%	30%	15%

Auto dealership trips: 83% of the trips entering from the north have been assigned to the right-in, access on Strandherd.

Office trips: 100% of the trips entering from the north and exiting to the south have been assigned to the right-in, right-out access on Strandherd.

Hotel trips: 30% of the trips entering from the north and 0% of the trips exiting to the south have been assigned to the right-in, right-out access on Strandherd. 20% of site trips have been assigned to the west driveway on Dealership Drive with the balance assigned to the central site driveway on Dealership Drive.

Site generated traffic volumes have been assigned to the study area intersections and are shown in **Figure 4**.

5.2 Background Traffic

5.2.1 General Background Growth Rate

A 2% background growth rate has been applied to through traffic on Strandherd Drive as requested by City of Ottawa staff. The background growth rate is intended to account for growth in regional traffic which is not anticipated on lower class roads.

Projected 2024 and 2029 traffic volumes (with 2% background growth of through traffic along Strandherd Drive) are shown in **Figures 5** and **6**, respectively.

Figure 4: Site Generated Traffic Volumes

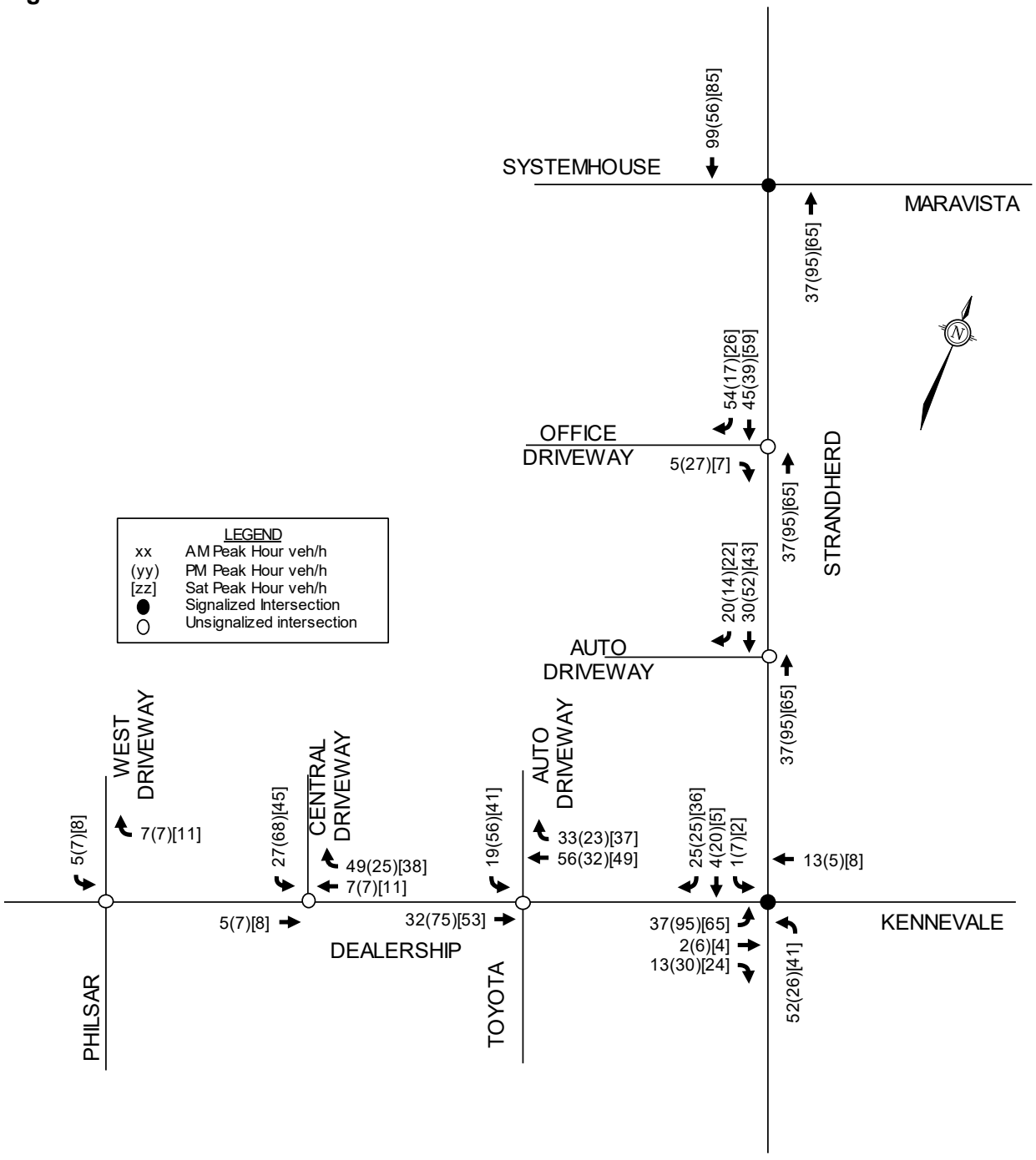


Table 5: Intersection Operations – 2029 Background Traffic

Intersection	AM Peak			PM Peak			Saturday Peak		
	max. v/c or delay	LOS	move-ment	max. v/c or delay	LOS	move-ment	max. v/c or delay	LOS	move-ment
Fallowfield/ 416 SB off-ramp	0.68	B	SBL	0.84	D	SBL	0.64	B	SBL
Fallowfield/ 416 NB off-ramp	0.52	A	EB	0.74	C	EB	0.37	A	EB
Fallowfield/ Strandherd	**1.02**	**F**	**WBT**	0.66	B	EBL			
Fallowfield/ Cedarview	0.65	B	EBT	0.71	C	SBT/R			
Strandherd/ Jockvale	0.76	C	WBR	0.55	A	SBT			
Strandherd/ Maravista	0.60	A	WBR	0.54	A	SBT			
Strandherd/ Kennevale	0.66	B	WBT/R	0.61	B	SBT			
Strandherd/ Cedarview	0.74	C	NBL	0.68	B	EBT/R			

Notes:
1. Reassignment of the previously recommended shared left/right turn lane to a second left turn lane and construction of a dedicated right turn assumed at the 416 SB off-ramp/Fallowfield Road intersection.
2. A channelized westbound right turn lane assumed at the Fallowfield Road/Strandherd Drive intersection.

Acceptable operating conditions are expected for all movements with the exception of the westbound approach of the Fallowfield Road/Strandherd Drive intersection in the a.m. peak.

The City defines the overall v/c ratio for an intersection as the sum of equivalent volumes for all critical movements divided by the sum of capacities for all critical movements, assuming the that v/c ratios for critical movements can be equalized. The eastbound left and westbound through movements are considered critical at the Fallowfield Road/Strandherd Drive intersection. The overall v/c for the intersection is 0.82 in the a.m. peak, which is an acceptable level of service based on the City's criteria and no mitigation measures are required.

3.8. Trip Generation

Trips generated by the proposed development have been estimated using the peak hour rates identified in the *ITE Trip Generation Manual, 8th Edition* for the following land uses and sizes:

Table 6: Proposed Land Uses and Sizes

Land Use	ITE Code	Interim	Ultimate
Shopping centre	820	350, 000 ft^2	350, 000 ft^2
Hotel	310	N/A	200 rooms
Gas Station	946	8 fuel positions	8 fuel positions

Land Use	ITE Code	Interim	Ultimate
Business Park	770	N/A	16.56 ha
Office Park	750	6.07 ha (15 ac)	67.65 ha
New Car Sales	841	8.6 ha	10.5 ha

Employment projections for the Business Park and Prestige Business Park lands were estimated using rates of 75 employees/ha and 110 employees/ha respectively. The employment projections were converted to gross floor area (GFA) using the following assumptions, which are based on figures identified in the City's 2009 *Development Charges Background Study*: a square foot per employee figure of 350 for commercial uses and 900 for industrial uses. The ITE Business Park land use represents an average mix of 20 to 30 percent office/commercial and 70 to 80 percent industrial/warehousing. A 30/70 mix was assumed for this study and the 350 ft^2 per employee figure was applied for the office/commercial component and the 900 ft^2 figure was applied for the industrial/warehousing component.

The existing woodlot comprises 6 hectares of the Prestige Business Park lands and 7.3 hectares of the Business Park lands. Half of the woodlot lands are assumed to be developed for the purpose of this assessment. Three hectares have been deducted from the Prestige Business Park land area and approximately 3.6 hectares have been deducted from the Business Park land area.

GFA for the Prestige Business Park is estimated at 2,488,500 ft^2 for the buildout condition and 233,800 ft^2 in the interim. GFA for the Business Park lands is estimated at 711,700 ft^2 at full buildout, with no Business Park development anticipated in the interim.

GFA for the car dealerships has been estimated assuming a 20% building coverage. This results in a GFA of 226,040 ft^2 at full buildout and 185,145 ft^2 in the interim, assuming seven hectares of land owned by Strandherd Drive Inc. and 4 acres of land owned by others.

The trip generation surveys compiled in the *ITE Trip Generation Manual* only record vehicle trips, and the sites surveyed are typically located in suburban locations in the United States where non-auto modes of transportation typically have a modal share of 10% or less. Where multiple modes of transportation are readily available, it is considered good practice to express projected trip generation volumes in terms of person trips, instead of vehicle trips. To convert ITE vehicle trip rates to person trip rates, two adjustment factors have been applied:

- Vehicle occupancy factor: **1.23** (taken from the TRANS 2005 O-D Survey Report)
- Non-auto usage factor: **1.1** (non-auto trips not counted in ITE surveys, assumed 10%)

Combining the two factors gives an overall vehicle trip to person trip adjustment factor of approximately 1.35. The conversion of vehicle trips into person trips for each land use is shown in the following table.

Table 7: Site-Generated Person Trips

Land Use	Size	AM Peak			PM Peak			Saturday Peak		
		In	Out	Total	In	Out	Total	In	Out	Total
Interim										
Shopping centre	350, 000 ft^2	289	184	473	975	1014	1989	1358	1254	2612
Gas Station	8 fuel pos.	48	47	95	57	55	112	81	81	162
Office Park	233,800 ft^2	535	66	601	72	442	514	33	12	45
New Car Sales	185,145 ft^2	376	132	508	253	395	648	379	364	743
Interim		**1248**	**429**	**1677**	**1357**	**1906**	**3263**	**1851**	**1711**	**3562**
Ultimate Concept										
Shopping centre	350, 000 ft^2	289	184	473	975	1014	1989	1358	1254	2612
Hotel	200 rooms	59	38	97	63	55	118	79	62	141
Gas Station	8 fuel pos.	48	47	95	57	55	112	81	81	162
Business Park	711,700 ft^2	1110	212	1322	285	954	1239	110	110	220
Office Park	2,488,500 ft^2	4246	525	4771	592	3636	4228	348	122	470
New Car Sales	226,040 ft^2	459	161	620	308	482	790	462	444	906
Ultimate Concept		**6211**	**1167**	**7378**	**2280**	**6196**	**8476**	**2438**	**2073**	**4511**

The number of car trips that the site will generate has been estimated by categorizing the person trips by modal share. The modal share assumptions used in this study are based on the BS CTS, which are as follows for the ultimate and interim development scenarios:

- Ultimate modal share: 23% transit, 2.5% cycling, 5% walking, and 69.5% auto
- Interim modal share: 15% transit, 2% cycling, 3% walking, and 80% auto

As noted in the BS CTS, these assumptions reflect a number of planned City improvements that will promote a higher transit modal share within the study area, including the following projects:

- Southwest Transitway Extension (Barrhaven Town Centre to Cambrian Road)
- Barrhaven-Riverside South Transitway, and
- Connection of the North-South LRT line to the Southwest Transitway.

Trips generated by the gas station and the hotel are assumed to be auto trips given the nature of the land use.

A breakdown of the projected number of trips by modal share is shown in the following table.

Table 8: Site-Generated Trips by Modal Share

Travel Mode	Modal Share	AM Peak			PM Peak			Saturday Peak		
		In	Out	Total	In	Out	Total	In	Out	Total
Interim										
Total Person Trips		1248	429	1677	1357	1906	3263	1851	1711	3562
Auto Driver	**64%**	**816**	**291**	**1107**	**889**	**1240**	**2129**	**1214**	**1125**	**2339**
Auto Passenger	16%	192	61	253	208	296	504	283	261	544
Transit	15%	180	57	237	195	278	473	265	245	510
Non-Auto	5%	60	20	80	65	92	157	89	80	169
Ultimate Concept										
Total Person Trips		6211	1167	7378	2280	6196	8476	2438	2073	4511
Auto Driver	**56%**	**3563**	**704**	**4267**	**1330**	**3518**	**4848**	**1436**	**1224**	**2660**
Auto Passenger	13.5%	824	146	970	292	822	1113	308	261	568
Transit	23%	1404	249	1653	497	1400	1897	524	444	968
Non-Auto	7.5%	420	68	488	161	456	618	170	144	315

The *ITE Trip Generation Handbook* outlines a method for determining the number of internal trips generated at mixed-use developments. Internal trips are trips that are made on-site without using the external roadway system. The ITE Handbook provides internal capture rates for various combinations of office, retail and residential land uses. The number of internal trips is limited by the land use with the lower internal capture rate, which in this case is the retail component. Tables 7.1 and 7.2 of the ITE Handbook suggest that the internal capture rate of trips from a retail use to an office use and trips to a retail use from an office use is in the order of 2 to 3%. For the purpose of this assessment, the number of internal trips generated by the development is considered insignificant.

The ITE Handbook also outlines a method for determining the number of pass-by trips that are generated by certain types of developments. Pass-by trips are made as an intermediate stop on the way to another destination and primary trips are made for the specific purpose of visiting the site. The retail and gas station land uses are expected to generate both pass-by and primary trips. The pass-by trips are only added at the access points and not the study area intersections as they are already accounted for on the adjacent road system. The number of pass-by trips generated by the development has been estimated using percentages identified in the ITE Handbook. A rate of 30% has been assumed for the retail component of development and a rate of 60% has been assumed for the gas station.

Primary and pass-by trips generated by the proposed development are summarized in the following table for the weekday and Saturday peak hours.

Table 9: Pass-by and Primary Trips

Trip Type	AM Peak			PM Peak			Saturday Peak		
	In	Out	Total	In	Out	Total	In	Out	Total
Interim									
Total Vehicle Trips	**816**	**291**	**1107**	**889**	**1240**	**2129**	**1214**	**1125**	**2339**
Pass-by Trips	75	75	150	225	225	450	300	300	600
Primary Trips	741	216	957	664	1015	1679	914	825	1739
Ultimate Concept									
Total Vehicle Trips	**3563**	**704**	**4267**	**1330**	**3518**	**4848**	**1436**	**1224**	**2660**
Pass-by Trips	69	69	138	202	202	404	269	269	538
Primary Trips	3494	635	4129	1128	3316	4444	1167	955	2122

3.9. Vehicle Trip Distribution

The distribution of new vehicle trips generated by the development has been estimated based on the existing pattern of traffic entering the study area in the a.m. peak and leaving the study area in the p.m. peak. The trip distribution assumptions for the interim development scenario are summarized as follows.

- 10% to/from the north via Highway 416
- 20% to/from the east via Fallowfield Road and Jockvale Road
- 15% to/from the east via Maravista Drive, Kennevale Drive and Tartan Drive
- 20% to/from the east via Strandherd Drive
- 10% to/from the south via Cedarview Road and Highway 416
- 25% to/from the west via Fallowfield Road

For the ultimate development scenario, 5% of traffic has been redistributed from Fallowfield Road to the McKenna Casey Drive connection at the 416 underpass. This route may become an attractive alternative for site traffic in the event of congested traffic conditions on Strandherd Drive.

The distribution of trips generated by the hotel has been estimated based on the Average Annual Daily Traffic (AADT) of the arterial study area roads. The trip distribution assumptions for hotel trips are as follows:

- 30% to/from the north via Highway 416
- 10% to/from the east via Fallowfield Road
- 15% to/from the east via Strandherd Drive
- 25% to/from the south via Highway 416
- 20% to/from the west via Fallowfield Road

The distribution of pass-by trips generated by the retail and gas station components has been estimated based on the existing peak hour traffic patterns adjacent to the site.

Trips generated by the shopping centre have been assigned equally between the Street Three, Right-in Right-out driveway and Street Four accesses.

The hotel, the gas station and the interim Prestige Business Park area will all be located at the north end of the site near the Street One/Fallowfield Road/Strandherd Drive access. Trips generated by these uses have been assigned as follows:

- Trips to/from the north or west will use the Street One access
- Trips to/from the south will use the Street Three access
- Trips to/from the east will use Fallowfield Road or Jockvale Road

The trip assignment for the ultimate Business Park and Prestige Business Park areas is based on the site layout, the proposed road pattern, and logical routing assumptions. Trips with origins and destinations north or south of the subject site have been assigned as follows:

- 40% of trips will use Street One or Street Three
- 35% of trips will use Street Four
- 25% of trips will use Street Five

Trips to and from the east via Fallowfield Road, Jockvale Road, Maravista Drive, and Kennevale Drive have been assigned according to the trip distribution assumptions noted above.

Trips generated by the car dealerships have been assigned to the Street Five access.

Interim and ultimate site traffic is shown in **Figures 9** and **10** for the weekday and Saturday peak hours.

Total traffic for the 2019 and 2029 horizon years has been calculated by adding the peak hour site traffic with the projected background traffic. The 2019 and 2029 total traffic volumes are shown in **Figures 11** and **12**.

3.10. Transit Trip Distribution

The distribution of transit trips generated by the interim development has been derived from the data presented in Exhibits 6-2 and 6-3 of the *2005 Trans O-D Survey Report.* Copies of these exhibits are included in **Appendix G**.

The top origins and destinations for all arrivals and departures within the South Nepean District are summarized in Table 10.

Table 10: Top Origins/Destinations of South Nepean District

AM Peak Origin of Arrivals	% Trips	PM Peak Destination of Departures	% Trips
South Nepean	65%	South Nepean	55%
Merivale	6%	Merivale	12%

APPENDIX G

TDM Checklists

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

Legend

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

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	1.	**WALKING & CYCLING: ROUTES**	
	1.1	**Building location & access points**	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☐
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	✓
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	✓
	1.2	**Facilities for walking & cycling**	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☐ N/A - no rapid transit within 600m
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	✓

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

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

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

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

TDM Measures Checklist:
Non-Residential Developments (office, institutional, retail or industrial)

Legend

BASIC — The measure is generally feasible and effective, and in most cases would benefit the development and its users

BETTER — The measure could maximize support for users of sustainable modes, and optimize development performance

★ — The measure is one of the most dependably effective tools to encourage the use of sustainable modes

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

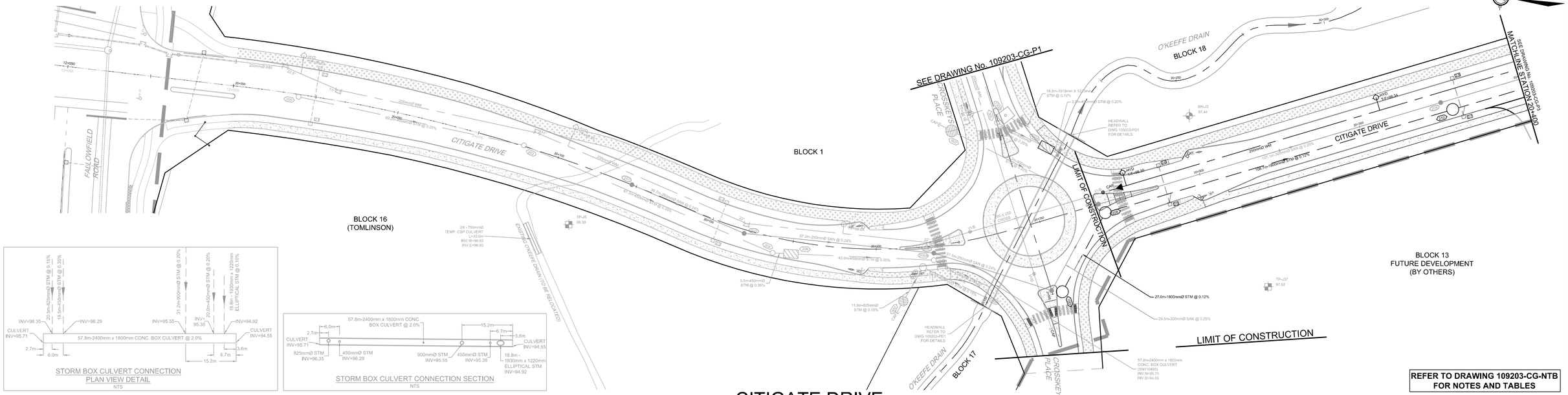
			TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		3.	**TRANSIT**	
		3.1	**Transit information**	
BASIC		3.1.1	Display relevant transit schedules and route maps at entrances	☐
BASIC		3.1.2	Provide online links to OC Transpo and STO information	☐
BETTER		3.1.3	Provide real-time arrival information display at entrances	☐
		3.2	**Transit fare incentives**	
			Commuter travel	
BETTER		3.2.1	Offer preloaded PRESTO cards to encourage commuters to use transit	☐
BETTER	★	3.2.2	Subsidize or reimburse monthly transit pass purchases by employees	☐
			Visitor travel	
BETTER		3.2.3	Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)	☐
		3.3	**Enhanced public transit service**	
			Commuter travel	
BETTER		3.3.1	Contract with OC Transpo to provide enhanced transit services (e.g. for shift changes, weekends)	☐
			Visitor travel	
BETTER		3.3.2	Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	☐
		3.4	**Private transit service**	
			Commuter travel	
BETTER		3.4.1	Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for shift changes, weekends)	☐
			Visitor travel	
BETTER		3.4.2	Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for festivals, concerts, games)	☐

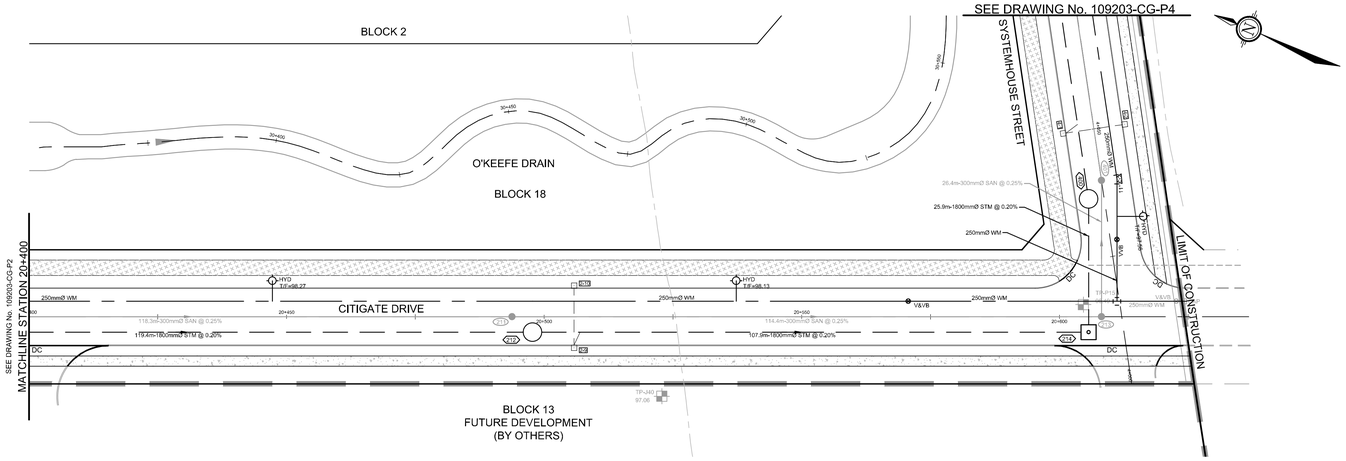
			TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		4.	**RIDESHARING**	
		4.1	**Ridematching service**	
			Commuter travel	
BASIC	★	4.1.1	Provide a dedicated ridematching portal at OttawaRideMatch.com	✓
		4.2	**Carpool parking price incentives**	
			Commuter travel	
BETTER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

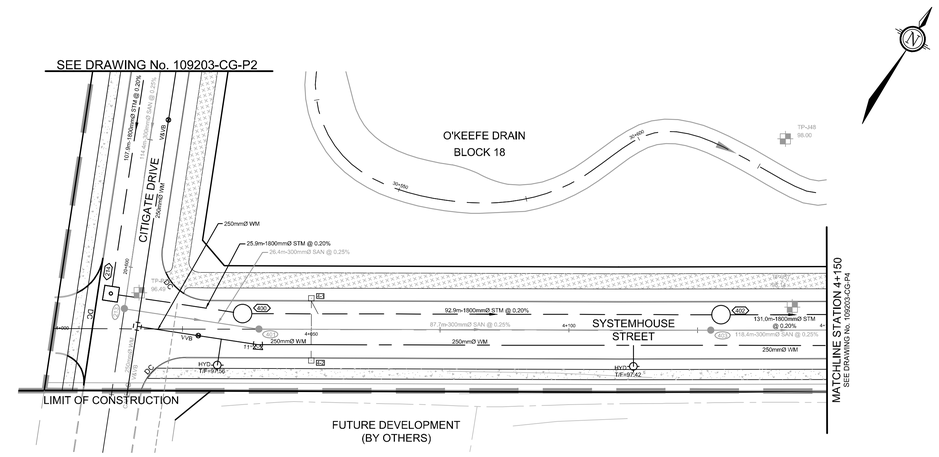
		TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		7. TDM MARKETING & COMMUNICATIONS	
		7.1 Multimodal travel information	
		Commuter travel	
BASIC	★	7.1.1 Provide a multimodal travel option information package to new/relocating employees and students	☐
		Visitor travel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

APPENDIX H

Plan and Profile – CitiGate Drive

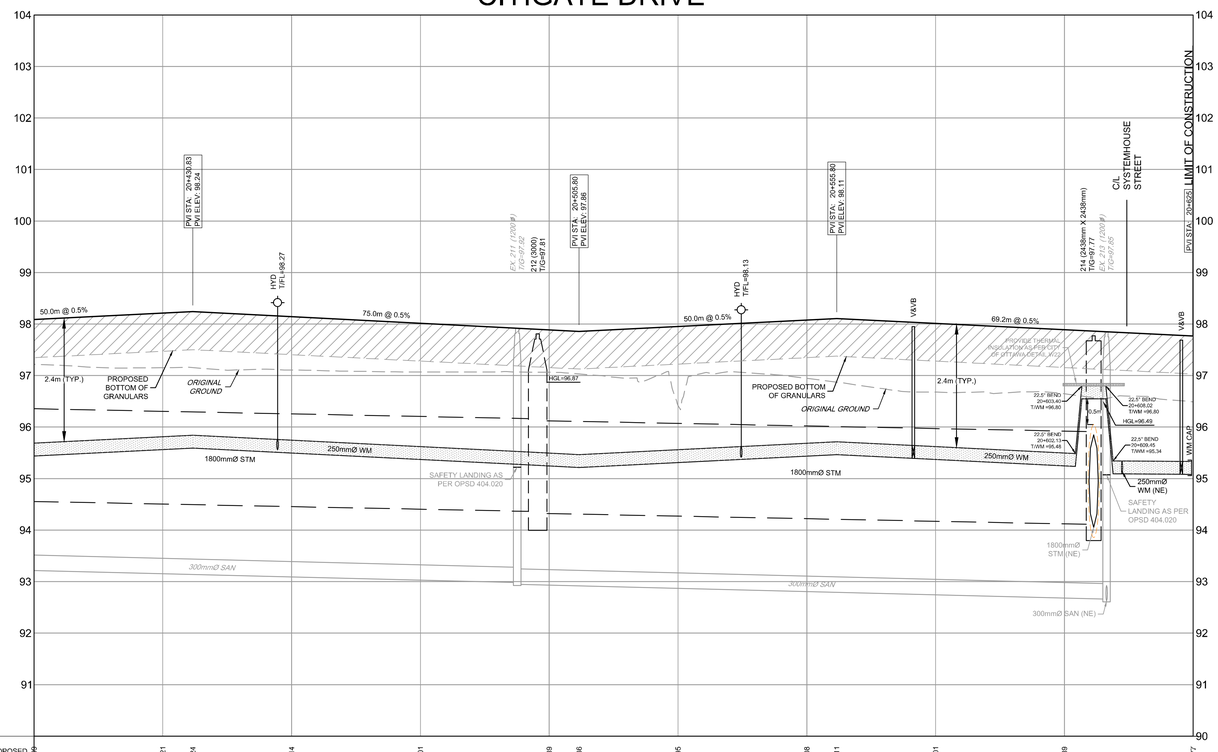

FALLOWFIELD ROAD
CITIGATE DRIVE
BLOCK 1
BLOCK 16
(TOMLINSON)
SEE DRAWING No. 109203-CG-P1
CROSSKEYS PLACE
O'KEEFE DRAIN
BLOCK 18
BLOCK 17
MATCHLINE STATION 20+400
SEE DRAWING No. 109203-CG-P3
LIMIT OF CONSTRUCTION
BLOCK 13
FUTURE DEVELOPMENT
(BY OTHERS)
EXISTING O'KEEFE DRAIN (TO BE RELOCATED)
HEADWALL REFER TO DWG 109203-P01 FOR DETAILS
2X - 750mmØ TEMP. CSP CULVERT L=10.0m INV.W=96.93 INV.E=96.93
TP-J5 98.39
TP-J7 97.52
BH-J3 97.44
200mmØ WM
200mmØ STM
69.7m-200mmØ SAN @ 0.24%
57.2m-250mmØ SAN @ 0.24%
42.9m-450mmØ STM @ 0.36%
5.5m-450mmØ STM @ 0.36%
11.8m-825mmØ STM @ 0.15%
27.0m-1800mmØ STM @ 0.12%
29.5m-300mmØ SAN @ 0.25%
57.8m-2400mm x 1800mm CONC. BOX CULVERT (SN1104853) INV.N=95.71 INV.S=94.55
15.8m-1918mm X 1220mm STM @ 0.10%
3.0m-2100mm STM @ 0.20%
102.7m-1800mmØ STM @ 0.12%
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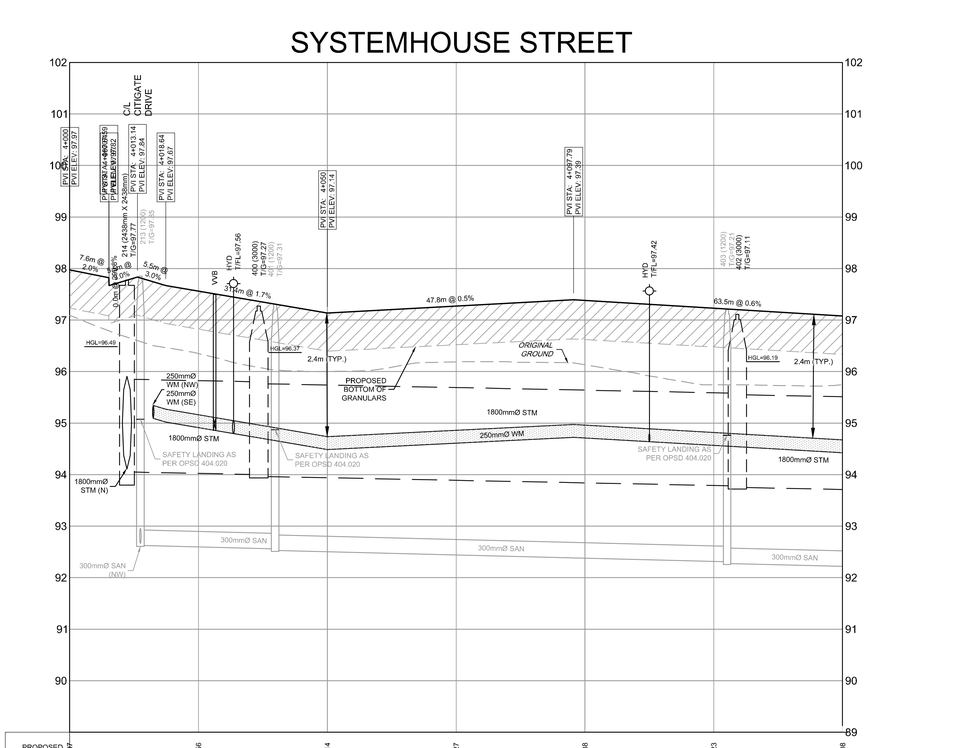


REFER TO DRAWING 109203-CG-NTB FOR NOTES AND TABLES

CITIGATE DRIVE



SYSTEMHOUSE STREET



NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

CITI GATE 416 CORPORATE CAMPUS

REGIONAL

No.	REVISION	DATE	BY
9.	ISS. FOR CITY REVIEW / STORM AND WM EXTENSION	MAR 17/20	MSP
7.	RE-ISSUED FOR CONSTRUCTION	SEPT 26/14	MER
6.	ISSUED FOR CONSTRUCTION	SEPT 03/14	MER
5.	ISSUED FOR SWM APPROVAL	AUG. 10/14	MER
4.	ISSUED FOR MOE PIPE APPROVALS	JUL 23/14	MER
3.	ISSUED FOR TENDER - PHASE 1	JUN 27/14	MER
2.	REV. PER CITY COMMENTS / ISS. FOR MOE APPROVAL	JUN 27/14	MER
1.	ISSUED FOR CITY REVIEW	MAR 31/14	MER

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VERTICAL

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CHECKED MER
DRAWN CH/BET
CHECKED MER
APPROVED JGR

LICENSED PROFESSIONAL ENGINEER M.E. RIDDELL 100040125 PROVINCE OF ONTARIO

REGISTERED PROFESSIONAL ENGINEER J.G. RIDDELL PROVINCE OF ONTARIO

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

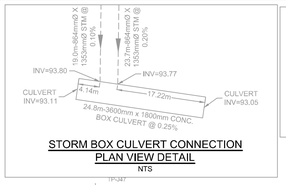
LOCATION
CITY OF OTTAWA
CITI GATE 416 CORPORATE CAMPUS

DRAWING NAME
PLAN AND PROFILE
CITIGATE DRIVE-STA. 20+400 TO 20+625
SYSTEMHOUSE STREET-
STA. 4+000 TO 4+150

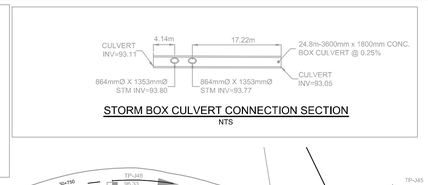
PROJECT No. 109203-00
REV REV # 8
DRAWING No. 109203-CG-P3

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PLANPROFILE - REGIONAL STYLE

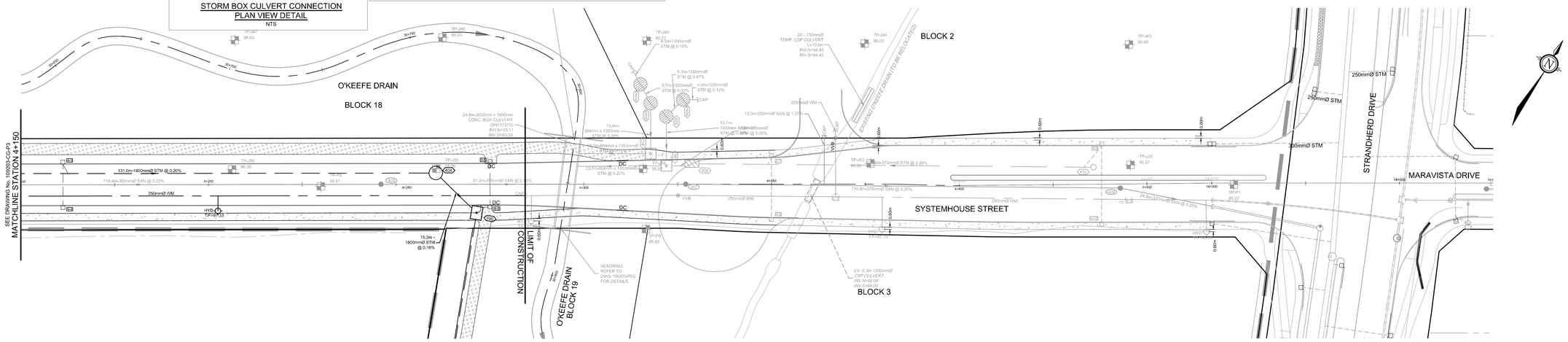
REFER TO DRAWING 109203-CG-NTB FOR NOTES AND TABLES



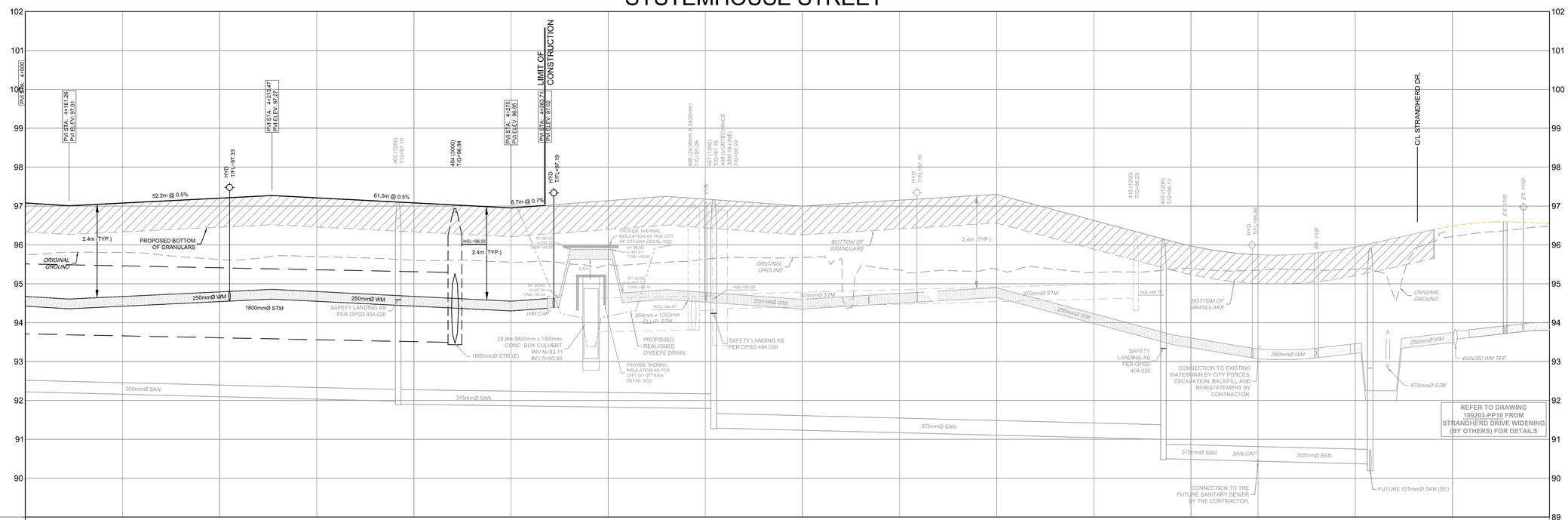
STORM BOX CULVERT CONNECTION
PLAN VIEW DETAIL
NTS



STORM BOX CULVERT CONNECTION SECTION
NTS



SYSTEMHOUSE STREET



NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

CITI GATE 416 CORPORATE CAMPUS

REGIONAL

No.	REVISION	DATE	BY
9.	ISS. FOR CITY REVIEW / STORM AND WM EXTENSION	MAR 17/20	MSP
8.	RE-ISSUED FOR CONSTRUCTION	SEPT 26/14	MER
7.	ISSUED FOR CONSTRUCTION	SEPT 03/14	MER
6.	REVISED PER CITY COMMENTS	AUG 21/14	MER
5.	ISSUED FOR SWM APPROVAL	AUG 10/14	MER
4.	ISSUED FOR MOE PIPE APPROVALS	JUL 23/14	MER
3.	ISSUED FOR TENDER - PHASE 1	JUN 27/14	MER
2.	REV. PER CITY COMMENTS / ISS. FOR MOE APPROVAL	JUN 27/14	MER
1.	ISSUED FOR CITY REVIEW	MAR 31/14	MER

SCALE
1:500
0 5 10 15 20
HORIZONTAL
1:50
0 0.5 1.0 1.5 2.0
VERTICAL

DESIGN CH
CHECKED MER
DRAWN CH/BET
CHECKED MER
APPROVED JGR

LICENSED PROFESSIONAL ENGINEER M.E. RIDDELL 100040125 PROVINCE OF ONTARIO

REGISTERED PROFESSIONAL ENGINEER J.G. RIDDELL PROVINCE OF ONTARIO

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

LOCATION
CITY OF OTTAWA
CITI GATE 416 CORPORATE CAMPUS

DRAWING NAME
PLAN AND PROFILE
SYSTEMHOUSE STREET
STA. 4+150 TO 14+075

PROJECT No. 109203-00
REV REV # 9
DRAWING No. 109203-CG-P4

M:\2009\109203\CH Gate\CAD\Design\109203-CG-P.dwg, CG-P4, Mar 29, 2020 - 8:48pm, chanma

PLAN/PROFILE - 1500mm/75mm

APPENDIX I

Signal Timing Plans

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

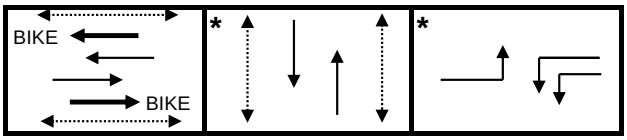
Intersection:	**Main:** Strandherd	**Side:**	Helene Campbell
Controller:	**ATC-3**	**TSD:**	**5319**
Author:	Karson Blank	**Date:**	03-Mar-2020

Existing Timing Plans†

	Plan						Ped Minimum Time		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Weekend** 5	**Evening** 12	***Walk***	***DW***	***A+R***
Cycle	120	110	120	100	110	105			
Offset	73	108	85	X	108	X			
EB Thru	56	46	56	35	46	35	7	18	4.6+2.2
WB Thru	56	46	56	35	46	35	7	18	4.6+2.2
NB Thru	49	49	49	49	49	49	7	34	3.3+4.4
SB Thru	49	49	49	49	49	49	7	34	3.3+4.4
EB Left (fp)	15	15	15	16	15	21	-	-	4.6+2.3
WB Left (fp)	15	15	15	16	15	21	-	-	4.6+2.3

Phasing Sequence‡

Plan: All



Schedule

Weekday

Time	Plan
0:15	4
6:00	1
9:30	2
15:00	3
18:30	2
20:00	12
22:30	4

Weekend

Time	Plan
0:15	4
8:30	12
10:00	5
18:00	12
22:30	4

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $58.78 ($52.02 + HST)

Traffic Signal Timing

City of Ottawa, Public Works Department

Traffic Operations Unit

Intersection:	**Main:**	Fallowfield Rd	**Side:**	Moodie Dr	
Controller:	**MS-3200**			**TSD:**	5501
Author:	Karson Blank			**Date:**	03-Mar-20

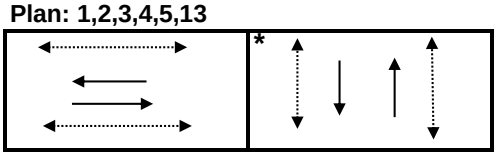
Existing Timing Plans†

	Plan						**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Weekend** 5	**PM Heavy** 13	***Walk***	***DW***	***A+R***
Cycle	120	75	120	FREE	75	120			
Offset	78	67	7	X	67	15			
EB Thru	80	41	68	Max: 37	41	65	7	18	4.6 + 2.0
WB Thru	80	41	68	Max: 37	41	65	7	18	4.6 + 2.0
NB Thru	40	34	52	Max: 28	34	55	7	20	4.6 + 2.0
SB Thru	40	34	52	Max: 28	34	55	7	20	4.6 + 2.0

Notes:

Phasing Sequence‡

Plan: 1,2,3,4,5,13



Note: The pedestrian movements in all directions are actuated all times of day. The vehicle movement East-West has Max recalls for plans 1,2,3,5,13 and a min recall for plan 4.

Schedule

Weekday

Time	Plan
0:10	4
6:30	1
9:30	2
15:00	13
15:45	3
18:30	2
22:30	4

Weekend

Time	Plan
0:15	4
8:00	5
22:00	4

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $58.78 ($52.02 + HST)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Operations Unit

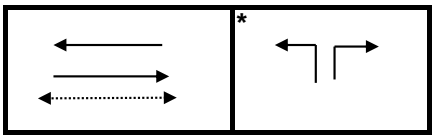
Intersection:	***Main:*** Fallowfield Road	***Side:*** Hwy 416 NB Off Ramp	
Controller:	ATC-3	**TSD:**	6106
Author:	Karson Blank	**Date:**	19-Mar-20

Existing Timing Plans†

	Plan					**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Weekend** 5	***Walk***	***DW***	***A+R***
Cycle	120	75	120	65	75			
Offset	81	0	108	X	0			
EB-Thru	80	50	85	35	39	7	17	4.6+2.1
WB-Thru	80	50	85	35	39	7	17	4.6+2.1
NB	40	25	35	30	36	-	-	3.7+1.6

Phasing Sequence‡

Plans: All



Notes: 1) The NB movement has a minimum initial time of 10 seconds, which is extended by 3 seconds for each vehicle that passes the setback detection to a maximum initial of 40 seconds.

Schedule

Weekday

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

Weekend

Time	Plan
0:15	4
8:30	5
22:30	4

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► *Pedestrian signal*

Cost is $58.78 ($52.02 + HST)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Operations Unit

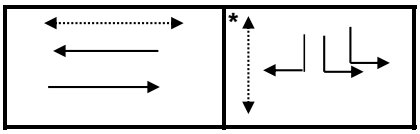
Intersection:	***Main:*** Fallowfield Road	***Side:*** Hwy 416 SB Off Ramp	
Controller:	ATC-3	**TSD:**	6107
Author:	Karson Blank	**Date:**	19-Mar-20

Existing Timing Plans†

	Plan					**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Weekend** 5	***Walk***	***DW***	***A+R***
Cycle	120	75	120	FREE	75			
Offset	87	1	4	X	1			
EB-Thru	70	39	70	Min: 36.8	39	13	9	4.6+2.2
WB-Thru	70	39	70	Min: 36.8	39	13	9	4.6+2.2
SB	50	36	50	Max: 41.3	36	7	17	3.3+3.0

Phasing Sequence‡

Plans: All



Notes: 1) The SB movement has a minimum initial time of 10 seconds, which is extended by 3 seconds for each vehicle that passes the setback detection to a maximum initial of 30 seconds.

Schedule

Weekday

Time	Plan
0:10	5
6:30	1
9:30	2
15:00	3
18:30	2
22:30	4

Weekend

Time	Plan
0:15	4
8:00	5
22:00	4

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► *Pedestrian signal*

Cost is $58.78 ($52.02 + HST)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

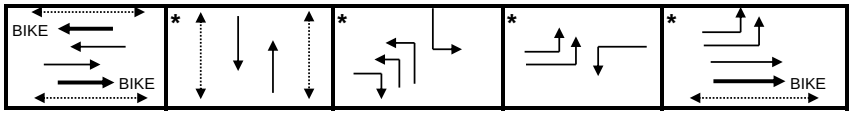
Intersection:	**Main:** Strandherd	**Side:**	Fallowfield
Controller:	**MS-3200**	**TSD:**	**6252**
Author:	Karson Blank	**Date:**	03-Mar-2020

Existing Timing Plans†

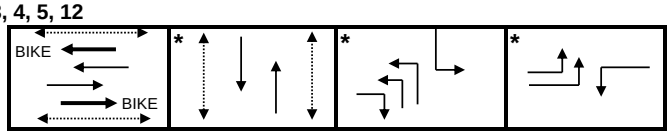
	Plan						Ped Minimum Time		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Weekend** 5	**Evening** 12	***Walk***	***DW***	***A+R***
Cycle	120	110	120	110	110	120			
Offset	101	15	115	X	15	X			
EB Thru	46	31	34	30	31	30	7	16	4.6+2.3
WB Thru	31	31	34	30	31	30	7	16	4.6+2.3
NB Thru	48	48	48	48	48	48	7	34	3.7+3.3
SB Thru	48	48	48	48	48	48	7	34	3.7+3.3
NB Left (fp)	13	12	14	14	12	17	-	-	3.7+2.8
SB Left (fp)	13	12	14	14	12	17	-	-	3.7+2.8
EB Right	13	12	14	14	12	17	-	-	3.7+2.8
EB Left (fp)	28	19	24	18	19	25	-	-	4.6+2.5
WB Left (fp)	13	19	24	18	19	25	-	-	4.6+2.5

Phasing Sequence‡

Plan: 1



Plan: 2, 3, 4, 5, 12



Notes: 1) For all plans, if there is no pedestrian crossing actuation for the NS movements, the NS thru movements will be forced off 26s early.

Schedule

Weekday

Time	Plan
0:15	4
6:00	1
9:30	2
15:00	3
18:30	2
20:00	12
22:30	4

Weekend

Time	Plan
0:15	4
8:30	12
10:00	5
18:00	12
22:30	4

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $58.78 ($52.02 + HST)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

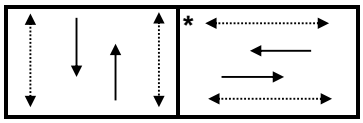
Intersection:	**Main:**	Strandherd	**Side:**	Kennevale / Dealership	
Controller:	**ATC3**		**TSD:**	**6715**	
Author:	Matthew Anderson		**Date:**	22-Oct-2019	

Existing Timing Plans†

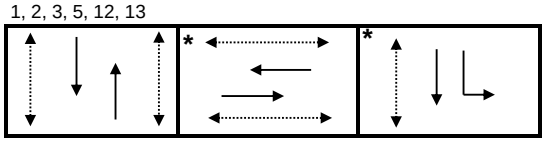
	Plan							**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Weekend** 5	**Evening** 12	**PM Heavy** 13	***Walk***	***DW***	***A+R***
Cycle	120	110	120	80	110	95	120			
Offset	29	93	57	X	93	X	57			
NB Thru	75	65	72	47	65	47	62	7	17	4.6+1.8
SB Thru	87	77	87	47	77	62	77	7	17	4.6+1.8
EB Thru	33	33	33	33	33	33	43	7	19	3.3+3.3
WB Thru	33	33	33	33	33	33	43	7	19	3.3+3.3
SB Left	12	12	15	-	12	15	15	-	-	4.6+1.8

Phasing Sequence‡

Plan: 4



Plan: 1, 2, 3, 5, 12, 13



Notes: 1) Plan 13 has a maximum recall for the EW thru movments.

Schedule

Weekday

Time	Plan
0:15	4
6:00	1
9:30	2
15:00	3
15:30	13
18:00	3
18:30	2
20:00	12
22:30	4

Weekend

Time	Plan
0:15	4
8:30	12
10:00	5
18:00	12
22:30	4

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $57.63 ($51 + HST)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

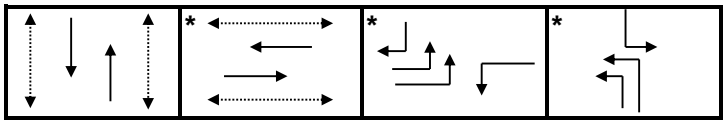
Intersection:	**Main:** Strandherd	**Side:**	Maravista / Systemhouse
Controller:	**ATC-3**	**TSD:**	**6728**
Author:	Matthew Anderson	**Date:**	22-Oct-2019

Existing Timing Plans†

	Plan						**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Weekend** 5	**Evening** 12	***Walk***	***DW***	***A+R***
Cycle	120	110	120	110	110	120			
Offset	83	0	82	X	0	X			
NB Thru	38	37	40	33	37	33	7	17	4.6+2.1
SB Thru	38	37	40	33	37	33	7	17	4.6+2.1
EB Thru	47	47	47	47	47	47	7	32	3.3+4.3
WB Thru	47	47	47	47	47	47	7	32	3.3+4.3
EB Left (fp)	20	13	15	15	13	20	-	-	3.3+4.3
WB Left (fp)	20	13	15	15	13	20	-	-	3.3+4.3
SB Right	20	13	15	15	13	20	-	-	3.3+4.3
NB Left (fp)	15	13	18	15	13	20	-	-	4.6+2.0
SB Left (fp)	15	13	18	15	13	20	-	-	4.6+2.0

Phasing Sequence‡

Plan: All



Notes:
1) For Plan 1, if there are no pedestrian crossing actuations for the EW movements, the EW thru movements will be forced off 19 seconds early.
2) For Plan 3, if there are no pedestrian crossing actuations for the EW movements, the EW thru movements will be forced off 9 seconds early.

Schedule

Weekday

Time	Plan
0:15	4
6:00	1
9:30	2
15:00	3
18:30	2
20:00	12
22:30	4

Weekends

Time	Plan
0:15	4
8:30	12
10:00	5
18:00	12
22:30	4

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $57.63 ($51 + HST)

APPENDIX J

Signalization Warrants

NOVATECH
Engineers, Planners & Landscape Architects

TRAFFIC SIGNAL JUSTIFICATION

LOCATION: Fallowfield **at** O'Keefe

DATE: Existing volumes (June 2018 count)

JUSTIFICATION 1 – Minimum Vehicular Volume

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				PERCENTAGE WARRANT								
APPROACH LANES	1		2 or MORE		HOUR ENDING								
FLOW CONDITION	FREE FLOW	RESTR FLOW	FREE FLOW	RESTR FLOW	8:00	9:00	10:00	12:30	13:30	16:00	17:00	18:00	TOTAL ACROSS
A.	480	720	600	900	1250	741	626	605	670	1283	1398	937	
	(385)	(575)	(480)	(720)									
ALL APPROACHES	100% FULFILLED				100	100				100	100	100	500
	80% FULFILLED						80	80	80				240
	ACTUAL % IF BELOW 80% VALUE												
											TOTAL DOWN:		740
											AVERAGE (TOTAL/8):		93%

T Intersection Add 50%

	180	**255**	**180**	**255**									
	143	**203**	**143**	**203**									
B.	120	170	120	170	145	70	48	45	49	64	87	121	TOTAL ACROSS
	(95)	(135)	(95)	(135)									
MINOR STREET BOTH APPROACHES	100% FULFILLED												
	80% FULFILLED				80								80
	ACTUAL % IF BELOW 80% VALUE					41	28	26	29	38	51	71	284
											TOTAL DOWN:		364
											AVERAGE (TOTAL/8):		46%

JUSTIFICATION 2 – Delay To Cross Traffic

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				PERCENTAGE WARRANT								
APPROACH LANES	1		2 or MORE		HOUR ENDING								
FLOW CONDITION	FREE FLOW	RESTR FLOW	FREE FLOW	RESTR FLOW	8:00	9:00	10:00	12:30	13:30	16:00	17:00	18:00	TOTAL ACROSS
A.	480	720	600	900	1105	671	578	560	621	1219	1311	816	
	(385)	(575)	(480)	(720)									
MAJOR STREET BOTH APPROACHES	100% FULFILLED				100					100	100	100	400
	80% FULFILLED					80	80		80				240
	ACTUAL % IF BELOW 80% VALUE							78					78
											TOTAL DOWN:		718
											AVERAGE (TOTAL/8):		90%

B.	50	75	50	75	56	37	23	27	18	24	45	47	TOTAL ACROSS
	(40)	(60)	(40)	(60)									
TRAFFIC CROSSING MAJOR STREET	100% FULFILLED												
	80% FULFILLED												
	ACTUAL % IF BELOW 80% VALUE				75	49	31	36	24	32	60	63	370
											TOTAL DOWN:		370
											AVERAGE (TOTAL/8):		46%

NOVATECH
Engineers, Planners & Landscape Architects

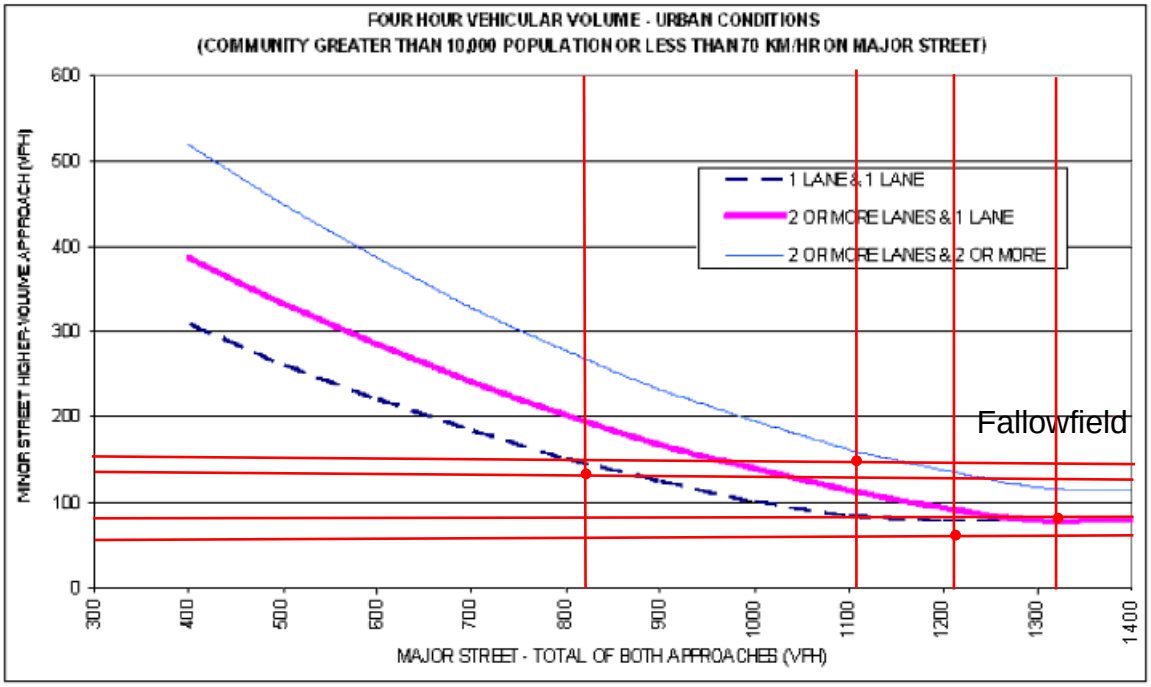
TRAFFIC SIGNAL JUSTIFICATION

LOCATION: Fallowfield **at** O'Keefe

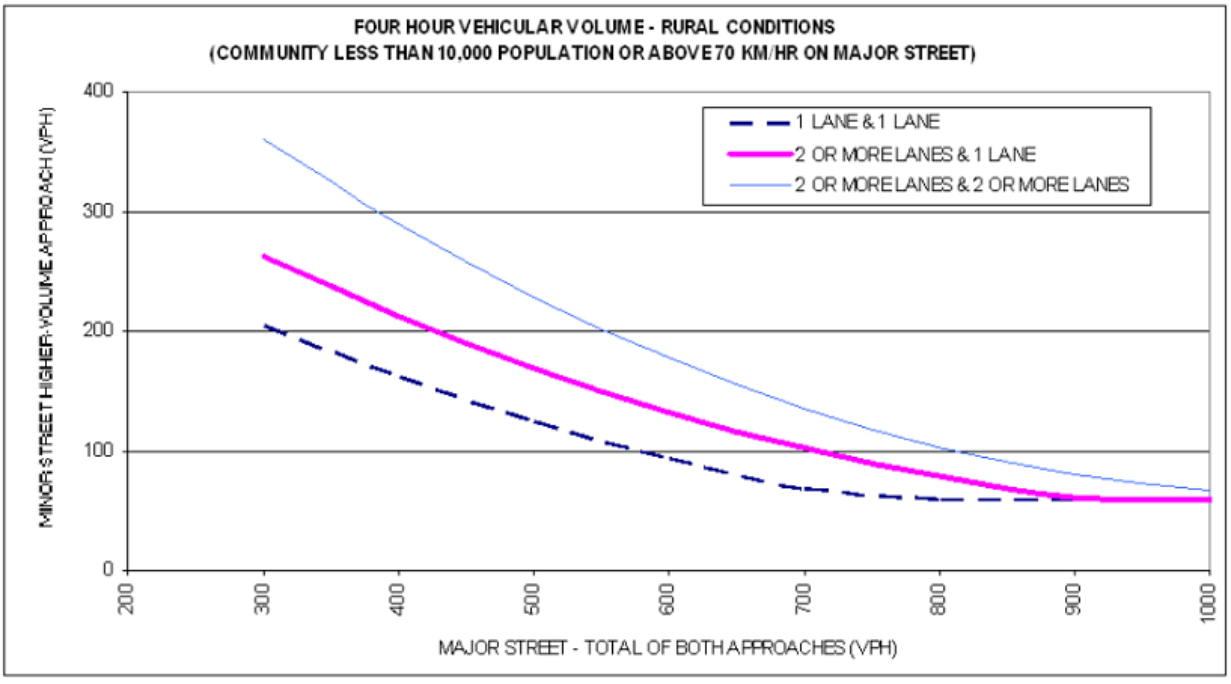
DATE: Existing volumes (June 2018 count)

JUSTIFICATION 4 – Minimum Four-Hour Vehicle Volume

A. Restricted Flow



B. Free Flow



NOVATECH
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TRAFFIC SIGNAL JUSTIFICATION SUMMARY TABLE

LOCATION: Fallowfield **at** O'Keefe

DATE: Existing traffic volumes (June 2018 count)

JUSTIFICATION	DESCRIPTION	MINIMUM REQUIREMENT		COMPLIANCE	
		FREE FLOW	RESTRICTED FLOW	SECTIONAL %	ENTIRE % (2)
		OPERATING SPEED ≥ 70KM/H	OPERATING SPEED < 70 KM/H		
1. MINIMUM VEHICULAR WARRANT	A. Vehicle volume, all approaches for each of the heaviest 8 hours of an average day, and	480 600 (2 or more lane approach	720 900 (2 or more lane approach	93%	46%
	B. Vehicle volume, along minor street, for each of the same 8 hours.	120 180 (tee intersection)	170 255 (tee intersection)	46%	
2. DELAY TO CROSS TRAFFIC	A. Vehicle volume, along major street for each for the heaviest 8 hours of an average day, and	480 600 (2 or more lane approach)	720 900 (2 or more lane approach	90%	46%
	B (1). Combined vehicle and pedestrian volume crossing the major street for each of the same 8 hours	50	75	46%	
3. VOLUME/DELAY COMBINATION	The above Justifications (1 and 2) both satisfied to the extent of 80% or more	Yes ☐		No ☒	
4. MINIMUM FOUR HOUR VEHICLE VOLUME	Plotted point representing hourly volume for minor approach vs. major approach for four highest hours of an average day fall above the applicable curve	Yes ☐		No ☒	
5. COLLISION EXPERIENCE	A. Total reported accidents of types susceptible to correction by a traffic signal, per 12 month period averaged over a 36 month period, and	5			
	B. Adequate trial of less restrictive remedies, where satisfactory observance and enforcement have failed to reduce the number of accidents	Yes ☐		No ☐	
6. PEDESTRIAN VOLUME AND DELAY	A. Plotted point representing 8 hour pedestrian volume vs. 8 hour vehicular volume fall in justified zone, and	Yes ☐		No ☐	
	B. Plotted point representing 8 hour volume of pedestrian experiencing delays of 10 s or more vs. 8 hour pedestrian volume fall in justified zone	Yes ☐		No ☐	

NOTES

1) For definition of crossing volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (Nov. 2007).
2) The lowest sectional percentage governs the entire Justification.

NOVATECH
Engineers, Planners & Landscape Architects

TRAFFIC SIGNAL JUSTIFICATION
USING PROJECTED VOLUMES

LOCATION: Fallowfield **at** O'Keefe

YEAR: 2026 Background

JUSTIFICATION	DESCRIPTION	MINIMUM REQUIREMENT		COMPLIANCE		
		FREE FLOW	RESTRICTED FLOW	SECTIONAL		ENTIRE % (2)
		OPERATING SPEED ≥ 70KM/H	OPERATING SPEED < 70 KM/H	NUMERICAL	PERCENT	
1. MINIMUM VEHICULAR WARRANT	A. Vehicle volume, all approaches (average hour)	480 600 (2 or more lane approach	720 900 (2 or more lane approach	660	91%	46%
	B. Vehicle volume along minor street (average hour)	120 180 (tee intersection)	170 255 (tee intersection)	78	46%	
2. DELAY TO CROSS TRAFFIC	A. Vehicle volume along major street (average hour)	480 600 (2 or more lane approach)	720 900 (2 or more lane approach	582	81%	41%
	B (1). Combined vehicle and pedestrian volume crossing the major street (average hour)	50	75	31	41%	

NOTES

1) For definition of crossing volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (Nov. 2007).
2) The lowest sectional percentage governs the entire Justification.
3) Average hourly volumes estimated from peak hour volumes, AHV = PM / 2 or AHV = (AM + PM) / 4.

NOVATECH
Engineers, Planners & Landscape Architects

TRAFFIC SIGNAL JUSTIFICATION
USING PROJECTED VOLUMES

LOCATION: Fallowfield **at** O'Keefe

YEAR: 2026 Total

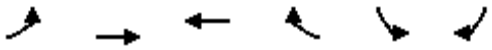
JUSTIFICATION	DESCRIPTION	MINIMUM REQUIREMENT		COMPLIANCE		
		FREE FLOW	RESTRICTED FLOW	SECTIONAL		ENTIRE % (2)
		OPERATING SPEED ≥ 70KM/H	OPERATING SPEED < 70 KM/H	NUMERICAL	PERCENT	
1. MINIMUM VEHICULAR WARRANT	A. Vehicle volume, all approaches (average hour)	480 600 (2 or more lane approach	720 900 (2 or more lane approach	690	96%	46%
	B. Vehicle volume along minor street (average hour)	120 180 (tee intersection)	170 255 (tee intersection)	78	46%	
2. DELAY TO CROSS TRAFFIC	A. Vehicle volume along major street (average hour)	480 600 (2 or more lane approach)	720 900 (2 or more lane approach	612	85%	41%
	B (1). Combined vehicle and pedestrian volume crossing the major street (average hour)	50	75	31	41%	

NOTES

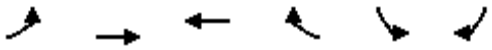
1) For definition of crossing volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (Nov. 2007).
2) The lowest sectional percentage governs the entire Justification.
3) Average hourly volumes estimated from peak hour volumes, AHV = PM / 2 or AHV = (AM + PM) / 4.

APPENDIX K

Synchro Reports



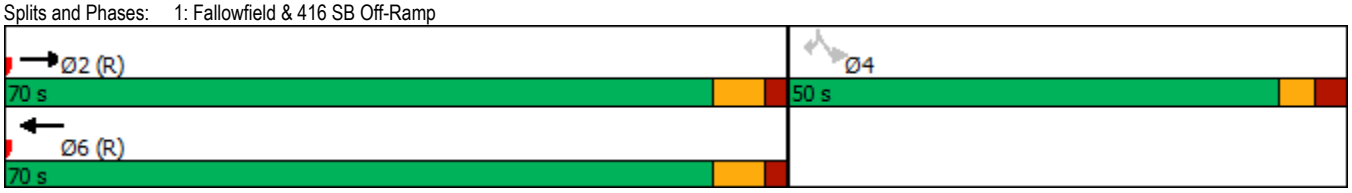
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1257	771	0	365	114
Future Volume (vph)	0	1257	771	0	365	114
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						127
Link Speed (k/h)		80	80		50	
Link Distance (m)		113.7	479.2		179.0	
Travel Time (s)		5.1	21.6		12.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	1397	857	0	406	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1397	857	0	406	127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		30.3	30.3
Total Split (s)		70.0	70.0		50.0	50.0
Total Split (%)		58.3%	58.3%		41.7%	41.7%
Maximum Green (s)		63.2	63.2		43.7	43.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		None	None
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		85.3	85.3		21.6	21.6
Actuated g/C Ratio		0.71	0.71		0.18	0.18
v/c Ratio		0.64	0.37		0.74	0.37
Control Delay		11.5	11.0		54.9	9.9
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		11.5	11.0		54.9	9.9
LOS		B	B		D	A
Approach Delay		11.5	11.0		44.2	
Approach LOS		B	B		D	
90th %ile Green (s)		79.6	79.6		27.3	27.3
90th %ile Term Code		Coord	Coord		Gap	Gap
70th %ile Green (s)		82.9	82.9		24.0	24.0
70th %ile Term Code		Coord	Coord		Gap	Gap
50th %ile Green (s)		85.3	85.3		21.6	21.6
50th %ile Term Code		Coord	Coord		Gap	Gap
30th %ile Green (s)		87.6	87.6		19.3	19.3
30th %ile Term Code		Coord	Coord		Gap	Gap
10th %ile Green (s)		91.0	91.0		15.9	15.9
10th %ile Term Code		Coord	Coord		Gap	Gap
Stops (vph)		645	365		336	16
Fuel Used(l)		59	57		29	3
CO Emissions (g/hr)		1104	1052		542	59
NOx Emissions (g/hr)		213	203		105	11
VOC Emissions (g/hr)		255	243		125	14
Dilemma Vehicles (#)		52	54		0	0
Queue Length 50th (m)		81.7	62.4		47.1	0.0
Queue Length 95th (m)		121.3	73.6		60.4	15.4
Internal Link Dist (m)		89.7	455.2		155.0	
Turn Bay Length (m)						70.0
Base Capacity (vph)		2185	2289		1106	559
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.64	0.37		0.37	0.23

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 87 (73%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 62.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Fallowfield & 416 SB Off-Ramp



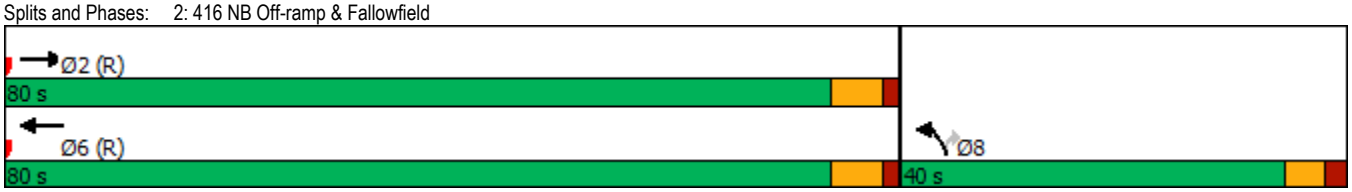


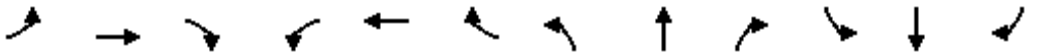
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1317	0	0	652	166	207
Future Volume (vph)	1317	0	0	652	166	207
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						45
Link Speed (k/h)	80			80	60	
Link Distance (m)	479.2			245.0	156.0	
Travel Time (s)	21.6			11.0	9.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	1463	0	0	724	184	230
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1463	0	0	724	184	230
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.4			30.4	25.8	25.8
Total Split (s)	80.0			80.0	40.0	40.0
Total Split (%)	66.7%			66.7%	33.3%	33.3%
Maximum Green (s)	73.8			73.8	34.2	34.2
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	1.6			1.6	2.1	2.1
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.2			6.2	5.8	5.8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	86.6			86.6	21.4	21.4
Actuated g/C Ratio	0.72			0.72	0.18	0.18
v/c Ratio	0.64			0.31	0.70	0.79
Control Delay	7.9			7.9	59.1	55.8
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	7.9			7.9	59.1	55.8
LOS	A			A	E	E
Approach Delay	7.9			7.9	57.3	
Approach LOS	A			A	E	
90th %ile Green (s)	77.6			77.6	30.4	30.4
90th %ile Term Code	Coord			Coord	Gap	Gap
70th %ile Green (s)	82.8			82.8	25.2	25.2
70th %ile Term Code	Coord			Coord	Gap	Gap
50th %ile Green (s)	86.6			86.6	21.4	21.4
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	90.4			90.4	17.6	17.6
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	95.4			95.4	12.6	12.6
10th %ile Term Code	Coord			Coord	Gap	Gap
Stops (vph)	565			168	151	159
Fuel Used(l)	90			38	15	17
CO Emissions (g/hr)	1676			713	273	313
NOx Emissions (g/hr)	323			138	53	60
VOC Emissions (g/hr)	386			164	63	72
Dilemma Vehicles (#)	43			42	0	0
Queue Length 50th (m)	65.4			25.0	41.1	42.5
Queue Length 95th (m)	72.7			44.4	59.6	64.7
Internal Link Dist (m)	455.2			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2301			2368	422	438
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.64			0.31	0.44	0.53

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 81 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 15.8		Intersection LOS: B	
Intersection Capacity Utilization 62.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: 416 NB Off-ramp & Fallowfield





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	565	618	12	2	1239	40	7	1	2	29	3	304
Future Volume (vph)	565	618	12	2	1239	40	7	1	2	29	3	304
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						0.99						0.99
Frt			0.850			0.850		0.900				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1571	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3124	2891	1483	1658	3191	1465	3216	1571	0	1658	1745	1423
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			225		2				338
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			311.4			414.8	
Travel Time (s)		10.6			11.4			22.4			24.9	
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	628	687	13	2	1377	44	8	1	2	32	3	338
Shared Lane Traffic (%)												
Lane Group Flow (vph)	628	687	13	2	1377	44	8	3	0	32	3	338
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	17.0		11.5	17.0	
Total Split (s)	28.0	72.0	13.0	13.0	57.0	57.0	13.0	22.0		13.0	22.0	
Total Split (%)	23.3%	60.0%	10.8%	10.8%	47.5%	47.5%	10.8%	18.3%		10.8%	18.3%	
Maximum Green (s)	20.9	65.1	6.5	5.9	50.1	50.1	6.5	15.0		6.5	15.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	

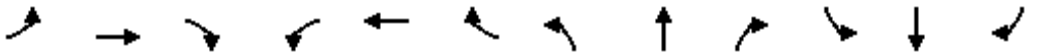
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		16.0			16.0	16.0						
Pedestrian Calls (#/hr)		1			1	1						
Act Effct Green (s)	32.8	101.0	109.1	5.8	63.5	61.7	7.2	10.0		10.2	10.0	120.0
Actuated g/C Ratio	0.27	0.84	0.91	0.05	0.53	0.51	0.06	0.08		0.08	0.08	1.00
v/c Ratio	0.74	0.28	0.01	0.03	0.82	0.05	0.04	0.02		0.23	0.02	0.24
Control Delay	53.2	4.1	0.0	79.0	22.3	0.1	58.4	51.0		54.4	51.0	0.4
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	53.2	4.1	0.0	79.0	22.3	0.1	58.4	51.0		54.4	51.0	0.4
LOS	D	A	A	E	C	A	E	D		D	D	A
Approach Delay		27.2			21.7			56.4			5.4	
Approach LOS		C			C			E			A	
90th %ile Green (s)	21.9	65.7	10.5	6.3	50.1	50.1	10.5	10.0		10.5	10.0	
90th %ile Term Code	Max	Coord	Hold	Gap	Coord	Coord	Hold	Min		Gap	Min	
70th %ile Green (s)	33.4	97.8	8.8	0.0	57.3	57.3	8.8	0.0		8.8	0.0	
70th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
50th %ile Green (s)	32.4	96.1	0.0	0.0	56.6	56.6	0.0	0.0		10.5	10.0	
50th %ile Term Code	Gap	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Hold	Hold	
30th %ile Green (s)	32.7	113.1	0.0	0.0	73.3	73.3	0.0	0.0		0.0	0.0	
30th %ile Term Code	Gap	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Skip	Skip	
10th %ile Green (s)	34.6	113.1	0.0	0.0	71.4	71.4	0.0	0.0		0.0	0.0	
10th %ile Term Code	Gap	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Skip	Skip	
Stops (vph)	495	90	0	3	1021	0	8	7		28	5	0
Fuel Used(l)	63	31	0	0	105	1	1	0		3	0	11
CO Emissions (g/hr)	1173	569	9	6	1945	15	17	9		59	7	205
NOx Emissions (g/hr)	226	110	2	1	375	3	3	2		11	1	40
VOC Emissions (g/hr)	271	131	2	1	449	3	4	2		14	2	47
Dilemma Vehicles (#)	0	17	0	0	16	0	0	0		0	0	0
Queue Length 50th (m)	73.7	10.2	0.0	0.5	164.6	0.0	0.9	0.4		7.0	0.7	0.0
Queue Length 95th (m)	#119.3	38.9	m0.0	m0.9	#222.8	m0.0	3.0	2.8		16.9	3.8	0.0
Internal Link Dist (m)		212.6			229.6			287.4			390.8	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	853	2433	1359	82	1689	862	208	198		143	218	1423
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	0.74	0.28	0.01	0.02	0.82	0.05	0.04	0.02		0.22	0.01	0.24

Intersection Summary

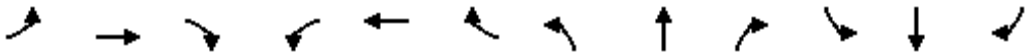
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 101 (84%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 22.2 Intersection LOS: C
Intersection Capacity Utilization 76.0% 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: 3: CitiGate & Fallowfield & Strandherd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	600	59	20	1185	14	108	11	10	23	22	176
Future Volume (vph)	36	600	59	20	1185	14	108	11	10	23	22	176
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	90.0			100.0			60.0			60.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.97				1.00		0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	2941	1483	3216	3221	1483	1658	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.742			0.750		
Satd. Flow (perm)	1657	2941	1483	3216	3221	1445	1295	1745	1483	1307	1745	1462
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			105			105			97			166
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		253.6			287.1			117.0			245.3	
Travel Time (s)		11.4			12.9			8.4			17.7	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	15%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	40	667	66	22	1317	16	120	12	11	26	24	196
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	667	66	22	1317	16	120	12	11	26	24	196
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.9	31.8	31.8	11.9	31.8	31.8	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (s)	15.0	56.0	56.0	15.0	56.0	56.0	49.0	49.0	49.0	49.0	49.0	49.0
Total Split (%)	12.5%	46.7%	46.7%	12.5%	46.7%	46.7%	40.8%	40.8%	40.8%	40.8%	40.8%	40.8%
Maximum Green (s)	8.1	49.2	49.2	8.1	49.2	49.2	41.3	41.3	41.3	41.3	41.3	41.3
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	3.3	3.3	3.3	3.3	3.3	3.3



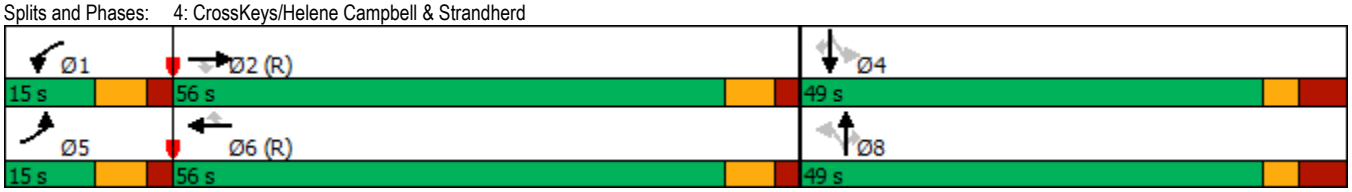
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.3	2.2	2.2	2.3	2.2	2.2	4.4	4.4	4.4	4.4	4.4	4.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.8	6.8	6.9	6.8	6.8	7.7	7.7	7.7	7.7	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
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	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	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
Flash Dont Walk (s)		18.0	18.0		18.0	18.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		1	1		1	1	1	1	1	1	1	1
Act Effct Green (s)	7.7	77.1	77.1	6.4	73.2	73.2	20.1	20.1	20.1	20.1	20.1	20.1
Actuated g/C Ratio	0.06	0.64	0.64	0.05	0.61	0.61	0.17	0.17	0.17	0.17	0.17	0.17
v/c Ratio	0.38	0.35	0.07	0.13	0.67	0.02	0.55	0.04	0.03	0.12	0.08	0.51
Control Delay	59.3	17.7	4.3	60.8	12.8	0.0	54.6	37.9	0.2	38.1	37.1	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.3	17.7	4.3	60.8	12.8	0.0	54.6	37.9	0.2	38.1	37.1	13.2
LOS	E	B	A	E	B	A	D	D	A	D	D	B
Approach Delay		18.7			13.5			49.0			18.1	
Approach LOS		B			B			D			B	
90th %ile Green (s)	8.4	50.1	50.1	7.5	49.2	49.2	41.0	41.0	41.0	41.0	41.0	41.0
90th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	9.5	72.4	72.4	6.7	69.6	69.6	19.5	19.5	19.5	19.5	19.5	19.5
70th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	8.3	75.7	75.7	6.3	73.7	73.7	16.6	16.6	16.6	16.6	16.6	16.6
50th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	7.0	91.9	91.9	0.0	78.0	78.0	13.6	13.6	13.6	13.6	13.6	13.6
30th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	0.0	95.5	95.5	0.0	95.5	95.5	10.0	10.0	10.0	10.0	10.0	10.0
10th %ile Term Code	Skip	Coord	Coord	Skip	Coord	Coord	Min	Min	Min	Min	Min	Min
Stops (vph)	36	295	8	22	381	0	95	10	0	19	18	33
Fuel Used(l)	4	37	2	3	60	0	14	1	1	2	2	7
CO Emissions (g/hr)	82	689	34	49	1122	6	252	23	12	30	29	123
NOx Emissions (g/hr)	16	133	7	10	217	1	49	4	2	6	6	24
VOC Emissions (g/hr)	19	159	8	11	259	1	58	5	3	7	7	28
Dilemma Vehicles (#)	0	37	0	0	60	0	0	0	0	0	0	0
Queue Length 50th (m)	9.2	44.2	0.1	2.8	24.9	0.0	28.5	2.5	0.1	5.5	5.0	6.3
Queue Length 95th (m)	22.0	63.8	6.7	m5.8	#204.6	m0.0	36.6	6.6	0.1	10.6	9.8	21.2
Internal Link Dist (m)		229.6			263.1			93.0			221.3	
Turn Bay Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Base Capacity (vph)	117	1890	990	217	1964	922	445	600	574	449	600	612
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.35	0.07	0.10	0.67	0.02	0.27	0.02	0.02	0.06	0.04	0.32

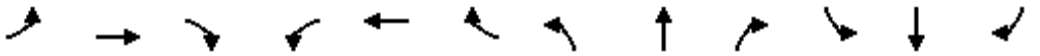
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 73 (61%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 17.5		Intersection LOS: B	
Intersection Capacity Utilization 74.6%		ICU Level of Service D	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 4: CrossKeys/Helene Campbell & Strandherd



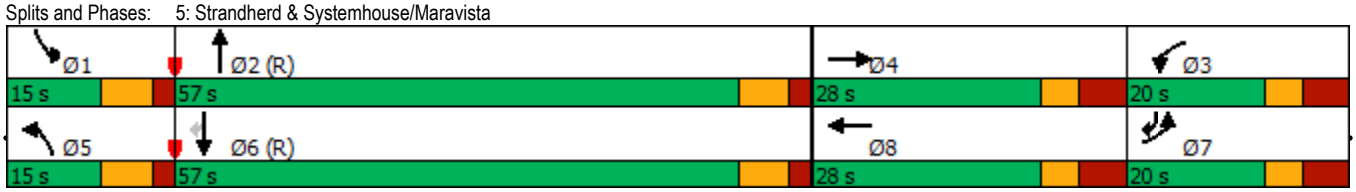


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	7	28	7	22	110	95	937	9	18	465	9
Future Volume (vph)	52	7	28	7	22	110	95	937	9	18	465	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.881			0.875			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3154	1356	0	1658	1527	0	3154	3310	0	1321	3316	1363
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3154	1356	0	1653	1527	0	3154	3310	0	1321	3316	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			122			1				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	43%	7%	2%	2%	2%	4%	2%	11%	28%	2%	11%
Adj. Flow (vph)	58	8	31	8	24	122	106	1041	10	20	517	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	39	0	8	146	0	106	1051	0	20	517	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	28.0		15.0	28.0		15.0	52.0		15.0	52.0	15.0
Total Split (s)	20.0	28.0		20.0	28.0		15.0	57.0		15.0	57.0	20.0
Total Split (%)	16.7%	23.3%		16.7%	23.3%		12.5%	47.5%		12.5%	47.5%	16.7%
Maximum Green (s)	12.4	20.4		12.4	20.4		8.4	50.3		8.4	50.3	12.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	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	C-Max		None	C-Max	None
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								17.0			17.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	7.6	19.2		7.6	11.0		9.4	75.8		7.4	66.2	72.9
Actuated g/C Ratio	0.06	0.16		0.06	0.09		0.08	0.63		0.06	0.55	0.61
v/c Ratio	0.29	0.16		0.08	0.58		0.43	0.50		0.24	0.28	0.01
Control Delay	56.9	21.4		52.0	23.0		59.1	11.9		85.5	7.2	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	56.9	21.4		52.0	23.0		59.1	11.9		85.5	7.2	0.0
LOS	E	C		D	C		E	B		F	A	A
Approach Delay		42.6			24.5			16.2			10.0	
Approach LOS		D			C			B			A	
90th %ile Green (s)	9.6	10.0		14.2	14.6		12.0	57.3		10.0	55.3	9.6
90th %ile Term Code	Gap	Min		Hold	Gap		Gap	Coord		Gap	Coord	Gap
70th %ile Green (s)	8.4	26.4		0.0	10.4		10.5	64.3		8.4	62.2	8.4
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	7.6	25.2		0.0	10.0		9.4	80.5		0.0	64.5	7.6
50th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
30th %ile Green (s)	6.8	24.4		0.0	10.0		8.3	81.3		0.0	66.4	6.8
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
10th %ile Green (s)	0.0	10.0		0.0	10.0		6.7	95.7		0.0	82.4	0.0
10th %ile Term Code	Skip	Hold		Skip	Min		Gap	Coord		Skip	Coord	Skip
Stops (vph)	49	13		8	33		85	607		14	197	0
Fuel Used(l)	4	2		1	5		12	75		2	24	0
CO Emissions (g/hr)	82	29		9	90		229	1389		45	454	4
NOx Emissions (g/hr)	16	6		2	17		44	268		9	88	1
VOC Emissions (g/hr)	19	7		2	21		53	320		10	105	1
Dilemma Vehicles (#)	0	0		0	0		0	4		0	21	0
Queue Length 50th (m)	6.8	1.5		1.8	5.4		11.6	48.2		4.9	37.5	0.0
Queue Length 95th (m)	13.4	12.6		6.4	24.9		m14.0	133.1		13.7	5.7	m0.0
Internal Link Dist (m)		181.3			124.8			185.4			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	325	289		176	360		255	2091		96	1828	917
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.18	0.13		0.05	0.41		0.42	0.50		0.21	0.28	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 83 (69%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 16.4		Intersection LOS: B	
Intersection Capacity Utilization 68.1%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 5: Strandherd & Systemhouse/Maravista



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	1	6	80	3	100	14	945	57	35	466	19
Future Volume (vph)	4	1	6	80	3	100	14	945	57	35	466	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		100.0	50.0		0.0	110.0		40.0	150.0		90.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.854				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1353	1745	1483	1658	1490	0	1398	1745	1455	1523	1728	1363
Flt Permitted	0.655			0.757			0.472			0.119		
Satd. Flow (perm)	933	1745	1483	1321	1490	0	694	1745	1455	191	1728	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89		111				91			33
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		358.5			381.8			229.3			210.1	
Travel Time (s)		25.8			34.4			10.3			9.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	25%	2%	2%	2%	2%	2%	21%	2%	4%	11%	3%	11%
Adj. Flow (vph)	4	1	7	89	3	111	16	1050	63	39	518	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	1	7	89	114	0	16	1050	63	39	518	21
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		20.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	32.6	32.6	32.6	32.6	32.6		30.4	30.4	30.4	11.4	30.4	30.4
Total Split (s)	33.0	33.0	33.0	33.0	33.0		75.0	75.0	75.0	12.0	87.0	87.0
Total Split (%)	27.5%	27.5%	27.5%	27.5%	27.5%		62.5%	62.5%	62.5%	10.0%	72.5%	72.5%
Maximum Green (s)	26.4	26.4	26.4	26.4	26.4		68.6	68.6	68.6	5.6	80.6	80.6
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3		1.8	1.8	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6		6.4	6.4	6.4	6.4	6.4	6.4

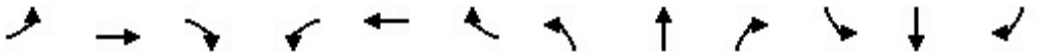
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		C-Max	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0		17.0	17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0		0	0
Act Effct Green (s)	13.9	13.9	13.9	13.9	13.9		85.3	85.3	85.3	93.1	93.1	93.1
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.12		0.71	0.71	0.71	0.78	0.78	0.78
v/c Ratio	0.04	0.00	0.03	0.58	0.42		0.03	0.85	0.06	0.18	0.39	0.02
Control Delay	45.0	44.0	0.2	64.9	13.9		8.1	23.7	0.9	11.9	17.8	5.3
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	45.0	44.0	0.2	64.9	13.9		8.1	23.7	0.9	11.9	17.8	5.3
LOS	D	D	A	E	B		A	C	A	B	B	A
Approach Delay		18.8			36.3			22.2			16.9	
Approach LOS		B			D			C			B	
90th %ile Green (s)	19.3	19.3	19.3	19.3	19.3		74.0	74.0	74.0	7.3	87.7	87.7
90th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Gap	Coord	Coord
70th %ile Green (s)	15.8	15.8	15.8	15.8	15.8		78.2	78.2	78.2	6.6	91.2	91.2
70th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Gap	Coord	Coord
50th %ile Green (s)	13.4	13.4	13.4	13.4	13.4		81.1	81.1	81.1	6.1	93.6	93.6
50th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Gap	Coord	Coord
30th %ile Green (s)	11.0	11.0	11.0	11.0	11.0		96.0	96.0	96.0	0.0	96.0	96.0
30th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Skip	Coord	Coord
10th %ile Green (s)	10.0	10.0	10.0	10.0	10.0		97.0	97.0	97.0	0.0	97.0	97.0
10th %ile Term Code	Hold	Hold	Hold	Min	Min		Coord	Coord	Coord	Skip	Coord	Coord
Stops (vph)	6	2	0	74	19		5	631	2	19	337	5
Fuel Used(l)	0	0	0	8	6		1	70	1	3	41	1
CO Emissions (g/hr)	8	2	4	154	103		12	1311	22	48	764	18
NOx Emissions (g/hr)	1	0	1	30	20		2	253	4	9	148	4
VOC Emissions (g/hr)	2	0	1	36	24		3	302	5	11	176	4
Dilemma Vehicles (#)	0	0	0	0	0		0	38	0	0	49	0
Queue Length 50th (m)	0.9	0.2	0.0	20.3	0.7		1.2	183.4	0.0	2.9	64.3	0.0
Queue Length 95th (m)	4.1	1.8	0.0	35.6	16.5		4.3	#328.3	2.7	12.5	156.1	4.7
Internal Link Dist (m)		334.5			357.8			205.3			186.1	
Turn Bay Length (m)	75.0		100.0	50.0			110.0		40.0	150.0		90.0
Base Capacity (vph)	205	383	395	290	414		493	1240	1060	217	1340	1065
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	0.02	0.00	0.02	0.31	0.28		0.03	0.85	0.06	0.18	0.39	0.02

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 29 (24%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 22.1 Intersection LOS: C
Intersection Capacity Utilization 74.7% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Strandherd & Dealership/Kennevale

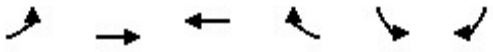




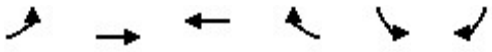
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	3	23	46	3	63	14	572	21	20	473	5
Future Volume (Veh/h)	7	3	23	46	3	63	14	572	21	20	473	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	8	3	26	51	3	70	16	636	23	22	526	6
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1310	1261	526	1266	1244	636	532			659		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1310	1261	526	1266	1244	636	532			659		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	92	98	95	62	98	85	98			98		
cM capacity (veh/h)	105	163	548	133	167	478	1011			915		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	8	29	124	16	636	23	22	526	6
Volume Left	8	0	51	16	0	0	22	0	0
Volume Right	0	26	70	0	0	23	0	0	6
cSH	105	441	226	1011	1700	1700	915	1700	1700
Volume to Capacity	0.08	0.07	0.55	0.02	0.37	0.01	0.02	0.31	0.00
Queue Length 95th (m)	1.8	1.6	22.5	0.4	0.0	0.0	0.6	0.0	0.0
Control Delay (s)	42.2	13.7	38.7	8.6	0.0	0.0	9.0	0.0	0.0
Lane LOS	E	B	E	A			A		
Approach Delay (s)	19.9		38.7	0.2			0.4		
Approach LOS	C		E						

Intersection Summary					
Average Delay	4.2				
Intersection Capacity Utilization	52.0%	ICU Level of Service		A	
Analysis Period (min)	15				



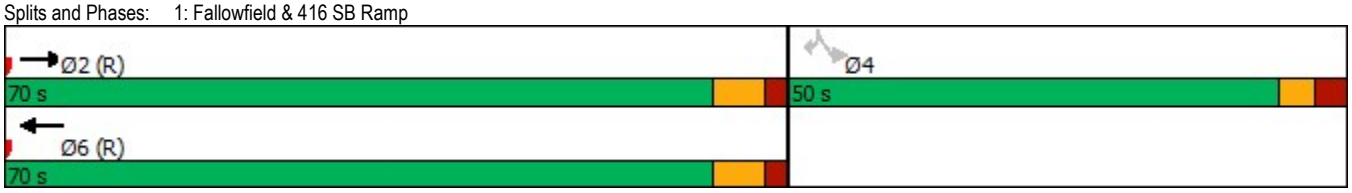
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	735	768	0	761	259
Future Volume (vph)	0	735	768	0	761	259
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						129
Link Speed (k/h)		80	80		50	
Link Distance (m)		135.1	457.9		135.7	
Travel Time (s)		6.1	20.6		9.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	817	853	0	846	288
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	817	853	0	846	288
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		10.0	10.0		10.0	10.0
Minimum Split (s)		30.8	30.8		30.3	30.3
Total Split (s)		70.0	70.0		50.0	50.0
Total Split (%)		58.3%	58.3%		41.7%	41.7%
Maximum Green (s)		63.2	63.2		43.7	43.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		Max	Max
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		63.2	63.2		43.7	43.7
Actuated g/C Ratio		0.53	0.53		0.36	0.36
v/c Ratio		0.50	0.50		0.76	0.51
Control Delay		19.7	14.2		39.1	19.5
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		19.7	14.2		39.1	19.5
LOS		B	B		D	B
Approach Delay		19.7	14.2		34.2	
Approach LOS		B	B		C	
90th %ile Green (s)		63.2	63.2		43.7	43.7
90th %ile Term Code		Coord	Coord		MaxR	MaxR
70th %ile Green (s)		63.2	63.2		43.7	43.7
70th %ile Term Code		Coord	Coord		MaxR	MaxR
50th %ile Green (s)		63.2	63.2		43.7	43.7
50th %ile Term Code		Coord	Coord		MaxR	MaxR
30th %ile Green (s)		63.2	63.2		43.7	43.7
30th %ile Term Code		Coord	Coord		MaxR	MaxR
10th %ile Green (s)		63.2	63.2		43.7	43.7
10th %ile Term Code		Coord	Coord		MaxR	MaxR
Stops (vph)		456	325		656	113
Fuel Used(l)		45	55		47	10
CO Emissions (g/hr)		839	1017		882	182
NOx Emissions (g/hr)		162	196		170	35
VOC Emissions (g/hr)		193	235		203	42
Dilemma Vehicles (#)		31	29		0	0
Queue Length 50th (m)		62.8	45.5		89.7	28.1
Queue Length 95th (m)		79.7	59.4		113.5	54.7
Internal Link Dist (m)		111.1	433.9		111.7	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1619	1696		1106	561
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.50	0.50		0.76	0.51

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 4 (3%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 23.9		Intersection LOS: C	
Intersection Capacity Utilization 58.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Fallowfield & 416 SB Ramp

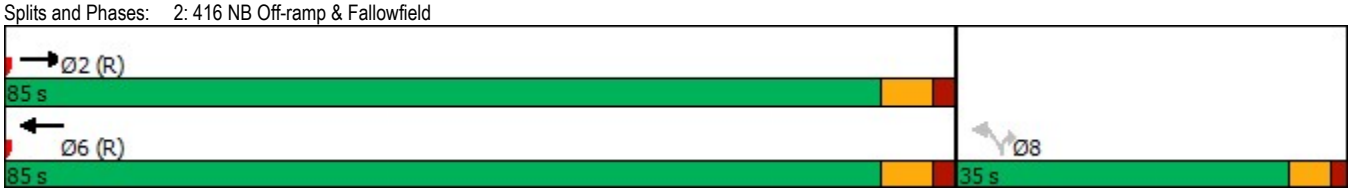


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1365	0	0	840	116	85
Future Volume (vph)	1365	0	0	840	116	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						48
Link Speed (k/h)	80			80	60	
Link Distance (m)	457.9			245.0	156.0	
Travel Time (s)	20.6			11.0	9.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	1517	0	0	933	129	94
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1517	0	0	933	129	94
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases					8	8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	85.0			85.0	35.0	35.0
Total Split (%)	70.8%			70.8%	29.2%	29.2%
Maximum Green (s)	78.3			78.3	29.7	29.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	92.1			92.1	15.9	15.9
Actuated g/C Ratio	0.77			0.77	0.13	0.13
v/c Ratio	0.62			0.37	0.66	0.41
Control Delay	4.5			2.8	64.6	29.4
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	4.5			2.8	64.6	29.4
LOS	A			A	E	C
Approach Delay	4.5			2.8	49.8	
Approach LOS	A			A	D	
90th %ile Green (s)	85.8			85.8	22.2	22.2
90th %ile Term Code	Coord			Coord	Gap	Gap
70th %ile Green (s)	89.6			89.6	18.4	18.4
70th %ile Term Code	Coord			Coord	Gap	Gap
50th %ile Green (s)	92.2			92.2	15.8	15.8
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	94.9			94.9	13.1	13.1
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	98.0			98.0	10.0	10.0
10th %ile Term Code	Coord			Coord	Min	Min
Stops (vph)	540			107	108	40
Fuel Used(l)	85			40	11	4
CO Emissions (g/hr)	1578			740	201	81
NOx Emissions (g/hr)	305			143	39	16
VOC Emissions (g/hr)	364			171	46	19
Dilemma Vehicles (#)	28			34	0	0
Queue Length 50th (m)	17.8			15.1	29.3	9.9
Queue Length 95th (m)	88.2			19.5	46.9	24.5
Internal Link Dist (m)	433.9			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2448			2519	367	389
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.62			0.37	0.35	0.24

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 108 (90%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 7.6		Intersection LOS: A	
Intersection Capacity Utilization 58.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: 416 NB Off-ramp & Fallowfield



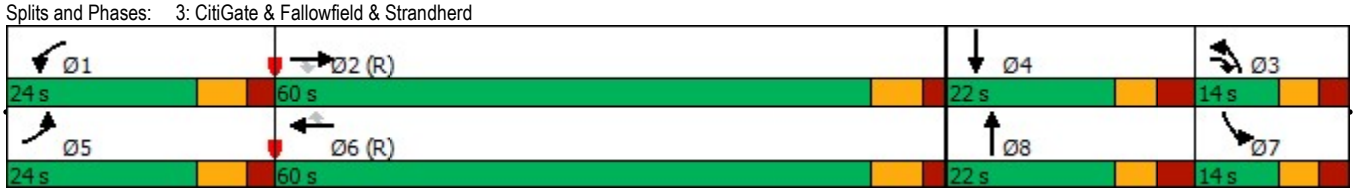
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	306	1098	12	0	766	72	13	4	0	90	3	448
Future Volume (vph)	306	1098	12	0	766	72	13	4	0	90	3	448
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				0.99		0.99
Frt			0.850			0.850						0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1745	3191	1483	3216	1745	0	1658	1745	1441
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3119	2891	1483	1745	3191	1460	3216	1745	0	1645	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			160						495
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			311.4			414.8	
Travel Time (s)		10.6			11.4			22.4			24.9	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	340	1220	13	0	851	80	14	4	0	100	3	498
Shared Lane Traffic (%)												
Lane Group Flow (vph)	340	1220	13	0	851	80	14	4	0	100	3	498
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	17.0		11.5	17.0	
Total Split (s)	24.0	60.0	14.0	24.0	60.0	60.0	14.0	22.0		14.0	22.0	
Total Split (%)	20.0%	50.0%	11.7%	20.0%	50.0%	50.0%	11.7%	18.3%		11.7%	18.3%	
Maximum Green (s)	16.9	53.1	7.5	16.9	53.1	53.1	7.5	15.0		7.5	15.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		16.0			16.0	16.0						
Pedestrian Calls (#/hr)		1			1	1						
Act Effct Green (s)	18.8	92.3	110.5		68.3	66.5	10.5	10.0		14.5	10.2	120.0
Actuated g/C Ratio	0.16	0.77	0.92		0.57	0.55	0.09	0.08		0.12	0.08	1.00
v/c Ratio	0.70	0.55	0.01		0.47	0.09	0.05	0.03		0.50	0.02	0.35
Control Delay	53.5	8.9	0.0		10.1	1.0	51.9	57.5		58.4	51.0	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	53.5	8.9	0.0		10.1	1.0	51.9	57.5		58.4	51.0	0.7
LOS	D	A	A		B	A	D	E		E	D	A
Approach Delay		18.5			9.3			53.2			10.5	
Approach LOS		B			A			D			B	
90th %ile Green (s)	16.9	77.1	12.5	0.0	53.1	53.1	12.5	10.0		12.5	10.0	
90th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Min		Max	Min	
70th %ile Green (s)	20.1	91.3	15.3	0.0	64.1	64.1	15.3	0.0		15.3	0.0	
70th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
50th %ile Green (s)	18.2	93.1	13.5	0.0	67.8	67.8	13.5	0.0		13.5	0.0	
50th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
30th %ile Green (s)	16.2	95.1	0.0	0.0	71.8	71.8	0.0	0.0		11.5	11.0	
30th %ile Term Code	Gap	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Gap	Hold	
10th %ile Green (s)	13.4	96.1	0.0	0.0	75.6	75.6	0.0	0.0		10.5	10.0	
10th %ile Term Code	Gap	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Hold	Hold	
Stops (vph)	297	423	0		485	8	15	7		82	5	0
Fuel Used(l)	35	67	0		49	2	2	1		10	0	16
CO Emissions (g/hr)	655	1250	9		912	36	31	11		185	7	305
NOx Emissions (g/hr)	126	241	2		176	7	6	2		36	1	59
VOC Emissions (g/hr)	151	288	2		210	8	7	3		43	2	70
Dilemma Vehicles (#)	0	6	0		25	0	0	0		0	0	0
Queue Length 50th (m)	41.9	58.7	0.0		50.1	0.1	1.7	0.9		22.2	0.7	0.0
Queue Length 95th (m)	57.4	77.8	m0.0		106.5	2.8	m4.0	m3.4		40.1	3.8	0.0
Internal Link Dist (m)		212.6			229.6			287.4			390.8	
Turn Bay Length (m)	150.0		30.0			30.0	65.0			45.0		170.0
Base Capacity (vph)	510	2224	1383		1815	880	302	218		199	218	1422
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	0.67	0.55	0.01		0.47	0.09	0.05	0.02		0.50	0.01	0.35

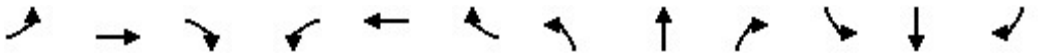
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 115 (96%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 14.4		Intersection LOS: B	
Intersection Capacity Utilization 64.1%		ICU Level of Service C	
Analysis Period (min) 15			

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

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	938	289	42	698	15	192	96	28	17	102	92
Future Volume (vph)	128	938	289	42	698	15	192	96	28	17	102	92
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	90.0			100.0			60.0			60.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.99			0.98	0.99		0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	2941	1483	3216	3221	1483	1658	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.684			0.688		
Satd. Flow (perm)	1658	2941	1465	3216	3221	1448	1186	1745	1458	1199	1745	1449
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			167			105			97			102
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		253.6			287.1			117.0			245.3	
Travel Time (s)		11.4			12.9			8.4			17.7	
Confl. Peds. (#/hr)							9		2	2		9
Confl. Bikes (#/hr)			1			4			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	15%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	142	1042	321	47	776	17	213	107	31	19	113	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	142	1042	321	47	776	17	213	107	31	19	113	102
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.9	31.8	31.8	11.9	31.8	31.8	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (s)	15.0	56.0	56.0	15.0	56.0	56.0	49.0	49.0	49.0	49.0	49.0	49.0
Total Split (%)	12.5%	46.7%	46.7%	12.5%	46.7%	46.7%	40.8%	40.8%	40.8%	40.8%	40.8%	40.8%
Maximum Green (s)	8.1	49.2	49.2	8.1	49.2	49.2	41.3	41.3	41.3	41.3	41.3	41.3
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	3.3	3.3	3.3	3.3	3.3	3.3

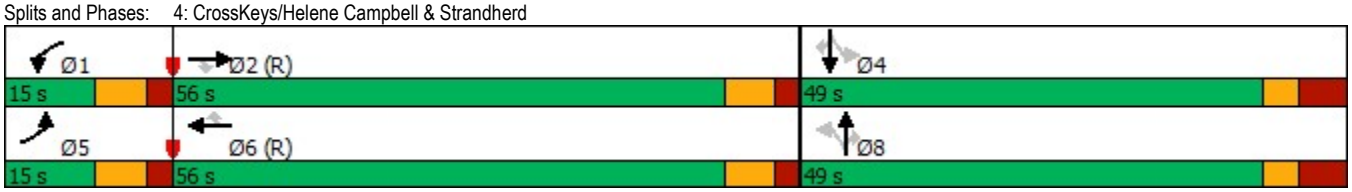


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.3	2.2	2.2	2.3	2.2	2.2	4.4	4.4	4.4	4.4	4.4	4.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.8	6.8	6.9	6.8	6.8	7.7	7.7	7.7	7.7	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
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	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	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
Flash Dont Walk (s)		18.0	18.0		18.0	18.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0	2	2	2	7	7	7
Act Effct Green (s)	18.3	66.2	66.2	7.1	52.5	52.5	27.8	27.8	27.8	27.8	27.8	27.8
Actuated g/C Ratio	0.15	0.55	0.55	0.06	0.44	0.44	0.23	0.23	0.23	0.23	0.23	0.23
v/c Ratio	0.56	0.64	0.36	0.25	0.55	0.02	0.77	0.26	0.08	0.07	0.28	0.25
Control Delay	59.1	29.4	15.1	71.4	14.1	0.1	61.5	37.7	0.4	31.9	37.2	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.1	29.4	15.1	71.4	14.1	0.1	61.5	37.7	0.4	31.9	37.2	7.1
LOS	E	C	B	E	B	A	E	D	A	C	D	A
Approach Delay		29.1			17.0			48.8			23.7	
Approach LOS		C			B			D			C	
90th %ile Green (s)	8.4	49.2	49.2	8.4	49.2	49.2	41.0	41.0	41.0	41.0	41.0	41.0
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	18.0	59.3	59.3	7.9	49.2	49.2	31.4	31.4	31.4	31.4	31.4	31.4
70th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	19.7	64.2	64.2	7.2	51.7	51.7	27.2	27.2	27.2	27.2	27.2	27.2
50th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	20.6	69.3	69.3	6.4	55.1	55.1	22.9	22.9	22.9	22.9	22.9	22.9
30th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	24.6	88.8	88.8	0.0	57.3	57.3	16.7	16.7	16.7	16.7	16.7	16.7
10th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
Stops (vph)	102	748	165	41	383	0	176	74	0	14	79	13
Fuel Used(l)	14	83	19	6	45	0	25	11	2	1	7	3
CO Emissions (g/hr)	265	1541	346	104	843	6	469	196	33	21	131	55
NOx Emissions (g/hr)	51	297	67	20	163	1	91	38	6	4	25	11
VOC Emissions (g/hr)	61	355	80	24	194	1	108	45	8	5	30	13
Dilemma Vehicles (#)	0	36	0	0	29	0	0	0	0	0	0	0
Queue Length 50th (m)	33.1	110.1	27.3	6.0	23.0	0.0	48.0	21.2	0.0	3.5	22.2	0.0
Queue Length 95th (m)	#84.5	152.1	41.8	12.6	29.8	m0.0	65.2	31.2	0.0	8.4	32.5	11.7
Internal Link Dist (m)		229.6			263.1			93.0			221.3	
Turn Bay Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Base Capacity (vph)	252	1621	882	219	1409	692	408	600	565	412	600	565
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.64	0.36	0.21	0.55	0.02	0.52	0.18	0.05	0.05	0.19	0.18

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 85 (71%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 27.6 Intersection LOS: C
Intersection Capacity Utilization 68.3% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: CrossKeys/Helene Campbell & Strandherd

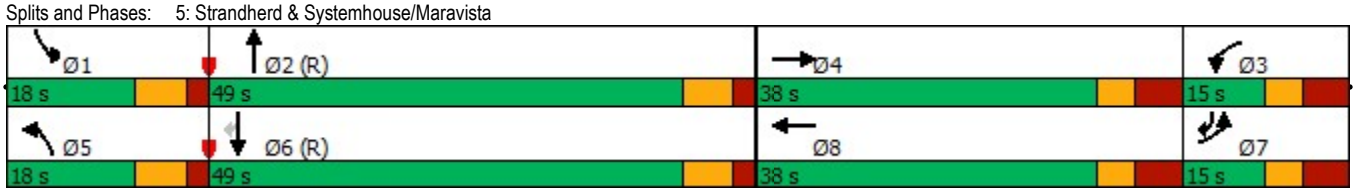


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	56	198	10	56	40	243	556	7	134	848	25
Future Volume (vph)	63	56	198	10	56	40	243	556	7	134	848	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99								
Frt		0.883			0.938			0.998				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3216	1521	0	1658	1555	0	3216	3309	0	1658	3316	1351
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	1521	0	1636	1555	0	3216	3309	0	1658	3316	1351
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		143			29			1				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
Confl. Peds. (#/hr)			4	4								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	15%	2%	2%	2%	2%	2%	12%
Adj. Flow (vph)	70	62	220	11	62	44	270	618	8	149	942	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	282	0	11	106	0	270	626	0	149	942	28
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	17.6		15.0	17.6		15.0	33.0		15.0	33.0	15.0
Total Split (s)	15.0	38.0		15.0	38.0		18.0	49.0		18.0	49.0	15.0
Total Split (%)	12.5%	31.7%		12.5%	31.7%		15.0%	40.8%		15.0%	40.8%	12.5%
Maximum Green (s)	7.4	30.4		7.4	30.4		11.4	42.3		11.4	42.3	7.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	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	C-Max		None	C-Max	None
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								17.0			17.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	9.6	23.9		6.4	12.4		15.0	55.6		16.6	57.1	65.9
Actuated g/C Ratio	0.08	0.20		0.05	0.10		0.12	0.46		0.14	0.48	0.55
v/c Ratio	0.27	0.68		0.13	0.57		0.67	0.41		0.65	0.60	0.04
Control Delay	52.9	29.0		56.7	48.5		72.3	13.4		75.0	16.0	1.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	52.9	29.0		56.7	48.5		72.3	13.4		75.0	16.0	1.2
LOS	D	C		E	D		E	B		E	B	A
Approach Delay		33.8			49.3			31.1			23.5	
Approach LOS		C			D			C			C	
90th %ile Green (s)	18.2	27.4		7.8	17.0		14.0	42.3		14.0	42.3	18.2
90th %ile Term Code	Hold	Gap		Gap	Gap		Max	Coord		Max	Coord	Hold
70th %ile Green (s)	8.9	30.3		0.0	13.8		17.7	49.1		19.7	51.1	8.9
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	8.0	27.0		0.0	11.4		16.4	53.7		18.4	55.7	8.0
50th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
30th %ile Green (s)	7.1	24.7		0.0	10.0		14.7	57.4		17.0	59.7	7.1
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
10th %ile Green (s)	0.0	10.0		0.0	10.0		12.2	75.3		13.8	76.9	0.0
10th %ile Term Code	Skip	Min		Skip	Min		Gap	Coord		Gap	Coord	Skip
Stops (vph)	57	118		11	65		215	317		128	245	2
Fuel Used(l)	5	13		1	6		34	43		18	44	1
CO Emissions (g/hr)	94	247		14	111		630	792		337	812	13
NOx Emissions (g/hr)	18	48		3	21		122	153		65	157	3
VOC Emissions (g/hr)	22	57		3	26		145	183		78	187	3
Dilemma Vehicles (#)	0	0		0	0		0	27		0	49	0
Queue Length 50th (m)	8.2	29.2		2.5	17.6		30.3	40.2		37.6	12.2	0.0
Queue Length 95th (m)	14.2	58.4		8.5	34.3		#44.4	55.8		m#68.7	71.3	m0.2
Internal Link Dist (m)		181.3			124.8			185.4			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	267	492		103	415		401	1532		229	1579	791
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	0.26	0.57		0.11	0.26		0.67	0.41		0.65	0.60	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 82 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 28.9		Intersection LOS: C	
Intersection Capacity Utilization 65.8%		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.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 5: Strandherd & Systemhouse/Maravista



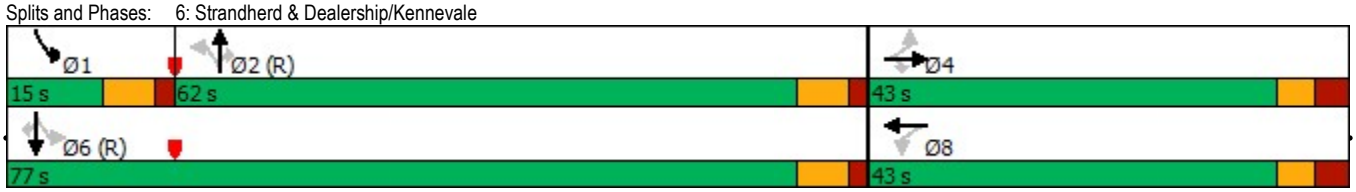
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	3	17	106	5	71	12	718	98	70	989	11
Future Volume (vph)	17	3	17	106	5	71	12	718	98	70	989	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		100.0	50.0		0.0	110.0		40.0	150.0		90.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.861				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	1745	1483	1658	1476	0	1658	1745	1483	1642	1745	1483
Flt Permitted	0.702			0.756			0.180			0.219		
Satd. Flow (perm)	1225	1745	1483	1319	1476	0	314	1745	1483	378	1745	1483
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89		79				91			33
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		358.5			381.8			229.3			210.1	
Travel Time (s)		25.8			34.4			10.3			9.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	4%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	19	3	19	118	6	79	13	798	109	78	1099	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	3	19	118	85	0	13	798	109	78	1099	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		20.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	32.6	32.6	32.6	32.6	32.6		30.4	30.4	30.4	11.4	30.4	30.4
Total Split (s)	43.0	43.0	43.0	43.0	43.0		62.0	62.0	62.0	15.0	77.0	77.0
Total Split (%)	35.8%	35.8%	35.8%	35.8%	35.8%		51.7%	51.7%	51.7%	12.5%	64.2%	64.2%
Maximum Green (s)	36.4	36.4	36.4	36.4	36.4		55.6	55.6	55.6	8.6	70.6	70.6
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3		1.8	1.8	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6		6.4	6.4	6.4	6.4	6.4	6.4

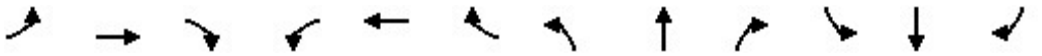
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		C-Max	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0		17.0	17.0	17.0		17.0	17.0
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	16.3		79.2	79.2	79.2	90.7	90.7	90.7
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.14		0.66	0.66	0.66	0.76	0.76	0.76
v/c Ratio	0.11	0.01	0.07	0.66	0.32		0.06	0.69	0.11	0.21	0.83	0.01
Control Delay	44.3	41.3	0.5	65.9	14.0		11.7	19.4	3.4	11.7	33.9	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	41.3	0.5	65.9	14.0		11.7	19.4	3.4	11.7	33.9	4.8
LOS	D	D	A	E	B		B	B	A	B	C	A
Approach Delay		23.8			44.2			17.4			32.1	
Approach LOS		C			D			B			C	
90th %ile Green (s)	23.1	23.1	23.1	23.1	23.1		66.9	66.9	66.9	10.6	83.9	83.9
90th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Gap	Coord	Coord
70th %ile Green (s)	19.0	19.0	19.0	19.0	19.0		73.6	73.6	73.6	8.0	88.0	88.0
70th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Gap	Coord	Coord
50th %ile Green (s)	16.1	16.1	16.1	16.1	16.1		77.6	77.6	77.6	6.9	90.9	90.9
50th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Gap	Coord	Coord
30th %ile Green (s)	13.3	13.3	13.3	13.3	13.3		81.0	81.0	81.0	6.3	93.7	93.7
30th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Gap	Coord	Coord
10th %ile Green (s)	10.0	10.0	10.0	10.0	10.0		97.0	97.0	97.0	0.0	97.0	97.0
10th %ile Term Code	Hold	Hold	Hold	Min	Min		Coord	Coord	Coord	Skip	Coord	Coord
Stops (vph)	15	4	0	99	17		6	462	12	37	875	3
Fuel Used(l)	1	0	1	11	4		1	50	3	5	109	1
CO Emissions (g/hr)	28	5	11	206	77		12	934	50	94	2021	11
NOx Emissions (g/hr)	5	1	2	40	15		2	180	10	18	390	2
VOC Emissions (g/hr)	6	1	3	48	18		3	215	12	22	466	2
Dilemma Vehicles (#)	0	0	0	0	0		0	30	0	0	80	0
Queue Length 50th (m)	4.0	0.6	0.0	26.8	1.3		1.0	113.1	1.4	9.6	208.1	0.0
Queue Length 95th (m)	10.4	3.3	0.0	43.7	14.5		4.7	206.6	9.8	m20.0	#285.1	m0.8
Internal Link Dist (m)		334.5			357.8			205.3			186.1	
Turn Bay Length (m)	75.0		100.0	50.0			110.0		40.0	150.0		90.0
Base Capacity (vph)	371	529	511	400	502		207	1151	1010	380	1318	1129
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	0.05	0.01	0.04	0.29	0.17		0.06	0.69	0.11	0.21	0.83	0.01

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 57 (48%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 27.3 Intersection LOS: C
Intersection Capacity Utilization 87.9% 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: 6: Strandherd & Dealership/Kennevale





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	6	34	17	3	37	17	329	31	36	386	17
Future Volume (Veh/h)	24	6	34	17	3	37	17	329	31	36	386	17
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	27	7	38	19	3	41	19	366	34	40	429	19
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	956	947	429	954	932	366	448			400		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	956	947	429	954	932	366	448			400		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	97	94	91	99	94	98			97		
cM capacity (veh/h)	213	248	626	210	253	679	1112			1159		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	27	45	63	19	366	34	40	429	19
Volume Left	27	0	19	19	0	0	40	0	0
Volume Right	0	38	41	0	0	34	0	0	19
cSH	213	506	388	1112	1700	1700	1159	1700	1700
Volume to Capacity	0.13	0.09	0.16	0.02	0.22	0.02	0.03	0.25	0.01
Queue Length 95th (m)	3.3	2.2	4.4	0.4	0.0	0.0	0.8	0.0	0.0
Control Delay (s)	24.4	12.8	16.1	8.3	0.0	0.0	8.2	0.0	0.0
Lane LOS	C	B	C	A			A		
Approach Delay (s)	17.1		16.1	0.4			0.7		
Approach LOS	C		C						

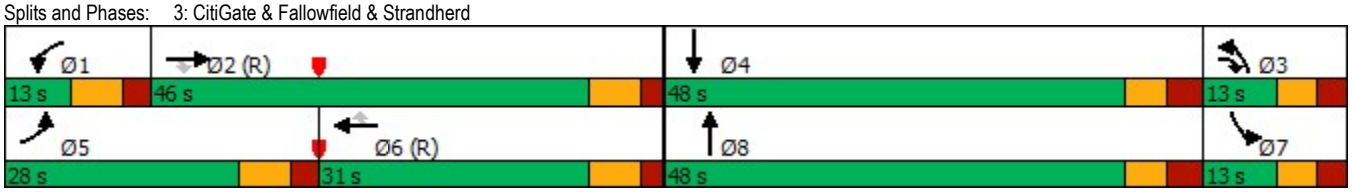
Intersection Summary					
Average Delay	2.6				
Intersection Capacity Utilization	45.0%	ICU Level of Service		A	
Analysis Period (min)	15				

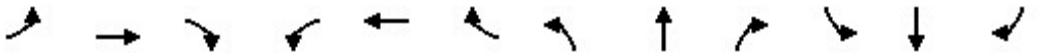
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	565	618	12	2	1239	40	7	1	2	29	3	304
Future Volume (vph)	565	618	12	2	1239	40	7	1	2	29	3	304
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				1.00		0.99
Frt			0.850			0.850		0.900				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1571	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3122	2891	1483	1658	3191	1459	3216	1571	0	1655	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			225		2				338
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			156.6			207.3	
Travel Time (s)		10.6			11.4			11.3			12.4	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	628	687	13	2	1377	44	8	1	2	32	3	338
Shared Lane Traffic (%)												
Lane Group Flow (vph)	628	687	13	2	1377	44	8	3	0	32	3	338
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	48.0		11.5	48.0	
Total Split (s)	28.0	46.0	13.0	13.0	31.0	31.0	13.0	48.0		13.0	48.0	
Total Split (%)	23.3%	38.3%	10.8%	10.8%	25.8%	25.8%	10.8%	40.0%		10.8%	40.0%	
Maximum Green (s)	20.9	39.1	6.5	5.9	24.1	24.1	6.5	41.0		6.5	41.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		16.0			16.0	16.0		34.0			34.0	
Pedestrian Calls (#/hr)		1			1	1		1			1	
Act Effct Green (s)	32.6	95.7	102.9	5.7	58.3	56.5	6.4	16.2		9.4	16.2	120.0
Actuated g/C Ratio	0.27	0.80	0.86	0.05	0.49	0.47	0.05	0.14		0.08	0.14	1.00
v/c Ratio	0.74	0.30	0.01	0.03	0.89	0.05	0.05	0.01		0.25	0.01	0.24
Control Delay	46.7	10.8	0.0	39.5	44.3	0.9	54.0	27.0		56.9	36.7	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	46.7	10.8	0.0	39.5	44.3	0.9	54.0	27.0		56.9	36.7	0.4
LOS	D	B	A	D	D	A	D	C		E	D	A
Approach Delay		27.7			43.0			46.6			5.5	
Approach LOS		C			D			D			A	
90th %ile Green (s)	20.9	39.1	6.5	5.9	24.1	24.1	6.5	41.0		6.5	41.0	
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Ped		Max	Ped	
70th %ile Green (s)	33.4	97.8	8.8	0.0	57.3	57.3	8.8	0.0		8.8	0.0	
70th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
50th %ile Green (s)	32.4	96.1	0.0	0.0	56.6	56.6	0.0	0.0		10.5	10.0	
50th %ile Term Code	Gap	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Hold	Hold	
30th %ile Green (s)	32.7	113.1	0.0	0.0	73.3	73.3	0.0	0.0		0.0	0.0	
30th %ile Term Code	Gap	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Skip	Skip	
10th %ile Green (s)	34.6	113.1	0.0	0.0	71.4	71.4	0.0	0.0		0.0	0.0	
10th %ile Term Code	Gap	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Skip	Skip	
Stops (vph)	461	195	0	3	879	2	8	3		29	4	0
Fuel Used(l)	57	28	0	0	145	2	1	0		3	0	6
CO Emissions (g/hr)	1065	518	4	6	2705	34	11	3		51	5	104
NOx Emissions (g/hr)	206	100	1	1	522	7	2	1		10	1	20
VOC Emissions (g/hr)	246	119	1	1	624	8	2	1		12	1	24
Dilemma Vehicles (#)	0	17	0	0	63	0	0	0		0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 7 (6%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 32.1		Intersection LOS: C	
Intersection Capacity Utilization 77.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd



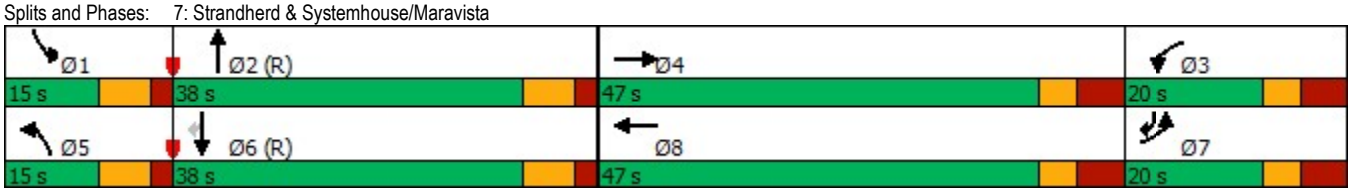


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	7	28	7	22	110	95	937	9	18	465	9
Future Volume (vph)	52	7	28	7	22	110	95	937	9	18	465	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.881			0.875			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3154	1357	0	1658	1527	0	3154	3310	0	1321	3316	1363
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3154	1357	0	1656	1527	0	3154	3310	0	1321	3316	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			122			1				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	43%	7%	2%	2%	2%	4%	2%	11%	28%	2%	11%
Adj. Flow (vph)	58	8	31	8	24	122	106	1041	10	20	517	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	39	0	8	146	0	106	1051	0	20	517	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	47.0		15.0	47.0		15.0	33.0		15.0	33.0	15.0
Total Split (s)	20.0	47.0		20.0	47.0		15.0	38.0		15.0	38.0	20.0
Total Split (%)	16.7%	39.2%		16.7%	39.2%		12.5%	31.7%		12.5%	31.7%	16.7%
Maximum Green (s)	12.4	39.4		12.4	39.4		8.4	31.3		8.4	31.3	12.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	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	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		32.0			32.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			1			0			0	
Act Effct Green (s)	7.6	19.2		12.4	15.9		9.3	70.9		7.4	61.4	68.1
Actuated g/C Ratio	0.06	0.16		0.10	0.13		0.08	0.59		0.06	0.51	0.57
v/c Ratio	0.29	0.16		0.05	0.47		0.43	0.54		0.24	0.31	0.01
Control Delay	56.9	21.4		40.6	15.5		58.0	21.1		54.2	21.5	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	56.9	21.4		40.6	15.5		58.0	21.1		54.2	21.5	0.0
LOS	E	C		D	B		E	C		D	C	A
Approach Delay		42.6			16.8			24.5			22.3	
Approach LOS		D			B			C			C	
90th %ile Green (s)	9.6	10.0		38.6	39.0		11.6	32.9		10.0	31.3	9.6
90th %ile Term Code	Gap	Min		Hold	Ped		Max	Coord		Gap	Coord	Gap
70th %ile Green (s)	8.4	26.4		0.0	10.4		10.5	64.3		8.4	62.2	8.4
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	7.6	25.2		0.0	10.0		9.4	80.5		0.0	64.5	7.6
50th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
30th %ile Green (s)	6.8	24.4		0.0	10.0		8.3	81.3		0.0	66.4	6.8
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
10th %ile Green (s)	0.0	10.0		0.0	10.0		6.7	95.7		0.0	82.4	0.0
10th %ile Term Code	Skip	Hold		Skip	Min		Gap	Coord		Skip	Coord	Skip
Stops (vph)	49	13		7	28		88	489		17	316	0
Fuel Used(l)	4	2		0	4		11	59		2	46	0
CO Emissions (g/hr)	82	29		8	75		202	1098		46	848	7
NOx Emissions (g/hr)	16	6		2	14		39	212		9	164	1
VOC Emissions (g/hr)	19	7		2	17		47	253		11	196	2
Dilemma Vehicles (#)	0	0		0	0		0	37		0	30	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 48 (40%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 24.2		Intersection LOS: C	
Intersection Capacity Utilization 68.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 7: Strandherd & Systemhouse/Maravista

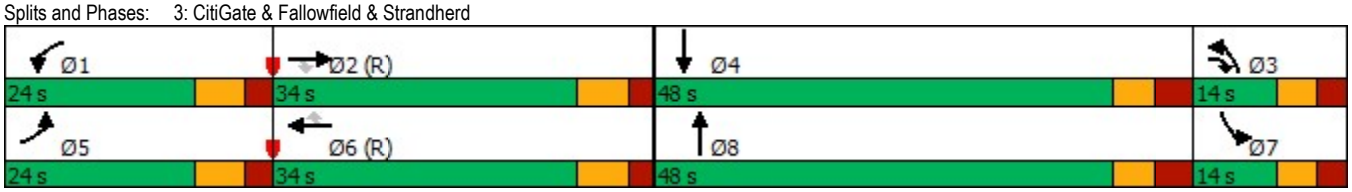


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	306	1098	12	0	766	72	13	4	0	90	3	448
Future Volume (vph)	306	1098	12	0	766	72	13	4	0	90	3	448
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				1.00		0.99
Frt			0.850			0.850						0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1745	3191	1483	3216	1745	0	1658	1745	1441
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3119	2891	1483	1745	3191	1460	3216	1745	0	1655	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			160						498
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			155.7			207.3	
Travel Time (s)		10.6			11.4			11.2			12.4	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	340	1220	13	0	851	80	14	4	0	100	3	498
Shared Lane Traffic (%)												
Lane Group Flow (vph)	340	1220	13	0	851	80	14	4	0	100	3	498
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	48.0		11.5	48.0	
Total Split (s)	24.0	34.0	14.0	24.0	34.0	34.0	14.0	48.0		14.0	48.0	
Total Split (%)	20.0%	28.3%	11.7%	20.0%	28.3%	28.3%	11.7%	40.0%		11.7%	40.0%	
Maximum Green (s)	16.9	27.1	7.5	16.9	27.1	27.1	7.5	41.0		7.5	41.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		16.0			16.0	16.0		34.0			34.0	
Pedestrian Calls (#/hr)		1			1	1		1			1	
Act Effct Green (s)	18.8	87.1	104.3		63.1	61.3	9.5	16.2		13.5	16.4	120.0
Actuated g/C Ratio	0.16	0.73	0.87		0.53	0.51	0.08	0.14		0.11	0.14	1.00
v/c Ratio	0.70	0.58	0.01		0.51	0.10	0.06	0.02		0.54	0.01	0.35
Control Delay	56.0	13.3	0.0		14.4	0.6	50.6	37.0		62.0	36.7	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	56.0	13.3	0.0		14.4	0.6	50.6	37.0		62.0	36.7	0.7
LOS	E	B	A		B	A	D	D		E	D	A
Approach Delay		22.4			13.2			47.6			11.1	
Approach LOS		C			B			D			B	
90th %ile Green (s)	16.9	51.1	7.5	0.0	27.1	27.1	7.5	41.0		7.5	41.0	
90th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Ped		Max	Ped	
70th %ile Green (s)	20.1	91.3	15.3	0.0	64.1	64.1	15.3	0.0		15.3	0.0	
70th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
50th %ile Green (s)	18.2	93.1	13.5	0.0	67.8	67.8	13.5	0.0		13.5	0.0	
50th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
30th %ile Green (s)	16.2	95.1	0.0	0.0	71.8	71.8	0.0	0.0		11.5	11.0	
30th %ile Term Code	Gap	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Gap	Hold	
10th %ile Green (s)	13.4	96.1	0.0	0.0	75.6	75.6	0.0	0.0		10.5	10.0	
10th %ile Term Code	Gap	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Hold	Hold	
Stops (vph)	283	476	0		291	4	13	5		76	4	0
Fuel Used(l)	35	59	0		58	3	1	0		8	0	8
CO Emissions (g/hr)	653	1098	4		1075	62	18	5		156	5	154
NOx Emissions (g/hr)	126	212	1		207	12	4	1		30	1	30
VOC Emissions (g/hr)	151	253	1		248	14	4	1		36	1	36
Dilemma Vehicles (#)	0	44	0		9	0	0	0		0	0	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 115 (96%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 65.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd

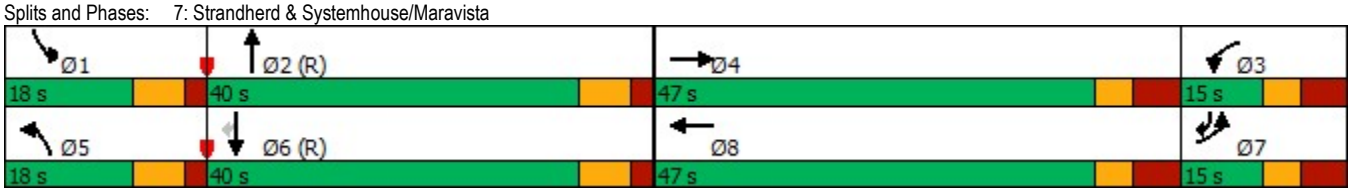


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	56	198	10	56	40	243	556	7	134	848	25
Future Volume (vph)	63	56	198	10	56	40	243	556	7	134	848	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.883			0.938			0.998				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3216	1522	0	1658	1555	0	3216	3309	0	1658	3316	1351
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	1522	0	1654	1555	0	3216	3309	0	1658	3316	1351
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		158			32			1				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
Confl. Peds. (#/hr)			4	4								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	15%	2%	2%	2%	2%	2%	12%
Adj. Flow (vph)	70	62	220	11	62	44	270	618	8	149	942	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	282	0	11	106	0	270	626	0	149	942	28
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	47.0		15.0	47.0		15.0	33.0		15.0	33.0	15.0
Total Split (s)	15.0	47.0		15.0	47.0		18.0	40.0		18.0	40.0	15.0
Total Split (%)	12.5%	39.2%		12.5%	39.2%		15.0%	33.3%		15.0%	33.3%	12.5%
Maximum Green (s)	7.4	39.4		7.4	39.4		11.4	33.3		11.4	33.3	7.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	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	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		32.0			32.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			3			0			0	
Act Effct Green (s)	7.5	23.7		8.8	16.8		14.5	53.8		16.1	55.4	62.1
Actuated g/C Ratio	0.06	0.20		0.07	0.14		0.12	0.45		0.13	0.46	0.52
v/c Ratio	0.35	0.66		0.09	0.43		0.70	0.42		0.67	0.62	0.04
Control Delay	58.5	26.0		49.7	35.5		60.9	26.6		64.7	31.9	2.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	58.5	26.0		49.7	35.5		60.9	26.6		64.7	31.9	2.9
LOS	E	C		D	D		E	C		E	C	A
Approach Delay		32.4			36.9			37.0			35.5	
Approach LOS		C			D			D			D	
90th %ile Green (s)	7.8	26.8		20.0	39.0		11.4	33.3		11.4	33.3	7.8
90th %ile Term Code	Max	Gap		Hold	Ped		Max	Coord		Max	Coord	Max
70th %ile Green (s)	8.9	30.1		0.0	13.6		17.7	49.3		19.7	51.3	8.9
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	8.0	26.8		0.0	11.2		16.4	53.9		18.4	55.9	8.0
50th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
30th %ile Green (s)	7.1	24.7		0.0	10.0		14.7	57.4		17.0	59.7	7.1
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
10th %ile Green (s)	0.0	10.0		0.0	10.0		12.2	75.3		13.8	76.9	0.0
10th %ile Term Code	Skip	Min		Skip	Min		Gap	Coord		Gap	Coord	Skip
Stops (vph)	59	104		11	56		212	388		115	521	3
Fuel Used(l)	5	12		1	5		28	43		19	87	1
CO Emissions (g/hr)	100	230		13	91		513	801		353	1614	24
NOx Emissions (g/hr)	19	44		3	18		99	155		68	311	5
VOC Emissions (g/hr)	23	53		3	21		118	185		81	372	6
Dilemma Vehicles (#)	0	0		0	0		0	23		0	33	0

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 82 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 35.7		Intersection LOS: D	
Intersection Capacity Utilization 67.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 7: Strandherd & Systemhouse/Maravista

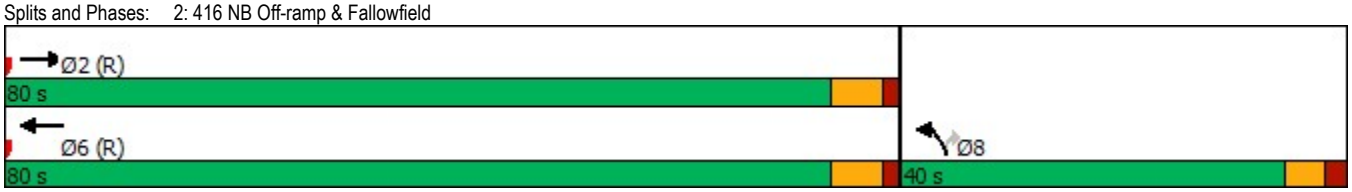


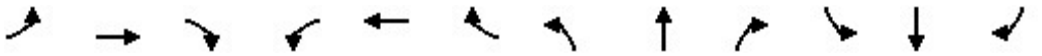
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1471	0	0	733	168	234
Future Volume (vph)	1471	0	0	733	168	234
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						44
Link Speed (k/h)	80			80	60	
Link Distance (m)	505.8			245.0	156.0	
Travel Time (s)	22.8			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	1471	0	0	733	168	234
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1471	0	0	733	168	234
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.4			30.4	25.8	25.8
Total Split (s)	80.0			80.0	40.0	40.0
Total Split (%)	66.7%			66.7%	33.3%	33.3%
Maximum Green (s)	73.8			73.8	34.2	34.2
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	1.6			1.6	2.1	2.1
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.2			6.2	5.8	5.8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	86.2			86.2	21.8	21.8
Actuated g/C Ratio	0.72			0.72	0.18	0.18
v/c Ratio	0.64			0.31	0.62	0.79
Control Delay	8.2			7.5	54.5	56.2
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	8.2			7.5	54.5	56.2
LOS	A			A	D	E
Approach Delay	8.2			7.5	55.5	
Approach LOS	A			A	E	
90th %ile Green (s)	77.1			77.1	30.9	30.9
90th %ile Term Code	Coord			Coord	Gap	Gap
70th %ile Green (s)	82.4			82.4	25.6	25.6
70th %ile Term Code	Coord			Coord	Gap	Gap
50th %ile Green (s)	86.1			86.1	21.9	21.9
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	90.0			90.0	18.0	18.0
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	95.4			95.4	12.6	12.6
10th %ile Term Code	Coord			Coord	Gap	Gap
Stops (vph)	656			180	150	182
Fuel Used(l)	105			42	14	19
CO Emissions (g/hr)	1961			788	263	356
NOx Emissions (g/hr)	379			152	51	69
VOC Emissions (g/hr)	452			182	61	82
Dilemma Vehicles (#)	47			47	0	0
Queue Length 50th (m)	69.4			19.5	36.8	43.5
Queue Length 95th (m)	77.2			46.1	54.6	66.0
Internal Link Dist (m)	481.8			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2292			2358	422	438
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.64			0.31	0.40	0.53

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 81 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 15.3		Intersection LOS: B	
Intersection Capacity Utilization 68.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: 416 NB Off-ramp & Fallowfield





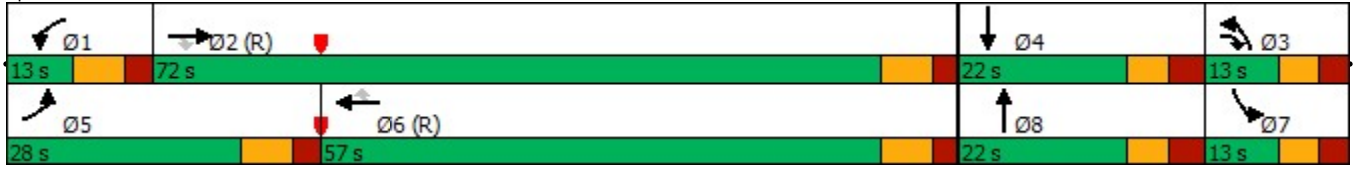
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	589	746	34	5	1352	50	22	3	4	54	6	319
Future Volume (vph)	589	746	34	5	1352	50	22	3	4	54	6	319
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						0.99						0.99
Frt			0.850			0.850		0.914				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1595	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3124	2891	1483	1658	3191	1465	3216	1595	0	1658	1745	1423
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			225		4				319
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			311.4			414.8	
Travel Time (s)		10.6			11.4			22.4			24.9	
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	589	746	34	5	1352	50	22	3	4	54	6	319
Shared Lane Traffic (%)												
Lane Group Flow (vph)	589	746	34	5	1352	50	22	7	0	54	6	319
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	17.0		11.5	17.0	
Total Split (s)	28.0	72.0	13.0	13.0	57.0	57.0	13.0	22.0		13.0	22.0	
Total Split (%)	23.3%	60.0%	10.8%	10.8%	47.5%	47.5%	10.8%	18.3%		10.8%	18.3%	
Maximum Green (s)	20.9	65.1	6.5	5.9	50.1	50.1	6.5	15.0		6.5	15.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		16.0			16.0	16.0						
Pedestrian Calls (#/hr)		1			1	1						
Act Effct Green (s)	29.5	96.9	111.4	5.8	63.7	61.9	9.0	10.0		10.8	10.0	120.0
Actuated g/C Ratio	0.25	0.81	0.93	0.05	0.53	0.52	0.08	0.08		0.09	0.08	1.00
v/c Ratio	0.77	0.32	0.02	0.06	0.80	0.06	0.09	0.05		0.36	0.04	0.22
Control Delay	56.1	4.5	0.0	78.4	22.5	0.1	60.5	52.7		57.6	51.3	0.4
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	56.1	4.5	0.0	78.4	22.5	0.1	60.5	52.7		57.6	51.3	0.4
LOS	E	A	A	E	C	A	E	D		E	D	A
Approach Delay		26.6			21.9			58.6			9.3	
Approach LOS		C			C			E			A	
90th %ile Green (s)	20.9	65.1	11.5	5.9	50.1	50.1	11.5	10.0		11.5	10.0	
90th %ile Term Code	Max	Coord	Hold	Max	Coord	Coord	Hold	Min		Max	Min	
70th %ile Green (s)	31.0	95.9	10.7	0.0	57.8	57.8	10.7	0.0		10.7	0.0	
70th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
50th %ile Green (s)	30.0	97.3	9.3	0.0	60.2	60.2	9.3	0.0		9.3	0.0	
50th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
30th %ile Green (s)	29.1	98.8	7.8	0.0	62.6	62.6	7.8	0.0		7.8	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	27.4	113.1	0.0	0.0	78.6	78.6	0.0	0.0		0.0	0.0	
10th %ile Term Code	Gap	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Skip	Skip	
Stops (vph)	517	126	0	7	1132	0	22	15		50	7	0
Fuel Used(l)	67	38	1	1	115	1	3	1		6	1	12
CO Emissions (g/hr)	1249	703	26	15	2145	19	54	20		111	13	215
NOx Emissions (g/hr)	241	136	5	3	414	4	10	4		21	2	42
VOC Emissions (g/hr)	288	162	6	3	495	4	13	5		26	3	50
Dilemma Vehicles (#)	0	27	0	0	14	0	0	0		0	0	0
Queue Length 50th (m)	68.4	10.3	0.0	1.4	159.7	0.0	2.7	0.9		12.1	1.3	0.0
Queue Length 95th (m)	#111.8	43.5	m0.0	m2.3	#216.4	m0.0	5.9	4.6		24.6	5.6	0.0
Internal Link Dist (m)		212.6			229.6			287.4			390.8	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	767	2333	1384	82	1692	864	245	202		151	218	1423
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	0.77	0.32	0.02	0.06	0.80	0.06	0.09	0.03		0.36	0.03	0.22

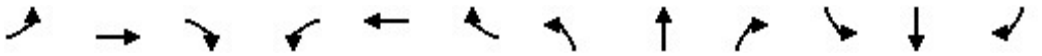
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 101 (84%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 22.8 Intersection LOS: C
Intersection Capacity Utilization 81.5% 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: 3: CitiGate & Fallowfield & Strandherd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	752	59	21	1309	14	108	11	11	23	22	176
Future Volume (vph)	36	752	59	21	1309	14	108	11	11	23	22	176
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	90.0			100.0			60.0			60.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.97				1.00		0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	2941	1483	3216	3221	1483	1658	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.743			0.750		
Satd. Flow (perm)	1657	2941	1483	3216	3221	1445	1297	1745	1483	1307	1745	1462
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			105			105			97			166
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		253.6			287.1			117.0			245.3	
Travel Time (s)		11.4			12.9			8.4			17.7	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	15%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	36	752	59	21	1309	14	108	11	11	23	22	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	752	59	21	1309	14	108	11	11	23	22	176
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.9	31.8	31.8	11.9	31.8	31.8	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (s)	15.0	56.0	56.0	15.0	56.0	56.0	49.0	49.0	49.0	49.0	49.0	49.0
Total Split (%)	12.5%	46.7%	46.7%	12.5%	46.7%	46.7%	40.8%	40.8%	40.8%	40.8%	40.8%	40.8%
Maximum Green (s)	8.1	49.2	49.2	8.1	49.2	49.2	41.3	41.3	41.3	41.3	41.3	41.3
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	3.3	3.3	3.3	3.3	3.3	3.3



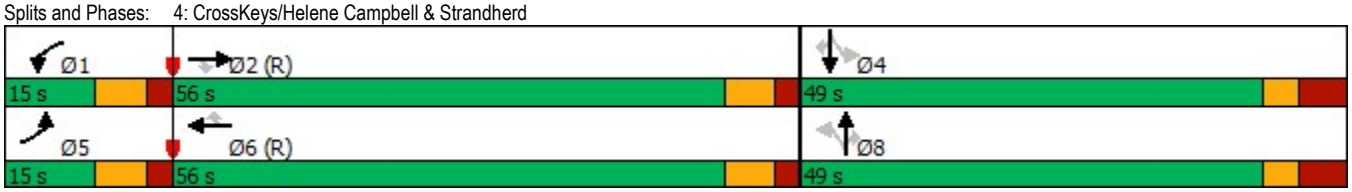
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.3	2.2	2.2	2.3	2.2	2.2	4.4	4.4	4.4	4.4	4.4	4.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.8	6.8	6.9	6.8	6.8	7.7	7.7	7.7	7.7	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
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	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	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
Flash Dont Walk (s)		18.0	18.0		18.0	18.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		1	1		1	1	1	1	1	1	1	1
Act Effct Green (s)	7.6	80.5	80.5	6.3	76.8	76.8	19.4	19.4	19.4	19.4	19.4	19.4
Actuated g/C Ratio	0.06	0.67	0.67	0.05	0.64	0.64	0.16	0.16	0.16	0.16	0.16	0.16
v/c Ratio	0.35	0.38	0.06	0.12	0.64	0.01	0.51	0.04	0.03	0.11	0.08	0.47
Control Delay	58.4	16.1	3.1	61.1	12.0	0.0	55.5	40.3	0.3	38.3	37.5	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.4	16.1	3.1	61.1	12.0	0.0	55.5	40.3	0.3	38.3	37.5	10.4
LOS	E	B	A	E	B	A	E	D	A	D	D	B
Approach Delay		17.0			12.6			49.6			16.0	
Approach LOS		B			B			D			B	
90th %ile Green (s)	8.4	50.2	50.2	7.4	49.2	49.2	41.0	41.0	41.0	41.0	41.0	41.0
90th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	9.2	73.7	73.7	6.7	71.2	71.2	18.2	18.2	18.2	18.2	18.2	18.2
70th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	8.0	90.1	90.1	0.0	75.2	75.2	15.4	15.4	15.4	15.4	15.4	15.4
50th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	0.0	92.9	92.9	0.0	92.9	92.9	12.6	12.6	12.6	12.6	12.6	12.6
30th %ile Term Code	Skip	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	0.0	95.5	95.5	0.0	95.5	95.5	10.0	10.0	10.0	10.0	10.0	10.0
10th %ile Term Code	Skip	Coord	Coord	Skip	Coord	Coord	Min	Min	Min	Min	Min	Min
Stops (vph)	37	363	5	23	369	0	96	11	0	20	19	26
Fuel Used(l)	4	45	2	3	63	0	14	1	1	2	2	6
CO Emissions (g/hr)	83	840	30	52	1168	6	253	24	13	31	29	113
NOx Emissions (g/hr)	16	162	6	10	226	1	49	5	3	6	6	22
VOC Emissions (g/hr)	19	194	7	12	269	1	58	6	3	7	7	26
Dilemma Vehicles (#)	0	43	0	0	66	0	0	0	0	0	0	0
Queue Length 50th (m)	8.1	42.4	0.0	2.6	28.1	0.0	25.9	2.4	0.1	4.9	4.6	2.1
Queue Length 95th (m)	20.1	71.7	4.9	m5.4	#203.0	m0.0	34.6	6.3	0.2	9.5	9.3	16.6
Internal Link Dist (m)		229.6			263.1			93.0			221.3	
Turn Bay Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Base Capacity (vph)	115	1972	1029	217	2061	962	446	600	574	449	600	612
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.38	0.06	0.10	0.64	0.01	0.24	0.02	0.02	0.05	0.04	0.29

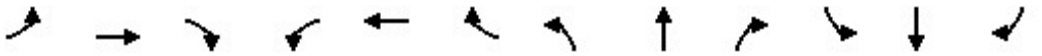
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 73 (61%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 16.3		Intersection LOS: B	
Intersection Capacity Utilization 78.2%		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: 4: CrossKeys/Helene Campbell & Strandherd



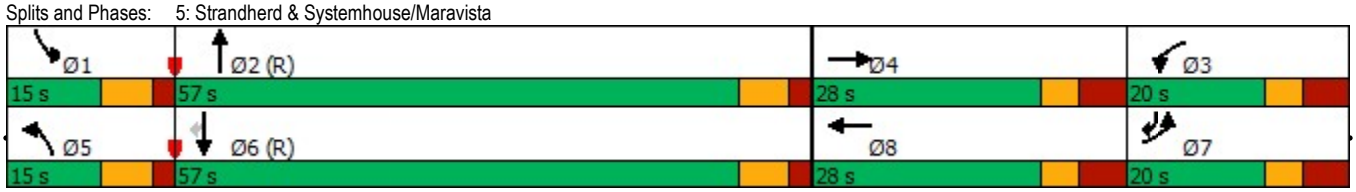


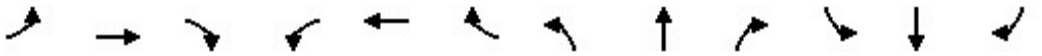
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	7	28	7	22	110	95	1081	9	18	591	9
Future Volume (vph)	52	7	28	7	22	110	95	1081	9	18	591	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.880			0.875			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3154	1357	0	1658	1527	0	3154	3310	0	1321	3316	1363
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3154	1357	0	1653	1527	0	3154	3310	0	1321	3316	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			110			1				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
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%	43%	7%	2%	2%	2%	4%	2%	11%	28%	2%	11%
Adj. Flow (vph)	52	7	28	7	22	110	95	1081	9	18	591	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	35	0	7	132	0	95	1090	0	18	591	9
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	28.0		15.0	28.0		15.0	52.0		15.0	52.0	15.0
Total Split (s)	20.0	28.0		20.0	28.0		15.0	57.0		15.0	57.0	20.0
Total Split (%)	16.7%	23.3%		16.7%	23.3%		12.5%	47.5%		12.5%	47.5%	16.7%
Maximum Green (s)	12.4	20.4		12.4	20.4		8.4	50.3		8.4	50.3	12.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	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	C-Max		None	C-Max	None
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								17.0			17.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	7.4	19.0		7.3	10.8		9.0	76.3		7.3	66.9	75.0
Actuated g/C Ratio	0.06	0.16		0.06	0.09		0.08	0.64		0.06	0.56	0.62
v/c Ratio	0.27	0.15		0.07	0.56		0.40	0.52		0.23	0.32	0.01
Control Delay	56.6	21.8		52.3	23.0		59.3	11.6		77.3	8.2	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	56.6	21.8		52.3	23.0		59.3	11.6		77.3	8.2	0.0
LOS	E	C		D	C		E	B		E	A	A
Approach Delay		42.6			24.5			15.4			10.1	
Approach LOS		D			C			B			B	
90th %ile Green (s)	9.3	10.0		13.3	14.0		11.5	58.5		9.7	56.7	9.3
90th %ile Term Code	Gap	Min		Hold	Gap		Gap	Coord		Gap	Coord	Gap
70th %ile Green (s)	8.2	25.8		0.0	10.0		10.0	65.2		8.1	63.3	8.2
70th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	7.4	25.0		0.0	10.0		9.0	80.7		0.0	65.1	7.4
50th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
30th %ile Green (s)	6.6	24.2		0.0	10.0		7.9	81.5		0.0	67.0	6.6
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
10th %ile Green (s)	0.0	10.0		0.0	10.0		6.5	95.7		0.0	82.6	0.0
10th %ile Term Code	Skip	Hold		Skip	Min		Gap	Coord		Skip	Coord	Skip
Stops (vph)	49	14		9	35		86	681		20	246	0
Fuel Used(l)	4	2		1	5		12	85		3	31	0
CO Emissions (g/hr)	81	29		10	92		231	1577		49	580	4
NOx Emissions (g/hr)	16	6		2	18		45	304		9	112	1
VOC Emissions (g/hr)	19	7		2	21		53	364		11	134	1
Dilemma Vehicles (#)	0	0		0	0		0	6		0	26	0
Queue Length 50th (m)	6.1	1.3		1.6	4.9		10.4	51.1		2.9	44.2	0.0
Queue Length 95th (m)	12.3	11.7		6.1	23.4		m13.2	128.0		m11.9	5.5	m0.0
Internal Link Dist (m)		181.3			124.8			185.4			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	325	284		173	350		248	2105		95	1849	926
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.16	0.12		0.04	0.38		0.38	0.52		0.19	0.32	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 83 (69%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 15.6		Intersection LOS: B	
Intersection Capacity Utilization 72.3%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 5: Strandherd & Systemhouse/Maravista



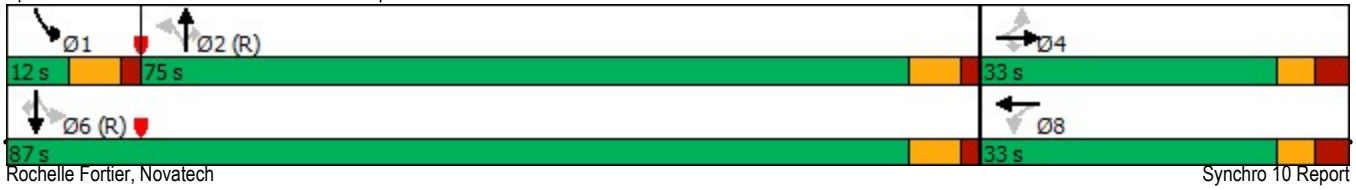


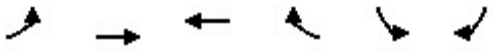
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	6	29	80	25	100	99	1035	57	36	513	61
Future Volume (vph)	34	6	29	80	25	100	99	1035	57	36	513	61
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		100.0	50.0		0.0	110.0		40.0	150.0		90.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.880				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1353	1745	1483	1658	1536	0	1398	1745	1455	1523	1728	1363
Flt Permitted	0.607			0.754			0.474			0.131		
Satd. Flow (perm)	864	1745	1483	1316	1536	0	697	1745	1455	210	1728	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89		100				91			61
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		358.5			381.8			229.3			210.1	
Travel Time (s)		25.8			34.4			10.3			9.5	
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 (%)	25%	2%	2%	2%	2%	2%	21%	2%	4%	11%	3%	11%
Adj. Flow (vph)	34	6	29	80	25	100	99	1035	57	36	513	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	6	29	80	125	0	99	1035	57	36	513	61
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		20.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	32.6	32.6	32.6	32.6	32.6		30.4	30.4	30.4	11.4	30.4	30.4
Total Split (s)	33.0	33.0	33.0	33.0	33.0		75.0	75.0	75.0	12.0	87.0	87.0
Total Split (%)	27.5%	27.5%	27.5%	27.5%	27.5%		62.5%	62.5%	62.5%	10.0%	72.5%	72.5%
Maximum Green (s)	26.4	26.4	26.4	26.4	26.4		68.6	68.6	68.6	5.6	80.6	80.6
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3		1.8	1.8	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6		6.4	6.4	6.4	6.4	6.4	6.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag							Lag	Lag	Lag	Lead		
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	3.0
Recall Mode	None	None	None	None	None		C-Max	C-Max	C-Max	None	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)	19.0	19.0	19.0	19.0	19.0		17.0	17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0		0	0
Act Effct Green (s)	13.2	13.2	13.2	13.2	13.2		86.0	86.0	86.0	93.8	93.8	93.8
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.11		0.72	0.72	0.72	0.78	0.78	0.78
v/c Ratio	0.36	0.03	0.12	0.55	0.48		0.20	0.83	0.05	0.16	0.38	0.06
Control Delay	58.8	45.3	1.0	64.3	20.4		8.8	21.9	0.7	9.9	16.8	5.4
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	58.8	45.3	1.0	64.3	20.4		8.8	21.9	0.7	9.9	16.8	5.4
LOS	E	D	A	E	C		A	C	A	A	B	A
Approach Delay		33.3			37.6			19.8			15.2	
Approach LOS		C			D			B			B	
90th %ile Green (s)	18.3	18.3	18.3	18.3	18.3		75.2	75.2	75.2	7.1	88.7	88.7
90th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Gap	Coord	Coord
70th %ile Green (s)	15.0	15.0	15.0	15.0	15.0		79.1	79.1	79.1	6.5	92.0	92.0
70th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Gap	Coord	Coord
50th %ile Green (s)	12.6	12.6	12.6	12.6	12.6		81.9	81.9	81.9	6.1	94.4	94.4
50th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Gap	Coord	Coord
30th %ile Green (s)	10.3	10.3	10.3	10.3	10.3		96.7	96.7	96.7	0.0	96.7	96.7
30th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Skip	Coord	Coord
10th %ile Green (s)	10.0	10.0	10.0	10.0	10.0		97.0	97.0	97.0	0.0	97.0	97.0
10th %ile Term Code	Hold	Hold	Hold	Min	Min		Coord	Coord	Coord	Skip	Coord	Coord
Stops (vph)	32	7	0	74	33		37	678	1	17	329	17
Fuel Used(l)	3	1	1	8	7		5	75	1	2	42	3
CO Emissions (g/hr)	63	11	19	154	139		85	1395	21	45	789	60
NOx Emissions (g/hr)	12	2	4	30	27		16	269	4	9	152	12
VOC Emissions (g/hr)	15	2	4	35	32		20	322	5	10	182	14
Dilemma Vehicles (#)	0	0	0	0	0		0	42	0	0	68	0
Queue Length 50th (m)	7.6	1.3	0.0	18.2	5.5		7.8	172.5	0.0	2.3	65.0	0.0
Queue Length 95th (m)	17.3	5.1	0.0	32.9	22.5		18.4	#316.7	1.8	11.3	152.8	12.4
Internal Link Dist (m)		334.5			357.8			205.3			186.1	
Turn Bay Length (m)	75.0		100.0	50.0			110.0		40.0	150.0		90.0
Base Capacity (vph)	190	383	395	289	415		499	1250	1068	231	1350	1078
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	0.18	0.02	0.07	0.28	0.30		0.20	0.83	0.05	0.16	0.38	0.06

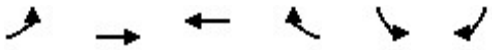
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 29 (24%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 20.6		Intersection LOS: C	
Intersection Capacity Utilization 100.0%		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.			

Splits and Phases: 6: Strandherd & Dealership/Kennevale





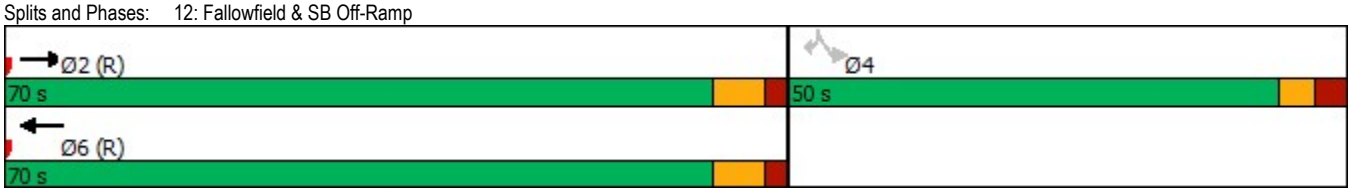
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1354	840	0	424	115
Future Volume (vph)	0	1354	840	0	424	115
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						115
Link Speed (k/h)		80	80		50	
Link Distance (m)		110.7	505.8		161.1	
Travel Time (s)		5.0	22.8		11.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	1354	840	0	424	115
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1354	840	0	424	115
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		10.0	10.0		10.0	10.0
Minimum Split (s)		70.0	70.0		50.0	50.0
Total Split (s)		70.0	70.0		50.0	50.0
Total Split (%)		58.3%	58.3%		41.7%	41.7%
Maximum Green (s)		63.2	63.2		43.7	43.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3

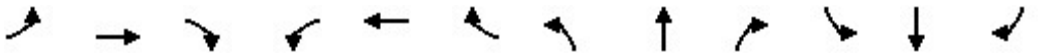


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		None	None
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		84.5	84.5		22.4	22.4
Actuated g/C Ratio		0.70	0.70		0.19	0.19
v/c Ratio		0.63	0.37		0.75	0.34
Control Delay		11.6	12.3		54.5	9.7
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		11.6	12.3		54.5	9.7
LOS		B	B		D	A
Approach Delay		11.6	12.3		44.9	
Approach LOS		B	B		D	
90th %ile Green (s)		78.7	78.7		28.2	28.2
90th %ile Term Code		Coord	Coord		Gap	Gap
70th %ile Green (s)		82.1	82.1		24.8	24.8
70th %ile Term Code		Coord	Coord		Gap	Gap
50th %ile Green (s)		84.5	84.5		22.4	22.4
50th %ile Term Code		Coord	Coord		Gap	Gap
30th %ile Green (s)		86.9	86.9		20.0	20.0
30th %ile Term Code		Coord	Coord		Gap	Gap
10th %ile Green (s)		90.4	90.4		16.5	16.5
10th %ile Term Code		Coord	Coord		Gap	Gap
Stops (vph)		693	420		389	17
Fuel Used(l)		64	66		33	3
CO Emissions (g/hr)		1184	1219		613	56
NOx Emissions (g/hr)		228	235		118	11
VOC Emissions (g/hr)		273	281		141	13
Dilemma Vehicles (#)		56	54		0	0
Queue Length 50th (m)		79.3	62.6		49.1	0.0
Queue Length 95th (m)		117.5	72.8		62.5	14.6
Internal Link Dist (m)		86.7	481.8		137.1	
Turn Bay Length (m)						70.0
Base Capacity (vph)		2165	2268		1106	552
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.63	0.37		0.38	0.21

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 87 (73%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 18.4		Intersection LOS: B	
Intersection Capacity Utilization 68.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 12: Fallowfield & SB Off-Ramp

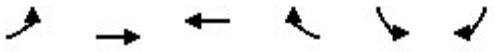




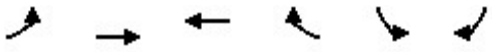
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	3	34	46	3	63	30	591	21	20	507	18
Future Volume (Veh/h)	16	3	34	46	3	63	30	591	21	20	507	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	16	3	34	46	3	63	30	591	21	20	507	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1262	1219	507	1234	1216	591	525			612		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1262	1219	507	1234	1216	591	525			612		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	86	98	94	66	98	88	97			98		
cM capacity (veh/h)	115	171	562	137	172	507	1017			953		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	16	37	112	30	591	21	20	507	18
Volume Left	16	0	46	30	0	0	20	0	0
Volume Right	0	34	63	0	0	21	0	0	18
cSH	115	474	234	1017	1700	1700	953	1700	1700
Volume to Capacity	0.14	0.08	0.48	0.03	0.35	0.01	0.02	0.30	0.01
Queue Length 95th (m)	3.5	1.9	18.1	0.7	0.0	0.0	0.5	0.0	0.0
Control Delay (s)	41.3	13.2	33.6	8.6	0.0	0.0	8.9	0.0	0.0
Lane LOS	E	B	D	A			A		
Approach Delay (s)	21.7		33.6	0.4			0.3		
Approach LOS	C		D						

Intersection Summary					
Average Delay	4.0				
Intersection Capacity Utilization	53.1%	ICU Level of Service		A	
Analysis Period (min)	15				



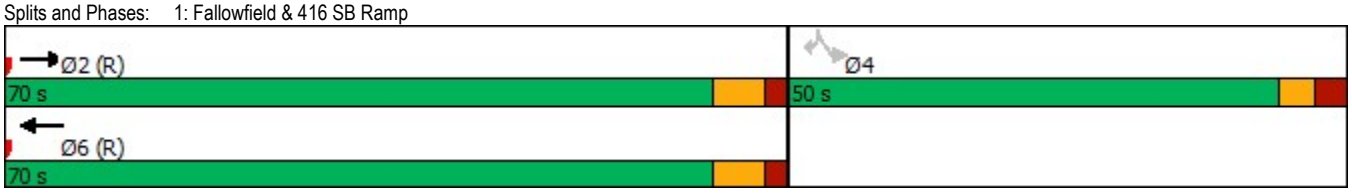
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	818	861	0	820	262
Future Volume (vph)	0	818	861	0	820	262
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						126
Link Speed (k/h)		80	80		50	
Link Distance (m)		109.6	534.1		93.3	
Travel Time (s)		4.9	24.0		6.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	818	861	0	820	262
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	818	861	0	820	262
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		30.3	30.3
Total Split (s)		70.0	70.0		50.0	50.0
Total Split (%)		58.3%	58.3%		41.7%	41.7%
Maximum Green (s)		63.2	63.2		43.7	43.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		Max	Max
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		63.2	63.2		43.7	43.7
Actuated g/C Ratio		0.53	0.53		0.36	0.36
v/c Ratio		0.51	0.51		0.74	0.47
Control Delay		19.7	13.4		38.2	17.7
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		19.7	13.4		38.2	17.7
LOS		B	B		D	B
Approach Delay		19.7	13.4		33.2	
Approach LOS		B	B		C	
90th %ile Green (s)		63.2	63.2		43.7	43.7
90th %ile Term Code		Coord	Coord		MaxR	MaxR
70th %ile Green (s)		63.2	63.2		43.7	43.7
70th %ile Term Code		Coord	Coord		MaxR	MaxR
50th %ile Green (s)		63.2	63.2		43.7	43.7
50th %ile Term Code		Coord	Coord		MaxR	MaxR
30th %ile Green (s)		63.2	63.2		43.7	43.7
30th %ile Term Code		Coord	Coord		MaxR	MaxR
10th %ile Green (s)		63.2	63.2		43.7	43.7
10th %ile Term Code		Coord	Coord		MaxR	MaxR
Stops (vph)		507	405		697	105
Fuel Used(l)		49	68		47	8
CO Emissions (g/hr)		903	1270		874	153
NOx Emissions (g/hr)		174	245		169	30
VOC Emissions (g/hr)		208	293		202	35
Dilemma Vehicles (#)		34	36		0	0
Queue Length 50th (m)		62.9	40.0		85.9	23.2
Queue Length 95th (m)		79.7	44.8		108.9	47.4
Internal Link Dist (m)		85.6	510.1		69.3	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1619	1696		1106	559
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.51	0.51		0.74	0.47

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 20 (17%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 23.0		Intersection LOS: C	
Intersection Capacity Utilization 62.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Fallowfield & 416 SB Ramp



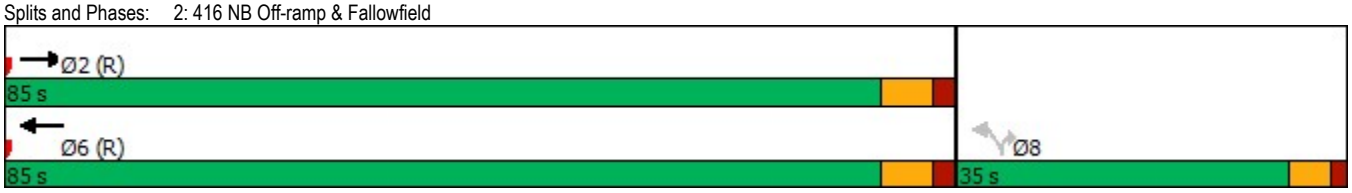


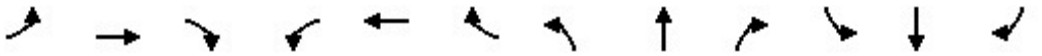
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1512	0	0	953	117	103
Future Volume (vph)	1512	0	0	953	117	103
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						49
Link Speed (k/h)	80			80	60	
Link Distance (m)	534.1			245.0	156.0	
Travel Time (s)	24.0			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	1512	0	0	953	117	103
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1512	0	0	953	117	103
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases					8	8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	85.0			85.0	35.0	35.0
Total Split (%)	70.8%			70.8%	29.2%	29.2%
Maximum Green (s)	78.3			78.3	29.7	29.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	92.9			92.9	15.1	15.1
Actuated g/C Ratio	0.77			0.77	0.13	0.13
v/c Ratio	0.61			0.37	0.63	0.47
Control Delay	3.6			2.6	64.2	32.7
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	3.6			2.6	64.2	32.7
LOS	A			A	E	C
Approach Delay	3.6			2.6	49.5	
Approach LOS	A			A	D	
90th %ile Green (s)	87.1			87.1	20.9	20.9
90th %ile Term Code	Coord			Coord	Gap	Gap
70th %ile Green (s)	90.7			90.7	17.3	17.3
70th %ile Term Code	Coord			Coord	Gap	Gap
50th %ile Green (s)	93.2			93.2	14.8	14.8
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	95.7			95.7	12.3	12.3
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	98.0			98.0	10.0	10.0
10th %ile Term Code	Coord			Coord	Min	Min
Stops (vph)	229			119	110	52
Fuel Used(l)	81			45	11	6
CO Emissions (g/hr)	1505			834	203	105
NOx Emissions (g/hr)	291			161	39	20
VOC Emissions (g/hr)	347			192	47	24
Dilemma Vehicles (#)	58			36	0	0
Queue Length 50th (m)	23.0			15.8	26.6	11.8
Queue Length 95th (m)	48.7			19.7	43.6	27.5
Internal Link Dist (m)	510.1			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2471			2542	367	390
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.61			0.37	0.32	0.26

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 108 (90%), Referenced to phase 2:EBT and 6:WBT, 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 62.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: 416 NB Off-ramp & Fallowfield





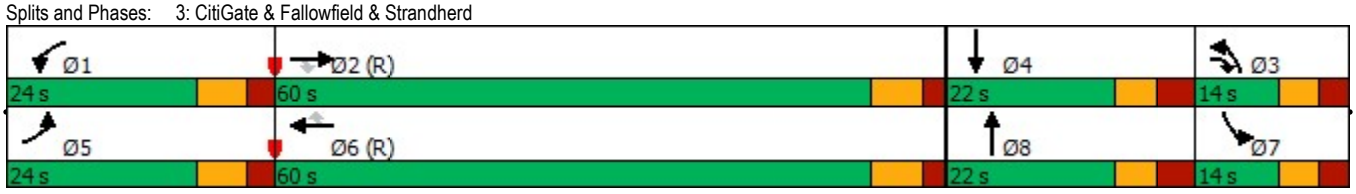
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	325	1223	32	3	910	98	33	7	3	106	6	469
Future Volume (vph)	325	1223	32	3	910	98	33	7	3	106	6	469
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				0.99		0.99
Frt			0.850			0.850		0.955				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1667	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3120	2891	1483	1658	3191	1460	3216	1667	0	1645	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			160		3				465
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			311.4			414.8	
Travel Time (s)		10.6			11.4			22.4			24.9	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	325	1223	32	3	910	98	33	7	3	106	6	469
Shared Lane Traffic (%)												
Lane Group Flow (vph)	325	1223	32	3	910	98	33	10	0	106	6	469
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	17.0		11.5	17.0	
Total Split (s)	24.0	60.0	14.0	24.0	60.0	60.0	14.0	22.0		14.0	22.0	
Total Split (%)	20.0%	50.0%	11.7%	20.0%	50.0%	50.0%	11.7%	18.3%		11.7%	18.3%	
Maximum Green (s)	16.9	53.1	7.5	16.9	53.1	53.1	7.5	15.0		7.5	15.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		16.0			16.0	16.0						
Pedestrian Calls (#/hr)		1			1	1						
Act Effct Green (s)	18.3	89.2	109.0	5.8	68.3	66.5	12.1	10.0		14.9	10.0	120.0
Actuated g/C Ratio	0.15	0.74	0.91	0.05	0.57	0.55	0.10	0.08		0.12	0.08	1.00
v/c Ratio	0.68	0.57	0.02	0.04	0.50	0.11	0.10	0.07		0.52	0.04	0.33
Control Delay	47.3	8.2	0.0	81.3	11.0	1.2	52.7	51.6		58.5	51.3	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	47.3	8.2	0.0	81.3	11.0	1.2	52.7	51.6		58.5	51.3	0.6
LOS	D	A	A	F	B	A	D	D		E	D	A
Approach Delay		16.1			10.2			52.4			11.7	
Approach LOS		B			B			D			B	
90th %ile Green (s)	16.9	63.5	12.5	6.5	53.1	53.1	12.5	10.0		12.5	10.0	
90th %ile Term Code	Max	Coord	Hold	Gap	Coord	Coord	Hold	Min		Max	Min	
70th %ile Green (s)	19.5	90.7	15.9	0.0	64.1	64.1	15.9	0.0		15.9	0.0	
70th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
50th %ile Green (s)	17.6	92.3	14.3	0.0	67.6	67.6	14.3	0.0		14.3	0.0	
50th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
30th %ile Green (s)	15.7	94.4	12.2	0.0	71.6	71.6	12.2	0.0		12.2	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	12.9	96.1	0.0	0.0	76.1	76.1	0.0	0.0		10.5	10.0	
10th %ile Term Code	Gap	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Hold	Hold	
Stops (vph)	290	467	0	6	649	12	30	17		98	7	0
Fuel Used(l)	35	74	1	1	63	3	4	1		12	1	17
CO Emissions (g/hr)	651	1377	25	11	1173	51	76	26		219	13	318
NOx Emissions (g/hr)	126	266	5	2	226	10	15	5		42	2	61
VOC Emissions (g/hr)	150	318	6	3	271	12	18	6		50	3	73
Dilemma Vehicles (#)	0	56	0	0	23	0	0	0		0	0	0
Queue Length 50th (m)	33.9	25.4	0.0	0.7	82.2	1.4	4.1	1.3		23.4	1.3	0.0
Queue Length 95th (m)	55.1	86.0	m0.0	m1.4	119.0	3.1	7.8	m5.5		42.2	5.6	0.0
Internal Link Dist (m)		212.6			229.6			287.4			390.8	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	503	2149	1360	233	1816	880	334	211		205	218	1422
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	0.65	0.57	0.02	0.01	0.50	0.11	0.10	0.05		0.52	0.03	0.33

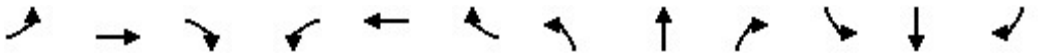
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 115 (96%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 68.7% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	1077	289	43	868	15	192	96	29	17	102	92
Future Volume (vph)	128	1077	289	43	868	15	192	96	29	17	102	92
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	90.0			100.0			60.0			60.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.99			0.98	0.99		0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	2941	1483	3216	3221	1483	1658	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.691			0.695		
Satd. Flow (perm)	1658	2941	1465	3216	3221	1448	1198	1745	1458	1211	1745	1449
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			145			105			97			97
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		253.6			287.1			117.0			245.3	
Travel Time (s)		11.4			12.9			8.4			17.7	
Confl. Peds. (#/hr)							9		2	2		9
Confl. Bikes (#/hr)			1			4			5			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 (%)	2%	15%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	128	1077	289	43	868	15	192	96	29	17	102	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	1077	289	43	868	15	192	96	29	17	102	92
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.9	31.8	31.8	11.9	31.8	31.8	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (s)	15.0	56.0	56.0	15.0	56.0	56.0	49.0	49.0	49.0	49.0	49.0	49.0
Total Split (%)	12.5%	46.7%	46.7%	12.5%	46.7%	46.7%	40.8%	40.8%	40.8%	40.8%	40.8%	40.8%
Maximum Green (s)	8.1	49.2	49.2	8.1	49.2	49.2	41.3	41.3	41.3	41.3	41.3	41.3
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	3.3	3.3	3.3	3.3	3.3	3.3

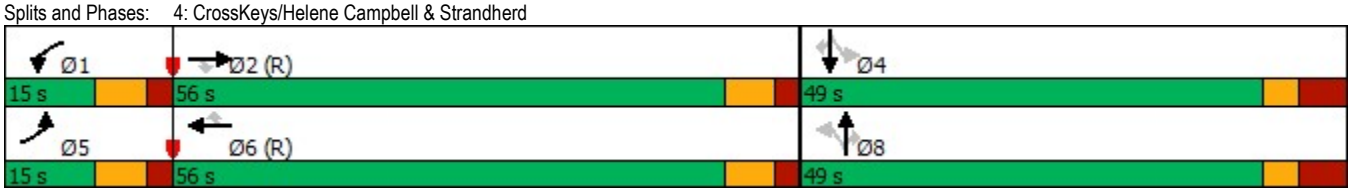


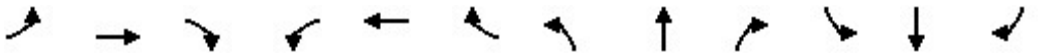
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.3	2.2	2.2	2.3	2.2	2.2	4.4	4.4	4.4	4.4	4.4	4.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.8	6.8	6.9	6.8	6.8	7.7	7.7	7.7	7.7	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
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	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	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
Flash Dont Walk (s)		18.0	18.0		18.0	18.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0	2	2	2	7	7	7
Act Effct Green (s)	16.4	68.0	68.0	7.0	56.1	56.1	26.1	26.1	26.1	26.1	26.1	26.1
Actuated g/C Ratio	0.14	0.57	0.57	0.06	0.47	0.47	0.22	0.22	0.22	0.22	0.22	0.22
v/c Ratio	0.56	0.65	0.32	0.23	0.58	0.02	0.74	0.25	0.07	0.06	0.27	0.24
Control Delay	57.1	26.5	14.0	72.5	11.1	0.1	60.3	38.8	0.4	32.7	38.1	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.1	26.5	14.0	72.5	11.1	0.1	60.3	38.8	0.4	32.7	38.1	6.8
LOS	E	C	B	E	B	A	E	D	A	C	D	A
Approach Delay		26.7			13.8			48.3			24.0	
Approach LOS		C			B			D			C	
90th %ile Green (s)	8.4	49.2	49.2	8.4	49.2	49.2	41.0	41.0	41.0	41.0	41.0	41.0
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	18.4	62.0	62.0	7.7	51.3	51.3	28.9	28.9	28.9	28.9	28.9	28.9
70th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	17.9	66.8	66.8	7.0	55.9	55.9	24.8	24.8	24.8	24.8	24.8	24.8
50th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	18.0	71.5	71.5	6.3	59.8	59.8	20.8	20.8	20.8	20.8	20.8	20.8
30th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	19.5	90.6	90.6	0.0	64.2	64.2	14.9	14.9	14.9	14.9	14.9	14.9
10th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
Stops (vph)	101	781	169	44	424	0	175	77	0	14	79	11
Fuel Used(l)	14	88	19	6	51	0	25	11	2	1	7	3
CO Emissions (g/hr)	260	1642	345	110	955	6	466	199	34	21	133	53
NOx Emissions (g/hr)	50	317	67	21	184	1	90	38	7	4	26	10
VOC Emissions (g/hr)	60	379	80	25	220	1	107	46	8	5	31	12
Dilemma Vehicles (#)	0	60	0	0	33	0	0	0	0	0	0	0
Queue Length 50th (m)	28.2	84.5	21.7	5.6	19.7	0.0	44.1	19.6	0.1	3.3	20.4	0.0
Queue Length 95th (m)	#75.4	#139.2	50.4	m11.9	26.1	m0.0	59.0	29.5	0.2	7.9	29.8	10.2
Internal Link Dist (m)		229.6			263.1			93.0			221.3	
Turn Bay Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Base Capacity (vph)	227	1667	893	219	1505	732	412	600	565	416	600	562
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.65	0.32	0.20	0.58	0.02	0.47	0.16	0.05	0.04	0.17	0.16

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 85 (71%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 24.8 Intersection LOS: C
Intersection Capacity Utilization 72.4% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: CrossKeys/Helene Campbell & Strandherd





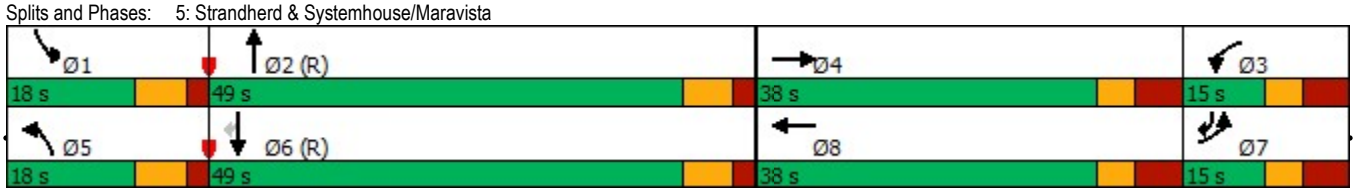
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	56	198	10	56	40	243	741	7	134	969	25
Future Volume (vph)	63	56	198	10	56	40	243	741	7	134	969	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99								
Frt		0.883			0.937			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3216	1521	0	1658	1553	0	3216	3312	0	1658	3316	1351
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	1521	0	1635	1553	0	3216	3312	0	1658	3316	1351
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		142			29			1				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
Confl. Peds. (#/hr)			4	4								
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%	2%	2%	2%	15%	2%	2%	2%	2%	2%	12%
Adj. Flow (vph)	63	56	198	10	56	40	243	741	7	134	969	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	254	0	10	96	0	243	748	0	134	969	25
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	17.6		15.0	17.6		15.0	33.0		15.0	33.0	15.0
Total Split (s)	15.0	38.0		15.0	38.0		18.0	49.0		18.0	49.0	15.0
Total Split (%)	12.5%	31.7%		12.5%	31.7%		15.0%	40.8%		15.0%	40.8%	12.5%
Maximum Green (s)	7.4	30.4		7.4	30.4		11.4	42.3		11.4	42.3	7.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	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	C-Max		None	C-Max	None
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								17.0			17.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	9.1	22.8		6.3	11.9		14.3	57.9		15.3	58.9	67.0
Actuated g/C Ratio	0.08	0.19		0.05	0.10		0.12	0.48		0.13	0.49	0.56
v/c Ratio	0.26	0.63		0.11	0.53		0.63	0.47		0.64	0.60	0.03
Control Delay	53.4	25.7		56.5	46.5		70.1	17.6		74.7	15.5	1.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	53.4	25.7		56.5	46.5		70.1	17.6		74.7	15.5	1.0
LOS	D	C		E	D		E	B		E	B	A
Approach Delay		31.2			47.5			30.4			22.2	
Approach LOS		C			D			C			C	
90th %ile Green (s)	16.4	24.7		7.7	16.0		16.8	42.3		16.8	42.3	16.4
90th %ile Term Code	Hold	Gap		Gap	Gap		Max	Coord		Max	Coord	Hold
70th %ile Green (s)	8.6	29.0		0.0	12.8		16.3	51.9		18.2	53.8	8.6
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	7.7	25.9		0.0	10.6		14.7	56.7		16.5	58.5	7.7
50th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
30th %ile Green (s)	6.9	24.5		0.0	10.0		13.1	60.4		14.2	61.5	6.9
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
10th %ile Green (s)	0.0	10.0		0.0	10.0		10.8	78.3		10.8	78.3	0.0
10th %ile Term Code	Skip	Min		Skip	Min		Gap	Coord		Gap	Coord	Skip
Stops (vph)	57	104		12	63		225	474		134	271	1
Fuel Used(l)	5	12		1	6		34	62		18	49	1
CO Emissions (g/hr)	95	229		14	109		633	1153		343	911	12
NOx Emissions (g/hr)	18	44		3	21		122	223		66	176	2
VOC Emissions (g/hr)	22	53		3	25		146	266		79	210	3
Dilemma Vehicles (#)	0	0		0	0		0	32		0	53	0
Queue Length 50th (m)	7.4	22.9		2.3	15.3		29.7	52.9		33.8	12.9	0.0
Queue Length 95th (m)	13.4	50.9		7.8	31.3		39.7	80.0		m52.3	72.0	m0.0
Internal Link Dist (m)		181.3			124.8			185.4			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	254	491		103	415		387	1599		213	1626	804
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.25	0.52		0.10	0.23		0.63	0.47		0.63	0.60	0.03

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 82 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 27.6 Intersection LOS: C
Intersection Capacity Utilization 69.3% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Strandherd & Systemhouse/Maravista



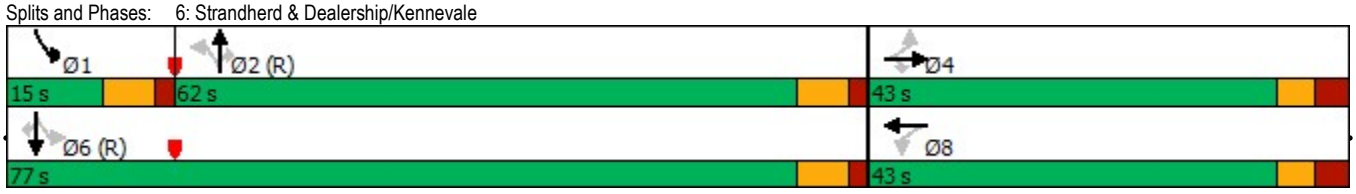
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	18	83	106	16	71	60	782	98	77	1098	41
Future Volume (vph)	124	18	83	106	16	71	60	782	98	77	1098	41
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		100.0	50.0		0.0	110.0		40.0	150.0		90.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.878				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	1745	1483	1658	1508	0	1658	1745	1483	1642	1745	1483
Flt Permitted	0.701			0.746			0.171			0.222		
Satd. Flow (perm)	1223	1745	1483	1302	1508	0	298	1745	1483	384	1745	1483
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89		71				91			35
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		358.5			381.8			229.3			210.1	
Travel Time (s)		25.8			34.4			10.3			9.5	
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 (%)	2%	2%	2%	2%	2%	4%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	124	18	83	106	16	71	60	782	98	77	1098	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	18	83	106	87	0	60	782	98	77	1098	41
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		20.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	32.6	32.6	32.6	32.6	32.6		30.4	30.4	30.4	11.4	30.4	30.4
Total Split (s)	43.0	43.0	43.0	43.0	43.0		62.0	62.0	62.0	15.0	77.0	77.0
Total Split (%)	35.8%	35.8%	35.8%	35.8%	35.8%		51.7%	51.7%	51.7%	12.5%	64.2%	64.2%
Maximum Green (s)	36.4	36.4	36.4	36.4	36.4		55.6	55.6	55.6	8.6	70.6	70.6
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3		1.8	1.8	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6		6.4	6.4	6.4	6.4	6.4	6.4

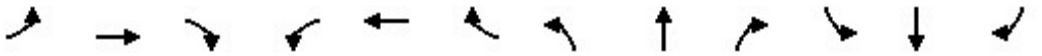
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		C-Max	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0		17.0	17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0		0	0
Act Effct Green (s)	17.6	17.6	17.6	17.6	17.6		78.1	78.1	78.1	89.4	89.4	89.4
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.15		0.65	0.65	0.65	0.74	0.74	0.74
v/c Ratio	0.70	0.07	0.28	0.56	0.31		0.31	0.69	0.10	0.21	0.84	0.04
Control Delay	67.6	41.4	9.9	57.5	16.0		18.3	20.0	3.1	12.6	34.2	8.4
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	67.6	41.4	9.9	57.5	16.0		18.3	20.0	3.1	12.6	34.2	8.4
LOS	E	D	A	E	B		B	B	A	B	C	A
Approach Delay		44.2			38.8			18.1			32.0	
Approach LOS		D			D			B			C	
90th %ile Green (s)	25.2	25.2	25.2	25.2	25.2		65.6	65.6	65.6	9.8	81.8	81.8
90th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Coord	Coord	Coord	Gap	Coord	Coord
70th %ile Green (s)	20.7	20.7	20.7	20.7	20.7		72.2	72.2	72.2	7.7	86.3	86.3
70th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Coord	Coord	Coord	Gap	Coord	Coord
50th %ile Green (s)	17.6	17.6	17.6	17.6	17.6		76.0	76.0	76.0	7.0	89.4	89.4
50th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Coord	Coord	Coord	Gap	Coord	Coord
30th %ile Green (s)	14.4	14.4	14.4	14.4	14.4		79.9	79.9	79.9	6.3	92.6	92.6
30th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Coord	Coord	Coord	Gap	Coord	Coord
10th %ile Green (s)	10.0	10.0	10.0	10.0	10.0		97.0	97.0	97.0	0.0	97.0	97.0
10th %ile Term Code	Min	Min	Min	Min	Min		Coord	Coord	Coord	Skip	Coord	Coord
Stops (vph)	116	17	12	95	23		32	508	10	42	921	18
Fuel Used(l)	13	2	4	10	5		4	55	3	6	118	3
CO Emissions (g/hr)	247	29	69	192	92		70	1028	48	106	2195	49
NOx Emissions (g/hr)	48	6	13	37	18		14	198	9	20	424	10
VOC Emissions (g/hr)	57	7	16	44	21		16	237	11	24	506	11
Dilemma Vehicles (#)	0	0	0	0	0		0	32	0	0	88	0
Queue Length 50th (m)	28.1	3.7	0.0	23.5	3.3		6.0	113.8	0.6	9.9	197.5	2.7
Queue Length 95th (m)	45.4	9.7	11.7	39.0	16.5		19.7	204.1	8.3	m20.5	#311.7	m7.8
Internal Link Dist (m)		334.5			357.8			205.3			186.1	
Turn Bay Length (m)	75.0		100.0	50.0			110.0		40.0	150.0		90.0
Base Capacity (vph)	370	529	511	394	506		193	1136	997	378	1300	1114
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	0.34	0.03	0.16	0.27	0.17		0.31	0.69	0.10	0.20	0.84	0.04

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 57 (48%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 28.5 Intersection LOS: C
Intersection Capacity Utilization 94.0% 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: 6: Strandherd & Dealership/Kennevale

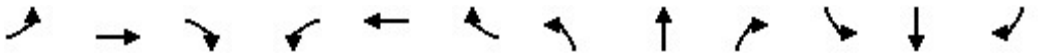




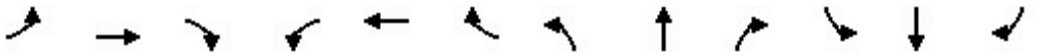
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	6	49	17	3	37	32	361	31	36	408	30
Future Volume (Veh/h)	36	6	49	17	3	37	32	361	31	36	408	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	36	6	49	17	3	37	32	361	31	36	408	30
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	944	936	408	957	935	361	438			392		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	944	936	408	957	935	361	438			392		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	83	98	92	92	99	95	97			97		
cM capacity (veh/h)	217	250	643	206	250	684	1122			1167		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	36	55	57	32	361	31	36	408	30
Volume Left	36	0	17	32	0	0	36	0	0
Volume Right	0	49	37	0	0	31	0	0	30
cSH	217	549	383	1122	1700	1700	1167	1700	1700
Volume to Capacity	0.17	0.10	0.15	0.03	0.21	0.02	0.03	0.24	0.02
Queue Length 95th (m)	4.4	2.5	3.9	0.7	0.0	0.0	0.7	0.0	0.0
Control Delay (s)	24.9	12.3	16.0	8.3	0.0	0.0	8.2	0.0	0.0
Lane LOS	C	B	C	A			A		
Approach Delay (s)	17.3		16.0	0.6			0.6		
Approach LOS	C		C						

Intersection Summary					
Average Delay	2.9				
Intersection Capacity Utilization	46.2%	ICU Level of Service		A	
Analysis Period (min)	15				



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	589	746	34	5	1352	50	22	3	4	54	6	319
Future Volume (vph)	589	746	34	5	1352	50	22	3	4	54	6	319
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				1.00		0.99
Frt			0.850			0.850		0.914				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1595	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3122	2891	1483	1658	3191	1459	3216	1595	0	1655	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			225		4				319
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			156.6			207.3	
Travel Time (s)		10.6			11.4			11.3			12.4	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	589	746	34	5	1352	50	22	3	4	54	6	319
Shared Lane Traffic (%)												
Lane Group Flow (vph)	589	746	34	5	1352	50	22	7	0	54	6	319
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	48.0		11.5	48.0	
Total Split (s)	28.0	46.0	13.0	13.0	31.0	31.0	13.0	48.0		13.0	48.0	
Total Split (%)	23.3%	38.3%	10.8%	10.8%	25.8%	25.8%	10.8%	40.0%		10.8%	40.0%	
Maximum Green (s)	20.9	39.1	6.5	5.9	24.1	24.1	6.5	41.0		6.5	41.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	



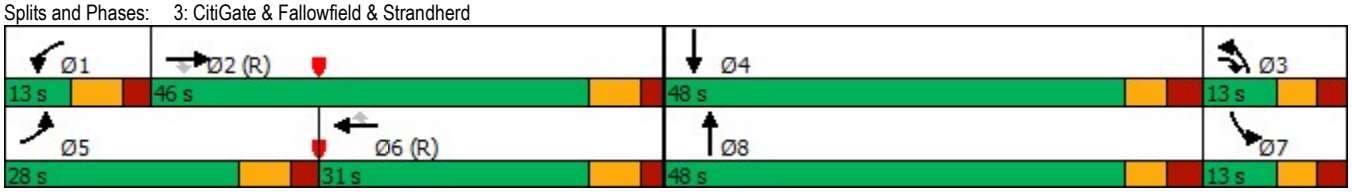
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		16.0			16.0	16.0		34.0			34.0	
Pedestrian Calls (#/hr)		1			1	1		1			1	
Act Effct Green (s)	29.5	91.7	105.2	5.8	58.5	56.7	8.0	16.2		9.8	16.2	120.0
Actuated g/C Ratio	0.25	0.76	0.88	0.05	0.49	0.47	0.07	0.14		0.08	0.14	1.00
v/c Ratio	0.77	0.34	0.03	0.06	0.87	0.06	0.10	0.03		0.40	0.03	0.22
Control Delay	50.0	11.6	0.0	37.4	43.8	1.8	53.6	27.1		61.4	37.5	0.4
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	50.0	11.6	0.0	37.4	43.8	1.8	53.6	27.1		61.4	37.5	0.4
LOS	D	B	A	D	D	A	D	C		E	D	A
Approach Delay		27.9			42.3			47.2			9.7	
Approach LOS		C			D			D			A	
90th %ile Green (s)	20.9	39.1	6.5	5.9	24.1	24.1	6.5	41.0		6.5	41.0	
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Ped		Max	Ped	
70th %ile Green (s)	31.0	95.9	10.7	0.0	57.8	57.8	10.7	0.0		10.7	0.0	
70th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
50th %ile Green (s)	30.0	97.3	9.3	0.0	60.2	60.2	9.3	0.0		9.3	0.0	
50th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
30th %ile Green (s)	29.1	98.8	7.8	0.0	62.6	62.6	7.8	0.0		7.8	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	27.4	113.1	0.0	0.0	78.6	78.6	0.0	0.0		0.0	0.0	
10th %ile Term Code	Gap	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Skip	Skip	
Stops (vph)	497	267	0	7	910	4	22	6		51	6	0
Fuel Used(l)	62	36	1	1	155	2	2	0		5	0	6
CO Emissions (g/hr)	1156	667	12	14	2888	45	32	7		96	9	108
NOx Emissions (g/hr)	223	129	2	3	557	9	6	1		19	2	21
VOC Emissions (g/hr)	267	154	3	3	666	10	7	2		22	2	25
Dilemma Vehicles (#)	0	26	0	0	69	0	0	0		0	0	0
Queue Length 50th (m)	64.8	16.6	0.0	1.2	132.7	0.0	2.5	0.7		12.1	1.3	0.0
Queue Length 95th (m)	#109.0	105.0	0.0	m2.7	#311.4	m2.8	6.9	3.8		25.8	3.9	0.0
Internal Link Dist (m)		212.6			229.6			132.6			183.3	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	767	2208	1312	82	1554	807	218	547		137	596	1422
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	0.77	0.34	0.03	0.06	0.87	0.06	0.10	0.01		0.39	0.01	0.22

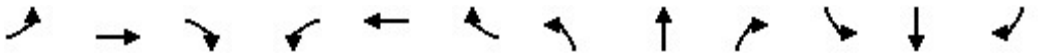
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 7 (6%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 32.2		Intersection LOS: C	
Intersection Capacity Utilization 83.1%		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.

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

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd





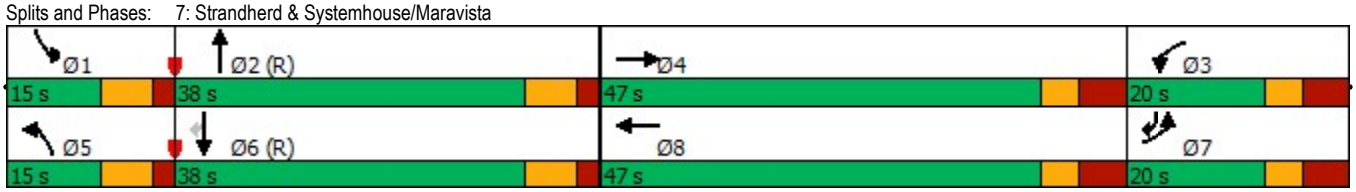
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	7	28	7	22	110	95	1081	9	18	591	9
Future Volume (vph)	52	7	28	7	22	110	95	1081	9	18	591	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.880			0.875			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3154	1357	0	1658	1527	0	3154	3310	0	1321	3316	1363
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3154	1357	0	1656	1527	0	3154	3310	0	1321	3316	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			110			1				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
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%	43%	7%	2%	2%	2%	4%	2%	11%	28%	2%	11%
Adj. Flow (vph)	52	7	28	7	22	110	95	1081	9	18	591	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	35	0	7	132	0	95	1090	0	18	591	9
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	47.0		15.0	47.0		15.0	33.0		15.0	33.0	15.0
Total Split (s)	20.0	47.0		20.0	47.0		15.0	38.0		15.0	38.0	20.0
Total Split (%)	16.7%	39.2%		16.7%	39.2%		12.5%	31.7%		12.5%	31.7%	16.7%
Maximum Green (s)	12.4	39.4		12.4	39.4		8.4	31.3		8.4	31.3	12.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	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	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		32.0			32.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			1			0			0	
Act Effct Green (s)	7.4	19.0		12.3	15.8		9.0	71.3		7.3	61.9	70.0
Actuated g/C Ratio	0.06	0.16		0.10	0.13		0.08	0.59		0.06	0.52	0.58
v/c Ratio	0.27	0.15		0.04	0.45		0.40	0.55		0.23	0.35	0.01
Control Delay	56.6	21.8		40.6	15.5		57.6	21.1		55.3	22.4	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	56.6	21.8		40.6	15.5		57.6	21.1		55.3	22.4	0.0
LOS	E	C		D	B		E	C		E	C	A
Approach Delay		42.6			16.7			24.0			23.0	
Approach LOS		D			B			C			C	
90th %ile Green (s)	9.3	10.0		38.3	39.0		11.5	33.5		9.7	31.7	9.3
90th %ile Term Code	Gap	Min		Hold	Ped		Gap	Coord		Gap	Coord	Gap
70th %ile Green (s)	8.2	25.8		0.0	10.0		10.0	65.2		8.1	63.3	8.2
70th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	7.4	25.0		0.0	10.0		9.0	80.7		0.0	65.1	7.4
50th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
30th %ile Green (s)	6.6	24.2		0.0	10.0		7.9	81.5		0.0	67.0	6.6
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
10th %ile Green (s)	0.0	10.0		0.0	10.0		6.5	95.7		0.0	82.6	0.0
10th %ile Term Code	Skip	Hold		Skip	Min		Gap	Coord		Skip	Coord	Skip
Stops (vph)	49	14		7	30		88	561		18	313	0
Fuel Used(l)	4	2		0	4		11	68		3	53	0
CO Emissions (g/hr)	81	29		8	76		201	1262		48	991	7
NOx Emissions (g/hr)	16	6		2	15		39	244		9	191	1
VOC Emissions (g/hr)	19	7		2	18		46	291		11	229	2
Dilemma Vehicles (#)	0	0		0	0		0	42		0	46	0
Queue Length 50th (m)	6.1	1.3		1.6	4.9		11.1	60.1		4.2	48.7	0.0
Queue Length 95th (m)	12.3	11.7		4.6	17.3		19.4	#203.9		m8.6	97.2	m0.0
Internal Link Dist (m)		181.3			124.8			185.4			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	325	464		243	575		248	1967		95	1711	873
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.16	0.08		0.03	0.23		0.38	0.55		0.19	0.35	0.01

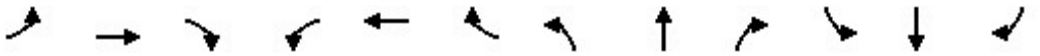
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 48 (40%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 24.0 Intersection LOS: C
Intersection Capacity Utilization 73.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Strandherd & Systemhouse/Maravista



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	325	1223	32	3	910	98	33	7	3	106	6	469
Future Volume (vph)	325	1223	32	3	910	98	33	7	3	106	6	469
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				1.00		0.99
Frt			0.850			0.850		0.955				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1667	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3120	2891	1483	1658	3191	1460	3216	1667	0	1655	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			160		3				469
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			155.7			207.3	
Travel Time (s)		10.6			11.4			11.2			12.4	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	325	1223	32	3	910	98	33	7	3	106	6	469
Shared Lane Traffic (%)												
Lane Group Flow (vph)	325	1223	32	3	910	98	33	10	0	106	6	469
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	48.0		11.5	48.0	
Total Split (s)	24.0	34.0	14.0	24.0	34.0	34.0	14.0	48.0		14.0	48.0	
Total Split (%)	20.0%	28.3%	11.7%	20.0%	28.3%	28.3%	11.7%	40.0%		11.7%	40.0%	
Maximum Green (s)	16.9	27.1	7.5	16.9	27.1	27.1	7.5	41.0		7.5	41.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	

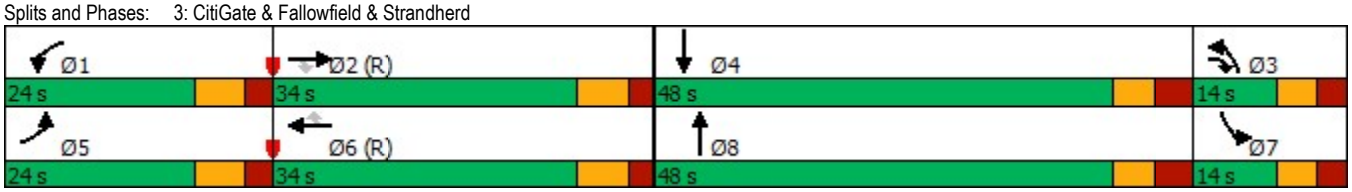


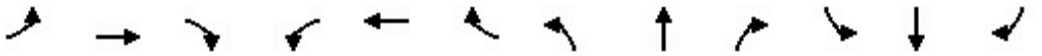
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		16.0			16.0	16.0		34.0			34.0	
Pedestrian Calls (#/hr)		1			1	1		1			1	
Act Effct Green (s)	18.3	80.6	102.8	5.8	59.7	57.9	14.5	16.2		13.9	16.2	120.0
Actuated g/C Ratio	0.15	0.67	0.86	0.05	0.50	0.48	0.12	0.14		0.12	0.14	1.00
v/c Ratio	0.68	0.63	0.02	0.04	0.57	0.12	0.09	0.04		0.55	0.03	0.33
Control Delay	55.8	18.4	0.0	82.0	16.2	0.8	46.2	31.6		62.1	37.5	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	55.8	18.4	0.0	82.0	16.2	0.8	46.2	31.6		62.1	37.5	0.6
LOS	E	B	A	F	B	A	D	C		E	D	A
Approach Delay		25.7			14.9			42.8			12.2	
Approach LOS		C			B			D			B	
90th %ile Green (s)	16.9	37.5	7.5	6.5	27.1	27.1	7.5	41.0		7.5	41.0	
90th %ile Term Code	Max	Coord	Max	Gap	Coord	Coord	Max	Ped		Max	Ped	
70th %ile Green (s)	19.5	73.7	32.9	0.0	47.1	47.1	32.9	10.0		15.9	0.0	
70th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Min		Gap	Skip	
50th %ile Green (s)	17.6	92.3	14.3	0.0	67.6	67.6	14.3	0.0		14.3	0.0	
50th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
30th %ile Green (s)	15.7	94.4	12.2	0.0	71.6	71.6	12.2	0.0		12.2	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	12.9	96.1	0.0	0.0	76.1	76.1	0.0	0.0		10.5	10.0	
10th %ile Term Code	Gap	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Hold	Hold	
Stops (vph)	301	545	0	5	451	7	30	8		89	6	0
Fuel Used(l)	37	71	1	1	76	5	2	1		10	0	9
CO Emissions (g/hr)	693	1327	11	11	1413	86	43	11		183	9	161
NOx Emissions (g/hr)	134	256	2	2	273	17	8	2		35	2	31
VOC Emissions (g/hr)	160	306	3	3	326	20	10	2		42	2	37
Dilemma Vehicles (#)	0	47	0	0	9	0	0	0		0	0	0
Queue Length 50th (m)	37.3	46.9	0.0	0.6	20.0	0.0	3.6	1.5		23.4	1.3	0.0
Queue Length 95th (m)	52.8	#234.8	0.0	m2.5	#180.7	2.3	9.1	4.9		#56.2	3.9	0.0
Internal Link Dist (m)		212.6			229.6			131.7			183.3	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	503	1941	1289	233	1587	787	398	571		191	596	1422
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	0.65	0.63	0.02	0.01	0.57	0.12	0.08	0.02		0.55	0.01	0.33

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 115 (96%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 20.1 Intersection LOS: C
Intersection Capacity Utilization 70.1% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd





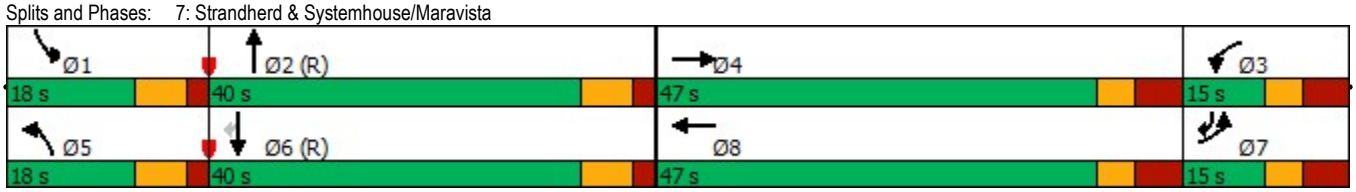
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	56	198	10	56	40	243	741	7	134	969	25
Future Volume (vph)	63	56	198	10	56	40	243	741	7	134	969	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.883			0.937			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3216	1522	0	1658	1553	0	3216	3312	0	1658	3316	1351
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	1522	0	1654	1553	0	3216	3312	0	1658	3316	1351
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		158			32			1				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
Confl. Peds. (#/hr)			4	4								
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%	2%	2%	2%	15%	2%	2%	2%	2%	2%	12%
Adj. Flow (vph)	63	56	198	10	56	40	243	741	7	134	969	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	254	0	10	96	0	243	748	0	134	969	25
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	47.0		15.0	47.0		15.0	33.0		15.0	33.0	15.0
Total Split (s)	15.0	47.0		15.0	47.0		18.0	40.0		18.0	40.0	15.0
Total Split (%)	12.5%	39.2%		12.5%	39.2%		15.0%	33.3%		15.0%	33.3%	12.5%
Maximum Green (s)	7.4	39.4		7.4	39.4		11.4	33.3		11.4	33.3	7.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

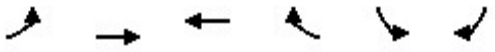
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (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	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		32.0			32.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			3			0			0	
Act Effct Green (s)	7.3	22.6		9.4	16.4		13.3	56.2		14.2	57.2	63.6
Actuated g/C Ratio	0.06	0.19		0.08	0.14		0.11	0.47		0.12	0.48	0.53
v/c Ratio	0.32	0.61		0.08	0.40		0.68	0.48		0.68	0.61	0.03
Control Delay	58.1	23.0		48.0	33.9		61.9	26.6		63.0	31.4	3.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	58.1	23.0		48.0	33.9		61.9	26.6		63.0	31.4	3.5
LOS	E	C		D	C		E	C		E	C	A
Approach Delay		30.0			35.2			35.2			34.6	
Approach LOS		C			D			D			C	
90th %ile Green (s)	7.8	23.8		23.0	39.0		11.4	33.3		11.4	33.3	7.8
90th %ile Term Code	Max	Gap		Hold	Ped		Max	Coord		Max	Coord	Max
70th %ile Green (s)	8.6	28.8		0.0	12.6		16.3	52.1		18.2	54.0	8.6
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	7.7	25.7		0.0	10.4		14.7	56.9		16.5	58.7	7.7
50th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
30th %ile Green (s)	6.9	24.5		0.0	10.0		13.1	60.4		14.2	61.5	6.9
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
10th %ile Green (s)	0.0	10.0		0.0	10.0		10.8	78.3		10.8	78.3	0.0
10th %ile Term Code	Skip	Min		Skip	Min		Gap	Coord		Gap	Coord	Skip
Stops (vph)	59	93		11	55		220	515		120	551	4
Fuel Used(l)	5	12		1	5		28	57		19	96	1
CO Emissions (g/hr)	100	214		13	89		524	1063		355	1791	25
NOx Emissions (g/hr)	19	41		2	17		101	205		69	346	5
VOC Emissions (g/hr)	23	49		3	21		121	245		82	413	6
Dilemma Vehicles (#)	0	0		0	0		0	31		0	38	0
Queue Length 50th (m)	7.4	19.1		2.3	14.6		28.4	61.2		31.3	62.7	0.0
Queue Length 95th (m)	14.6	47.2		6.7	23.3		#48.5	109.8		m#67.4	#177.4	m0.7
Internal Link Dist (m)		181.3			124.8			185.4			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	208	605		145	531		358	1551		198	1579	768
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.30	0.42		0.07	0.18		0.68	0.48		0.68	0.61	0.03

Intersection Summary

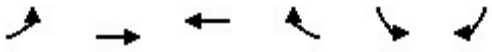
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 82 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 34.3 Intersection LOS: C
Intersection Capacity Utilization 71.3% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Strandherd & Systemhouse/Maravista





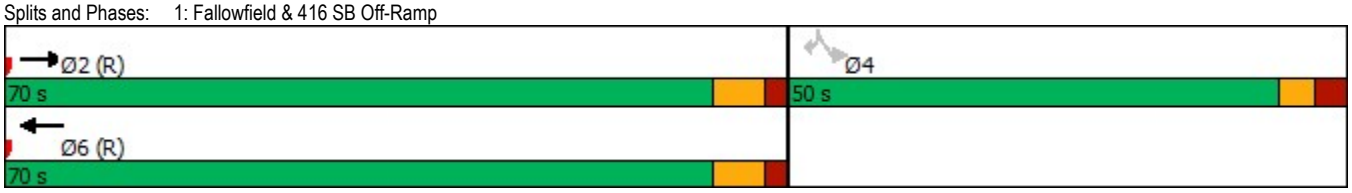
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1602	1047	0	503	121
Future Volume (vph)	0	1602	1047	0	503	121
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						77
Link Speed (k/h)		80	80		50	
Link Distance (m)		163.0	533.3		168.6	
Travel Time (s)		7.3	24.0		12.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	1602	1047	0	503	121
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1602	1047	0	503	121
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		30.3	30.3
Total Split (s)		70.0	70.0		50.0	50.0
Total Split (%)		58.3%	58.3%		41.7%	41.7%
Maximum Green (s)		63.2	63.2		43.7	43.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		None	None
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		81.2	81.2		25.7	25.7
Actuated g/C Ratio		0.68	0.68		0.21	0.21
v/c Ratio		0.77	0.48		0.77	0.35
Control Delay		17.4	9.7		52.5	18.2
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		17.4	9.7		52.5	18.2
LOS		B	A		D	B
Approach Delay		17.4	9.7		45.9	
Approach LOS		B	A		D	
90th %ile Green (s)		74.3	74.3		32.6	32.6
90th %ile Term Code		Coord	Coord		Gap	Gap
70th %ile Green (s)		78.7	78.7		28.2	28.2
70th %ile Term Code		Coord	Coord		Gap	Gap
50th %ile Green (s)		81.3	81.3		25.6	25.6
50th %ile Term Code		Coord	Coord		Gap	Gap
30th %ile Green (s)		83.9	83.9		23.0	23.0
30th %ile Term Code		Coord	Coord		Gap	Gap
10th %ile Green (s)		87.7	87.7		19.2	19.2
10th %ile Term Code		Coord	Coord		Gap	Gap
Stops (vph)		1068	408		460	41
Fuel Used(l)		103	75		39	5
CO Emissions (g/hr)		1920	1398		720	85
NOx Emissions (g/hr)		371	270		139	16
VOC Emissions (g/hr)		443	322		166	20
Dilemma Vehicles (#)		67	24		0	0
Queue Length 50th (m)		121.6	52.0		57.9	8.5
Queue Length 95th (m)		183.2	69.3		71.0	23.4
Internal Link Dist (m)		139.0	509.3		144.6	
Turn Bay Length (m)						70.0
Base Capacity (vph)		2080	2179		1106	528
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.77	0.48		0.45	0.23

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 20 (17%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 20.3		Intersection LOS: C	
Intersection Capacity Utilization 79.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Fallowfield & 416 SB Off-Ramp

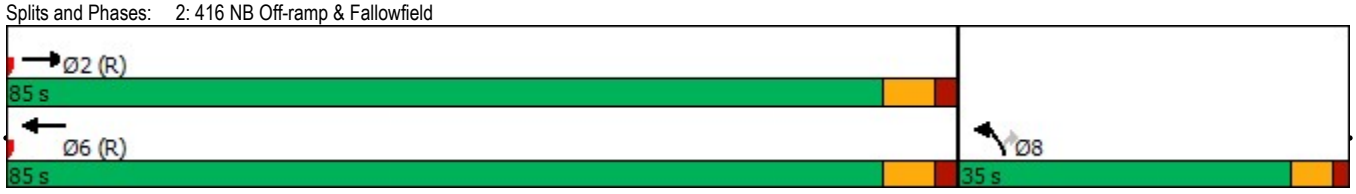


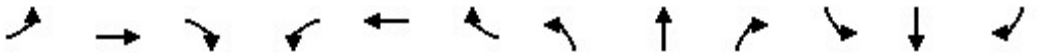
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1783	0	0	950	176	269
Future Volume (vph)	1783	0	0	950	176	269
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						27
Link Speed (k/h)	80			80	60	
Link Distance (m)	533.3			245.0	156.0	
Travel Time (s)	24.0			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	1783	0	0	950	176	269
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1783	0	0	950	176	269
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	85.0			85.0	35.0	35.0
Total Split (%)	70.8%			70.8%	29.2%	29.2%
Maximum Green (s)	78.3			78.3	29.7	29.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	83.2			83.2	24.8	24.8
Actuated g/C Ratio	0.69			0.69	0.21	0.21
v/c Ratio	0.81			0.42	0.58	0.85
Control Delay	21.2			12.1	49.7	64.6
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	21.2			12.1	49.7	64.6
LOS	C			B	D	E
Approach Delay	21.2			12.1	58.7	
Approach LOS	C			B	E	
90th %ile Green (s)	78.3			78.3	29.7	29.7
90th %ile Term Code	Coord			Coord	Max	Max
70th %ile Green (s)	78.3			78.3	29.7	29.7
70th %ile Term Code	Coord			Coord	Max	Max
50th %ile Green (s)	81.9			81.9	26.1	26.1
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	85.8			85.8	22.2	22.2
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	91.6			91.6	16.4	16.4
10th %ile Term Code	Coord			Coord	Gap	Gap
Stops (vph)	1275			368	154	229
Fuel Used(l)	177			66	14	24
CO Emissions (g/hr)	3294			1227	262	454
NOx Emissions (g/hr)	636			237	51	88
VOC Emissions (g/hr)	760			283	60	105
Dilemma Vehicles (#)	109			73	0	0
Queue Length 50th (m)	142.2			49.7	37.1	54.9
Queue Length 95th (m)	240.4			m48.4	57.7	#84.1
Internal Link Dist (m)	509.3			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2211			2275	367	373
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.81			0.42	0.48	0.72

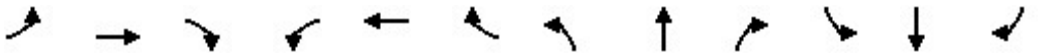
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 81 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 23.7		Intersection LOS: C	
Intersection Capacity Utilization 79.6%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 2: 416 NB Off-ramp & Fallowfield





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	646	1012	34	5	1726	60	22	3	4	84	6	349
Future Volume (vph)	646	1012	34	5	1726	60	22	3	4	84	6	349
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				0.99		0.99
Frt			0.850			0.850		0.914				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1595	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3123	2891	1483	1658	3191	1460	3216	1595	0	1644	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			160		4				322
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			311.4			414.8	
Travel Time (s)		10.6			11.4			22.4			24.9	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	646	1012	34	5	1726	60	22	3	4	84	6	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	646	1012	34	5	1726	60	22	7	0	84	6	349
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	17.0		11.5	17.0	
Total Split (s)	20.0	72.0	13.0	13.0	65.0	65.0	13.0	22.0		13.0	22.0	
Total Split (%)	16.7%	60.0%	10.8%	10.8%	54.2%	54.2%	10.8%	18.3%		10.8%	18.3%	
Maximum Green (s)	12.9	65.1	6.5	5.9	58.1	58.1	6.5	15.0		6.5	15.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		16.0			16.0	16.0						
Pedestrian Calls (#/hr)		1			1	1						
Act Effct Green (s)	28.2	90.8	109.1	5.8	59.9	58.1	10.6	10.0		13.4	10.0	120.0
Actuated g/C Ratio	0.24	0.76	0.91	0.05	0.50	0.48	0.09	0.08		0.11	0.08	1.00
v/c Ratio	0.88	0.46	0.03	0.06	1.08	0.08	0.08	0.05		0.45	0.04	0.25
Control Delay	59.6	6.6	0.0	80.0	74.5	0.5	54.0	57.1		58.0	51.3	0.4
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	59.6	6.6	0.0	80.0	74.5	0.5	54.0	57.1		58.0	51.3	0.4
LOS	E	A	A	E	E	A	D	E		E	D	A
Approach Delay		26.7			72.0			54.7			12.1	
Approach LOS		C			E			D			B	
90th %ile Green (s)	12.9	65.1	11.5	5.9	58.1	58.1	11.5	10.0		11.5	10.0	
90th %ile Term Code	Max	Coord	Hold	Max	Coord	Coord	Hold	Min		Max	Min	
70th %ile Green (s)	27.6	92.8	13.8	0.0	58.1	58.1	13.8	0.0		13.8	0.0	
70th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
50th %ile Green (s)	29.3	94.5	12.1	0.0	58.1	58.1	12.1	0.0		12.1	0.0	
50th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
30th %ile Green (s)	31.1	96.3	10.3	0.0	58.1	58.1	10.3	0.0		10.3	0.0	
30th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	30.9	96.1	0.0	0.0	58.1	58.1	0.0	0.0		10.5	10.0	
10th %ile Term Code	Max	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Hold	Hold	
Stops (vph)	533	283	0	7	1556	2	20	17		78	7	0
Fuel Used(l)	74	57	1	1	223	1	3	1		9	1	13
CO Emissions (g/hr)	1380	1053	26	15	4141	25	51	21		173	13	236
NOx Emissions (g/hr)	266	203	5	3	799	5	10	4		33	2	46
VOC Emissions (g/hr)	318	243	6	3	955	6	12	5		40	3	54
Dilemma Vehicles (#)	0	36	0	0	37	0	0	0		0	0	0
Queue Length 50th (m)	78.2	15.0	0.0	1.0	~247.7	0.0	2.2	0.9		18.7	1.3	0.0
Queue Length 95th (m)	#154.1	65.7	m0.0	m1.9	#290.6	m0.2	6.6	4.4		35.1	5.6	0.0
Internal Link Dist (m)		212.6			229.6			287.4			390.8	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	733	2186	1360	82	1592	789	290	202		185	218	1422
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	0.88	0.46	0.03	0.06	1.08	0.08	0.08	0.03		0.45	0.03	0.25

Intersection Summary

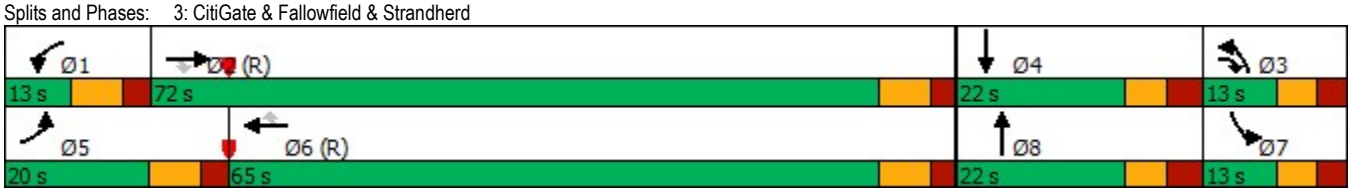
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 101 (84%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.08
Intersection Signal Delay: 45.8 Intersection LOS: D
Intersection Capacity Utilization 95.9% ICU Level of Service F
Analysis Period (min) 15

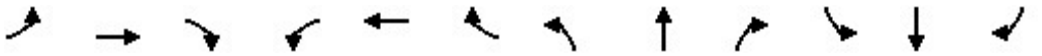
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

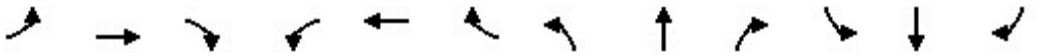
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	1044	59	21	1682	17	108	11	11	47	22	176
Future Volume (vph)	36	1044	59	21	1682	17	108	11	11	47	22	176
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	90.0			100.0			60.0			60.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.97				1.00		0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	2941	1483	3216	3221	1483	1658	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.743			0.750		
Satd. Flow (perm)	1657	2941	1483	3216	3221	1445	1297	1745	1483	1307	1745	1462
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			105			105			97			157
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		253.6			287.1			117.0			245.3	
Travel Time (s)		11.4			12.9			8.4			17.7	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	15%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	36	1044	59	21	1682	17	108	11	11	47	22	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1044	59	21	1682	17	108	11	11	47	22	176
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.9	31.8	31.8	11.9	31.8	31.8	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (s)	15.0	56.0	56.0	15.0	56.0	56.0	49.0	49.0	49.0	49.0	49.0	49.0
Total Split (%)	12.5%	46.7%	46.7%	12.5%	46.7%	46.7%	40.8%	40.8%	40.8%	40.8%	40.8%	40.8%
Maximum Green (s)	8.1	49.2	49.2	8.1	49.2	49.2	41.3	41.3	41.3	41.3	41.3	41.3
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	3.3	3.3	3.3	3.3	3.3	3.3



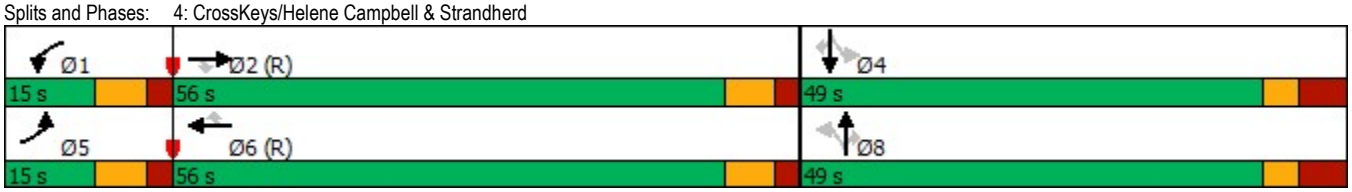
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.3	2.2	2.2	2.3	2.2	2.2	4.4	4.4	4.4	4.4	4.4	4.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.8	6.8	6.9	6.8	6.8	7.7	7.7	7.7	7.7	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
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	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	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
Flash Dont Walk (s)		18.0	18.0		18.0	18.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		1	1		1	1	1	1	1	1	1	1
Act Effct Green (s)	7.6	80.5	80.5	6.3	76.8	76.8	19.4	19.4	19.4	19.4	19.4	19.4
Actuated g/C Ratio	0.06	0.67	0.67	0.05	0.64	0.64	0.16	0.16	0.16	0.16	0.16	0.16
v/c Ratio	0.35	0.53	0.06	0.12	0.82	0.02	0.51	0.04	0.03	0.22	0.08	0.48
Control Delay	58.3	19.5	4.3	52.9	20.6	0.0	53.1	37.4	0.3	41.6	37.5	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.3	19.5	4.3	52.9	20.6	0.0	53.1	37.4	0.3	41.6	37.5	11.9
LOS	E	B	A	D	C	A	D	D	A	D	D	B
Approach Delay		19.9			20.8			47.3			19.9	
Approach LOS		B			C			D			B	
90th %ile Green (s)	8.4	50.2	50.2	7.4	49.2	49.2	41.0	41.0	41.0	41.0	41.0	41.0
90th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	9.2	73.7	73.7	6.7	71.2	71.2	18.2	18.2	18.2	18.2	18.2	18.2
70th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	8.0	90.1	90.1	0.0	75.2	75.2	15.4	15.4	15.4	15.4	15.4	15.4
50th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	0.0	92.9	92.9	0.0	92.9	92.9	12.6	12.6	12.6	12.6	12.6	12.6
30th %ile Term Code	Skip	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	0.0	95.5	95.5	0.0	95.5	95.5	10.0	10.0	10.0	10.0	10.0	10.0
10th %ile Term Code	Skip	Coord	Coord	Skip	Coord	Coord	Min	Min	Min	Min	Min	Min
Stops (vph)	36	571	5	22	560	0	96	11	0	38	19	30
Fuel Used(l)	4	69	2	3	97	0	13	1	1	3	2	6
CO Emissions (g/hr)	82	1288	31	48	1800	7	250	23	13	64	29	119
NOx Emissions (g/hr)	16	249	6	9	348	1	48	5	3	12	6	23
VOC Emissions (g/hr)	19	297	7	11	415	2	58	5	3	15	7	27
Dilemma Vehicles (#)	0	70	0	0	86	0	0	0	0	0	0	0
Queue Length 50th (m)	7.7	80.9	0.0	2.7	73.9	0.0	25.7	2.5	0.1	10.2	4.6	4.0
Queue Length 95th (m)	m19.7	112.5	6.3	m3.9	#300.7	m0.0	35.1	6.0	0.2	16.3	9.3	18.2
Internal Link Dist (m)		229.6			263.1			93.0			221.3	
Turn Bay Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Base Capacity (vph)	115	1972	1029	217	2061	962	446	600	574	449	600	606
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.53	0.06	0.10	0.82	0.02	0.24	0.02	0.02	0.10	0.04	0.29

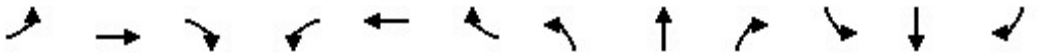
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 73 (61%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 125			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 21.5		Intersection LOS: C	
Intersection Capacity Utilization 89.1%		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.

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

Splits and Phases: 4: CrossKeys/Helene Campbell & Strandherd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	9	33	7	34	110	179	1414	9	36	804	81
Future Volume (vph)	70	9	33	7	34	110	179	1414	9	36	804	81
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.882			0.885			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3154	1354	0	1658	1544	0	3154	3311	0	1321	3316	1363
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3154	1354	0	1653	1544	0	3154	3311	0	1321	3316	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			110			1				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			419.5			287.1	
Travel Time (s)		14.8			13.4			18.9			12.9	
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%	43%	7%	2%	2%	2%	4%	2%	11%	28%	2%	11%
Adj. Flow (vph)	70	9	33	7	34	110	179	1414	9	36	804	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	42	0	7	144	0	179	1423	0	36	804	81
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	17.6		12.6	17.6		15.0	33.0		15.0	33.0	15.0
Total Split (s)	20.0	28.0		20.0	28.0		15.0	57.0		15.0	57.0	20.0
Total Split (%)	16.7%	23.3%		16.7%	23.3%		12.5%	47.5%		12.5%	47.5%	16.7%
Maximum Green (s)	12.4	20.4		12.4	20.4		8.4	50.3		8.4	50.3	12.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

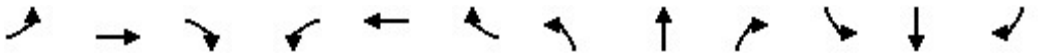
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (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	C-Max		None	C-Max	None
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								17.0			17.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	8.1	22.4		7.7	11.2		12.5	68.6		8.7	59.7	66.8
Actuated g/C Ratio	0.07	0.19		0.06	0.09		0.10	0.57		0.07	0.50	0.56
v/c Ratio	0.33	0.15		0.07	0.59		0.54	0.75		0.38	0.49	0.10
Control Delay	57.1	20.9		51.3	25.7		48.0	29.4		77.8	13.2	1.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	57.1	20.9		51.3	25.7		48.0	29.4		77.8	13.2	1.9
LOS	E	C		D	C		D	C		E	B	A
Approach Delay		43.5			26.9			31.5			14.7	
Approach LOS		D			C			C			B	
90th %ile Green (s)	10.2	10.3		15.0	15.1		15.5	53.9		12.3	50.7	10.2
90th %ile Term Code	Gap	Gap		Hold	Gap		Gap	Coord		Gap	Coord	Gap
70th %ile Green (s)	8.9	27.6		0.0	11.1		14.0	61.4		10.1	57.5	8.9
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	8.1	25.7		0.0	10.0		12.7	64.8		8.6	60.7	8.1
50th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
30th %ile Green (s)	7.2	24.8		0.0	10.0		11.3	80.9		0.0	63.0	7.2
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
10th %ile Green (s)	5.9	23.5		0.0	10.0		9.2	82.2		0.0	66.4	5.9
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
Stops (vph)	65	15		8	43		156	1262		35	440	10
Fuel Used(l)	6	2		1	6		21	152		5	52	3
CO Emissions (g/hr)	110	34		9	107		399	2819		93	959	47
NOx Emissions (g/hr)	21	7		2	21		77	544		18	185	9
VOC Emissions (g/hr)	25	8		2	25		92	650		21	221	11
Dilemma Vehicles (#)	0	0		0	0		0	4		0	38	0
Queue Length 50th (m)	8.2	1.7		1.6	7.7		18.0	178.2		6.6	76.3	5.6
Queue Length 95th (m)	15.4	13.0		6.0	27.1		m26.4	#224.5		m17.3	10.4	0.0
Internal Link Dist (m)		181.3			124.8			395.5			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	325	301		178	353		329	1894		105	1648	849
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	0.14		0.04	0.41		0.54	0.75		0.34	0.49	0.10

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 83 (69%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 26.2 Intersection LOS: C
Intersection Capacity Utilization 82.7% 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: 5: Strandherd & Systemhouse/Maravista



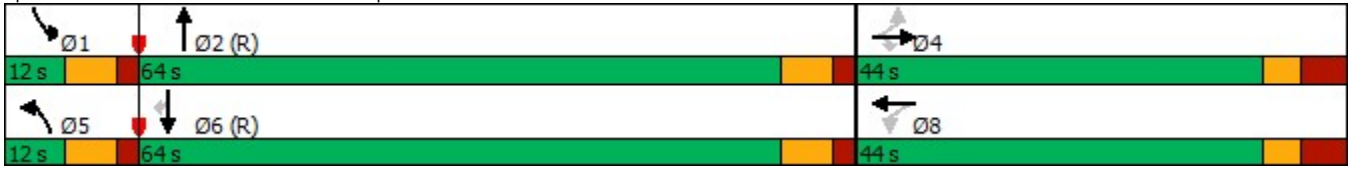


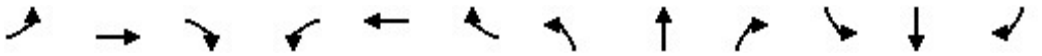
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	6	33	80	25	112	104	1420	57	56	633	82
Future Volume (vph)	55	6	33	80	25	112	104	1420	57	56	633	82
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		0.0	40.0		0.0	60.0		30.0	50.0		0.0
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (m)	7.5			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.877			0.994				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1353	1745	1483	1658	1530	0	2711	3293	0	1523	3283	1363
Flt Permitted	0.610			0.754			0.950			0.950		
Satd. Flow (perm)	869	1745	1483	1316	1530	0	2711	3293	0	1523	3283	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			94		111			5				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		358.5			381.8			229.3			419.5	
Travel Time (s)		25.8			34.4			10.3			18.9	
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 (%)	25%	2%	2%	2%	2%	2%	21%	2%	4%	11%	3%	11%
Adj. Flow (vph)	55	6	33	80	25	112	104	1420	57	56	633	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	55	6	33	80	137	0	104	1477	0	56	633	82
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	39.6	39.6	39.6	43.6	43.6		11.6	30.7		11.6	36.7	36.7
Total Split (s)	44.0	44.0	44.0	44.0	44.0		12.0	64.0		12.0	64.0	64.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%		10.0%	53.3%		10.0%	53.3%	53.3%
Maximum Green (s)	36.4	36.4	36.4	36.4	36.4		5.4	57.3		5.4	57.3	57.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	4.3	4.3	4.3	4.3	4.3		2.0	2.1		2.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6	7.6	7.6	7.6		6.6	6.7		6.6	6.7	6.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							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		None	C-Max		None	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)	25.0	25.0	25.0	29.0	29.0			17.0			23.0	23.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)	13.4	13.4	13.4	13.4	13.4		10.7	74.9		10.8	75.0	75.0
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.11		0.09	0.62		0.09	0.62	0.62
v/c Ratio	0.57	0.03	0.13	0.55	0.51		0.43	0.72		0.41	0.31	0.09
Control Delay	72.4	45.2	1.1	63.7	20.1		57.0	18.9		38.1	29.9	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	72.4	45.2	1.1	63.7	20.1		57.0	18.9		38.1	29.9	13.8
LOS	E	D	A	E	C		E	B		D	C	B
Approach Delay		45.6			36.1			21.4			28.8	
Approach LOS		D			D			C			C	
90th %ile Green (s)	18.9	18.9	18.9	18.9	18.9		13.0	66.4		13.8	67.2	67.2
90th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
70th %ile Green (s)	15.0	15.0	15.0	15.0	15.0		11.8	71.9		12.2	72.3	72.3
70th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Gap	Coord		Gap	Coord	Coord
50th %ile Green (s)	12.7	12.7	12.7	12.7	12.7		10.9	75.3		11.1	75.5	75.5
50th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Gap	Coord		Gap	Coord	Coord
30th %ile Green (s)	10.3	10.3	10.3	10.3	10.3		9.8	79.2		9.6	79.0	79.0
30th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Gap	Coord		Gap	Coord	Coord
10th %ile Green (s)	10.0	10.0	10.0	10.0	10.0		7.9	81.9		7.2	81.2	81.2
10th %ile Term Code	Hold	Hold	Hold	Min	Min		Gap	Coord		Gap	Coord	Coord
Stops (vph)	51	7	0	74	36		97	988		47	588	47
Fuel Used(l)	6	1	1	8	8		12	105		6	69	6
CO Emissions (g/hr)	113	11	21	153	152		223	1950		115	1287	117
NOx Emissions (g/hr)	22	2	4	29	29		43	376		22	248	23
VOC Emissions (g/hr)	26	2	5	35	35		51	450		27	297	27
Dilemma Vehicles (#)	0	0	0	0	0		0	62		0	15	0
Queue Length 50th (m)	12.6	1.3	0.0	18.2	5.7		12.1	114.7		11.0	78.7	10.9
Queue Length 95th (m)	25.3	5.1	0.0	32.7	23.4		20.7	172.4		21.5	100.5	19.6
Internal Link Dist (m)		334.5			357.8			205.3			395.5	
Turn Bay Length (m)	75.0			40.0			60.0			50.0		
Base Capacity (vph)	263	529	515	399	541		241	2058		136	2053	890
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	0.01	0.06	0.20	0.25		0.43	0.72		0.41	0.31	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 29 (24%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 25.6		Intersection LOS: C	
Intersection Capacity Utilization 84.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 6: Strandherd & Dealership/Kennevale

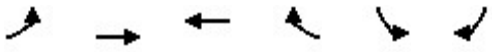




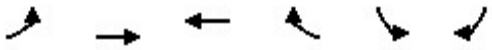
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	3	34	46	3	63	30	655	21	20	583	18
Future Volume (Veh/h)	16	3	34	46	3	63	30	655	21	20	583	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	16	3	34	46	3	63	30	655	21	20	583	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1402	1359	583	1374	1356	655	601			676		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1402	1359	583	1374	1356	655	601			676		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	82	98	93	58	98	86	97			98		
cM capacity (veh/h)	90	141	508	108	141	466	952			902		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	16	37	112	30	655	21	20	583	18
Volume Left	16	0	46	30	0	0	20	0	0
Volume Right	0	34	63	0	0	21	0	0	18
cSH	90	420	193	952	1700	1700	902	1700	1700
Volume to Capacity	0.18	0.09	0.58	0.03	0.39	0.01	0.02	0.34	0.01
Queue Length 95th (m)	4.6	2.2	24.1	0.7	0.0	0.0	0.5	0.0	0.0
Control Delay (s)	53.3	14.4	46.8	8.9	0.0	0.0	9.1	0.0	0.0
Lane LOS	F	B	E	A			A		
Approach Delay (s)	26.2		46.8	0.4			0.3		
Approach LOS	D		E						

Intersection Summary					
Average Delay	4.7				
Intersection Capacity Utilization	56.7%	ICU Level of Service		B	
Analysis Period (min)	15				



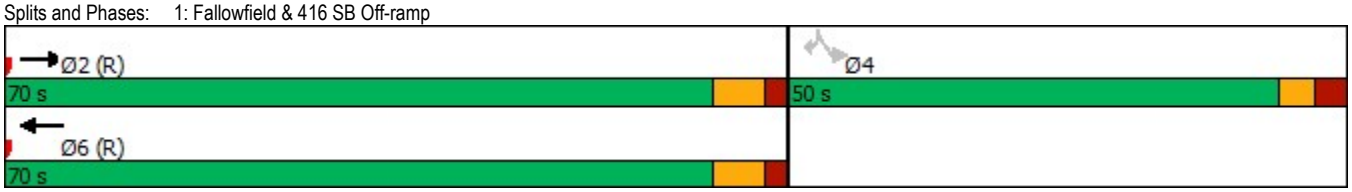
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1033	1077	0	920	275
Future Volume (vph)	0	1033	1077	0	920	275
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						71
Link Speed (k/h)		80	80		50	
Link Distance (m)		134.1	461.7		121.2	
Travel Time (s)		6.0	20.8		8.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	1033	1077	0	920	275
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1033	1077	0	920	275
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Minimum Split (s)		30.8	30.8		30.3	30.3
Total Split (s)		70.0	70.0		50.0	50.0
Total Split (%)		58.3%	58.3%		41.7%	41.7%
Maximum Green (s)		63.2	63.2		43.7	43.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		63.2	63.2		43.7	43.7
Actuated g/C Ratio		0.53	0.53		0.36	0.36
v/c Ratio		0.64	0.64		0.83	0.52
Control Delay		22.5	12.4		42.7	26.0
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		22.5	12.4		42.7	26.0
LOS		C	B		D	C
Approach Delay		22.5	12.4		38.8	
Approach LOS		C	B		D	
Stops (vph)		711	428		814	161
Fuel Used(l)		70	74		59	12
CO Emissions (g/hr)		1294	1376		1098	228
NOx Emissions (g/hr)		250	266		212	44
VOC Emissions (g/hr)		299	317		253	53



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Dilemma Vehicles (#)		43	46		0	0
Queue Length 50th (m)		87.8	40.8		100.9	37.1
Queue Length 95th (m)		109.7	59.1		127.2	63.9
Internal Link Dist (m)		110.1	437.7		97.2	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1619	1696		1106	524
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.64	0.64		0.83	0.52

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 20 (17%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Pretimed			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 25.1		Intersection LOS: C	
Intersection Capacity Utilization 74.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Fallowfield & 416 SB Off-ramp



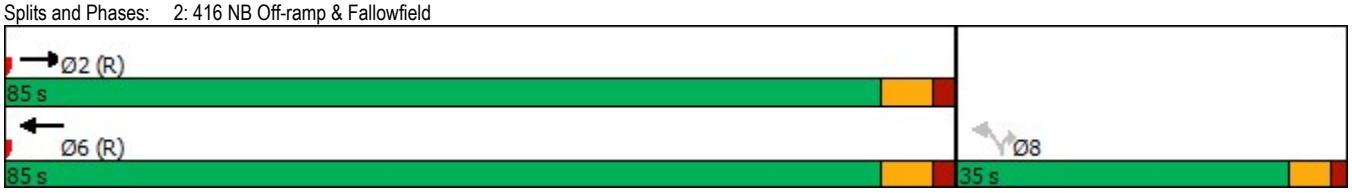


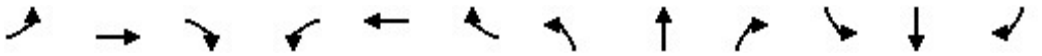
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1905	0	0	1202	123	130
Future Volume (vph)	1905	0	0	1202	123	130
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						21
Link Speed (k/h)	80			80	60	
Link Distance (m)	461.7			245.0	156.0	
Travel Time (s)	20.8			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	1905	0	0	1202	123	130
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1905	0	0	1202	123	130
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases					8	8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	85.0			85.0	35.0	35.0
Total Split (%)	70.8%			70.8%	29.2%	29.2%
Maximum Green (s)	78.3			78.3	29.7	29.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	92.5			92.5	15.5	15.5
Actuated g/C Ratio	0.77			0.77	0.13	0.13
v/c Ratio	0.77			0.47	0.65	0.64
Control Delay	6.7			2.9	64.5	55.5
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	6.7			2.9	64.5	55.5
LOS	A			A	E	E
Approach Delay	6.7			2.9	59.9	
Approach LOS	A			A	E	
90th %ile Green (s)	86.5			86.5	21.5	21.5
90th %ile Term Code	Coord			Coord	Gap	Gap
70th %ile Green (s)	90.2			90.2	17.8	17.8
70th %ile Term Code	Coord			Coord	Gap	Gap
50th %ile Green (s)	92.7			92.7	15.3	15.3
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	95.3			95.3	12.7	12.7
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	98.0			98.0	10.0	10.0
10th %ile Term Code	Coord			Coord	Min	Min
Stops (vph)	646			143	115	101
Fuel Used(l)	116			56	11	11
CO Emissions (g/hr)	2160			1050	214	197
NOx Emissions (g/hr)	417			203	41	38
VOC Emissions (g/hr)	498			242	49	45
Dilemma Vehicles (#)	94			51	0	0
Queue Length 50th (m)	45.3			17.0	28.0	24.7
Queue Length 95th (m)	122.4			30.9	45.4	43.0
Internal Link Dist (m)	437.7			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2460			2531	367	368
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.77			0.47	0.34	0.35

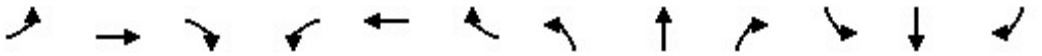
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 108 (90%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 9.3		Intersection LOS: A	
Intersection Capacity Utilization 74.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: 416 NB Off-ramp & Fallowfield





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	1612	32	3	1242	129	33	7	3	122	6	514
Future Volume (vph)	356	1612	32	3	1242	129	33	7	3	122	6	514
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				0.99		0.99
Frt			0.850			0.850		0.955				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1667	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3121	2891	1483	1658	3191	1460	3216	1667	0	1645	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			160		3				437
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			311.4			414.8	
Travel Time (s)		10.6			11.4			22.4			24.9	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	356	1612	32	3	1242	129	33	7	3	122	6	514
Shared Lane Traffic (%)												
Lane Group Flow (vph)	356	1612	32	3	1242	129	33	10	0	122	6	514
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	17.0		11.5	17.0	
Total Split (s)	24.0	60.0	14.0	24.0	60.0	60.0	14.0	22.0		14.0	22.0	
Total Split (%)	20.0%	50.0%	11.7%	20.0%	50.0%	50.0%	11.7%	18.3%		11.7%	18.3%	
Maximum Green (s)	16.9	53.1	7.5	16.9	53.1	53.1	7.5	15.0		7.5	15.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	

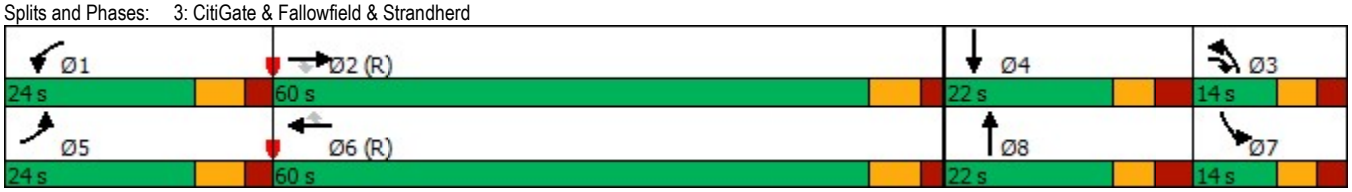


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		16.0			16.0	16.0						
Pedestrian Calls (#/hr)		1			1	1						
Act Effct Green (s)	19.2	87.5	108.6	5.8	65.7	63.9	13.4	10.0		16.6	10.4	120.0
Actuated g/C Ratio	0.16	0.73	0.90	0.05	0.55	0.53	0.11	0.08		0.14	0.09	1.00
v/c Ratio	0.71	0.77	0.02	0.04	0.71	0.15	0.09	0.07		0.53	0.04	0.36
Control Delay	49.0	13.2	0.0	83.3	12.3	1.3	47.6	49.0		57.4	51.3	0.7
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	49.0	13.2	0.0	83.3	12.3	1.3	47.6	49.0		57.4	51.3	0.7
LOS	D	B	A	F	B	A	D	D		E	D	A
Approach Delay		19.4			11.4			47.9			12.0	
Approach LOS		B			B			D			B	
90th %ile Green (s)	16.9	63.5	12.5	6.5	53.1	53.1	12.5	10.0		12.5	10.0	
90th %ile Term Code	Max	Coord	Hold	Gap	Coord	Coord	Hold	Min		Max	Min	
70th %ile Green (s)	20.7	89.1	17.5	0.0	61.3	61.3	17.5	0.0		17.5	0.0	
70th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
50th %ile Green (s)	18.8	90.2	16.4	0.0	64.3	64.3	16.4	0.0		16.4	0.0	
50th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
30th %ile Green (s)	16.8	91.5	15.1	0.0	67.6	67.6	15.1	0.0		15.1	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	13.9	94.1	0.0	0.0	73.1	73.1	0.0	0.0		12.5	12.0	
10th %ile Term Code	Gap	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Gap	Hold	
Stops (vph)	330	753	0	6	847	15	30	17		112	7	0
Fuel Used(l)	39	108	1	1	85	4	4	1		13	1	19
CO Emissions (g/hr)	729	2017	25	11	1583	66	74	26		249	13	350
NOx Emissions (g/hr)	141	389	5	2	306	13	14	5		48	2	67
VOC Emissions (g/hr)	168	465	6	3	365	15	17	6		57	3	81
Dilemma Vehicles (#)	0	65	0	0	23	0	0	0		0	0	0
Queue Length 50th (m)	40.3	82.4	0.0	0.6	79.3	1.1	3.8	1.8		26.6	1.3	0.0
Queue Length 95th (m)	m58.6	#253.5	m0.0	m1.2	177.2	m5.5	7.9	m5.1		#48.6	5.6	0.0
Internal Link Dist (m)		212.6			229.6			287.4			390.8	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	516	2107	1356	233	1746	852	370	211		229	218	1422
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	0.69	0.77	0.02	0.01	0.71	0.15	0.09	0.05		0.53	0.03	0.36

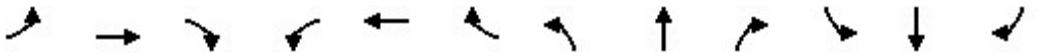
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 115 (96%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 15.8 Intersection LOS: B
Intersection Capacity Utilization 81.0% 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: 3: CitiGate & Fallowfield & Strandherd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	1457	289	43	1216	35	192	96	29	20	102	92
Future Volume (vph)	128	1457	289	43	1216	35	192	96	29	20	102	92
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	90.0			100.0			60.0			60.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.99			0.98	0.99		0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	2941	1483	3216	3221	1483	1658	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.691			0.695		
Satd. Flow (perm)	1658	2941	1465	3216	3221	1448	1198	1745	1458	1211	1745	1449
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			107			105			97			97
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		253.6			287.1			117.0			245.3	
Travel Time (s)		11.4			12.9			8.4			17.7	
Confl. Peds. (#/hr)							9		2	2		9
Confl. Bikes (#/hr)			1			4			5			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 (%)	2%	15%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	128	1457	289	43	1216	35	192	96	29	20	102	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	1457	289	43	1216	35	192	96	29	20	102	92
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.9	31.8	31.8	11.9	31.8	31.8	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (s)	15.0	56.0	56.0	15.0	56.0	56.0	49.0	49.0	49.0	49.0	49.0	49.0
Total Split (%)	12.5%	46.7%	46.7%	12.5%	46.7%	46.7%	40.8%	40.8%	40.8%	40.8%	40.8%	40.8%
Maximum Green (s)	8.1	49.2	49.2	8.1	49.2	49.2	41.3	41.3	41.3	41.3	41.3	41.3
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	3.3	3.3	3.3	3.3	3.3	3.3

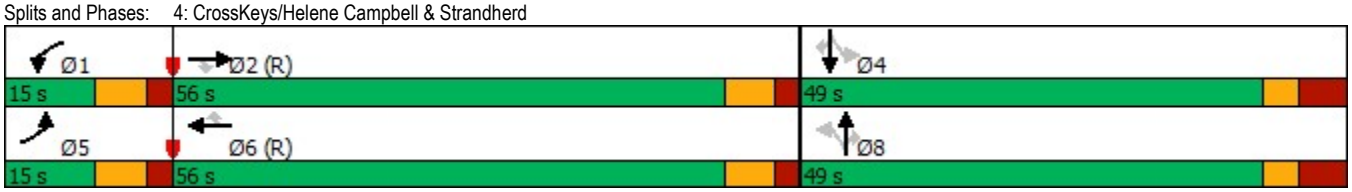


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.3	2.2	2.2	2.3	2.2	2.2	4.4	4.4	4.4	4.4	4.4	4.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.8	6.8	6.9	6.8	6.8	7.7	7.7	7.7	7.7	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
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	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	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
Flash Dont Walk (s)		18.0	18.0		18.0	18.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0	2	2	2	7	7	7
Act Effct Green (s)	16.4	68.0	68.0	7.0	56.1	56.1	26.1	26.1	26.1	26.1	26.1	26.1
Actuated g/C Ratio	0.14	0.57	0.57	0.06	0.47	0.47	0.22	0.22	0.22	0.22	0.22	0.22
v/c Ratio	0.56	0.87	0.33	0.23	0.81	0.05	0.74	0.25	0.07	0.08	0.27	0.24
Control Delay	54.6	34.2	16.8	60.6	13.8	0.2	60.3	38.8	0.4	33.1	38.1	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.6	34.2	16.8	60.6	13.8	0.2	60.3	38.8	0.4	33.1	38.1	6.8
LOS	D	C	B	E	B	A	E	D	A	C	D	A
Approach Delay		32.9			14.9			48.3			24.2	
Approach LOS		C			B			D			C	
90th %ile Green (s)	8.4	49.2	49.2	8.4	49.2	49.2	41.0	41.0	41.0	41.0	41.0	41.0
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	18.4	62.0	62.0	7.7	51.3	51.3	28.9	28.9	28.9	28.9	28.9	28.9
70th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	17.9	66.8	66.8	7.0	55.9	55.9	24.8	24.8	24.8	24.8	24.8	24.8
50th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	18.0	71.5	71.5	6.3	59.8	59.8	20.8	20.8	20.8	20.8	20.8	20.8
30th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	19.5	90.6	90.6	0.0	64.2	64.2	14.9	14.9	14.9	14.9	14.9	14.9
10th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
Stops (vph)	102	1092	165	43	340	0	175	77	0	16	79	11
Fuel Used(l)	14	130	19	5	60	1	25	11	2	1	7	3
CO Emissions (g/hr)	256	2420	353	101	1113	15	466	199	34	25	133	53
NOx Emissions (g/hr)	49	467	68	20	215	3	90	38	7	5	26	10
VOC Emissions (g/hr)	59	558	81	23	257	3	107	46	8	6	31	12
Dilemma Vehicles (#)	0	67	0	0	37	0	0	0	0	0	0	0
Queue Length 50th (m)	29.1	187.0	26.2	5.4	34.1	0.0	43.9	19.7	0.1	3.8	20.4	0.0
Queue Length 95th (m)	m#57.7	#259.8	m54.7	m7.9	#177.9	m0.0	59.0	29.5	0.2	8.7	29.8	10.2
Internal Link Dist (m)		229.6			263.1			93.0			221.3	
Turn Bay Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Base Capacity (vph)	227	1667	876	219	1505	732	412	600	565	416	600	562
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.87	0.33	0.20	0.81	0.05	0.47	0.16	0.05	0.05	0.17	0.16

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 85 (71%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 27.5 Intersection LOS: C
Intersection Capacity Utilization 83.5% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: CrossKeys/Helene Campbell & Strandherd

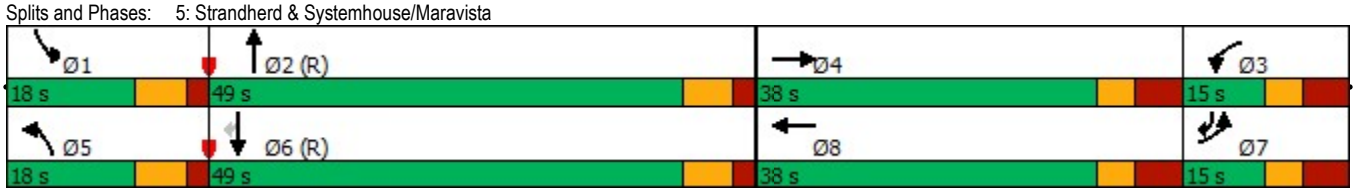


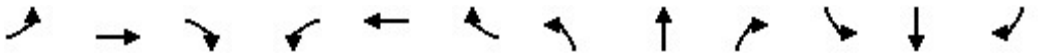
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	66	227	10	58	40	254	977	7	199	1269	35
Future Volume (vph)	181	66	227	10	58	40	254	977	7	199	1269	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99								
Frt		0.884			0.939			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3216	1523	0	1658	1558	0	3216	3312	0	1658	3316	1351
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	1523	0	1636	1558	0	3216	3312	0	1658	3316	1351
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		138			28			1				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			419.5			287.1	
Travel Time (s)		14.8			13.4			18.9			12.9	
Confl. Peds. (#/hr)			4	4								
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%	2%	2%	2%	15%	2%	2%	2%	2%	2%	12%
Adj. Flow (vph)	181	66	227	10	58	40	254	977	7	199	1269	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	181	293	0	10	98	0	254	984	0	199	1269	35
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	17.6		12.6	17.6		15.0	33.0		15.0	33.0	15.0
Total Split (s)	15.0	38.0		15.0	38.0		18.0	49.0		18.0	49.0	15.0
Total Split (%)	12.5%	31.7%		12.5%	31.7%		15.0%	40.8%		15.0%	40.8%	12.5%
Maximum Green (s)	7.4	30.4		7.4	30.4		11.4	42.3		11.4	42.3	7.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	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	C-Max		None	C-Max	None
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								17.0			17.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	13.9	30.5		6.3	12.0		14.0	42.6		23.0	51.5	64.6
Actuated g/C Ratio	0.12	0.25		0.05	0.10		0.12	0.36		0.19	0.43	0.54
v/c Ratio	0.49	0.60		0.11	0.54		0.68	0.84		0.63	0.89	0.05
Control Delay	53.4	25.8		56.5	47.4		42.6	52.5		67.2	28.2	1.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	53.4	25.8		56.5	47.4		42.6	52.5		67.2	28.2	1.7
LOS	D	C		E	D		D	D		E	C	A
Approach Delay		36.3			48.2			50.4			32.8	
Approach LOS		D			D			D			C	
90th %ile Green (s)	20.2	28.8		7.7	16.3		12.7	42.3		12.7	42.3	20.2
90th %ile Term Code	Hold	Gap		Gap	Gap		Max	Coord		Max	Coord	Hold
70th %ile Green (s)	14.1	34.7		0.0	13.0		16.9	42.3		22.1	47.5	14.1
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Max	Coord	Gap
50th %ile Green (s)	13.2	31.6		0.0	10.8		15.4	42.7		24.8	52.1	13.2
50th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
30th %ile Green (s)	12.1	29.7		0.0	10.0		13.7	43.2		26.2	55.7	12.1
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
10th %ile Green (s)	10.1	27.7		0.0	10.0		11.3	42.3		29.1	60.1	10.1
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Max	Coord	Gap
Stops (vph)	165	141		12	65		232	974		167	643	3
Fuel Used(l)	15	15		1	6		30	128		24	93	1
CO Emissions (g/hr)	273	273		14	113		558	2382		453	1733	19
NOx Emissions (g/hr)	53	53		3	22		108	460		87	334	4
VOC Emissions (g/hr)	63	63		3	26		129	549		105	400	4
Dilemma Vehicles (#)	0	0		0	0		0	2		0	85	0
Queue Length 50th (m)	21.0	31.3		2.3	16.0		29.8	130.4		50.4	46.8	0.0
Queue Length 95th (m)	30.3	62.2		7.8	32.0		#47.0	151.7		m#72.3	#211.1	m0.0
Internal Link Dist (m)		181.3			124.8			395.5			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	373	501		103	415		375	1175		317	1424	774
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	0.58		0.10	0.24		0.68	0.84		0.63	0.89	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 82 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 40.4		Intersection LOS: D	
Intersection Capacity Utilization 80.8%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 5: Strandherd & Systemhouse/Maravista



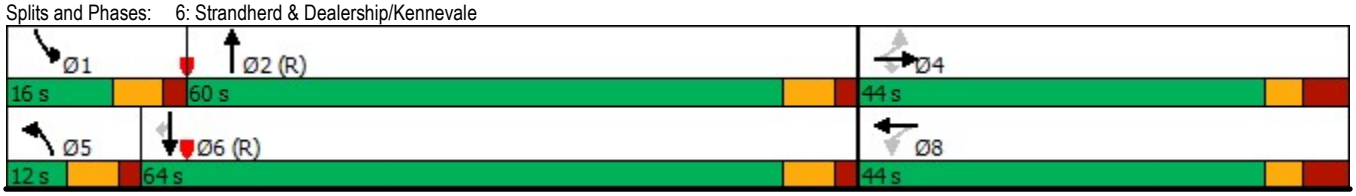


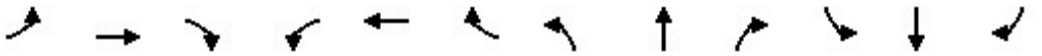
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	18	88	106	16	73	65	1015	98	152	1430	63
Future Volume (vph)	153	18	88	106	16	73	65	1015	98	152	1430	63
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		0.0	40.0		0.0	60.0		30.0	50.0		0.0
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (m)	7.5			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.877			0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	1745	1483	1658	1506	0	3216	3273	0	1642	3316	1483
Flt Permitted	0.699			0.746			0.950			0.950		
Satd. Flow (perm)	1220	1745	1483	1302	1506	0	3216	3273	0	1642	3316	1483
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			94		73			11				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		358.5			381.8			229.3			419.5	
Travel Time (s)		25.8			34.4			10.3			18.9	
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%	2%	2%	2%	4%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	153	18	88	106	16	73	65	1015	98	152	1430	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	18	88	106	89	0	65	1113	0	152	1430	63
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	39.6	39.6	39.6	43.6	43.6		11.6	30.7		11.6	36.7	36.7
Total Split (s)	44.0	44.0	44.0	44.0	44.0		12.0	60.0		16.0	64.0	64.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%		10.0%	50.0%		13.3%	53.3%	53.3%
Maximum Green (s)	36.4	36.4	36.4	36.4	36.4		5.4	53.3		9.4	57.3	57.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	4.3	4.3	4.3	4.3	4.3		2.0	2.1		2.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6	7.6	7.6	7.6		6.6	6.7		6.6	6.7	6.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							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		None	C-Max		None	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)	25.0	25.0	25.0	29.0	29.0			17.0			23.0	23.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)	20.5	20.5	20.5	20.5	20.5		7.8	58.3		20.4	73.3	73.3
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.17		0.06	0.49		0.17	0.61	0.61
v/c Ratio	0.74	0.06	0.27	0.48	0.28		0.31	0.70		0.55	0.71	0.07
Control Delay	66.8	38.5	8.8	50.6	14.3		56.9	27.4		52.3	18.2	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	66.8	38.5	8.8	50.6	14.3		56.9	27.4		52.3	18.2	1.7
LOS	E	D	A	D	B		E	C		D	B	A
Approach Delay		45.1			34.0			29.1			20.7	
Approach LOS		D			C			C			C	
90th %ile Green (s)	29.0	29.0	29.0	29.0	29.0		9.9	53.3		16.8	60.2	60.2
90th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Max	Coord	Coord
70th %ile Green (s)	24.0	24.0	24.0	24.0	24.0		8.7	54.5		20.6	66.4	66.4
70th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
50th %ile Green (s)	20.5	20.5	20.5	20.5	20.5		7.8	58.3		20.3	70.8	70.8
50th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
30th %ile Green (s)	16.9	16.9	16.9	16.9	16.9		7.0	61.4		20.8	75.2	75.2
30th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
10th %ile Green (s)	11.9	11.9	11.9	11.9	11.9		0.0	63.8		23.4	93.8	93.8
10th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Skip	Coord		Gap	Coord	Coord
Stops (vph)	142	16	12	92	23		60	843		117	1249	9
Fuel Used(l)	16	2	4	10	5		7	92		18	139	3
CO Emissions (g/hr)	302	28	72	181	91		139	1710		332	2584	50
NOx Emissions (g/hr)	58	5	14	35	18		27	330		64	499	10
VOC Emissions (g/hr)	70	6	17	42	21		32	394		77	596	12
Dilemma Vehicles (#)	0	0	0	0	0		0	46		0	11	0
Queue Length 50th (m)	34.5	3.6	0.0	22.8	3.2		7.6	103.2		25.4	170.0	1.0
Queue Length 95th (m)	53.1	9.2	11.6	37.3	16.0		14.6	139.1		m35.9	208.8	m2.8
Internal Link Dist (m)		334.5			357.8			205.3			395.5	
Turn Bay Length (m)	75.0			40.0			60.0			50.0		
Base Capacity (vph)	370	529	515	394	507		209	1594		278	2025	945
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	0.41	0.03	0.17	0.27	0.18		0.31	0.70		0.55	0.71	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 8 (7%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 26.5		Intersection LOS: C	
Intersection Capacity Utilization 78.9%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 6: Strandherd & Dealership/Kennevale



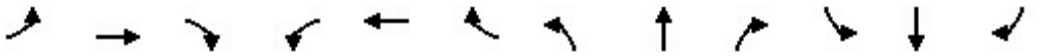


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	6	49	17	3	37	32	416	31	36	453	30
Future Volume (Veh/h)	36	6	49	17	3	37	32	416	31	36	453	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	36	6	49	17	3	37	32	416	31	36	453	30
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1044	1036	453	1057	1035	416	483			447		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1044	1036	453	1057	1035	416	483			447		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	80	97	92	90	99	94	97			97		
cM capacity (veh/h)	184	217	607	174	218	637	1080			1113		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	36	55	57	32	416	31	36	453	30
Volume Left	36	0	17	32	0	0	36	0	0
Volume Right	0	49	37	0	0	31	0	0	30
cSH	184	508	336	1080	1700	1700	1113	1700	1700
Volume to Capacity	0.20	0.11	0.17	0.03	0.24	0.02	0.03	0.27	0.02
Queue Length 95th (m)	5.3	2.8	4.6	0.7	0.0	0.0	0.8	0.0	0.0
Control Delay (s)	29.2	13.0	17.9	8.4	0.0	0.0	8.3	0.0	0.0
Lane LOS	D	B	C	A			A		
Approach Delay (s)	19.4		17.9	0.6			0.6		
Approach LOS	C		C						

Intersection Summary					
Average Delay	2.9				
Intersection Capacity Utilization	48.5%	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)	646	1012	34	5	1726	60	22	3	4	84	6	349
Future Volume (vph)	646	1012	34	5	1726	60	22	3	4	84	6	349
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				1.00		0.99
Frt			0.850			0.850		0.914				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1595	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3123	2891	1483	1658	3191	1459	3216	1595	0	1655	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			225		4				349
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			156.6			207.3	
Travel Time (s)		10.6			11.4			11.3			12.4	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	646	1012	34	5	1726	60	22	3	4	84	6	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	646	1012	34	5	1726	60	22	7	0	84	6	349
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	48.0		11.5	48.0	
Total Split (s)	28.0	46.0	13.0	13.0	31.0	31.0	13.0	48.0		13.0	48.0	
Total Split (%)	23.3%	38.3%	10.8%	10.8%	25.8%	25.8%	10.8%	40.0%		10.8%	40.0%	
Maximum Green (s)	20.9	39.1	6.5	5.9	24.1	24.1	6.5	41.0		6.5	41.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		16.0			16.0	16.0		34.0			34.0	
Pedestrian Calls (#/hr)		1			1	1		1			1	
Act Effct Green (s)	33.9	85.6	102.9	5.8	48.9	47.1	9.6	16.2		12.4	16.2	120.0
Actuated g/C Ratio	0.28	0.71	0.86	0.05	0.41	0.39	0.08	0.14		0.10	0.14	1.00
v/c Ratio	0.73	0.49	0.03	0.06	1.33	0.08	0.09	0.03		0.49	0.03	0.25
Control Delay	45.6	14.1	0.0	39.6	188.6	3.4	51.8	27.1		61.6	37.5	0.4
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	45.6	14.1	0.0	39.6	188.6	3.4	51.8	27.1		61.6	37.5	0.4
LOS	D	B	A	D	F	A	D	C		E	D	A
Approach Delay		25.9			182.0			45.9			12.6	
Approach LOS		C			F			D			B	
90th %ile Green (s)	20.9	39.1	6.5	5.9	24.1	24.1	6.5	41.0		6.5	41.0	
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Ped		Max	Ped	
70th %ile Green (s)	34.1	92.8	13.8	0.0	51.6	51.6	13.8	0.0		13.8	0.0	
70th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
50th %ile Green (s)	33.4	94.5	12.1	0.0	54.0	54.0	12.1	0.0		12.1	0.0	
50th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
30th %ile Green (s)	34.3	96.3	10.3	0.0	54.9	54.9	10.3	0.0		10.3	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	37.9	96.1	0.0	0.0	51.1	51.1	0.0	0.0		10.5	10.0	
10th %ile Term Code	Gap	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Hold	Hold	
Stops (vph)	519	389	0	6	1281	7	22	6		72	6	0
Fuel Used(l)	64	52	1	1	397	3	2	0		8	0	6
CO Emissions (g/hr)	1199	970	12	13	7392	58	32	7		145	9	119
NOx Emissions (g/hr)	231	187	2	3	1427	11	6	1		28	2	23
VOC Emissions (g/hr)	277	224	3	3	1705	13	7	2		34	2	27
Dilemma Vehicles (#)	0	40	0	0	60	0	0	0		0	0	0
Queue Length 50th (m)	69.8	30.6	0.0	1.1	~261.9	0.0	2.4	0.7		18.7	1.3	0.0
Queue Length 95th (m)	#124.3	#174.4	0.0	m1.8	#411.4	m2.2	6.9	3.8		#45.4	3.9	0.0
Internal Link Dist (m)		212.6			229.6			132.6			183.3	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	882	2061	1288	82	1301	709	263	547		171	596	1422
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	0.73	0.49	0.03	0.06	1.33	0.08	0.08	0.01		0.49	0.01	0.25

Intersection Summary

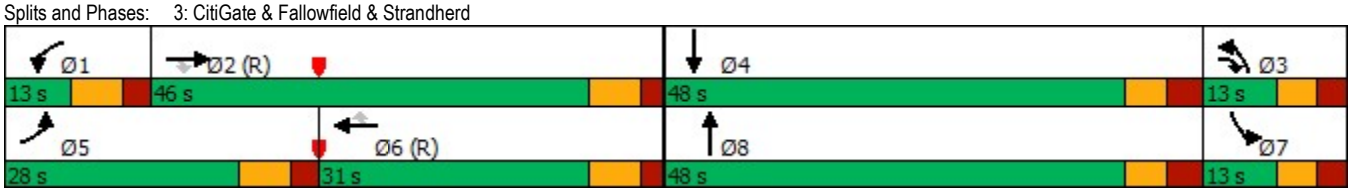
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 7 (6%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.33
Intersection Signal Delay: 95.3 Intersection LOS: F
Intersection Capacity Utilization 97.4% ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd



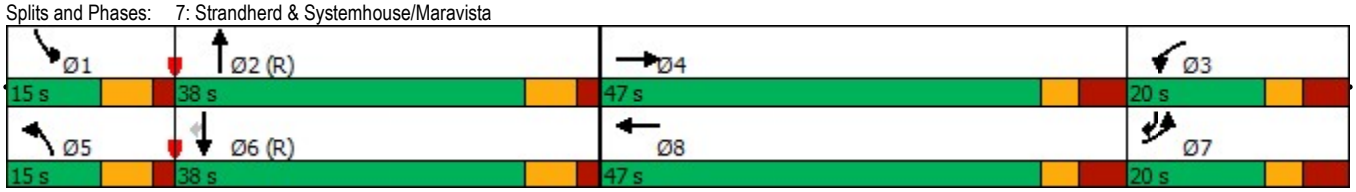
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	9	33	7	34	110	179	1414	9	36	804	81
Future Volume (vph)	70	9	33	7	34	110	179	1414	9	36	804	81
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.882			0.885			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3154	1355	0	1658	1544	0	3154	3311	0	1321	3316	1363
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3154	1355	0	1656	1544	0	3154	3311	0	1321	3316	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			110							102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
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%	43%	7%	2%	2%	2%	4%	2%	11%	28%	2%	11%
Adj. Flow (vph)	70	9	33	7	34	110	179	1414	9	36	804	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	42	0	7	144	0	179	1423	0	36	804	81
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	47.0		15.0	47.0		15.0	33.0		15.0	33.0	15.0
Total Split (s)	20.0	47.0		20.0	47.0		15.0	38.0		15.0	38.0	20.0
Total Split (%)	16.7%	39.2%		16.7%	39.2%		12.5%	31.7%		12.5%	31.7%	16.7%
Maximum Green (s)	12.4	39.4		12.4	39.4		8.4	31.3		8.4	31.3	12.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	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	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		32.0			32.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			1			0			0	
Act Effct Green (s)	8.1	22.4		12.5	16.0		11.6	64.1		8.5	55.8	62.9
Actuated g/C Ratio	0.07	0.19		0.10	0.13		0.10	0.53		0.07	0.46	0.52
v/c Ratio	0.33	0.15		0.04	0.48		0.59	0.80		0.39	0.52	0.11
Control Delay	57.1	20.9		40.4	17.7		60.0	30.0		58.3	31.2	4.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	57.1	20.9		40.4	17.7		60.0	30.0		58.3	31.2	4.1
LOS	E	C		D	B		E	C		E	C	A
Approach Delay		43.5			18.7			33.3			29.8	
Approach LOS		D			B			C			C	
90th %ile Green (s)	10.2	10.3		38.9	39.0		11.0	31.3		11.0	31.3	10.2
90th %ile Term Code	Gap	Gap		Hold	Ped		Max	Coord		Max	Coord	Gap
70th %ile Green (s)	8.9	27.6		0.0	11.1		14.0	61.4		10.1	57.5	8.9
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	8.1	25.7		0.0	10.0		12.7	64.8		8.6	60.7	8.1
50th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
30th %ile Green (s)	7.2	24.8		0.0	10.0		11.3	80.9		0.0	63.0	7.2
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
10th %ile Green (s)	5.9	23.5		0.0	10.0		9.2	82.2		0.0	66.4	5.9
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
Stops (vph)	65	15		7	36		169	888		33	633	22
Fuel Used(l)	6	2		0	5		21	107		5	90	5
CO Emissions (g/hr)	110	34		8	88		389	1994		94	1671	92
NOx Emissions (g/hr)	21	7		2	17		75	385		18	322	18
VOC Emissions (g/hr)	25	8		2	20		90	460		22	385	21
Dilemma Vehicles (#)	0	0		0	0		0	52		0	26	0
Queue Length 50th (m)	8.2	1.7		1.6	7.7		20.9	136.5		8.3	80.1	1.7
Queue Length 95th (m)	15.4	13.0		4.5	20.1		33.0	#297.8		m13.4	#139.0	15.2
Internal Link Dist (m)		181.3			124.8			185.4			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	325	467		244	580		305	1769		102	1541	808
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	0.09		0.03	0.25		0.59	0.80		0.35	0.52	0.10

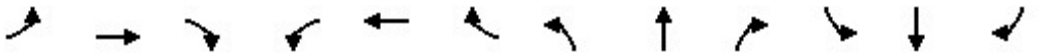
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 48 (40%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 31.8 Intersection LOS: C
Intersection Capacity Utilization 82.8% 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: 7: Strandherd & Systemhouse/Maravista



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	1612	32	3	1242	129	33	7	3	122	6	514
Future Volume (vph)	356	1612	32	3	1242	129	33	7	3	122	6	514
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				1.00		0.99
Frt			0.850			0.850		0.955				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1667	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3121	2891	1483	1658	3191	1460	3216	1667	0	1655	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			160		3				514
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			155.7			207.3	
Travel Time (s)		10.6			11.4			11.2			12.4	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	356	1612	32	3	1242	129	33	7	3	122	6	514
Shared Lane Traffic (%)												
Lane Group Flow (vph)	356	1612	32	3	1242	129	33	10	0	122	6	514
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	48.0		11.5	48.0	
Total Split (s)	24.0	34.0	14.0	24.0	34.0	34.0	14.0	48.0		14.0	48.0	
Total Split (%)	20.0%	28.3%	11.7%	20.0%	28.3%	28.3%	11.7%	40.0%		11.7%	40.0%	
Maximum Green (s)	16.9	27.1	7.5	16.9	27.1	27.1	7.5	41.0		7.5	41.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	

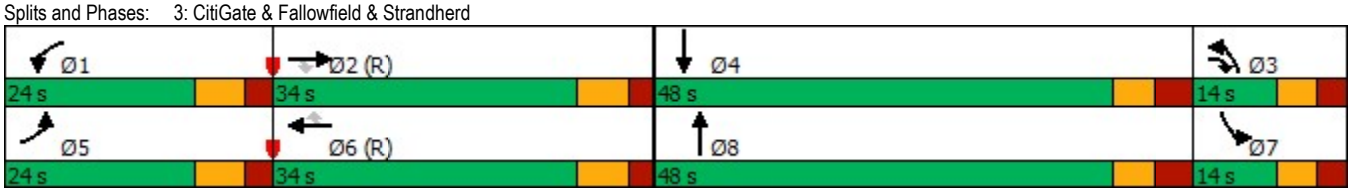


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		16.0			16.0	16.0		34.0			34.0	
Pedestrian Calls (#/hr)		1			1	1		1			1	
Act Effct Green (s)	19.2	78.9	102.4	5.8	57.1	55.3	15.8	16.2		15.6	16.6	120.0
Actuated g/C Ratio	0.16	0.66	0.85	0.05	0.48	0.46	0.13	0.14		0.13	0.14	1.00
v/c Ratio	0.71	0.85	0.03	0.04	0.82	0.17	0.08	0.04		0.57	0.02	0.36
Control Delay	56.2	24.8	0.0	71.7	21.2	1.3	45.2	31.6		60.5	37.5	0.7
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	56.2	24.8	0.0	71.7	21.2	1.3	45.2	31.6		60.5	37.5	0.7
LOS	E	C	A	E	C	A	D	C		E	D	A
Approach Delay		30.0			19.4			42.0			12.4	
Approach LOS		C			B			D			B	
90th %ile Green (s)	16.9	37.5	7.5	6.5	27.1	27.1	7.5	41.0		7.5	41.0	
90th %ile Term Code	Max	Coord	Max	Gap	Coord	Coord	Max	Ped		Max	Ped	
70th %ile Green (s)	20.7	72.1	34.5	0.0	44.3	44.3	34.5	10.0		17.5	0.0	
70th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Min		Gap	Skip	
50th %ile Green (s)	18.8	90.2	16.4	0.0	64.3	64.3	16.4	0.0		16.4	0.0	
50th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
30th %ile Green (s)	16.8	91.5	15.1	0.0	67.6	67.6	15.1	0.0		15.1	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	13.9	94.1	0.0	0.0	73.1	73.1	0.0	0.0		12.5	12.0	
10th %ile Term Code	Gap	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Gap	Hold	
Stops (vph)	330	858	0	5	529	13	30	8		99	6	0
Fuel Used(l)	41	110	1	1	103	6	2	1		11	0	10
CO Emissions (g/hr)	762	2046	11	11	1924	118	43	11		206	9	177
NOx Emissions (g/hr)	147	395	2	2	371	23	8	2		40	2	34
VOC Emissions (g/hr)	176	472	3	2	444	27	10	2		48	2	41
Dilemma Vehicles (#)	0	59	0	0	8	0	0	0		0	0	0
Queue Length 50th (m)	40.8	89.1	0.0	0.6	36.2	0.1	3.5	1.5		26.6	1.3	0.0
Queue Length 95th (m)	57.7	#336.2	0.0	m1.3	m#268.9	m2.0	9.1	4.9		#66.5	3.9	0.0
Internal Link Dist (m)		212.6			229.6			131.7			183.3	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	516	1900	1284	233	1517	758	434	571		215	596	1422
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	0.69	0.85	0.02	0.01	0.82	0.17	0.08	0.02		0.57	0.01	0.36

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 115 (96%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 23.8 Intersection LOS: C
Intersection Capacity Utilization 82.3% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd



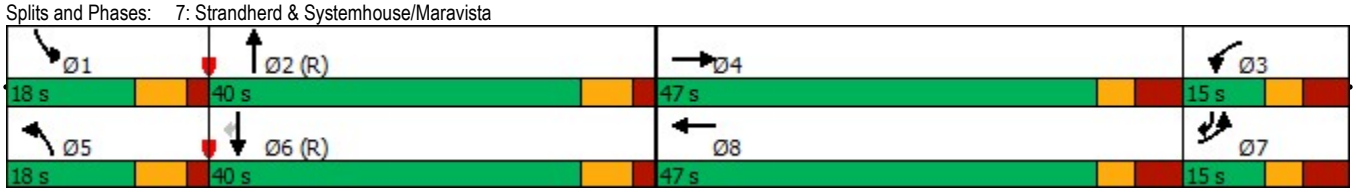
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	66	227	10	58	40	254	977	7	199	1269	35
Future Volume (vph)	181	66	227	10	58	40	254	977	7	199	1269	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.884			0.939			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3216	1524	0	1658	1558	0	3216	3312	0	1658	3316	1351
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	1524	0	1654	1558	0	3216	3312	0	1658	3316	1351
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		154			31			1				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
Confl. Peds. (#/hr)			4	4								
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%	2%	2%	2%	15%	2%	2%	2%	2%	2%	12%
Adj. Flow (vph)	181	66	227	10	58	40	254	977	7	199	1269	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	181	293	0	10	98	0	254	984	0	199	1269	35
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	47.0		15.0	47.0		15.0	33.0		15.0	33.0	15.0
Total Split (s)	15.0	47.0		15.0	47.0		18.0	40.0		18.0	40.0	15.0
Total Split (%)	12.5%	39.2%		12.5%	39.2%		15.0%	33.3%		15.0%	33.3%	12.5%
Maximum Green (s)	7.4	39.4		7.4	39.4		11.4	33.3		11.4	33.3	7.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	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	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		32.0			32.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			3			0			0	
Act Effct Green (s)	11.5	30.3		8.5	16.5		13.7	39.8		23.7	49.8	60.4
Actuated g/C Ratio	0.10	0.25		0.07	0.14		0.11	0.33		0.20	0.42	0.50
v/c Ratio	0.59	0.59		0.09	0.41		0.69	0.89		0.61	0.92	0.05
Control Delay	60.6	23.3		50.1	34.6		61.5	49.9		52.9	43.1	4.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	60.6	23.3		50.1	34.6		61.5	49.9		52.9	43.1	4.6
LOS	E	C		D	C		E	D		D	D	A
Approach Delay		37.6			36.0			52.3			43.5	
Approach LOS		D			D			D			D	
90th %ile Green (s)	7.8	28.2		18.6	39.0		11.4	33.3		11.4	33.3	7.8
90th %ile Term Code	Max	Gap		Hold	Ped		Max	Coord		Max	Coord	Max
70th %ile Green (s)	14.1	34.5		0.0	12.8		16.9	40.0		24.6	47.7	14.1
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	13.2	31.4		0.0	10.6		15.4	43.0		24.7	52.3	13.2
50th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
30th %ile Green (s)	12.1	29.7		0.0	10.0		13.7	43.3		26.1	55.7	12.1
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
10th %ile Green (s)	10.1	27.7		0.0	10.0		11.3	39.6		31.8	60.1	10.1
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
Stops (vph)	158	127		11	58		226	837		163	840	7
Fuel Used(l)	16	14		1	5		29	102		26	144	2
CO Emissions (g/hr)	289	257		13	93		543	1898		482	2684	37
NOx Emissions (g/hr)	56	50		3	18		105	366		93	518	7
VOC Emissions (g/hr)	67	59		3	21		125	438		111	619	9
Dilemma Vehicles (#)	0	0		0	0		0	39		0	44	0
Queue Length 50th (m)	21.0	27.6		2.3	15.3		29.5	110.4		47.0	100.5	0.0
Queue Length 95th (m)	#42.3	58.4		7.0	23.9		#51.8	#176.2		m#81.1	#258.7	m1.4
Internal Link Dist (m)		181.3			124.8			185.4			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	307	603		133	532		368	1100		327	1376	730
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	0.59	0.49		0.08	0.18		0.69	0.89		0.61	0.92	0.05

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 82 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 45.7 Intersection LOS: D
Intersection Capacity Utilization 82.6% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Strandherd & Systemhouse/Maravista



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	646	1012	34	5	1726	60	22	3	4	84	6	349
Future Volume (vph)	646	1012	34	5	1726	60	22	3	4	84	6	349
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				0.99		0.99
Frt			0.850			0.850		0.914				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1595	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3123	2891	1483	1658	3191	1460	3216	1595	0	1644	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			160		4				322
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			311.4			414.8	
Travel Time (s)		10.6			11.4			22.4			24.9	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	646	1012	34	5	1726	60	22	3	4	84	6	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	646	1012	34	5	1726	60	22	7	0	84	6	349
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	17.0		11.5	17.0	
Total Split (s)	20.0	72.0	13.0	13.0	65.0	65.0	13.0	22.0		13.0	22.0	
Total Split (%)	16.7%	60.0%	10.8%	10.8%	54.2%	54.2%	10.8%	18.3%		10.8%	18.3%	
Maximum Green (s)	12.9	65.1	6.5	5.9	58.1	58.1	6.5	15.0		6.5	15.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		16.0			16.0	16.0						
Pedestrian Calls (#/hr)		1			1	1						
Act Effct Green (s)	28.2	90.8	109.1	5.8	59.9	58.1	10.6	10.0		13.4	10.0	120.0
Actuated g/C Ratio	0.24	0.76	0.91	0.05	0.50	0.48	0.09	0.08		0.11	0.08	1.00
v/c Ratio	0.88	0.46	0.03	0.06	1.08	0.08	0.08	0.05		0.45	0.04	0.25
Control Delay	58.8	7.9	0.0	80.0	74.5	0.5	53.3	56.6		58.0	51.3	0.4
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	58.8	7.9	0.0	80.0	74.5	0.5	53.3	56.6		58.0	51.3	0.4
LOS	E	A	A	E	E	A	D	E		E	D	A
Approach Delay		27.2			72.0			54.1			12.1	
Approach LOS		C			E			D			B	
90th %ile Green (s)	12.9	65.1	11.5	5.9	58.1	58.1	11.5	10.0		11.5	10.0	
90th %ile Term Code	Max	Coord	Hold	Max	Coord	Coord	Hold	Min		Max	Min	
70th %ile Green (s)	27.6	92.8	13.8	0.0	58.1	58.1	13.8	0.0		13.8	0.0	
70th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
50th %ile Green (s)	29.3	94.5	12.1	0.0	58.1	58.1	12.1	0.0		12.1	0.0	
50th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
30th %ile Green (s)	31.1	96.3	10.3	0.0	58.1	58.1	10.3	0.0		10.3	0.0	
30th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	30.9	96.1	0.0	0.0	58.1	58.1	0.0	0.0		10.5	10.0	
10th %ile Term Code	Max	Coord	Skip	Skip	Coord	Coord	Skip	Skip		Hold	Hold	
Stops (vph)	533	328	0	7	1556	2	20	17		78	7	0
Fuel Used(l)	74	59	1	1	223	1	3	1		9	1	13
CO Emissions (g/hr)	1373	1100	26	15	4141	25	51	21		173	13	236
NOx Emissions (g/hr)	265	212	5	3	799	5	10	4		33	2	46
VOC Emissions (g/hr)	317	254	6	3	955	6	12	5		40	3	54
Dilemma Vehicles (#)	0	56	0	0	37	0	0	0		0	0	0
Queue Length 50th (m)	78.2	36.9	0.0	1.0	~247.7	0.0	2.2	0.8		18.7	1.3	0.0
Queue Length 95th (m)	#154.1	65.7	m0.0	m1.9	#290.6	m0.2	6.6	4.4		35.1	5.6	0.0
Internal Link Dist (m)		212.6			229.6			287.4			390.8	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	733	2186	1360	82	1592	789	290	202		185	218	1422
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	0.88	0.46	0.03	0.06	1.08	0.08	0.08	0.03		0.45	0.03	0.25

Intersection Summary

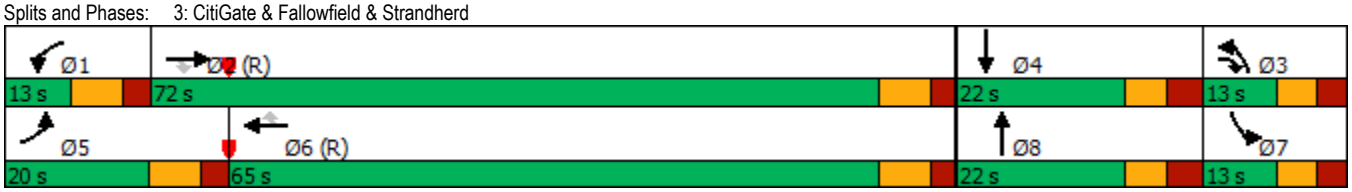
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 101 (84%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.08
Intersection Signal Delay: 46.1 Intersection LOS: D
Intersection Capacity Utilization 95.9% ICU Level of Service F
Analysis Period (min) 15

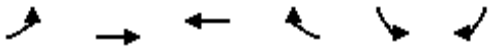
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

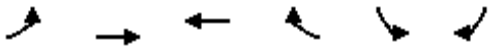
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2053	1171	0	683	127
Future Volume (vph)	0	2053	1171	0	683	127
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3131	0	3124	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3131	0	3124	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						55
Link Speed (k/h)		80	80		50	
Link Distance (m)		102.8	540.9		106.5	
Travel Time (s)		4.6	24.3		7.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	8%	2%	5%	15%
Adj. Flow (vph)	0	2053	1171	0	683	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2053	1171	0	683	127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		32.3	32.3
Total Split (s)		70.0	70.0		50.0	50.0
Total Split (%)		58.3%	58.3%		41.7%	41.7%
Maximum Green (s)		63.2	63.2		43.7	43.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		Max	Max
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		63.2	63.2		43.7	43.7
Actuated g/C Ratio		0.53	0.53		0.36	0.36
v/c Ratio		1.27	0.71		0.60	0.25
Control Delay		153.3	28.2		33.8	16.5
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		153.3	28.2		33.8	16.5
LOS		F	C		C	B
Approach Delay		153.3	28.2		31.1	
Approach LOS		F	C		C	
90th %ile Green (s)		63.2	63.2		43.7	43.7
90th %ile Term Code		Coord	Coord		MaxR	MaxR
70th %ile Green (s)		63.2	63.2		43.7	43.7
70th %ile Term Code		Coord	Coord		MaxR	MaxR
50th %ile Green (s)		63.2	63.2		43.7	43.7
50th %ile Term Code		Coord	Coord		MaxR	MaxR
30th %ile Green (s)		63.2	63.2		43.7	43.7
30th %ile Term Code		Coord	Coord		MaxR	MaxR
10th %ile Green (s)		63.2	63.2		43.7	43.7
10th %ile Term Code		Coord	Coord		MaxR	MaxR
Stops (vph)		1636	973		542	51
Fuel Used(l)		353	131		37	4
CO Emissions (g/hr)		6560	2438		685	75
NOx Emissions (g/hr)		1266	470		132	15
VOC Emissions (g/hr)		1513	562		158	17
Dilemma Vehicles (#)		67	20		0	0
Queue Length 50th (m)		~320.6	122.6		66.8	11.3
Queue Length 95th (m)		#362.4	157.3		85.9	25.7
Internal Link Dist (m)		78.8	516.9		82.5	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1619	1648		1137	514
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		1.27	0.71		0.60	0.25

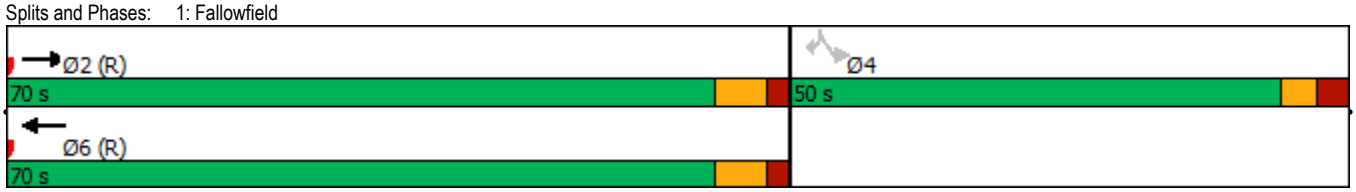
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 22.3 (19%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.27
Intersection Signal Delay: 92.4 Intersection LOS: F
Intersection Capacity Utilization 103.7% 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.

Splits and Phases: 1: Fallowfield



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2402	0	0	1073	184	361
Future Volume (vph)	2402	0	0	1073	184	361
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						7
Link Speed (k/h)	80			80	60	
Link Distance (m)	540.9			245.0	156.0	
Travel Time (s)	24.3			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	2402	0	0	1073	184	361
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2402	0	0	1073	184	361
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	85.0			85.0	35.0	35.0
Total Split (%)	70.8%			70.8%	29.2%	29.2%
Maximum Green (s)	78.3			78.3	29.7	29.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	78.3			78.3	29.7	29.7
Actuated g/C Ratio	0.65			0.65	0.25	0.25
v/c Ratio	1.15			0.50	0.50	1.01
Control Delay	98.4			11.8	44.4	94.2
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	98.4			11.8	44.4	94.2
LOS	F			B	D	F
Approach Delay	98.4			11.8	77.4	
Approach LOS	F			B	E	
90th %ile Green (s)	78.3			78.3	29.7	29.7
90th %ile Term Code	Coord			Coord	Max	Max
70th %ile Green (s)	78.3			78.3	29.7	29.7
70th %ile Term Code	Coord			Coord	Max	Max
50th %ile Green (s)	78.3			78.3	29.7	29.7
50th %ile Term Code	Coord			Coord	Max	Max
30th %ile Green (s)	78.3			78.3	29.7	29.7
30th %ile Term Code	Coord			Coord	Max	Max
10th %ile Green (s)	78.3			78.3	29.7	29.7
10th %ile Term Code	Coord			Coord	Max	Max
Stops (vph)	2127			523	156	304
Fuel Used(l)	406			60	14	41
CO Emissions (g/hr)	7554			1124	257	760
NOx Emissions (g/hr)	1458			217	50	147
VOC Emissions (g/hr)	1742			259	59	175
Dilemma Vehicles (#)	13			45	0	0
Queue Length 50th (m)	~360.3			63.2	37.4	~85.2
Queue Length 95th (m)	m270.3			78.3	60.1	#146.6
Internal Link Dist (m)	516.9			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2082			2142	367	358
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	1.15			0.50	0.50	1.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 81 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.15			
Intersection Signal Delay: 72.4		Intersection LOS: E	
Intersection Capacity Utilization 103.7%		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: 2: 416 NB Off-ramp & Fallowfield



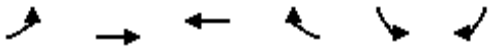
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2134	0	0	1624	129	149
Future Volume (vph)	2134	0	0	1624	129	149
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						12
Link Speed (k/h)	80			80	60	
Link Distance (m)	529.9			245.0	156.0	
Travel Time (s)	23.8			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	2134	0	0	1624	129	149
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2134	0	0	1624	129	149
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases					8	8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	85.0			85.0	35.0	35.0
Total Split (%)	70.8%			70.8%	29.2%	29.2%
Maximum Green (s)	78.3			78.3	29.7	29.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	91.0			91.0	17.0	17.0
Actuated g/C Ratio	0.76			0.76	0.14	0.14
v/c Ratio	0.88			0.65	0.62	0.70
Control Delay	10.5			9.2	60.2	61.9
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	10.5			9.2	60.2	61.9
LOS	B			A	E	E
Approach Delay	10.5			9.2	61.1	
Approach LOS	B			A	E	
90th %ile Green (s)	83.9			83.9	24.1	24.1
90th %ile Term Code	Coord			Coord	Gap	Gap
70th %ile Green (s)	88.1			88.1	19.9	19.9
70th %ile Term Code	Coord			Coord	Gap	Gap
50th %ile Green (s)	91.1			91.1	16.9	16.9
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	94.0			94.0	14.0	14.0
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	98.0			98.0	10.0	10.0
10th %ile Term Code	Coord			Coord	Min	Min
Stops (vph)	1129			750	119	127
Fuel Used(l)	171			86	12	13
CO Emissions (g/hr)	3180			1597	215	246
NOx Emissions (g/hr)	614			308	42	47
VOC Emissions (g/hr)	734			368	50	57
Dilemma Vehicles (#)	69			68	0	0
Queue Length 50th (m)	56.3			81.8	29.0	31.2
Queue Length 95th (m)	#302.8			131.4	45.9	49.9
Internal Link Dist (m)	505.9			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2420			2490	367	362
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.88			0.65	0.35	0.41

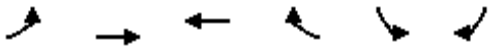
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 108 (90%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 13.5		Intersection LOS: B	
Intersection Capacity Utilization 82.2%		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: 2: 416 NB Off-ramp & Fallowfield





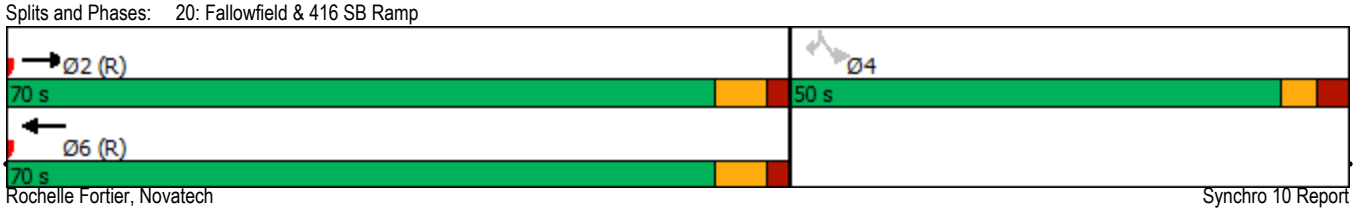
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1169	1424	0	989	287
Future Volume (vph)	0	1169	1424	0	989	287
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						28
Link Speed (k/h)		80	80		50	
Link Distance (m)		110.6	529.9		109.0	
Travel Time (s)		5.0	23.8		7.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	1169	1424	0	989	287
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1169	1424	0	989	287
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		30.3	30.3
Total Split (s)		70.0	70.0		50.0	50.0
Total Split (%)		58.3%	58.3%		41.7%	41.7%
Maximum Green (s)		63.2	63.2		43.7	43.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		Max	Max
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		63.2	63.2		43.7	43.7
Actuated g/C Ratio		0.53	0.53		0.36	0.36
v/c Ratio		0.72	0.84		0.89	0.58
Control Delay		24.9	23.1		47.6	33.1
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		24.9	23.1		47.6	33.1
LOS		C	C		D	C
Approach Delay		24.9	23.1		44.4	
Approach LOS		C	C		D	
90th %ile Green (s)		63.2	63.2		43.7	43.7
90th %ile Term Code		Coord	Coord		MaxR	MaxR
70th %ile Green (s)		63.2	63.2		43.7	43.7
70th %ile Term Code		Coord	Coord		MaxR	MaxR
50th %ile Green (s)		63.2	63.2		43.7	43.7
50th %ile Term Code		Coord	Coord		MaxR	MaxR
30th %ile Green (s)		63.2	63.2		43.7	43.7
30th %ile Term Code		Coord	Coord		MaxR	MaxR
10th %ile Green (s)		63.2	63.2		43.7	43.7
10th %ile Term Code		Coord	Coord		MaxR	MaxR
Stops (vph)		865	1203		883	208
Fuel Used(l)		82	154		66	15
CO Emissions (g/hr)		1529	2860		1233	278
NOx Emissions (g/hr)		295	552		238	54
VOC Emissions (g/hr)		353	660		284	64
Dilemma Vehicles (#)		49	55		0	0
Queue Length 50th (m)		106.5	149.8		112.2	48.8
Queue Length 95th (m)		132.1	141.3		#149.4	77.7
Internal Link Dist (m)		86.6	505.9		85.0	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1619	1696		1106	497
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.72	0.84		0.89	0.58

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 4 (3%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 30.7		Intersection LOS: C	
Intersection Capacity Utilization 82.2%		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: 20: Fallowfield & 416 SB Ramp



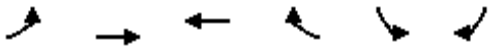
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2402	0	0	1073	184	361
Future Volume (vph)	2402	0	0	1073	184	361
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						9
Link Speed (k/h)	80			80	60	
Link Distance (m)	540.9			245.0	156.0	
Travel Time (s)	24.3			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	2402	0	0	1073	184	361
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2402	0	0	1073	184	361
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	97.0			97.0	33.0	33.0
Total Split (%)	74.6%			74.6%	25.4%	25.4%
Maximum Green (s)	90.3			90.3	27.7	27.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	90.3			90.3	27.7	27.7
Actuated g/C Ratio	0.69			0.69	0.21	0.21
v/c Ratio	1.08			0.47	0.58	1.16
Control Delay	61.1			9.8	54.5	146.0
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	61.1			9.8	54.5	146.0
LOS	E			A	D	F
Approach Delay	61.1			9.8	115.1	
Approach LOS	E			A	F	
90th %ile Green (s)	90.3			90.3	27.7	27.7
90th %ile Term Code	Coord			Coord	Max	Max
70th %ile Green (s)	90.3			90.3	27.7	27.7
70th %ile Term Code	Coord			Coord	Max	Max
50th %ile Green (s)	90.3			90.3	27.7	27.7
50th %ile Term Code	Coord			Coord	Max	Max
30th %ile Green (s)	90.3			90.3	27.7	27.7
30th %ile Term Code	Coord			Coord	Max	Max
10th %ile Green (s)	90.3			90.3	27.7	27.7
10th %ile Term Code	Coord			Coord	Max	Max
Stops (vph)	1931			457	164	289
Fuel Used(l)	326			55	16	55
CO Emissions (g/hr)	6064			1023	288	1019
NOx Emissions (g/hr)	1170			198	56	197
VOC Emissions (g/hr)	1399			236	67	235
Dilemma Vehicles (#)	98			41	0	0
Queue Length 50th (m)	~362.0			59.6	42.7	~107.8
Queue Length 95th (m)	m#372.3			72.9	67.4	#168.4
Internal Link Dist (m)	516.9			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2216			2280	315	311
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	1.08			0.47	0.58	1.16

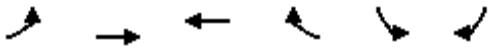
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 20 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.16			
Intersection Signal Delay: 54.8		Intersection LOS: D	
Intersection Capacity Utilization 103.7%		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: 2: 416 NB Off-ramp & Fallowfield





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2053	1171	0	683	127
Future Volume (vph)	0	2053	1171	0	683	127
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3131	0	3124	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3131	0	3124	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						111
Link Speed (k/h)		80	80		50	
Link Distance (m)		102.8	540.9		106.5	
Travel Time (s)		4.6	24.3		7.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	8%	2%	5%	15%
Adj. Flow (vph)	0	2053	1171	0	683	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2053	1171	0	683	127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		32.3	32.3
Total Split (s)		95.0	95.0		35.0	35.0
Total Split (%)		73.1%	73.1%		26.9%	26.9%
Maximum Green (s)		88.2	88.2		28.7	28.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		Max	Max
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		88.2	88.2		28.7	28.7
Actuated g/C Ratio		0.68	0.68		0.22	0.22
v/c Ratio		0.98	0.55		0.99	0.34
Control Delay		37.0	9.2		82.7	12.6
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		37.0	9.2		82.7	12.6
LOS		D	A		F	B
Approach Delay		37.0	9.2		71.7	
Approach LOS		D	A		E	
90th %ile Green (s)		88.2	88.2		28.7	28.7
90th %ile Term Code		Coord	Coord		MaxR	MaxR
70th %ile Green (s)		88.2	88.2		28.7	28.7
70th %ile Term Code		Coord	Coord		MaxR	MaxR
50th %ile Green (s)		88.2	88.2		28.7	28.7
50th %ile Term Code		Coord	Coord		MaxR	MaxR
30th %ile Green (s)		88.2	88.2		28.7	28.7
30th %ile Term Code		Coord	Coord		MaxR	MaxR
10th %ile Green (s)		88.2	88.2		28.7	28.7
10th %ile Term Code		Coord	Coord		MaxR	MaxR
Stops (vph)		1709	698		615	26
Fuel Used(l)		173	98		64	3
CO Emissions (g/hr)		3220	1826		1193	58
NOx Emissions (g/hr)		621	353		230	11
VOC Emissions (g/hr)		743	421		275	13
Dilemma Vehicles (#)		76	18		0	0
Queue Length 50th (m)		245.7	94.7		90.6	3.3
Queue Length 95th (m)		#324.3	113.7		#129.7	20.2
Internal Link Dist (m)		78.8	516.9		82.5	
Turn Bay Length (m)						70.0
Base Capacity (vph)		2086	2124		689	377
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.98	0.55		0.99	0.34

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 46 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 35.9		Intersection LOS: D	
Intersection Capacity Utilization 103.7%		ICU Level of Service G	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 12: Fallowfield



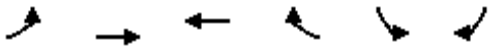
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2134	0	0	1624	129	149
Future Volume (vph)	2134	0	0	1624	129	149
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						25
Link Speed (k/h)	80			80	60	
Link Distance (m)	529.9			245.0	156.0	
Travel Time (s)	23.8			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	2134	0	0	1624	129	149
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2134	0	0	1624	129	149
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases					8	8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	106.0			106.0	24.0	24.0
Total Split (%)	81.5%			81.5%	18.5%	18.5%
Maximum Green (s)	99.3			99.3	18.7	18.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	102.4			102.4	15.6	15.6
Actuated g/C Ratio	0.79			0.79	0.12	0.12
v/c Ratio	0.85			0.63	0.72	0.77
Control Delay	8.0			7.5	77.4	71.1
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	8.0			7.5	77.4	71.1
LOS	A			A	E	E
Approach Delay	8.0			7.5	74.0	
Approach LOS	A			A	E	
90th %ile Green (s)	99.3			99.3	18.7	18.7
90th %ile Term Code	Coord			Coord	Max	Max
70th %ile Green (s)	99.3			99.3	18.7	18.7
70th %ile Term Code	Coord			Coord	Max	Max
50th %ile Green (s)	101.2			101.2	16.8	16.8
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	104.1			104.1	13.9	13.9
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	108.0			108.0	10.0	10.0
10th %ile Term Code	Coord			Coord	Min	Min
Stops (vph)	1010			645	123	119
Fuel Used(l)	160			78	13	14
CO Emissions (g/hr)	2977			1445	249	261
NOx Emissions (g/hr)	575			279	48	50
VOC Emissions (g/hr)	687			333	57	60
Dilemma Vehicles (#)	79			62	0	0
Queue Length 50th (m)	40.2			81.4	32.0	31.0
Queue Length 95th (m)	208.1			106.2	52.6	#55.1
Internal Link Dist (m)	505.9			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2513			2585	213	226
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.85			0.63	0.61	0.66

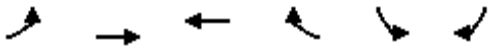
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 10 (8%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 12.3		Intersection LOS: B	
Intersection Capacity Utilization 82.2%		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: 2: 416 NB Off-ramp & Fallowfield





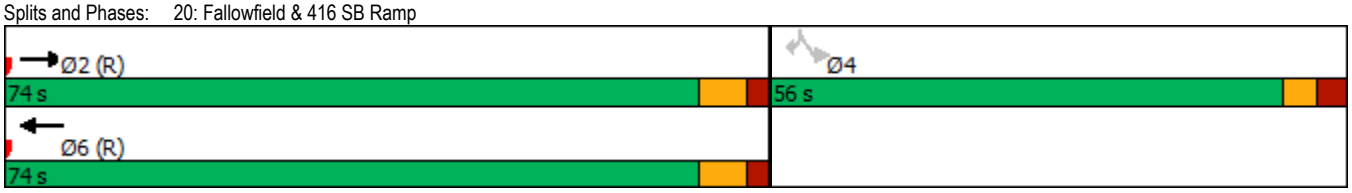
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1169	1424	0	989	287
Future Volume (vph)	0	1169	1424	0	989	287
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						26
Link Speed (k/h)		80	80		50	
Link Distance (m)		110.6	529.9		109.0	
Travel Time (s)		5.0	23.8		7.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	1169	1424	0	989	287
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1169	1424	0	989	287
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		30.3	30.3
Total Split (s)		74.0	74.0		56.0	56.0
Total Split (%)		56.9%	56.9%		43.1%	43.1%
Maximum Green (s)		67.2	67.2		49.7	49.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		Max	Max
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		67.2	67.2		49.7	49.7
Actuated g/C Ratio		0.52	0.52		0.38	0.38
v/c Ratio		0.74	0.86		0.85	0.55
Control Delay		28.0	29.0		45.2	33.3
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		28.0	29.0		45.2	33.3
LOS		C	C		D	C
Approach Delay		28.0	29.0		42.5	
Approach LOS		C	C		D	
90th %ile Green (s)		67.2	67.2		49.7	49.7
90th %ile Term Code		Coord	Coord		MaxR	MaxR
70th %ile Green (s)		67.2	67.2		49.7	49.7
70th %ile Term Code		Coord	Coord		MaxR	MaxR
50th %ile Green (s)		67.2	67.2		49.7	49.7
50th %ile Term Code		Coord	Coord		MaxR	MaxR
30th %ile Green (s)		67.2	67.2		49.7	49.7
30th %ile Term Code		Coord	Coord		MaxR	MaxR
10th %ile Green (s)		67.2	67.2		49.7	49.7
10th %ile Term Code		Coord	Coord		MaxR	MaxR
Stops (vph)		885	1226		877	204
Fuel Used(l)		86	162		64	15
CO Emissions (g/hr)		1602	3004		1196	277
NOx Emissions (g/hr)		309	580		231	53
VOC Emissions (g/hr)		369	693		276	64
Dilemma Vehicles (#)		45	51		0	0
Queue Length 50th (m)		119.1	166.6		118.5	52.0
Queue Length 95th (m)		145.7	199.3		146.4	81.0
Internal Link Dist (m)		86.6	505.9		85.0	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1589	1665		1161	519
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.74	0.86		0.85	0.55

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 48 (37%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 33.2		Intersection LOS: C	
Intersection Capacity Utilization 82.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 20: Fallowfield & 416 SB Ramp

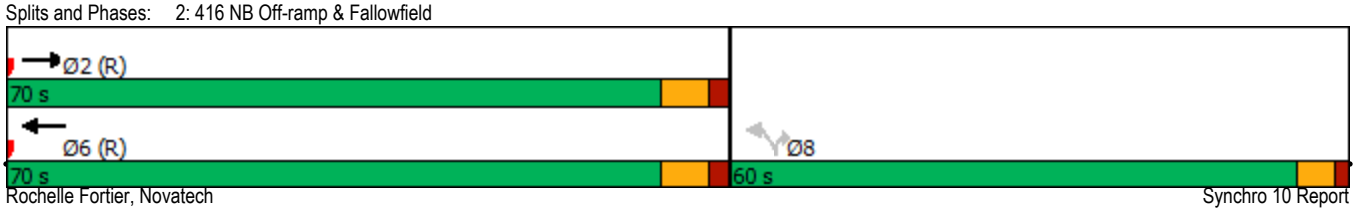


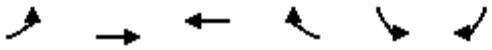
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1652	0	0	1073	184	361
Future Volume (vph)	1652	0	0	1073	184	361
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						10
Link Speed (k/h)	80			80	60	
Link Distance (m)	540.9			245.0	156.0	
Travel Time (s)	24.3			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	1652	0	0	1073	184	361
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1652	0	0	1073	184	361
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases					8	8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	70.0			70.0	60.0	60.0
Total Split (%)	53.8%			53.8%	46.2%	46.2%
Maximum Green (s)	63.3			63.3	54.7	54.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	79.4			79.4	38.6	38.6
Actuated g/C Ratio	0.61			0.61	0.30	0.30
v/c Ratio	0.85			0.53	0.42	0.84
Control Delay	29.1			17.2	38.1	58.2
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	29.1			17.2	38.1	58.2
LOS	C			B	D	E
Approach Delay	29.1			17.2	51.4	
Approach LOS	C			B	D	
90th %ile Green (s)	68.0			68.0	50.0	50.0
90th %ile Term Code	Coord			Coord	Gap	Gap
70th %ile Green (s)	74.4			74.4	43.6	43.6
70th %ile Term Code	Coord			Coord	Gap	Gap
50th %ile Green (s)	79.2			79.2	38.8	38.8
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	84.1			84.1	33.9	33.9
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	91.5			91.5	26.5	26.5
10th %ile Term Code	Coord			Coord	Gap	Gap
Stops (vph)	1288			613	140	321
Fuel Used(l)	181			70	12	31
CO Emissions (g/hr)	3369			1303	231	585
NOx Emissions (g/hr)	650			251	45	113
VOC Emissions (g/hr)	777			301	53	135
Dilemma Vehicles (#)	82			41	0	0
Queue Length 50th (m)	190.7			79.3	37.8	84.4
Queue Length 95th (m)	#271.3			121.1	51.8	108.1
Internal Link Dist (m)	516.9			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	1950			2006	624	606
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.85			0.53	0.29	0.60

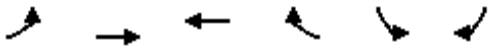
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 20 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 28.9		Intersection LOS: C	
Intersection Capacity Utilization 81.8%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 2: 416 NB Off-ramp & Fallowfield





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1653	1171	0	683	127
Future Volume (vph)	0	1653	1171	0	683	127
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3131	0	3124	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3131	0	3124	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						96
Link Speed (k/h)		80	80		50	
Link Distance (m)		102.8	540.9		106.5	
Travel Time (s)		4.6	24.3		7.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	8%	2%	5%	15%
Adj. Flow (vph)	0	1653	1171	0	683	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1653	1171	0	683	127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		32.3	32.3
Total Split (s)		90.0	90.0		40.0	40.0
Total Split (%)		69.2%	69.2%		30.8%	30.8%
Maximum Green (s)		83.2	83.2		33.7	33.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3

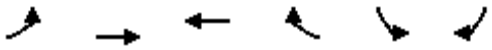


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		Max	Max
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		83.2	83.2		33.7	33.7
Actuated g/C Ratio		0.64	0.64		0.26	0.26
v/c Ratio		0.84	0.58		0.84	0.31
Control Delay		23.3	12.5		56.5	14.0
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		23.3	12.5		56.5	14.0
LOS		C	B		E	B
Approach Delay		23.3	12.5		49.9	
Approach LOS		C	B		D	
90th %ile Green (s)		83.2	83.2		33.7	33.7
90th %ile Term Code		Coord	Coord		MaxR	MaxR
70th %ile Green (s)		83.2	83.2		33.7	33.7
70th %ile Term Code		Coord	Coord		MaxR	MaxR
50th %ile Green (s)		83.2	83.2		33.7	33.7
50th %ile Term Code		Coord	Coord		MaxR	MaxR
30th %ile Green (s)		83.2	83.2		33.7	33.7
30th %ile Term Code		Coord	Coord		MaxR	MaxR
10th %ile Green (s)		83.2	83.2		33.7	33.7
10th %ile Term Code		Coord	Coord		MaxR	MaxR
Stops (vph)		1251	807		624	33
Fuel Used(l)		115	107		51	3
CO Emissions (g/hr)		2136	1998		941	63
NOx Emissions (g/hr)		412	386		182	12
VOC Emissions (g/hr)		493	461		217	15
Dilemma Vehicles (#)		64	17		0	0
Queue Length 50th (m)		162.1	108.6		85.8	6.1
Queue Length 95th (m)		198.2	138.6		#110.4	22.7
Internal Link Dist (m)		78.8	516.9		82.5	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1968	2003		809	412
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.84	0.58		0.84	0.31

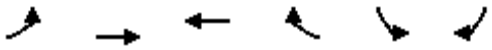
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 46 (35%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 25.8		Intersection LOS: C	
Intersection Capacity Utilization 81.8%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 12: Fallowfield & 416 SB





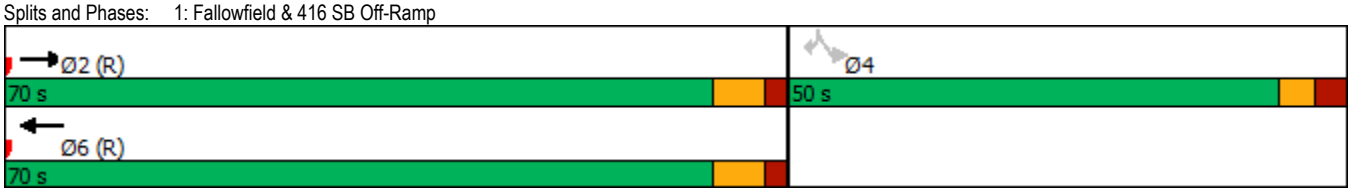
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1377	865	0	555	115
Future Volume (vph)	0	1377	865	0	555	115
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						115
Link Speed (k/h)		80	80		50	
Link Distance (m)		95.3	548.4		109.3	
Travel Time (s)		4.3	24.7		7.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	1377	865	0	555	115
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1377	865	0	555	115
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		30.3	30.3
Total Split (s)		70.0	70.0		50.0	50.0
Total Split (%)		58.3%	58.3%		41.7%	41.7%
Maximum Green (s)		63.2	63.2		43.7	43.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		None	None
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		79.1	79.1		27.8	27.8
Actuated g/C Ratio		0.66	0.66		0.23	0.23
v/c Ratio		0.68	0.41		0.79	0.29
Control Delay		15.7	16.7		51.6	7.9
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		15.7	16.7		51.6	7.9
LOS		B	B		D	A
Approach Delay		15.7	16.7		44.1	
Approach LOS		B	B		D	
90th %ile Green (s)		72.0	72.0		34.9	34.9
90th %ile Term Code		Coord	Coord		Gap	Gap
70th %ile Green (s)		76.5	76.5		30.4	30.4
70th %ile Term Code		Coord	Coord		Gap	Gap
50th %ile Green (s)		79.2	79.2		27.7	27.7
50th %ile Term Code		Coord	Coord		Gap	Gap
30th %ile Green (s)		82.0	82.0		24.9	24.9
30th %ile Term Code		Coord	Coord		Gap	Gap
10th %ile Green (s)		85.9	85.9		21.0	21.0
10th %ile Term Code		Coord	Coord		Gap	Gap
Stops (vph)		833	493		506	16
Fuel Used(l)		75	77		39	2
CO Emissions (g/hr)		1389	1427		728	42
NOx Emissions (g/hr)		268	275		141	8
VOC Emissions (g/hr)		320	329		168	10
Dilemma Vehicles (#)		57	60		0	0
Queue Length 50th (m)		96.4	65.4		63.8	0.0
Queue Length 95th (m)		144.0	77.0		76.9	13.5
Internal Link Dist (m)		71.3	524.4		85.3	
Turn Bay Length (m)						70.0
Base Capacity (vph)		2027	2123		1106	552
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.68	0.41		0.50	0.21

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 87 (73%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 22.5		Intersection LOS: C	
Intersection Capacity Utilization 74.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Fallowfield & 416 SB Off-Ramp



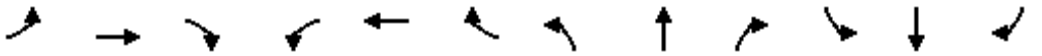
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1625	0	0	785	168	261
Future Volume (vph)	1625	0	0	785	168	261
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						31
Link Speed (k/h)	80			80	60	
Link Distance (m)	548.4			245.0	156.0	
Travel Time (s)	24.7			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	1625	0	0	785	168	261
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1625	0	0	785	168	261
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.4			30.4	25.8	25.8
Total Split (s)	80.0			80.0	40.0	40.0
Total Split (%)	66.7%			66.7%	33.3%	33.3%
Maximum Green (s)	73.8			73.8	34.2	34.2
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	1.6			1.6	2.1	2.1
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.2			6.2	5.8	5.8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	83.0			83.0	25.0	25.0
Actuated g/C Ratio	0.69			0.69	0.21	0.21
v/c Ratio	0.74			0.35	0.55	0.81
Control Delay	10.8			10.4	47.9	58.6
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	10.8			10.4	47.9	58.6
LOS	B			B	D	E
Approach Delay	10.8			10.4	54.4	
Approach LOS	B			B	D	
90th %ile Green (s)	73.8			73.8	34.2	34.2
90th %ile Term Code	Coord			Coord	Max	Max
70th %ile Green (s)	79.1			79.1	28.9	28.9
70th %ile Term Code	Coord			Coord	Gap	Gap
50th %ile Green (s)	82.9			82.9	25.1	25.1
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	86.8			86.8	21.2	21.2
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	92.6			92.6	15.4	15.4
10th %ile Term Code	Coord			Coord	Gap	Gap
Stops (vph)	885			269	144	216
Fuel Used(l)	134			51	13	22
CO Emissions (g/hr)	2501			958	244	414
NOx Emissions (g/hr)	483			185	47	80
VOC Emissions (g/hr)	577			221	56	96
Dilemma Vehicles (#)	58			57	0	0
Queue Length 50th (m)	88.2			37.3	35.6	52.4
Queue Length 95th (m)	105.7			m45.8	52.4	75.4
Internal Link Dist (m)	524.4			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2208			2272	422	428
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.74			0.35	0.40	0.61

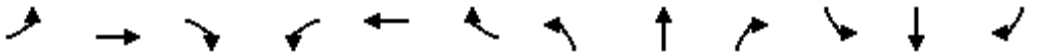
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 81 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 17.3		Intersection LOS: B	
Intersection Capacity Utilization 74.5%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 2: 416 NB Off-ramp & Fallowfield





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	589	869	92	5	1479	70	82	24	4	73	26	319
Future Volume (vph)	589	869	92	5	1479	70	82	24	4	73	26	319
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						0.99						0.99
Frt			0.850			0.850		0.979				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1708	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3124	2891	1483	1658	3191	1465	3216	1708	0	1658	1745	1423
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			225		4				319
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			311.4			414.8	
Travel Time (s)		10.6			11.4			22.4			24.9	
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	589	869	92	5	1479	70	82	24	4	73	26	319
Shared Lane Traffic (%)												
Lane Group Flow (vph)	589	869	92	5	1479	70	82	28	0	73	26	319
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	17.0		11.5	17.0	
Total Split (s)	28.0	72.0	13.0	13.0	57.0	57.0	13.0	22.0		13.0	22.0	
Total Split (%)	23.3%	60.0%	10.8%	10.8%	47.5%	47.5%	10.8%	18.3%		10.8%	18.3%	
Maximum Green (s)	20.9	65.1	6.5	5.9	50.1	50.1	6.5	15.0		6.5	15.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		16.0			16.0	16.0						
Pedestrian Calls (#/hr)		1			1	1						
Act Effct Green (s)	25.8	84.9	102.0	5.7	56.4	54.6	10.7	10.0		11.8	10.0	120.0
Actuated g/C Ratio	0.22	0.71	0.85	0.05	0.47	0.46	0.09	0.08		0.10	0.08	1.00
v/c Ratio	0.88	0.43	0.07	0.06	0.99	0.09	0.29	0.19		0.45	0.18	0.22
Control Delay	66.0	8.4	1.0	76.6	44.1	0.3	53.6	49.1		59.8	54.4	0.4
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	66.0	8.4	1.0	76.6	44.1	0.3	53.6	49.1		59.8	54.4	0.4
LOS	E	A	A	E	D	A	D	D		E	D	A
Approach Delay		29.9			42.2			52.5			14.1	
Approach LOS		C			D			D			B	
90th %ile Green (s)	20.9	65.1	11.5	5.9	50.1	50.1	11.5	10.0		11.5	10.0	
90th %ile Term Code	Max	Coord	Hold	Max	Coord	Coord	Hold	Min		Max	Min	
70th %ile Green (s)	20.9	78.1	11.5	0.0	50.1	50.1	11.5	10.0		11.5	10.0	
70th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Min		Max	Min	
50th %ile Green (s)	21.5	78.7	10.9	0.0	50.1	50.1	10.9	10.0		10.9	10.0	
50th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Min		Gap	Min	
30th %ile Green (s)	29.1	97.4	9.2	0.0	61.2	61.2	9.2	0.0		9.2	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	27.4	96.1	10.5	0.0	61.6	61.6	10.5	10.0		0.0	0.0	
10th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Hold		Skip	Skip	
Stops (vph)	520	235	6	7	1248	1	75	24		67	25	0
Fuel Used(l)	72	50	4	1	151	1	7	2		8	3	12
CO Emissions (g/hr)	1333	922	76	15	2813	27	139	45		152	53	215
NOx Emissions (g/hr)	257	178	15	3	543	5	27	9		29	10	42
VOC Emissions (g/hr)	308	213	18	3	649	6	32	10		35	12	50
Dilemma Vehicles (#)	0	41	0	0	35	0	0	0		0	1	0
Queue Length 50th (m)	76.5	25.0	0.0	1.0	~205.2	0.0	9.4	5.3		16.3	5.8	0.0
Queue Length 95th (m)	#111.0	63.6	m3.4	m1.9	#250.1	m0.0	17.3	14.6		31.3	14.8	0.0
Internal Link Dist (m)		212.6			229.6			287.4			390.8	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	670	2044	1275	81	1500	789	287	217		162	218	1423
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	0.88	0.43	0.07	0.06	0.99	0.09	0.29	0.13		0.45	0.12	0.22

Intersection Summary

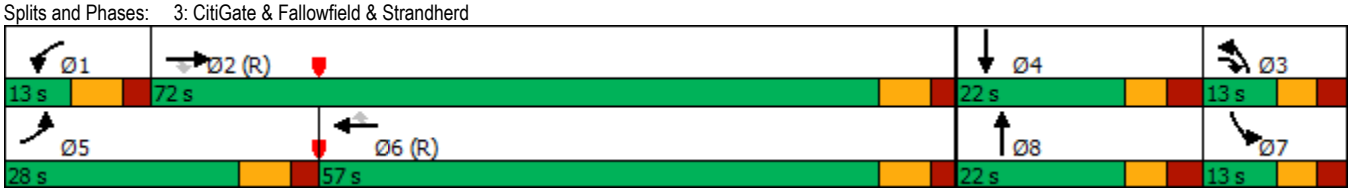
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 101 (84%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 34.0 Intersection LOS: C
Intersection Capacity Utilization 86.3% ICU Level of Service E
Analysis Period (min) 15

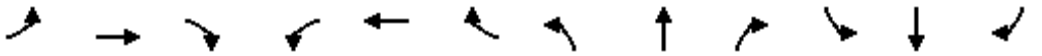
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

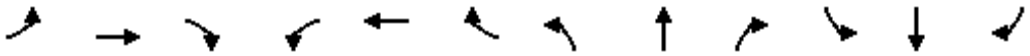
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	809	144	21	1368	14	196	13	11	23	24	176
Future Volume (vph)	36	809	144	21	1368	14	196	13	11	23	24	176
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	90.0			100.0			60.0			60.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.97				1.00		0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	2941	1483	3216	3221	1483	1658	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.742			0.749		
Satd. Flow (perm)	1657	2941	1483	3216	3221	1445	1295	1745	1483	1305	1745	1462
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			105			105			97			164
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		253.6			287.1			117.0			245.3	
Travel Time (s)		11.4			12.9			8.4			17.7	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	15%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	36	809	144	21	1368	14	196	13	11	23	24	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	809	144	21	1368	14	196	13	11	23	24	176
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.9	31.8	31.8	11.9	31.8	31.8	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (s)	15.0	56.0	56.0	15.0	56.0	56.0	49.0	49.0	49.0	49.0	49.0	49.0
Total Split (%)	12.5%	46.7%	46.7%	12.5%	46.7%	46.7%	40.8%	40.8%	40.8%	40.8%	40.8%	40.8%
Maximum Green (s)	8.1	49.2	49.2	8.1	49.2	49.2	41.3	41.3	41.3	41.3	41.3	41.3
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	3.3	3.3	3.3	3.3	3.3	3.3



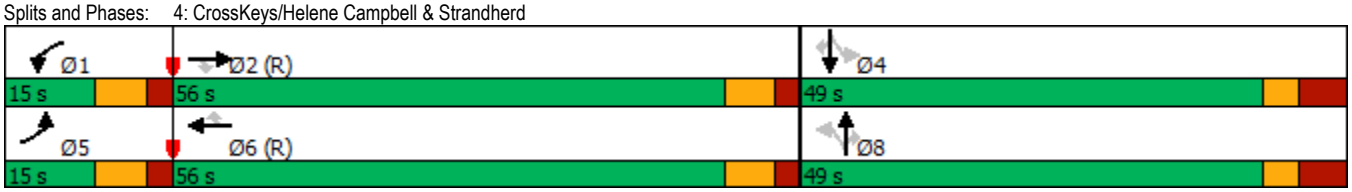
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.3	2.2	2.2	2.3	2.2	2.2	4.4	4.4	4.4	4.4	4.4	4.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.8	6.8	6.9	6.8	6.8	7.7	7.7	7.7	7.7	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
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	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	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
Flash Dont Walk (s)		18.0	18.0		18.0	18.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		1	1		1	1	1	1	1	1	1	1
Act Effct Green (s)	7.6	74.6	74.6	6.3	70.9	70.9	25.3	25.3	25.3	25.3	25.3	25.3
Actuated g/C Ratio	0.06	0.62	0.62	0.05	0.59	0.59	0.21	0.21	0.21	0.21	0.21	0.21
v/c Ratio	0.35	0.44	0.15	0.12	0.72	0.02	0.72	0.04	0.03	0.08	0.07	0.40
Control Delay	60.1	18.0	8.7	62.6	15.2	0.0	57.3	32.3	0.1	33.8	33.5	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.1	18.0	8.7	62.6	15.2	0.0	57.3	32.3	0.1	33.8	33.5	8.8
LOS	E	B	A	E	B	A	E	C	A	C	C	A
Approach Delay		18.1			15.8			53.0			14.0	
Approach LOS		B			B			D			B	
90th %ile Green (s)	8.4	50.2	50.2	7.4	49.2	49.2	41.0	41.0	41.0	41.0	41.0	41.0
90th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	9.2	64.4	64.4	6.7	61.9	61.9	27.5	27.5	27.5	27.5	27.5	27.5
70th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	8.0	81.8	81.8	0.0	66.9	66.9	23.7	23.7	23.7	23.7	23.7	23.7
50th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	0.0	85.5	85.5	0.0	85.5	85.5	20.0	20.0	20.0	20.0	20.0	20.0
30th %ile Term Code	Skip	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	0.0	91.0	91.0	0.0	91.0	91.0	14.5	14.5	14.5	14.5	14.5	14.5
10th %ile Term Code	Skip	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
Stops (vph)	38	398	43	23	456	0	175	10	0	19	20	25
Fuel Used(l)	5	50	6	3	73	0	19	1	0	2	2	6
CO Emissions (g/hr)	85	933	117	52	1360	6	357	18	7	29	30	109
NOx Emissions (g/hr)	16	180	23	10	263	1	69	4	1	6	6	21
VOC Emissions (g/hr)	20	215	27	12	314	1	82	4	2	7	7	25
Dilemma Vehicles (#)	0	46	0	0	65	0	0	0	0	0	0	0
Queue Length 50th (m)	8.4	53.0	7.3	2.7	45.4	0.0	44.0	2.5	0.0	4.5	4.6	2.3
Queue Length 95th (m)	m20.6	71.3	17.3	m4.8	#218.7	m0.0	57.6	6.5	0.0	9.5	9.8	16.9
Internal Link Dist (m)		229.6			263.1			93.0			221.3	
Turn Bay Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Base Capacity (vph)	115	1827	961	217	1902	896	445	600	574	449	600	610
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.44	0.15	0.10	0.72	0.02	0.44	0.02	0.02	0.05	0.04	0.29

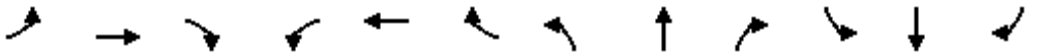
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 73 (61%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 19.4		Intersection LOS: B	
Intersection Capacity Utilization 83.0%		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.

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

Splits and Phases: 4: CrossKeys/Helene Campbell & Strandherd



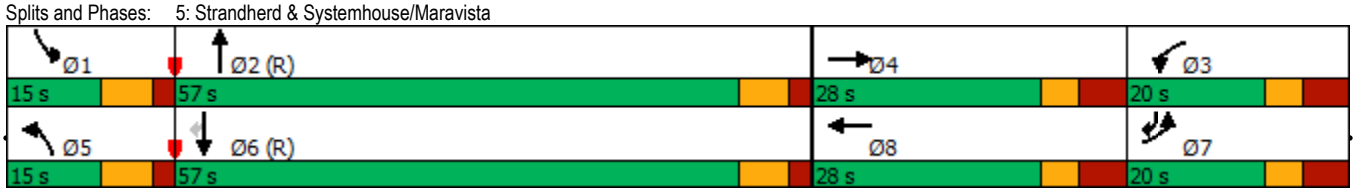


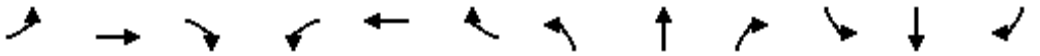
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	9	42	7	24	110	108	1081	9	18	591	66
Future Volume (vph)	111	9	42	7	24	110	108	1081	9	18	591	66
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.876			0.877			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3154	1360	0	1658	1530	0	3154	3310	0	1321	3316	1363
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3154	1360	0	1653	1530	0	3154	3310	0	1321	3316	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			110			1				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
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%	43%	7%	2%	2%	2%	4%	2%	11%	28%	2%	11%
Adj. Flow (vph)	111	9	42	7	24	110	108	1081	9	18	591	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	111	51	0	7	134	0	108	1090	0	18	591	66
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	28.0		15.0	28.0		15.0	52.0		15.0	52.0	15.0
Total Split (s)	20.0	28.0		20.0	28.0		15.0	57.0		15.0	57.0	20.0
Total Split (%)	16.7%	23.3%		16.7%	23.3%		12.5%	47.5%		12.5%	47.5%	16.7%
Maximum Green (s)	12.4	20.4		12.4	20.4		8.4	50.3		8.4	50.3	12.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	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	C-Max		None	C-Max	None
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								17.0			17.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	9.6	23.4		7.8	10.9		9.5	71.5		7.3	61.6	70.3
Actuated g/C Ratio	0.08	0.20		0.06	0.09		0.08	0.60		0.06	0.51	0.59
v/c Ratio	0.44	0.17		0.07	0.56		0.44	0.55		0.23	0.35	0.08
Control Delay	57.8	18.8		51.0	23.5		57.9	14.4		81.1	7.4	1.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	57.8	18.8		51.0	23.5		57.9	14.4		81.1	7.4	1.0
LOS	E	B		D	C		E	B		F	A	A
Approach Delay		45.5			24.9			18.4			8.7	
Approach LOS		D			C			B			A	
90th %ile Green (s)	12.3	10.7		15.7	14.1		12.2	55.4		9.7	52.9	12.3
90th %ile Term Code	Gap	Gap		Hold	Gap		Gap	Coord		Gap	Coord	Gap
70th %ile Green (s)	10.7	28.5		0.0	10.2		10.6	62.5		8.1	60.0	10.7
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	9.6	27.2		0.0	10.0		9.5	78.5		0.0	62.4	9.6
50th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
30th %ile Green (s)	8.5	26.1		0.0	10.0		8.3	79.6		0.0	64.7	8.5
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
10th %ile Green (s)	6.8	24.4		0.0	10.0		6.7	81.3		0.0	68.0	6.8
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
Stops (vph)	103	17		8	35		97	743		20	195	5
Fuel Used(l)	9	2		0	5		14	91		3	28	2
CO Emissions (g/hr)	175	39		9	94		259	1688		50	519	34
NOx Emissions (g/hr)	34	8		2	18		50	326		10	100	7
VOC Emissions (g/hr)	40	9		2	22		60	389		11	120	8
Dilemma Vehicles (#)	0	0		0	0		0	7		0	24	0
Queue Length 50th (m)	13.0	1.7		1.6	5.4		11.8	58.4		3.4	42.0	3.1
Queue Length 95th (m)	21.7	14.2		5.9	23.9		m14.7	142.2		m10.5	4.9	0.2
Internal Link Dist (m)		181.3			124.8			185.4			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	325	320		180	351		257	1971		95	1702	870
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	0.34	0.16		0.04	0.38		0.42	0.55		0.19	0.35	0.08

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 83 (69%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 17.8		Intersection LOS: B	
Intersection Capacity Utilization 72.4%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 5: Strandherd & Systemhouse/Maravista





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	6	29	80	25	102	99	1046	57	38	525	61
Future Volume (vph)	34	6	29	80	25	102	99	1046	57	38	525	61
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		100.0	50.0		0.0	110.0		40.0	150.0		90.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.880				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1353	1745	1483	1658	1536	0	1398	1745	1455	1523	1728	1363
Flt Permitted	0.598			0.754			0.469			0.125		
Satd. Flow (perm)	852	1745	1483	1316	1536	0	690	1745	1455	200	1728	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89		102				91			61
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		358.5			381.8			229.3			210.1	
Travel Time (s)		25.8			34.4			10.3			9.5	
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 (%)	25%	2%	2%	2%	2%	2%	21%	2%	4%	11%	3%	11%
Adj. Flow (vph)	34	6	29	80	25	102	99	1046	57	38	525	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	6	29	80	127	0	99	1046	57	38	525	61
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		20.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	32.6	32.6	32.6	32.6	32.6		30.4	30.4	30.4	11.4	30.4	30.4
Total Split (s)	33.0	33.0	33.0	33.0	33.0		75.0	75.0	75.0	12.0	87.0	87.0
Total Split (%)	27.5%	27.5%	27.5%	27.5%	27.5%		62.5%	62.5%	62.5%	10.0%	72.5%	72.5%
Maximum Green (s)	26.4	26.4	26.4	26.4	26.4		68.6	68.6	68.6	5.6	80.6	80.6
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3		1.8	1.8	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6		6.4	6.4	6.4	6.4	6.4	6.4

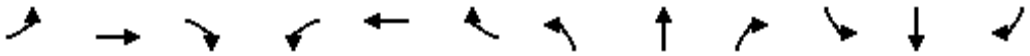
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		C-Max	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0		17.0	17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0		0	0
Act Effct Green (s)	13.2	13.2	13.2	13.2	13.2		86.0	86.0	86.0	93.8	93.8	93.8
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.11		0.72	0.72	0.72	0.78	0.78	0.78
v/c Ratio	0.36	0.03	0.12	0.55	0.49		0.20	0.84	0.05	0.17	0.39	0.06
Control Delay	59.2	45.3	1.0	64.3	20.3		8.8	22.5	0.7	10.3	18.8	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.2	45.3	1.0	64.3	20.3		8.8	22.5	0.7	10.3	18.8	5.6
LOS	E	D	A	E	C		A	C	A	B	B	A
Approach Delay		33.5			37.3			20.3			17.0	
Approach LOS		C			D			C			B	
90th %ile Green (s)	18.3	18.3	18.3	18.3	18.3		75.1	75.1	75.1	7.2	88.7	88.7
90th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Gap	Coord	Coord
70th %ile Green (s)	15.0	15.0	15.0	15.0	15.0		79.1	79.1	79.1	6.5	92.0	92.0
70th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Gap	Coord	Coord
50th %ile Green (s)	12.6	12.6	12.6	12.6	12.6		81.9	81.9	81.9	6.1	94.4	94.4
50th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Gap	Coord	Coord
30th %ile Green (s)	10.3	10.3	10.3	10.3	10.3		96.7	96.7	96.7	0.0	96.7	96.7
30th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Skip	Coord	Coord
10th %ile Green (s)	10.0	10.0	10.0	10.0	10.0		97.0	97.0	97.0	0.0	97.0	97.0
10th %ile Term Code	Hold	Hold	Hold	Min	Min		Coord	Coord	Coord	Skip	Coord	Coord
Stops (vph)	32	7	0	74	33		37	691	1	20	370	24
Fuel Used(l)	3	1	1	8	8		5	77	1	3	46	4
CO Emissions (g/hr)	64	11	19	154	141		85	1425	21	50	858	68
NOx Emissions (g/hr)	12	2	4	30	27		16	275	4	10	166	13
VOC Emissions (g/hr)	15	2	4	35	33		20	329	5	12	198	16
Dilemma Vehicles (#)	0	0	0	0	0		0	42	0	0	73	0
Queue Length 50th (m)	7.6	1.3	0.0	18.2	5.5		7.8	177.2	0.0	2.6	83.5	0.6
Queue Length 95th (m)	17.3	5.1	0.0	32.9	22.8		18.5	#321.9	1.8	11.8	163.0	12.0
Internal Link Dist (m)		334.5			357.8			205.3			186.1	
Turn Bay Length (m)	75.0		100.0	50.0			110.0		40.0	150.0		90.0
Base Capacity (vph)	187	383	395	289	417		494	1250	1068	225	1350	1078
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	0.18	0.02	0.07	0.28	0.30		0.20	0.84	0.05	0.17	0.39	0.06

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 29 (24%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 21.4 Intersection LOS: C
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.

Splits and Phases: 6: Strandherd & Dealership/Kennevale





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	3	34	46	3	63	30	632	21	20	546	18
Future Volume (Veh/h)	16	3	34	46	3	63	30	632	21	20	546	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	16	3	34	46	3	63	30	632	21	20	546	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1342	1299	546	1314	1296	632	564			653		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1342	1299	546	1314	1296	632	564			653		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	84	98	94	62	98	87	97			98		
cM capacity (veh/h)	100	153	534	120	154	480	983			920		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	16	37	112	30	632	21	20	546	18
Volume Left	16	0	46	30	0	0	20	0	0
Volume Right	0	34	63	0	0	21	0	0	18
cSH	100	444	210	983	1700	1700	920	1700	1700
Volume to Capacity	0.16	0.08	0.53	0.03	0.37	0.01	0.02	0.32	0.01
Queue Length 95th (m)	4.1	2.1	21.3	0.7	0.0	0.0	0.5	0.0	0.0
Control Delay (s)	47.7	13.8	40.3	8.8	0.0	0.0	9.0	0.0	0.0
Lane LOS	E	B	E	A			A		
Approach Delay (s)	24.1		40.3	0.4			0.3		
Approach LOS	C		E						

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	55.4%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	8	0	26	8	0	27
Future Volume (Veh/h)	8	0	26	8	0	27
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	0	26	8	0	27
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			8		68	8
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			8		68	8
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	97
cM capacity (veh/h)			1612		922	1074

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	8	34	27
Volume Left	0	26	0
Volume Right	0	0	27
cSH	1700	1612	1074
Volume to Capacity	0.00	0.02	0.03
Queue Length 95th (m)	0.0	0.4	0.6
Control Delay (s)	0.0	5.6	8.4
Lane LOS		A	A
Approach Delay (s)	0.0	5.6	8.4
Approach LOS			A

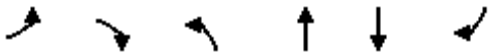
Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	35	0	65	34	0	68
Future Volume (Veh/h)	35	0	65	34	0	68
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	35	0	65	34	0	68
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			35		199	35
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			35		199	35
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		100	93
cM capacity (veh/h)			1576		757	1038

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	35	99	68
Volume Left	0	65	0
Volume Right	0	0	68
cSH	1700	1576	1038
Volume to Capacity	0.02	0.04	0.07
Queue Length 95th (m)	0.0	1.0	1.6
Control Delay (s)	0.0	5.0	8.7
Lane LOS		A	A
Approach Delay (s)	0.0	5.0	8.7
Approach LOS			A

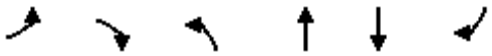
Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	68	37	36	0	0	66
Future Volume (Veh/h)	68	37	36	0	0	66
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	68	37	36	0	0	66
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	105	33	66			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	105	33	66			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	96	98			
cM capacity (veh/h)	872	1041	1536			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	105	36	66
Volume Left	68	36	0
Volume Right	37	0	66
cSH	925	1536	1700
Volume to Capacity	0.11	0.02	0.04
Queue Length 95th (m)	2.9	0.5	0.0
Control Delay (s)	9.4	7.4	0.0
Lane LOS	A	A	
Approach Delay (s)	9.4	7.4	0.0
Approach LOS	A		

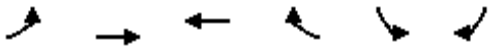
Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	21.8%	ICU Level of Service	A
Analysis Period (min)	15		



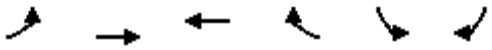
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	38	36	36	37	0
Future Volume (Veh/h)	0	38	36	36	37	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	38	36	36	37	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	145	37	37			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	145	37	37			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	98			
cM capacity (veh/h)	828	1035	1574			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	38	72	37
Volume Left	0	36	0
Volume Right	38	0	0
cSH	1035	1574	1700
Volume to Capacity	0.04	0.02	0.02
Queue Length 95th (m)	0.9	0.5	0.0
Control Delay (s)	8.6	3.8	0.0
Lane LOS	A	A	
Approach Delay (s)	8.6	3.8	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	20.8%	ICU Level of Service	A
Analysis Period (min)	15		



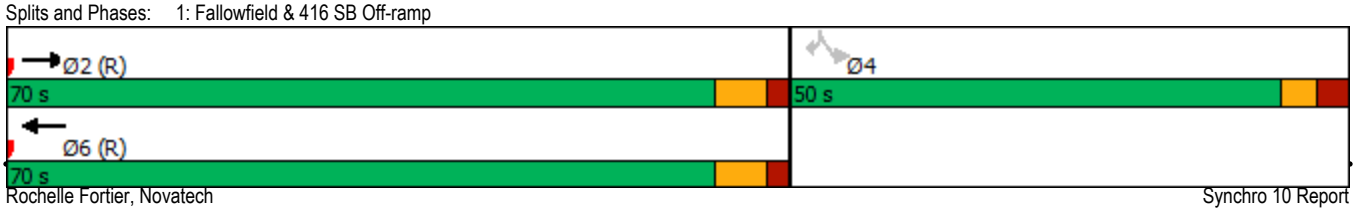
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	848	892	0	991	262
Future Volume (vph)	0	848	892	0	991	262
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						116
Link Speed (k/h)		80	80		50	
Link Distance (m)		83.1	560.6		132.1	
Travel Time (s)		3.7	25.2		9.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	848	892	0	991	262
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	848	892	0	991	262
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		30.3	30.3
Total Split (s)		70.0	70.0		50.0	50.0
Total Split (%)		58.3%	58.3%		41.7%	41.7%
Maximum Green (s)		63.2	63.2		43.7	43.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		Max	Max
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		63.2	63.2		43.7	43.7
Actuated g/C Ratio		0.53	0.53		0.36	0.36
v/c Ratio		0.52	0.53		0.90	0.47
Control Delay		20.0	19.0		47.8	19.0
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		20.0	19.0		47.8	19.0
LOS		C	B		D	B
Approach Delay		20.0	19.0		41.8	
Approach LOS		C	B		D	
90th %ile Green (s)		63.2	63.2		43.7	43.7
90th %ile Term Code		Coord	Coord		MaxR	MaxR
70th %ile Green (s)		63.2	63.2		43.7	43.7
70th %ile Term Code		Coord	Coord		MaxR	MaxR
50th %ile Green (s)		63.2	63.2		43.7	43.7
50th %ile Term Code		Coord	Coord		MaxR	MaxR
30th %ile Green (s)		63.2	63.2		43.7	43.7
30th %ile Term Code		Coord	Coord		MaxR	MaxR
10th %ile Green (s)		63.2	63.2		43.7	43.7
10th %ile Term Code		Coord	Coord		MaxR	MaxR
Stops (vph)		533	471		885	114
Fuel Used(l)		49	79		69	10
CO Emissions (g/hr)		915	1477		1279	180
NOx Emissions (g/hr)		177	285		247	35
VOC Emissions (g/hr)		211	341		295	41
Dilemma Vehicles (#)		35	53		0	0
Queue Length 50th (m)		66.1	62.2		112.5	25.2
Queue Length 95th (m)		83.5	83.7		#150.2	49.6
Internal Link Dist (m)		59.1	536.6		108.1	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1619	1696		1106	553
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.52	0.53		0.90	0.47

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 4 (3%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 28.8		Intersection LOS: C	
Intersection Capacity Utilization 68.9%		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: 1: Fallowfield & 416 SB Off-ramp



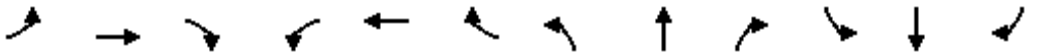
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1713	0	0	1019	117	137
Future Volume (vph)	1713	0	0	1019	117	137
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						31
Link Speed (k/h)	80			80	60	
Link Distance (m)	560.6			245.0	156.0	
Travel Time (s)	25.2			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	1713	0	0	1019	117	137
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1713	0	0	1019	117	137
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases					8	8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	85.0			85.0	35.0	35.0
Total Split (%)	70.8%			70.8%	29.2%	29.2%
Maximum Green (s)	78.3			78.3	29.7	29.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	92.8			92.8	15.2	15.2
Actuated g/C Ratio	0.77			0.77	0.13	0.13
v/c Ratio	0.69			0.40	0.63	0.66
Control Delay	3.8			2.8	63.7	53.1
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	3.8			2.8	63.7	53.1
LOS	A			A	E	D
Approach Delay	3.8			2.8	58.0	
Approach LOS	A			A	E	
90th %ile Green (s)	86.6			86.6	21.4	21.4
90th %ile Term Code	Coord			Coord	Gap	Gap
70th %ile Green (s)	90.7			90.7	17.3	17.3
70th %ile Term Code	Coord			Coord	Gap	Gap
50th %ile Green (s)	93.2			93.2	14.8	14.8
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	95.7			95.7	12.3	12.3
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	98.0			98.0	10.0	10.0
10th %ile Term Code	Coord			Coord	Min	Min
Stops (vph)	472			158	109	99
Fuel Used(l)	108			50	11	11
CO Emissions (g/hr)	2004			928	202	198
NOx Emissions (g/hr)	387			179	39	38
VOC Emissions (g/hr)	462			214	47	46
Dilemma Vehicles (#)	33			40	0	0
Queue Length 50th (m)	22.9			11.3	26.6	24.1
Queue Length 95th (m)	65.1			26.0	43.4	42.7
Internal Link Dist (m)	536.6			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2468			2540	367	376
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.69			0.40	0.32	0.36

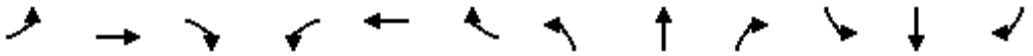
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 108 (90%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 8.1		Intersection LOS: A	
Intersection Capacity Utilization 68.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: 416 NB Off-ramp & Fallowfield





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	325	1382	108	3	1072	124	110	33	3	131	32	469
Future Volume (vph)	325	1382	108	3	1072	124	110	33	3	131	32	469
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				0.99		0.99
Frt			0.850			0.850		0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1722	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3121	2891	1483	1658	3191	1460	3216	1722	0	1646	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			160		3				411
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			311.4			414.8	
Travel Time (s)		10.6			11.4			22.4			24.9	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	325	1382	108	3	1072	124	110	33	3	131	32	469
Shared Lane Traffic (%)												
Lane Group Flow (vph)	325	1382	108	3	1072	124	110	36	0	131	32	469
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	17.0		11.5	17.0	
Total Split (s)	24.0	60.0	14.0	24.0	60.0	60.0	14.0	22.0		14.0	22.0	
Total Split (%)	20.0%	50.0%	11.7%	20.0%	50.0%	50.0%	11.7%	18.3%		11.7%	18.3%	
Maximum Green (s)	16.9	53.1	7.5	16.9	53.1	53.1	7.5	15.0		7.5	15.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	



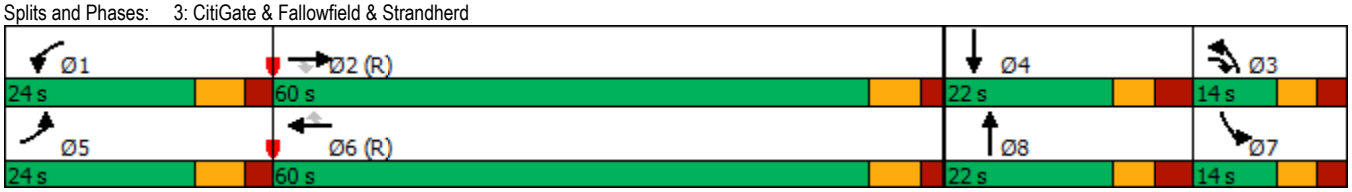
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		16.0			16.0	16.0						
Pedestrian Calls (#/hr)		1			1	1						
Act Effct Green (s)	17.7	81.5	101.8	5.8	61.3	59.5	13.9	10.1		15.7	10.1	120.0
Actuated g/C Ratio	0.15	0.68	0.85	0.05	0.51	0.50	0.12	0.08		0.13	0.08	1.00
v/c Ratio	0.71	0.70	0.08	0.04	0.66	0.15	0.29	0.24		0.61	0.22	0.33
Control Delay	57.9	14.1	1.1	84.3	19.0	1.9	51.6	52.3		62.8	55.3	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	57.9	14.1	1.1	84.3	19.0	1.9	51.6	52.3		62.8	55.3	0.6
LOS	E	B	A	F	B	A	D	D		E	E	A
Approach Delay		21.2			17.4			51.8			16.3	
Approach LOS		C			B			D			B	
90th %ile Green (s)	16.9	63.5	12.2	6.5	53.1	53.1	12.2	10.6		11.9	10.3	
90th %ile Term Code	Max	Coord	Hold	Gap	Coord	Coord	Hold	Gap		Max	Gap	
70th %ile Green (s)	16.9	77.1	12.5	0.0	53.1	53.1	12.5	10.0		12.5	10.0	
70th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Min		Max	Min	
50th %ile Green (s)	16.9	77.1	12.5	0.0	53.1	53.1	12.5	10.0		12.5	10.0	
50th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Min		Max	Min	
30th %ile Green (s)	15.7	89.9	16.7	0.0	67.1	67.1	16.7	0.0		16.7	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	12.9	90.9	15.7	0.0	70.9	70.9	15.7	0.0		15.7	0.0	
10th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
Stops (vph)	315	650	9	6	848	18	100	32		119	31	0
Fuel Used(l)	38	94	5	1	86	4	10	3		15	4	17
CO Emissions (g/hr)	716	1749	91	11	1594	69	183	60		277	65	318
NOx Emissions (g/hr)	138	338	17	2	308	13	35	12		53	13	61
VOC Emissions (g/hr)	165	403	21	3	368	16	42	14		64	15	73
Dilemma Vehicles (#)	0	38	0	0	39	0	0	0		0	1	0
Queue Length 50th (m)	40.0	70.7	1.3	0.7	120.6	4.4	12.5	7.4		29.9	7.2	0.0
Queue Length 95th (m)	55.2	118.2	m3.3	m1.2	143.7	m6.0	21.5	17.8		#57.0	17.2	0.0
Internal Link Dist (m)		212.6			229.6			287.4			390.8	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	486	1963	1273	233	1628	804	373	217		216	218	1422
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	0.67	0.70	0.08	0.01	0.66	0.15	0.29	0.17		0.61	0.15	0.33

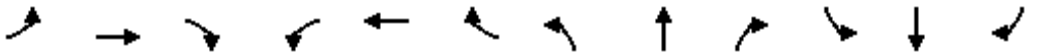
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 115 (96%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 20.3		Intersection LOS: C	
Intersection Capacity Utilization 74.8%		ICU Level of Service D	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

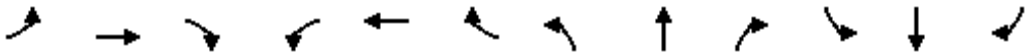
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	1153	397	43	945	15	303	99	29	17	105	92
Future Volume (vph)	128	1153	397	43	945	15	303	99	29	17	105	92
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	90.0			100.0			60.0			60.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.99			0.98	0.99		0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	2941	1483	3216	3221	1483	1658	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.689			0.693		
Satd. Flow (perm)	1658	2941	1465	3216	3221	1448	1194	1745	1458	1208	1745	1449
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			186			105			97			97
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		253.6			287.1			117.0			245.3	
Travel Time (s)		11.4			12.9			8.4			17.7	
Confl. Peds. (#/hr)							9		2	2		9
Confl. Bikes (#/hr)			1			4			5			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 (%)	2%	15%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	128	1153	397	43	945	15	303	99	29	17	105	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	1153	397	43	945	15	303	99	29	17	105	92
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.9	31.8	31.8	11.9	31.8	31.8	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (s)	15.0	56.0	56.0	15.0	56.0	56.0	49.0	49.0	49.0	49.0	49.0	49.0
Total Split (%)	12.5%	46.7%	46.7%	12.5%	46.7%	46.7%	40.8%	40.8%	40.8%	40.8%	40.8%	40.8%
Maximum Green (s)	8.1	49.2	49.2	8.1	49.2	49.2	41.3	41.3	41.3	41.3	41.3	41.3
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	3.3	3.3	3.3	3.3	3.3	3.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.3	2.2	2.2	2.3	2.2	2.2	4.4	4.4	4.4	4.4	4.4	4.4
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	0.0
Total Lost Time (s)	6.9	6.8	6.8	6.9	6.8	6.8	7.7	7.7	7.7	7.7	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	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	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	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
Flash Dont Walk (s)		18.0	18.0		18.0	18.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0	2	2	2	7	7	7
Act Effct Green (s)	13.5	59.4	59.4	6.9	50.4	50.4	34.7	34.7	34.7	34.7	34.7	34.7
Actuated g/C Ratio	0.11	0.50	0.50	0.06	0.42	0.42	0.29	0.29	0.29	0.29	0.29	0.29
v/c Ratio	0.69	0.79	0.48	0.23	0.70	0.02	0.88	0.20	0.06	0.05	0.21	0.19
Control Delay	68.7	36.1	19.5	72.9	18.0	0.1	65.8	31.2	0.2	27.9	31.5	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.7	36.1	19.5	72.9	18.0	0.1	65.8	31.2	0.2	27.9	31.5	5.8
LOS	E	D	B	E	B	A	E	C	A	C	C	A
Approach Delay		34.7			20.0			53.4			20.2	
Approach LOS		C			C			D			C	
90th %ile Green (s)	8.1	49.2	49.2	8.1	49.2	49.2	41.3	41.3	41.3	41.3	41.3	41.3
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Max	Hold	Hold	Hold
70th %ile Green (s)	8.8	50.3	50.3	7.7	49.2	49.2	40.6	40.6	40.6	40.6	40.6	40.6
70th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	13.2	55.4	55.4	7.0	49.2	49.2	36.2	36.2	36.2	36.2	36.2	36.2
50th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	18.0	60.9	60.9	6.3	49.2	49.2	31.4	31.4	31.4	31.4	31.4	31.4
30th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	19.5	81.4	81.4	0.0	55.0	55.0	24.1	24.1	24.1	24.1	24.1	24.1
10th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
Stops (vph)	99	913	249	44	662	0	280	71	0	13	75	11
Fuel Used(l)	15	107	28	6	72	0	32	7	1	1	7	3
CO Emissions (g/hr)	279	1998	524	110	1346	6	593	136	18	20	124	52
NOx Emissions (g/hr)	54	386	101	21	260	1	115	26	4	4	24	10
VOC Emissions (g/hr)	64	461	121	25	311	1	137	31	4	5	29	12
Dilemma Vehicles (#)	0	52	0	0	34	0	0	0	0	0	0	0
Queue Length 50th (m)	32.3	95.4	33.2	5.5	106.4	0.0	66.7	17.2	0.0	2.8	18.4	0.0
Queue Length 95th (m)	m#65.7	#180.2	70.0	m11.2	37.7	m0.0	#98.5	28.9	0.0	7.8	30.2	10.1
Internal Link Dist (m)		229.6			263.1			93.0			221.3	
Turn Bay Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Base Capacity (vph)	186	1456	819	217	1351	668	410	600	565	415	600	562
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.79	0.48	0.20	0.70	0.02	0.74	0.17	0.05	0.04	0.17	0.16

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 85 (71%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 31.8 Intersection LOS: C

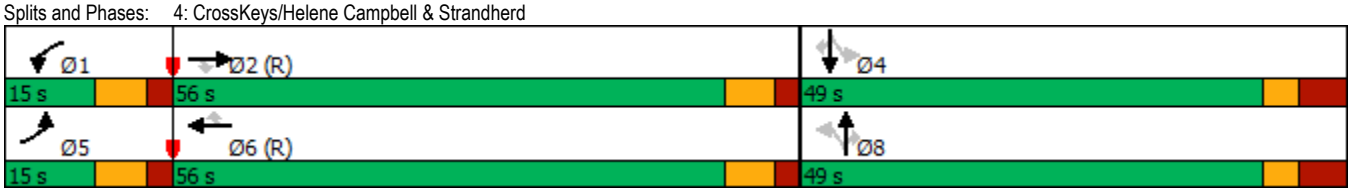
Intersection Capacity Utilization 80.7% ICU Level of Service D

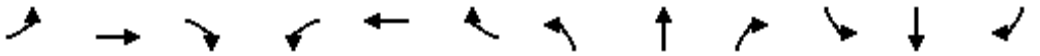
Analysis Period (min) 15

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 4: CrossKeys/Helene Campbell & Strandherd



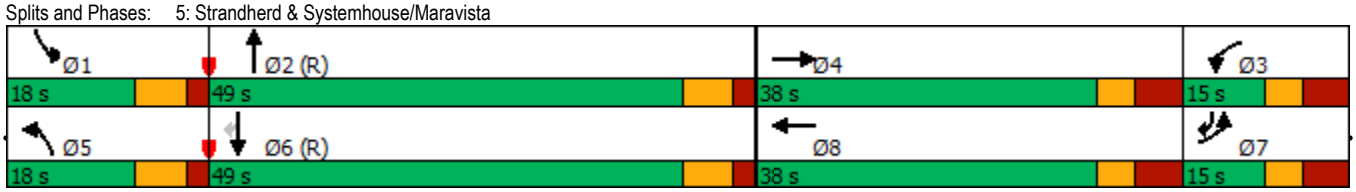


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	59	216	10	59	40	261	741	7	134	969	101
Future Volume (vph)	140	59	216	10	59	40	261	741	7	134	969	101
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99								
Frt		0.882			0.939			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3216	1519	0	1658	1558	0	3216	3312	0	1658	3316	1351
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	1519	0	1636	1558	0	3216	3312	0	1658	3316	1351
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		147			27			1				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		410.6			148.8			209.4			287.1	
Travel Time (s)		29.6			13.4			9.4			12.9	
Confl. Peds. (#/hr)			4	4								
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%	2%	2%	2%	15%	2%	2%	2%	2%	2%	12%
Adj. Flow (vph)	140	59	216	10	59	40	261	741	7	134	969	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	140	275	0	10	99	0	261	748	0	134	969	101
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	17.6		15.0	17.6		15.0	33.0		15.0	33.0	15.0
Total Split (s)	15.0	38.0		15.0	38.0		18.0	49.0		18.0	49.0	15.0
Total Split (%)	12.5%	31.7%		12.5%	31.7%		15.0%	40.8%		15.0%	40.8%	12.5%
Maximum Green (s)	7.4	30.4		7.4	30.4		11.4	42.3		11.4	42.3	7.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	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	C-Max		None	C-Max	None
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								17.0			17.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	11.6	28.3		6.3	12.2		14.8	52.8		14.9	53.0	63.7
Actuated g/C Ratio	0.10	0.24		0.05	0.10		0.12	0.44		0.12	0.44	0.53
v/c Ratio	0.45	0.59		0.11	0.54		0.66	0.51		0.65	0.66	0.13
Control Delay	55.1	23.8		56.5	48.0		68.1	20.2		70.0	23.5	4.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	55.1	23.8		56.5	48.0		68.1	20.2		70.0	23.5	4.8
LOS	E	C		E	D		E	C		E	C	A
Approach Delay		34.4			48.8			32.6			27.1	
Approach LOS		C			D			C			C	
90th %ile Green (s)	17.7	26.5		7.7	16.5		15.0	42.3		15.0	42.3	17.7
90th %ile Term Code	Hold	Gap		Gap	Gap		Max	Coord		Max	Coord	Hold
70th %ile Green (s)	12.0	32.9		0.0	13.3		17.2	48.0		18.2	49.0	12.0
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	10.8	29.4		0.0	11.0		15.8	53.2		16.5	53.9	10.8
50th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
30th %ile Green (s)	9.5	27.1		0.0	10.0		14.1	57.8		14.2	57.9	9.5
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
10th %ile Green (s)	7.8	25.4		0.0	10.0		11.7	62.9		10.8	62.0	7.8
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
Stops (vph)	129	117		12	67		236	514		133	375	24
Fuel Used(l)	14	18		1	6		36	66		18	61	4
CO Emissions (g/hr)	266	342		14	115		666	1225		333	1134	75
NOx Emissions (g/hr)	51	66		3	22		129	236		64	219	14
VOC Emissions (g/hr)	61	79		3	26		154	282		77	261	17
Dilemma Vehicles (#)	0	0		0	0		0	32		0	78	0
Queue Length 50th (m)	16.4	25.7		2.3	16.4		29.7	60.4		33.9	41.9	3.2
Queue Length 95th (m)	25.0	55.6		7.8	32.7		42.7	78.6		m43.3	71.9	m8.9
Internal Link Dist (m)		386.6			124.8			185.4			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	309	500		103	414		395	1458		208	1465	765
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	0.45	0.55		0.10	0.24		0.66	0.51		0.64	0.66	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 82 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 31.1		Intersection LOS: C	
Intersection Capacity Utilization 71.2%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 5: Strandherd & Systemhouse/Maravista



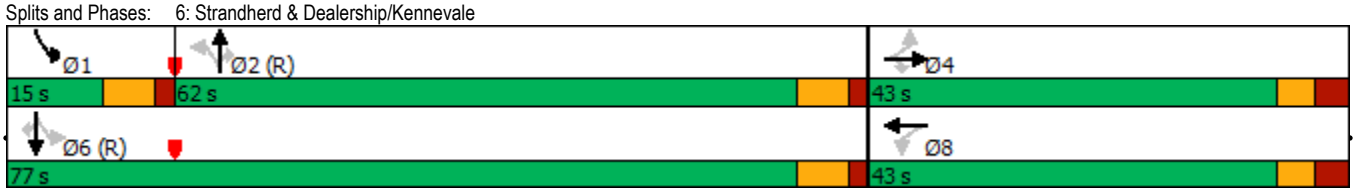
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	18	83	106	16	74	60	797	98	80	1113	41
Future Volume (vph)	124	18	83	106	16	74	60	797	98	80	1113	41
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		100.0	50.0		0.0	110.0		40.0	150.0		90.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.877				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	1745	1483	1658	1506	0	1658	1745	1483	1642	1745	1483
Flt Permitted	0.699			0.746			0.164			0.212		
Satd. Flow (perm)	1220	1745	1483	1302	1506	0	286	1745	1483	366	1745	1483
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89		74				91			34
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		358.5			381.8			229.3			210.1	
Travel Time (s)		25.8			34.4			10.3			9.5	
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 (%)	2%	2%	2%	2%	2%	4%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	124	18	83	106	16	74	60	797	98	80	1113	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	18	83	106	90	0	60	797	98	80	1113	41
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		20.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	32.6	32.6	32.6	32.6	32.6		30.4	30.4	30.4	11.4	30.4	30.4
Total Split (s)	43.0	43.0	43.0	43.0	43.0		62.0	62.0	62.0	15.0	77.0	77.0
Total Split (%)	35.8%	35.8%	35.8%	35.8%	35.8%		51.7%	51.7%	51.7%	12.5%	64.2%	64.2%
Maximum Green (s)	36.4	36.4	36.4	36.4	36.4		55.6	55.6	55.6	8.6	70.6	70.6
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3		1.8	1.8	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6		6.4	6.4	6.4	6.4	6.4	6.4

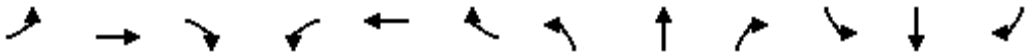
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		C-Max	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0		17.0	17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0		0	0
Act Effct Green (s)	17.6	17.6	17.6	17.6	17.6		77.8	77.8	77.8	89.4	89.4	89.4
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.15		0.65	0.65	0.65	0.74	0.74	0.74
v/c Ratio	0.69	0.07	0.28	0.55	0.32		0.32	0.70	0.10	0.23	0.86	0.04
Control Delay	67.5	41.4	9.9	57.4	15.8		19.5	20.9	3.2	12.0	36.4	7.9
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	67.5	41.4	9.9	57.4	15.8		19.5	20.9	3.2	12.0	36.4	7.9
LOS	E	D	A	E	B		B	C	A	B	D	A
Approach Delay		44.1			38.3			19.0			33.9	
Approach LOS		D			D			B			C	
90th %ile Green (s)	25.3	25.3	25.3	25.3	25.3		64.5	64.5	64.5	10.8	81.7	81.7
90th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Coord	Coord	Coord	Gap	Coord	Coord
70th %ile Green (s)	20.8	20.8	20.8	20.8	20.8		71.6	71.6	71.6	8.2	86.2	86.2
70th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Coord	Coord	Coord	Gap	Coord	Coord
50th %ile Green (s)	17.6	17.6	17.6	17.6	17.6		76.0	76.0	76.0	7.0	89.4	89.4
50th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Coord	Coord	Coord	Gap	Coord	Coord
30th %ile Green (s)	14.4	14.4	14.4	14.4	14.4		79.8	79.8	79.8	6.4	92.6	92.6
30th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Coord	Coord	Coord	Gap	Coord	Coord
10th %ile Green (s)	10.0	10.0	10.0	10.0	10.0		97.0	97.0	97.0	0.0	97.0	97.0
10th %ile Term Code	Min	Min	Min	Min	Min		Coord	Coord	Coord	Skip	Coord	Coord
Stops (vph)	116	17	12	95	24		34	518	10	41	1161	18
Fuel Used(l)	13	2	4	10	5		4	57	3	6	135	3
CO Emissions (g/hr)	247	29	69	192	94		73	1059	48	107	2502	49
NOx Emissions (g/hr)	48	6	13	37	18		14	204	9	21	483	9
VOC Emissions (g/hr)	57	7	16	44	22		17	244	11	25	577	11
Dilemma Vehicles (#)	0	0	0	0	0		0	33	0	0	73	0
Queue Length 50th (m)	28.1	3.7	0.0	23.5	3.3		6.1	117.7	0.6	9.7	197.9	2.8
Queue Length 95th (m)	45.3	9.6	11.7	38.9	16.7		20.7	#220.2	8.5	m19.3	#320.2	m6.8
Internal Link Dist (m)		334.5			357.8			205.3			186.1	
Turn Bay Length (m)	75.0		100.0	50.0			110.0		40.0	150.0		90.0
Base Capacity (vph)	370	529	511	394	508		185	1131	993	368	1299	1113
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	0.34	0.03	0.16	0.27	0.18		0.32	0.70	0.10	0.22	0.86	0.04

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 57 (48%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 29.7 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Strandherd & Dealership/Kennevale

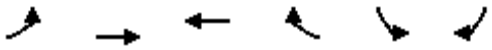




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	6	49	17	3	37	32	413	31	36	459	30
Future Volume (Veh/h)	36	6	49	17	3	37	32	413	31	36	459	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	36	6	49	17	3	37	32	413	31	36	459	30
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1046	1039	459	1060	1038	413	489			444		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1046	1039	459	1060	1038	413	489			444		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	80	97	92	90	99	94	97			97		
cM capacity (veh/h)	183	216	602	173	217	639	1074			1116		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	36	55	57	32	413	31	36	459	30
Volume Left	36	0	17	32	0	0	36	0	0
Volume Right	0	49	37	0	0	31	0	0	30
cSH	183	504	335	1074	1700	1700	1116	1700	1700
Volume to Capacity	0.20	0.11	0.17	0.03	0.24	0.02	0.03	0.27	0.02
Queue Length 95th (m)	5.4	2.8	4.6	0.7	0.0	0.0	0.8	0.0	0.0
Control Delay (s)	29.4	13.0	17.9	8.5	0.0	0.0	8.3	0.0	0.0
Lane LOS	D	B	C	A			A		
Approach Delay (s)	19.5		17.9	0.6			0.6		
Approach LOS	C		C						

Intersection Summary					
Average Delay	2.9				
Intersection Capacity Utilization	48.5%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	49	49	48	49	0
Future Volume (Veh/h)	0	49	49	48	49	0
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	49	49	48	49	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	170	98	98	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	170	98	98	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	100	94	94	96	97	
cM capacity (veh/h)	704	768	768	1085	1623	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	49	97	49
Volume Left	0	0	49
Volume Right	0	48	0
cSH	768	898	1623
Volume to Capacity	0.06	0.11	0.03
Queue Length 95th (m)	1.6	2.8	0.7
Control Delay (s)	10.0	9.5	7.3
Lane LOS	B	A	A
Approach Delay (s)	10.0	9.5	7.3
Approach LOS	B	A	

Intersection Summary			
Average Delay	9.1		
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	8	0	34	8	0	35
Future Volume (Veh/h)	8	0	34	8	0	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	0	34	8	0	35
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			8		84	8
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			8		84	8
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	97
cM capacity (veh/h)			1612		898	1074

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	8	42	35
Volume Left	0	34	0
Volume Right	0	0	35
cSH	1700	1612	1074
Volume to Capacity	0.00	0.02	0.03
Queue Length 95th (m)	0.0	0.5	0.8
Control Delay (s)	0.0	5.9	8.5
Lane LOS		A	A
Approach Delay (s)	0.0	5.9	8.5
Approach LOS			A

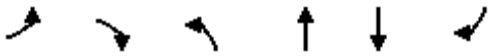
Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	19.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	43	0	85	42	0	87
Future Volume (Veh/h)	43	0	85	42	0	87
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	43	0	85	42	0	87
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			43		255	43
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			43		255	43
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		100	92
cM capacity (veh/h)			1566		694	1027

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	43	127	87
Volume Left	0	85	0
Volume Right	0	0	87
cSH	1700	1566	1027
Volume to Capacity	0.03	0.05	0.08
Queue Length 95th (m)	0.0	1.3	2.1
Control Delay (s)	0.0	5.1	8.8
Lane LOS		A	A
Approach Delay (s)	0.0	5.1	8.8
Approach LOS			A

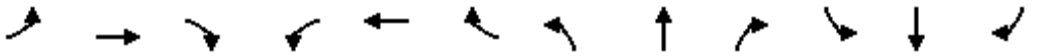
Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	26.3%	ICU Level of Service	A
Analysis Period (min)	15		



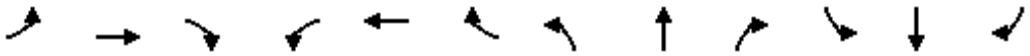
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	87	49	48	0	0	68
Future Volume (Veh/h)	87	49	48	0	0	68
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	87	49	48	0	0	68
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	130	34	68			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	130	34	68			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	95	97			
cM capacity (veh/h)	837	1039	1533			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	136	48	68
Volume Left	87	48	0
Volume Right	49	0	68
cSH	900	1533	1700
Volume to Capacity	0.15	0.03	0.04
Queue Length 95th (m)	4.0	0.7	0.0
Control Delay (s)	9.7	7.4	0.0
Lane LOS	A	A	
Approach Delay (s)	9.7	7.4	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	6.7		
Intersection Capacity Utilization	24.4%	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)	589	869	92	5	1479	70	82	24	4	73	26	319
Future Volume (vph)	589	869	92	5	1479	70	82	24	4	73	26	319
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				1.00		0.99
Frt			0.850			0.850		0.979				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1708	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3122	2891	1483	1658	3191	1459	3216	1708	0	1655	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			225		4				319
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			156.6			207.3	
Travel Time (s)		10.6			11.4			11.3			12.4	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	589	869	92	5	1479	70	82	24	4	73	26	319
Shared Lane Traffic (%)												
Lane Group Flow (vph)	589	869	92	5	1479	70	82	28	0	73	26	319
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	48.0		11.5	48.0	
Total Split (s)	28.0	46.0	13.0	13.0	31.0	31.0	13.0	48.0		13.0	48.0	
Total Split (%)	23.3%	38.3%	10.8%	10.8%	25.8%	25.8%	10.8%	40.0%		10.8%	40.0%	
Maximum Green (s)	20.9	39.1	6.5	5.9	24.1	24.1	6.5	41.0		6.5	41.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		16.0			16.0	16.0		34.0			34.0	
Pedestrian Calls (#/hr)		1			1	1		1			1	
Act Effct Green (s)	29.5	79.4	95.8	5.8	47.3	45.5	10.0	16.2		11.0	16.2	120.0
Actuated g/C Ratio	0.25	0.66	0.80	0.05	0.39	0.38	0.08	0.14		0.09	0.14	1.00
v/c Ratio	0.77	0.45	0.08	0.06	1.18	0.10	0.31	0.12		0.48	0.11	0.22
Control Delay	50.0	16.0	2.1	37.2	126.3	3.4	55.5	36.9		63.0	41.5	0.4
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	50.0	16.0	2.1	37.2	126.3	3.4	55.5	36.9		63.0	41.5	0.4
LOS	D	B	A	D	F	A	E	D		E	D	A
Approach Delay		28.1			120.5			50.8			13.9	
Approach LOS		C			F			D			B	
90th %ile Green (s)	20.9	39.1	6.5	5.9	24.1	24.1	6.5	41.0		6.5	41.0	
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Ped		Max	Ped	
70th %ile Green (s)	31.0	76.9	12.7	0.0	38.8	38.8	12.7	10.0		12.7	10.0	
70th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Min		Gap	Min	
50th %ile Green (s)	30.0	78.7	10.9	0.0	41.6	41.6	10.9	10.0		10.9	10.0	
50th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Min		Gap	Min	
30th %ile Green (s)	29.1	97.4	9.2	0.0	61.2	61.2	9.2	0.0		9.2	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	27.4	96.1	10.5	0.0	61.6	61.6	10.5	10.0		0.0	0.0	
10th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Hold		Skip	Skip	
Stops (vph)	497	416	8	6	961	7	75	21		64	22	0
Fuel Used(l)	62	51	2	1	262	4	6	2		7	2	6
CO Emissions (g/hr)	1156	944	43	13	4870	66	119	31		129	37	108
NOx Emissions (g/hr)	223	182	8	3	940	13	23	6		25	7	21
VOC Emissions (g/hr)	267	218	10	3	1123	15	27	7		30	9	25
Dilemma Vehicles (#)	0	36	0	0	83	0	0	0		0	1	0
Queue Length 50th (m)	64.8	46.2	0.0	1.1	~225.8	0.0	9.4	5.3		16.3	5.8	0.0
Queue Length 95th (m)	#109.0	#136.5	6.3	m2.4	#344.6	m7.1	18.1	10.3		#38.1	10.4	0.0
Internal Link Dist (m)		212.6			229.6			132.6			183.3	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	767	1913	1204	82	1256	692	267	586		151	596	1422
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	0.77	0.45	0.08	0.06	1.18	0.10	0.31	0.05		0.48	0.04	0.22

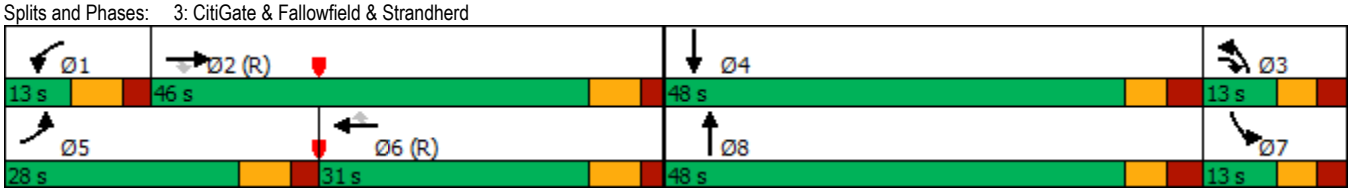
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 7 (6%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.18			
Intersection Signal Delay: 66.7		Intersection LOS: E	
Intersection Capacity Utilization 87.8%		ICU Level of Service E	
Analysis Period (min) 15			

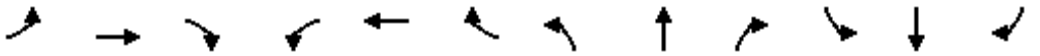
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd





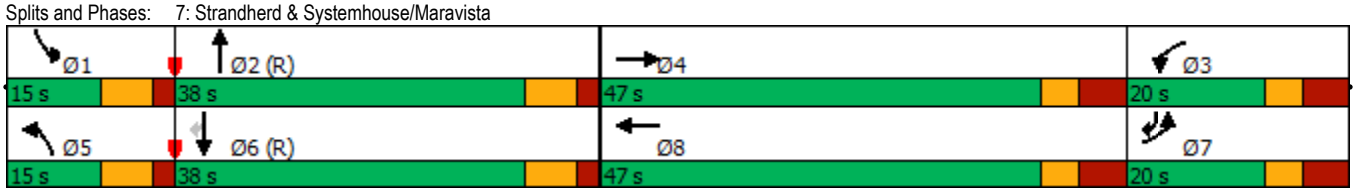
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	9	42	7	24	110	108	1081	9	18	591	66
Future Volume (vph)	111	9	42	7	24	110	108	1081	9	18	591	66
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.876			0.877			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3154	1361	0	1658	1530	0	3154	3310	0	1321	3316	1363
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3154	1361	0	1656	1530	0	3154	3310	0	1321	3316	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			110			1				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
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%	43%	7%	2%	2%	2%	4%	2%	11%	28%	2%	11%
Adj. Flow (vph)	111	9	42	7	24	110	108	1081	9	18	591	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	111	51	0	7	134	0	108	1090	0	18	591	66
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	47.0		15.0	47.0		15.0	33.0		15.0	33.0	15.0
Total Split (s)	20.0	47.0		20.0	47.0		15.0	38.0		15.0	38.0	20.0
Total Split (%)	16.7%	39.2%		16.7%	39.2%		12.5%	31.7%		12.5%	31.7%	16.7%
Maximum Green (s)	12.4	39.4		12.4	39.4		8.4	31.3		8.4	31.3	12.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

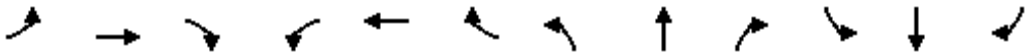
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (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	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		32.0			32.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			1			0			0	
Act Effct Green (s)	9.6	23.4		12.8	15.8		8.8	66.6		7.1	57.3	66.0
Actuated g/C Ratio	0.08	0.20		0.11	0.13		0.07	0.56		0.06	0.48	0.55
v/c Ratio	0.44	0.17		0.04	0.45		0.47	0.59		0.23	0.37	0.08
Control Delay	57.8	18.8		39.7	15.8		60.0	23.4		51.2	26.3	2.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	57.8	18.8		39.7	15.8		60.0	23.4		51.2	26.3	2.6
LOS	E	B		D	B		E	C		D	C	A
Approach Delay		45.5			17.0			26.7			24.7	
Approach LOS		D			B			C			C	
90th %ile Green (s)	12.3	10.7		40.6	39.0		8.9	31.3		8.9	31.3	12.3
90th %ile Term Code	Gap	Gap		Hold	Ped		Max	Coord		Max	Coord	Gap
70th %ile Green (s)	10.7	28.5		0.0	10.2		10.6	62.5		8.1	60.0	10.7
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	9.6	27.2		0.0	10.0		9.5	78.5		0.0	62.4	9.6
50th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
30th %ile Green (s)	8.5	26.1		0.0	10.0		8.3	79.6		0.0	64.7	8.5
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
10th %ile Green (s)	6.8	24.4		0.0	10.0		6.7	81.3		0.0	68.0	6.8
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
Stops (vph)	103	17		7	30		102	599		18	475	12
Fuel Used(l)	9	2		0	4		13	72		3	64	4
CO Emissions (g/hr)	175	39		8	78		235	1338		47	1197	67
NOx Emissions (g/hr)	34	8		2	15		45	258		9	231	13
VOC Emissions (g/hr)	40	9		2	18		54	309		11	276	16
Dilemma Vehicles (#)	0	0		0	0		0	41		0	31	0
Queue Length 50th (m)	13.0	1.7		1.6	5.4		12.7	64.1		4.2	60.6	0.2
Queue Length 95th (m)	21.7	14.2		4.4	17.7		22.1	#212.0		m7.1	97.2	10.5
Internal Link Dist (m)		181.3			124.8			185.4			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	325	475		249	576		240	1838		93	1582	824
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	0.34	0.11		0.03	0.23		0.45	0.59		0.19	0.37	0.08

Intersection Summary

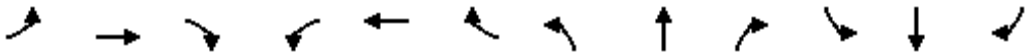
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 48 (40%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 26.8 Intersection LOS: C
Intersection Capacity Utilization 73.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Strandherd & Systemhouse/Maravista





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	325	1382	108	3	1072	124	110	33	3	131	32	469
Future Volume (vph)	325	1382	108	3	1072	124	110	33	3	131	32	469
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				1.00		0.99
Frt			0.850			0.850		0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1722	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3121	2891	1483	1658	3191	1460	3216	1722	0	1655	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			160		3				469
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			155.7			207.3	
Travel Time (s)		10.6			11.4			11.2			12.4	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	325	1382	108	3	1072	124	110	33	3	131	32	469
Shared Lane Traffic (%)												
Lane Group Flow (vph)	325	1382	108	3	1072	124	110	36	0	131	32	469
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	48.0		11.5	48.0	
Total Split (s)	24.0	34.0	14.0	24.0	34.0	34.0	14.0	48.0		14.0	48.0	
Total Split (%)	20.0%	28.3%	11.7%	20.0%	28.3%	28.3%	11.7%	40.0%		11.7%	40.0%	
Maximum Green (s)	16.9	27.1	7.5	16.9	27.1	27.1	7.5	41.0		7.5	41.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	



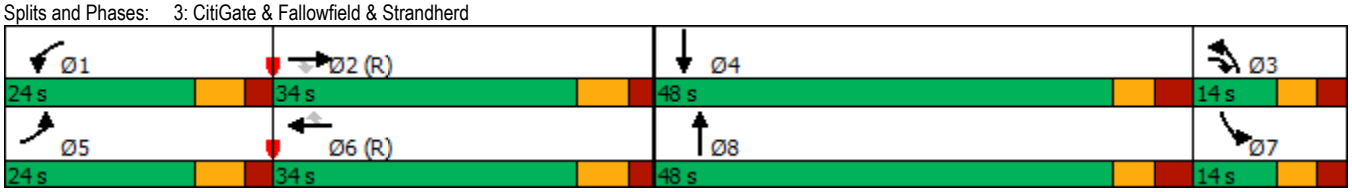
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		16.0			16.0	16.0		34.0			34.0	
Pedestrian Calls (#/hr)		1			1	1		1			1	
Act Effct Green (s)	18.3	74.1	95.7	5.8	53.2	51.4	15.2	16.2		17.0	16.2	120.0
Actuated g/C Ratio	0.15	0.62	0.80	0.05	0.44	0.43	0.13	0.14		0.14	0.14	1.00
v/c Ratio	0.68	0.77	0.09	0.04	0.76	0.17	0.27	0.15		0.56	0.14	0.33
Control Delay	55.8	24.3	2.5	73.0	26.4	1.6	50.5	39.8		58.8	42.2	0.6
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	55.8	24.3	2.5	73.0	26.4	1.6	50.5	39.8		58.8	42.2	0.6
LOS	E	C	A	E	C	A	D	D		E	D	A
Approach Delay		28.7			23.9			47.8			14.8	
Approach LOS		C			C			D			B	
90th %ile Green (s)	16.9	37.5	7.5	6.5	27.1	27.1	7.5	41.0		7.5	41.0	
90th %ile Term Code	Max	Coord	Max	Gap	Coord	Coord	Max	Ped		Max	Ped	
70th %ile Green (s)	19.5	71.2	18.4	0.0	44.6	44.6	18.4	10.0		18.4	10.0	
70th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Min		Gap	Min	
50th %ile Green (s)	17.6	72.1	17.5	0.0	47.4	47.4	17.5	10.0		17.5	10.0	
50th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Min		Gap	Min	
30th %ile Green (s)	15.7	89.9	16.7	0.0	67.1	67.1	16.7	0.0		16.7	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	12.9	90.9	15.7	0.0	70.9	70.9	15.7	0.0		15.7	0.0	
10th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
Stops (vph)	301	773	11	6	748	14	99	28		103	28	0
Fuel Used(l)	37	96	3	1	110	6	8	2		12	3	9
CO Emissions (g/hr)	693	1785	53	12	2051	116	151	42		216	47	161
NOx Emissions (g/hr)	134	344	10	2	396	22	29	8		42	9	31
VOC Emissions (g/hr)	160	412	12	3	473	27	35	10		50	11	37
Dilemma Vehicles (#)	0	52	0	0	12	0	0	0		0	1	0
Queue Length 50th (m)	37.3	118.0	0.3	0.8	126.2	1.3	11.9	7.4		28.5	7.2	0.0
Queue Length 95th (m)	52.8	#276.3	8.8	m2.2	#224.4	2.6	22.6	12.6		#71.9	12.1	0.0
Internal Link Dist (m)		212.6			229.6			131.7			183.3	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	503	1785	1203	233	1415	717	406	590		234	596	1422
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	0.65	0.77	0.09	0.01	0.76	0.17	0.27	0.06		0.56	0.05	0.33

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 115 (96%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 25.6		Intersection LOS: C	
Intersection Capacity Utilization 76.1%		ICU Level of Service D	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd

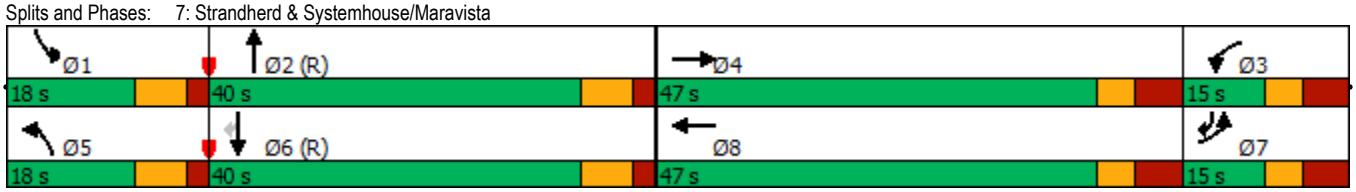


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	59	216	10	59	40	261	741	7	134	969	101
Future Volume (vph)	140	59	216	10	59	40	261	741	7	134	969	101
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.882			0.939			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3216	1520	0	1658	1558	0	3216	3312	0	1658	3316	1351
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	1520	0	1654	1558	0	3216	3312	0	1658	3316	1351
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		164			30			1				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
Confl. Peds. (#/hr)			4	4								
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%	2%	2%	2%	15%	2%	2%	2%	2%	2%	12%
Adj. Flow (vph)	140	59	216	10	59	40	261	741	7	134	969	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	140	275	0	10	99	0	261	748	0	134	969	101
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	47.0		15.0	47.0		15.0	33.0		15.0	33.0	15.0
Total Split (s)	15.0	47.0		15.0	47.0		18.0	40.0		18.0	40.0	15.0
Total Split (%)	12.5%	39.2%		12.5%	39.2%		15.0%	33.3%		15.0%	33.3%	12.5%
Maximum Green (s)	7.4	39.4		7.4	39.4		11.4	33.3		11.4	33.3	7.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	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	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		32.0			32.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			3			0			0	
Act Effct Green (s)	9.6	28.0		9.0	16.6		14.0	51.1		14.2	51.3	60.0
Actuated g/C Ratio	0.08	0.23		0.08	0.14		0.12	0.43		0.12	0.43	0.50
v/c Ratio	0.55	0.57		0.08	0.41		0.69	0.53		0.68	0.68	0.14
Control Delay	61.6	21.2		48.9	35.1		61.4	29.5		59.3	37.6	9.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	61.6	21.2		48.9	35.1		61.4	29.5		59.3	37.6	9.2
LOS	E	C		D	D		E	C		E	D	A
Approach Delay		34.8			36.3			37.7			37.7	
Approach LOS		C			D			D			D	
90th %ile Green (s)	7.8	25.6		21.2	39.0		11.4	33.3		11.4	33.3	7.8
90th %ile Term Code	Max	Gap		Hold	Ped		Max	Coord		Max	Coord	Max
70th %ile Green (s)	12.0	32.7		0.0	13.1		17.2	48.2		18.2	49.2	12.0
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	10.8	29.2		0.0	10.8		15.8	53.4		16.5	54.1	10.8
50th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
30th %ile Green (s)	9.5	27.1		0.0	10.0		14.1	57.8		14.2	57.9	9.5
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
10th %ile Green (s)	7.7	25.3		0.0	10.0		11.7	63.0		10.8	62.1	7.7
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
Stops (vph)	130	103		11	58		231	548		121	620	34
Fuel Used(l)	12	12		1	5		30	61		19	105	7
CO Emissions (g/hr)	228	226		13	94		556	1130		349	1951	130
NOx Emissions (g/hr)	44	44		2	18		107	218		67	376	25
VOC Emissions (g/hr)	53	52		3	22		128	261		80	450	30
Dilemma Vehicles (#)	0	0		0	0		0	31		0	44	0
Queue Length 50th (m)	16.4	21.7		2.3	15.7		30.3	65.0		32.3	84.0	3.3
Queue Length 95th (m)	#29.6	51.6		6.8	24.5		#53.8	109.8		m#49.1	#177.2	m22.5
Internal Link Dist (m)		181.3			124.8			185.4			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	256	609		140	531		376	1411		198	1418	726
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	0.55	0.45		0.07	0.19		0.69	0.53		0.68	0.68	0.14

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 82 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 37.2	Intersection LOS: D
Intersection Capacity Utilization 73.1%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 7: Strandherd & Systemhouse/Maravista





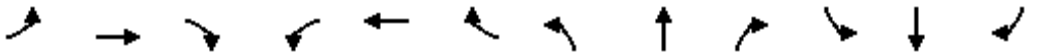
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1625	0	0	785	168	261
Future Volume (vph)	1625	0	0	785	168	261
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						36
Link Speed (k/h)	80			80	60	
Link Distance (m)	548.4			245.0	156.0	
Travel Time (s)	24.7			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	1625	0	0	785	168	261
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1625	0	0	785	168	261
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.4			30.4	25.8	25.8
Total Split (s)	89.6			89.6	40.4	40.4
Total Split (%)	68.9%			68.9%	31.1%	31.1%
Maximum Green (s)	83.4			83.4	34.6	34.6
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	1.6			1.6	2.1	2.1
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.2			6.2	5.8	5.8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	92.1			92.1	25.9	25.9
Actuated g/C Ratio	0.71			0.71	0.20	0.20
v/c Ratio	0.72			0.34	0.57	0.83
Control Delay	10.0			2.3	53.4	64.2
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	10.0			2.3	53.4	64.2
LOS	B			A	D	E
Approach Delay	10.0			2.3	60.0	
Approach LOS	B			A	E	
90th %ile Green (s)	83.4			83.4	34.6	34.6
90th %ile Term Code	Coord			Coord	Max	Max
70th %ile Green (s)	87.6			87.6	30.4	30.4
70th %ile Term Code	Coord			Coord	Gap	Gap
50th %ile Green (s)	91.7			91.7	26.3	26.3
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	95.8			95.8	22.2	22.2
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	101.8			101.8	16.2	16.2
10th %ile Term Code	Coord			Coord	Gap	Gap
Stops (vph)	727			63	146	216
Fuel Used(l)	124			35	14	23
CO Emissions (g/hr)	2314			647	258	435
NOx Emissions (g/hr)	447			125	50	84
VOC Emissions (g/hr)	534			149	60	100
Dilemma Vehicles (#)	54			5	0	0
Queue Length 50th (m)	72.3			10.1	39.1	56.3
Queue Length 95th (m)	141.4			m13.2	57.3	81.5
Internal Link Dist (m)	524.4			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2259			2324	394	406
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.72			0.34	0.43	0.64

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 126 (97%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 15.4		Intersection LOS: B	
Intersection Capacity Utilization 74.5%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 2: 416 NB Off-ramp & Fallowfield





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	589	869	92	5	1479	70	82	24	4	73	26	319
Future Volume (vph)	589	869	92	5	1479	70	82	24	4	73	26	319
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						0.99						0.99
Frt			0.850			0.850		0.979				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1708	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3124	2891	1483	1658	3191	1465	3216	1708	0	1658	1745	1423
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93			207		4				319
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			155.7			207.3	
Travel Time (s)		10.6			11.4			11.2			12.4	
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	589	869	92	5	1479	70	82	24	4	73	26	319
Shared Lane Traffic (%)												
Lane Group Flow (vph)	589	869	92	5	1479	70	82	28	0	73	26	319
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	17.0		11.5	17.0	
Total Split (s)	32.0	88.0	12.0	13.0	69.0	69.0	12.0	17.0		12.0	17.0	
Total Split (%)	24.6%	67.7%	9.2%	10.0%	53.1%	53.1%	9.2%	13.1%		9.2%	13.1%	
Maximum Green (s)	24.9	81.1	5.5	5.9	62.1	62.1	5.5	10.0		5.5	10.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	

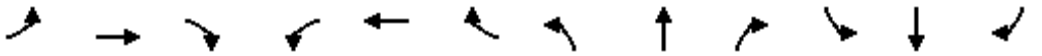
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		16.0			16.0	16.0						
Pedestrian Calls (#/hr)		1			1	1						
Act Effct Green (s)	27.3	98.7	112.0	5.7	68.7	66.9	6.9	10.0		8.7	10.0	130.0
Actuated g/C Ratio	0.21	0.76	0.86	0.04	0.53	0.51	0.05	0.08		0.07	0.08	1.00
v/c Ratio	0.90	0.40	0.07	0.07	0.88	0.08	0.48	0.21		0.66	0.19	0.22
Control Delay	55.6	9.4	1.4	54.0	24.5	0.2	70.1	54.1		86.7	60.0	0.4
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	55.6	9.4	1.4	54.0	24.5	0.2	70.1	54.1		86.7	60.0	0.4
LOS	E	A	A	D	C	A	E	D		F	E	A
Approach Delay		26.5			23.5			66.1			19.1	
Approach LOS		C			C			E			B	
90th %ile Green (s)	24.9	81.1	5.5	5.9	62.1	62.1	5.5	10.0		5.5	10.0	
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Max		Max	Max	
70th %ile Green (s)	24.9	94.1	5.5	0.0	62.1	62.1	5.5	10.0		5.5	10.0	
70th %ile Term Code	Max	Coord	Max	Skip	Coord	Coord	Max	Max		Max	Max	
50th %ile Green (s)	24.9	94.1	5.5	0.0	62.1	62.1	5.5	10.0		5.5	10.0	
50th %ile Term Code	Max	Coord	Max	Skip	Coord	Coord	Max	Max		Max	Max	
30th %ile Green (s)	28.3	106.3	10.3	0.0	70.9	70.9	10.3	0.0		10.3	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	24.5	108.9	7.7	0.0	77.3	77.3	7.7	0.0		7.7	0.0	
10th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
Stops (vph)	546	372	11	7	1040	0	78	24		63	25	0
Fuel Used(l)	68	55	4	1	117	1	7	2		8	2	6
CO Emissions (g/hr)	1262	1019	80	13	2178	26	137	39		153	46	108
NOx Emissions (g/hr)	244	197	15	3	420	5	27	8		29	9	21
VOC Emissions (g/hr)	291	235	18	3	502	6	32	9		35	11	25
Dilemma Vehicles (#)	0	35	0	0	64	0	0	0		0	1	0
Queue Length 50th (m)	79.5	46.2	0.4	1.2	184.7	0.0	10.8	5.9		18.8	6.4	0.0
Queue Length 95th (m)	#109.2	92.9	m3.9	m2.3	#232.8	m0.0	#20.8	15.8		#45.5	15.7	0.0
Internal Link Dist (m)		212.6			229.6			131.7			183.3	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	657	2194	1290	75	1686	854	170	135		111	134	1423
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	0.90	0.40	0.07	0.07	0.88	0.08	0.48	0.21		0.66	0.19	0.22

Intersection Summary

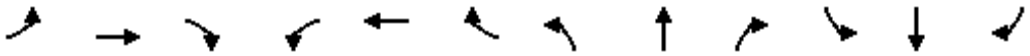
Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 112 (86%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 25.6 Intersection LOS: C
Intersection Capacity Utilization 86.3% 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: 3: CitiGate & Fallowfield & Strandherd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	809	144	21	1368	14	196	13	11	23	24	176
Future Volume (vph)	36	809	144	21	1368	14	196	13	11	23	24	176
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	90.0			100.0			60.0			60.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.97				1.00		0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	2941	1483	3216	3221	1483	1658	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.742			0.749		
Satd. Flow (perm)	1657	2941	1483	3216	3221	1445	1295	1745	1483	1305	1745	1462
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			97			90			102
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		253.6			287.1			117.0			245.3	
Travel Time (s)		11.4			12.9			8.4			17.7	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	15%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	36	809	144	21	1368	14	196	13	11	23	24	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	809	144	21	1368	14	196	13	11	23	24	176
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.9	31.8	31.8	11.9	31.8	31.8	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (s)	12.1	69.4	69.4	11.9	69.2	69.2	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (%)	9.3%	53.4%	53.4%	9.2%	53.2%	53.2%	37.5%	37.5%	37.5%	37.5%	37.5%	37.5%
Maximum Green (s)	5.2	62.6	62.6	5.0	62.4	62.4	41.0	41.0	41.0	41.0	41.0	41.0
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	3.3	3.3	3.3	3.3	3.3	3.3



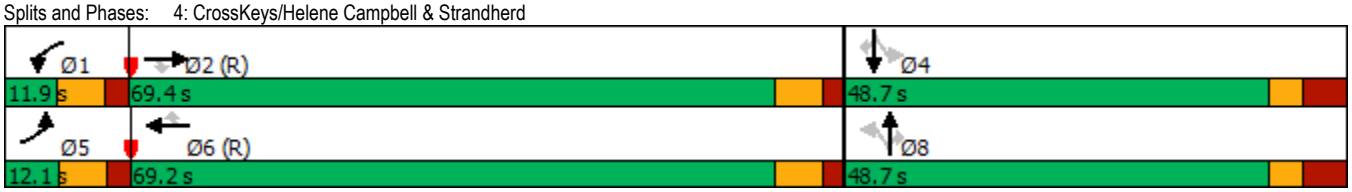
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.3	2.2	2.2	2.3	2.2	2.2	4.4	4.4	4.4	4.4	4.4	4.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.8	6.8	6.9	6.8	6.8	7.7	7.7	7.7	7.7	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
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	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	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
Flash Dont Walk (s)		18.0	18.0		18.0	18.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		1	1		1	1	1	1	1	1	1	1
Act Effct Green (s)	7.2	81.3	81.3	5.9	77.5	77.5	26.4	26.4	26.4	26.4	26.4	26.4
Actuated g/C Ratio	0.06	0.63	0.63	0.05	0.60	0.60	0.20	0.20	0.20	0.20	0.20	0.20
v/c Ratio	0.40	0.44	0.15	0.14	0.71	0.02	0.75	0.04	0.03	0.09	0.07	0.47
Control Delay	73.0	13.4	3.5	68.7	13.9	0.0	64.4	36.4	0.2	38.1	37.6	21.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.0	13.4	3.5	68.7	13.9	0.0	64.4	36.4	0.2	38.1	37.6	21.6
LOS	E	B	A	E	B	A	E	D	A	D	D	C
Approach Delay		14.1			14.6			59.6			25.1	
Approach LOS		B			B			E			C	
90th %ile Green (s)	5.2	62.6	62.6	5.0	62.4	62.4	41.0	41.0	41.0	41.0	41.0	41.0
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	9.7	72.7	72.7	6.8	69.8	69.8	29.1	29.1	29.1	29.1	29.1	29.1
70th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	8.4	77.1	77.1	6.3	75.0	75.0	25.2	25.2	25.2	25.2	25.2	25.2
50th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	7.1	94.3	94.3	0.0	80.3	80.3	21.2	21.2	21.2	21.2	21.2	21.2
30th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	0.0	99.9	99.9	0.0	99.9	99.9	15.6	15.6	15.6	15.6	15.6	15.6
10th %ile Term Code	Skip	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
Stops (vph)	31	482	43	22	586	0	177	11	0	20	20	64
Fuel Used(l)	5	52	6	3	79	0	16	1	0	2	2	8
CO Emissions (g/hr)	84	970	106	53	1472	6	295	14	2	31	32	157
NOx Emissions (g/hr)	16	187	21	10	284	1	57	3	0	6	6	30
VOC Emissions (g/hr)	19	224	25	12	339	1	68	3	1	7	7	36
Dilemma Vehicles (#)	0	36	0	0	53	0	0	0	0	0	0	0
Queue Length 50th (m)	7.9	67.4	7.6	2.8	140.0	0.0	48.1	2.7	0.0	4.9	5.1	16.3
Queue Length 95th (m)	m#22.7	107.8	m12.5	m5.6	68.1	m0.0	64.0	7.2	0.0	10.8	10.7	32.6
Internal Link Dist (m)		229.6			263.1			93.0			221.3	
Turn Bay Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Base Capacity (vph)	91	1839	965	145	1919	900	408	550	529	411	550	530
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.44	0.15	0.14	0.71	0.02	0.48	0.02	0.02	0.06	0.04	0.33

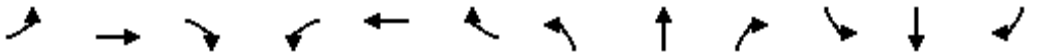
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 120 (92%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 18.7		Intersection LOS: B	
Intersection Capacity Utilization 83.0%		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.

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

Splits and Phases: 4: CrossKeys/Helene Campbell & Strandherd





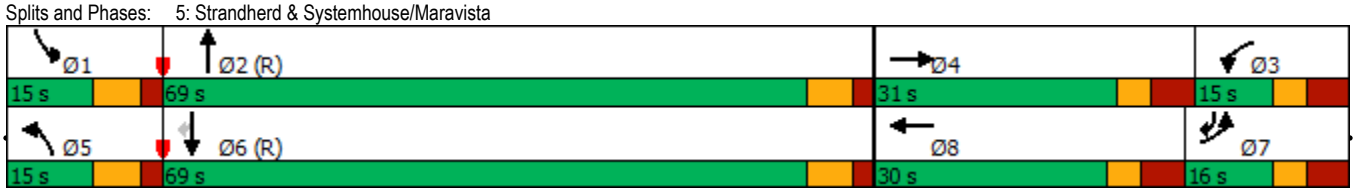
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	9	42	7	24	110	108	1081	9	18	591	66
Future Volume (vph)	111	9	42	7	24	110	108	1081	9	18	591	66
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.876			0.877			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3154	1360	0	1658	1530	0	3154	3310	0	1321	3316	1363
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3154	1360	0	1650	1530	0	3154	3310	0	1321	3316	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			110			1				94
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
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%	43%	7%	2%	2%	2%	4%	2%	11%	28%	2%	11%
Adj. Flow (vph)	111	9	42	7	24	110	108	1081	9	18	591	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	111	51	0	7	134	0	108	1090	0	18	591	66
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	28.0		15.0	28.0		15.0	52.0		15.0	52.0	15.0
Total Split (s)	16.0	31.0		15.0	30.0		15.0	69.0		15.0	69.0	16.0
Total Split (%)	12.3%	23.8%		11.5%	23.1%		11.5%	53.1%		11.5%	53.1%	12.3%
Maximum Green (s)	8.4	23.4		7.4	22.4		8.4	62.3		8.4	62.3	8.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

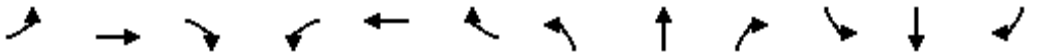
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (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	C-Max		None	C-Max	None
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								17.0			17.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	9.9	23.8		8.0	11.0		9.6	80.8		7.4	70.9	79.9
Actuated g/C Ratio	0.08	0.18		0.06	0.08		0.07	0.62		0.06	0.55	0.61
v/c Ratio	0.46	0.18		0.07	0.58		0.46	0.53		0.24	0.33	0.08
Control Delay	63.3	20.1		55.7	25.5		63.8	17.0		91.8	6.9	0.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	63.3	20.1		55.7	25.5		63.8	17.0		91.8	6.9	0.4
LOS	E	C		E	C		E	B		F	A	A
Approach Delay		49.7			27.0			21.2			8.5	
Approach LOS		D			C			C			A	
90th %ile Green (s)	12.8	11.0		16.4	14.6		11.8	64.1		10.0	62.3	12.8
90th %ile Term Code	Gap	Gap		Hold	Gap		Max	Coord		Gap	Coord	Gap
70th %ile Green (s)	11.1	29.2		0.0	10.5		11.0	71.6		8.3	68.9	11.1
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	9.9	27.5		0.0	10.0		9.8	88.2		0.0	71.8	9.9
50th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
30th %ile Green (s)	8.8	26.4		0.0	10.0		8.6	89.3		0.0	74.1	8.8
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
10th %ile Green (s)	7.1	24.7		0.0	10.0		7.0	91.0		0.0	77.4	7.1
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
Stops (vph)	103	16		8	35		101	613		20	140	1
Fuel Used(l)	10	2		1	5		15	85		3	25	2
CO Emissions (g/hr)	184	40		10	98		273	1588		53	456	29
NOx Emissions (g/hr)	35	8		2	19		53	307		10	88	6
VOC Emissions (g/hr)	42	9		2	23		63	366		12	105	7
Dilemma Vehicles (#)	0	0		0	0		0	42		0	33	0
Queue Length 50th (m)	14.2	1.9		1.8	5.9		13.9	64.6		4.9	7.7	0.1
Queue Length 95th (m)	23.3	15.0		6.2	25.5		23.0	131.5		m11.3	8.6	0.0
Internal Link Dist (m)		181.3			124.8			185.4			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	247	308		117	354		240	2058		88	1808	876
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	0.45	0.17		0.06	0.38		0.45	0.53		0.20	0.33	0.08

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 128 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 19.8 Intersection LOS: B
Intersection Capacity Utilization 72.4% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Strandherd & Systemhouse/Maravista





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	6	29	80	25	102	99	1046	57	38	525	61
Future Volume (vph)	34	6	29	80	25	102	99	1046	57	38	525	61
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		100.0	50.0		0.0	110.0		40.0	150.0		90.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.5			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.880				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1353	1745	1483	1658	1536	0	1398	1745	1455	1523	1728	1363
Flt Permitted	0.598			0.754			0.469			0.125		
Satd. Flow (perm)	852	1745	1483	1316	1536	0	690	1745	1455	200	1728	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89		102				91			61
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		358.5			381.8			229.3			210.1	
Travel Time (s)		25.8			34.4			10.3			9.5	
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 (%)	25%	2%	2%	2%	2%	2%	21%	2%	4%	11%	3%	11%
Adj. Flow (vph)	34	6	29	80	25	102	99	1046	57	38	525	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	6	29	80	127	0	99	1046	57	38	525	61
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		20.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	32.6	32.6	32.6	32.6	32.6		30.4	30.4	30.4	11.4	30.4	30.4
Total Split (s)	33.0	33.0	33.0	33.0	33.0		75.0	75.0	75.0	12.0	87.0	87.0
Total Split (%)	27.5%	27.5%	27.5%	27.5%	27.5%		62.5%	62.5%	62.5%	10.0%	72.5%	72.5%
Maximum Green (s)	26.4	26.4	26.4	26.4	26.4		68.6	68.6	68.6	5.6	80.6	80.6
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3		1.8	1.8	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	6.6	6.6		6.4	6.4	6.4	6.4	6.4	6.4

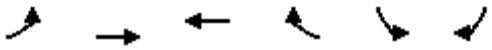
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		C-Max	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	19.0	19.0	19.0	19.0	19.0		17.0	17.0	17.0		17.0	17.0
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0		0	0
Act Effct Green (s)	13.2	13.2	13.2	13.2	13.2		86.0	86.0	86.0	93.8	93.8	93.8
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.11		0.72	0.72	0.72	0.78	0.78	0.78
v/c Ratio	0.36	0.03	0.12	0.55	0.49		0.20	0.84	0.05	0.17	0.39	0.06
Control Delay	59.2	45.3	1.0	64.3	20.3		8.8	22.5	0.7	5.2	5.4	1.1
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	59.2	45.3	1.0	64.3	20.3		8.8	22.5	0.7	5.2	5.4	1.1
LOS	E	D	A	E	C		A	C	A	A	A	A
Approach Delay		33.5			37.3			20.3			5.0	
Approach LOS		C			D			C			A	
90th %ile Green (s)	18.3	18.3	18.3	18.3	18.3		75.1	75.1	75.1	7.2	88.7	88.7
90th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Gap	Coord	Coord
70th %ile Green (s)	15.0	15.0	15.0	15.0	15.0		79.1	79.1	79.1	6.5	92.0	92.0
70th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Gap	Coord	Coord
50th %ile Green (s)	12.6	12.6	12.6	12.6	12.6		81.9	81.9	81.9	6.1	94.4	94.4
50th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Gap	Coord	Coord
30th %ile Green (s)	10.3	10.3	10.3	10.3	10.3		96.7	96.7	96.7	0.0	96.7	96.7
30th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Coord	Coord	Coord	Skip	Coord	Coord
10th %ile Green (s)	10.0	10.0	10.0	10.0	10.0		97.0	97.0	97.0	0.0	97.0	97.0
10th %ile Term Code	Hold	Hold	Hold	Min	Min		Coord	Coord	Coord	Skip	Coord	Coord
Stops (vph)	32	7	0	74	33		37	691	1	8	156	4
Fuel Used(l)	3	1	1	8	8		5	77	1	2	28	2
CO Emissions (g/hr)	64	11	19	154	141		85	1425	21	35	530	43
NOx Emissions (g/hr)	12	2	4	30	27		16	275	4	7	102	8
VOC Emissions (g/hr)	15	2	4	35	33		20	329	5	8	122	10
Dilemma Vehicles (#)	0	0	0	0	0		0	42	0	0	22	0
Queue Length 50th (m)	7.6	1.3	0.0	18.2	5.5		7.8	177.2	0.0	1.6	31.2	0.0
Queue Length 95th (m)	17.3	5.1	0.0	32.9	22.8		18.5	#321.9	1.8	4.8	56.9	3.2
Internal Link Dist (m)		334.5			357.8			205.3			186.1	
Turn Bay Length (m)	75.0		100.0	50.0			110.0		40.0	150.0		90.0
Base Capacity (vph)	187	383	395	289	417		494	1250	1068	225	1350	1078
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	0.18	0.02	0.07	0.28	0.30		0.20	0.84	0.05	0.17	0.39	0.06

Intersection Summary

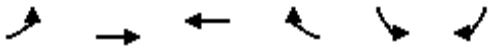
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 29 (24%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 17.9 Intersection LOS: B
Intersection Capacity Utilization 100.6% 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.

Splits and Phases: 6: Strandherd & Dealership/Kennevale





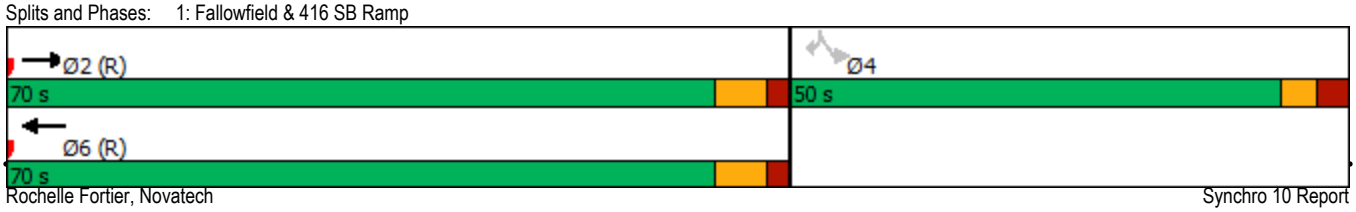
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1625	1071	0	634	121
Future Volume (vph)	0	1625	1071	0	634	121
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						72
Link Speed (k/h)		80	80		50	
Link Distance (m)		93.5	550.2		164.0	
Travel Time (s)		4.2	24.8		11.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	1625	1071	0	634	121
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1625	1071	0	634	121
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		30.3	30.3
Total Split (s)		70.0	70.0		50.0	50.0
Total Split (%)		58.3%	58.3%		41.7%	41.7%
Maximum Green (s)		63.2	63.2		43.7	43.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		None	None
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		75.9	75.9		31.0	31.0
Actuated g/C Ratio		0.63	0.63		0.26	0.26
v/c Ratio		0.84	0.53		0.81	0.31
Control Delay		23.4	11.1		49.9	16.6
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		23.4	11.1		49.9	16.6
LOS		C	B		D	B
Approach Delay		23.4	11.1		44.6	
Approach LOS		C	B		D	
90th %ile Green (s)		68.6	68.6		38.3	38.3
90th %ile Term Code		Coord	Coord		Gap	Gap
70th %ile Green (s)		72.5	72.5		34.4	34.4
70th %ile Term Code		Coord	Coord		Gap	Gap
50th %ile Green (s)		76.1	76.1		30.8	30.8
50th %ile Term Code		Coord	Coord		Gap	Gap
30th %ile Green (s)		78.9	78.9		28.0	28.0
30th %ile Term Code		Coord	Coord		Gap	Gap
10th %ile Green (s)		83.2	83.2		23.7	23.7
10th %ile Term Code		Coord	Coord		Gap	Gap
Stops (vph)		1191	449		575	41
Fuel Used(l)		110	81		47	4
CO Emissions (g/hr)		2037	1511		876	81
NOx Emissions (g/hr)		393	292		169	16
VOC Emissions (g/hr)		470	349		202	19
Dilemma Vehicles (#)		67	26		0	0
Queue Length 50th (m)		145.2	56.9		72.5	9.0
Queue Length 95th (m)		#234.6	83.7		85.7	22.7
Internal Link Dist (m)		69.5	526.2		140.0	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1943	2036		1106	525
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.84	0.53		0.57	0.23

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 20 (17%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 24.2		Intersection LOS: C	
Intersection Capacity Utilization 85.9%		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: 1: Fallowfield & 416 SB Ramp





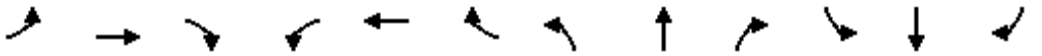
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1937	0	0	1002	176	296
Future Volume (vph)	1937	0	0	1002	176	296
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						19
Link Speed (k/h)	80			80	60	
Link Distance (m)	550.2			245.0	156.0	
Travel Time (s)	24.8			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	1937	0	0	1002	176	296
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1937	0	0	1002	176	296
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	85.0			85.0	35.0	35.0
Total Split (%)	70.8%			70.8%	29.2%	29.2%
Maximum Green (s)	78.3			78.3	29.7	29.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	81.2			81.2	26.8	26.8
Actuated g/C Ratio	0.68			0.68	0.22	0.22
v/c Ratio	0.90			0.45	0.53	0.89
Control Delay	27.9			11.6	46.7	69.7
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	27.9			11.6	46.7	69.7
LOS	C			B	D	E
Approach Delay	27.9			11.6	61.1	
Approach LOS	C			B	E	
90th %ile Green (s)	78.3			78.3	29.7	29.7
90th %ile Term Code	Coord			Coord	Max	Max
70th %ile Green (s)	78.3			78.3	29.7	29.7
70th %ile Term Code	Coord			Coord	Max	Max
50th %ile Green (s)	78.4			78.4	29.6	29.6
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	82.4			82.4	25.6	25.6
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	88.4			88.4	19.6	19.6
10th %ile Term Code	Coord			Coord	Gap	Gap
Stops (vph)	1590			363	150	256
Fuel Used(l)	217			68	14	28
CO Emissions (g/hr)	4030			1260	252	524
NOx Emissions (g/hr)	778			243	49	101
VOC Emissions (g/hr)	930			291	58	121
Dilemma Vehicles (#)	101			65	0	0
Queue Length 50th (m)	233.8			55.2	35.6	62.0
Queue Length 95th (m)	#282.8			m53.9	57.7	#105.6
Internal Link Dist (m)	526.2			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2158			2220	367	367
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.90			0.45	0.48	0.81

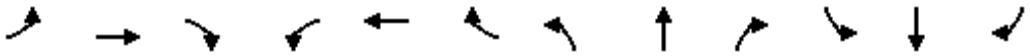
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 81 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 27.7		Intersection LOS: C	
Intersection Capacity Utilization 85.9%		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: 2: 416 NB Off-ramp & Fallowfield





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	346	1135	92	5	1853	80	82	24	4	103	26	349
Future Volume (vph)	346	1135	92	5	1853	80	82	24	4	103	26	349
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				0.99		0.99
Frt			0.850			0.850		0.979				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1708	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3123	2891	1483	1658	3191	1460	3216	1708	0	1644	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			160		4				282
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		236.6			253.6			311.4			414.8	
Travel Time (s)		10.6			11.4			22.4			29.9	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	346	1135	92	5	1853	80	82	24	4	103	26	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	346	1135	92	5	1853	80	82	28	0	103	26	349
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	17.0		11.5	17.0	
Total Split (s)	20.0	72.0	13.0	13.0	65.0	65.0	13.0	22.0		13.0	22.0	
Total Split (%)	16.7%	60.0%	10.8%	10.8%	54.2%	54.2%	10.8%	18.3%		10.8%	18.3%	
Maximum Green (s)	12.9	65.1	6.5	5.9	58.1	58.1	6.5	15.0		6.5	15.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		16.0			16.0	16.0						
Pedestrian Calls (#/hr)		1			1	1						
Act Effct Green (s)	16.1	84.1	102.0	5.7	65.3	63.5	11.5	10.0		13.3	10.0	120.0
Actuated g/C Ratio	0.13	0.70	0.85	0.05	0.54	0.53	0.10	0.08		0.11	0.08	1.00
v/c Ratio	0.83	0.56	0.07	0.06	1.07	0.09	0.27	0.19		0.56	0.18	0.25
Control Delay	62.5	10.1	1.1	77.2	63.1	0.7	52.6	49.1		63.0	54.4	0.4
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	62.5	10.1	1.1	77.2	63.1	0.7	52.6	49.1		63.0	54.4	0.4
LOS	E	B	A	E	E	A	D	D		E	D	A
Approach Delay		21.1			60.6			51.7			16.8	
Approach LOS		C			E			D			B	
90th %ile Green (s)	12.9	65.1	11.5	5.9	58.1	58.1	11.5	10.0		11.5	10.0	
90th %ile Term Code	Max	Coord	Hold	Max	Coord	Coord	Hold	Min		Max	Min	
70th %ile Green (s)	12.9	78.1	11.5	0.0	58.1	58.1	11.5	10.0		11.5	10.0	
70th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Min		Max	Min	
50th %ile Green (s)	12.9	78.1	11.5	0.0	58.1	58.1	11.5	10.0		11.5	10.0	
50th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Min		Max	Min	
30th %ile Green (s)	17.8	93.5	13.1	0.0	68.6	68.6	13.1	0.0		13.1	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	15.0	96.5	10.1	0.0	74.4	74.4	10.1	0.0		10.1	0.0	
10th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
Stops (vph)	316	410	7	7	1576	4	75	24		97	25	0
Fuel Used(l)	42	70	4	1	217	2	7	2		11	3	14
CO Emissions (g/hr)	773	1294	77	15	4044	35	138	45		209	50	258
NOx Emissions (g/hr)	149	250	15	3	781	7	27	9		40	10	50
VOC Emissions (g/hr)	178	298	18	3	933	8	32	10		48	11	59
Dilemma Vehicles (#)	0	59	0	0	22	0	0	0		0	0	0
Queue Length 50th (m)	43.2	52.0	0.7	1.0	~279.9	0.0	9.3	5.3		23.4	5.8	0.0
Queue Length 95th (m)	m#51.3	m77.4	m1.4	m1.7	#321.5	m0.9	17.3	14.6		41.6	14.8	0.0
Internal Link Dist (m)		212.6			229.6			287.4			390.8	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	419	2024	1275	81	1735	847	309	217		184	218	1422
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	0.83	0.56	0.07	0.06	1.07	0.09	0.27	0.13		0.56	0.12	0.25

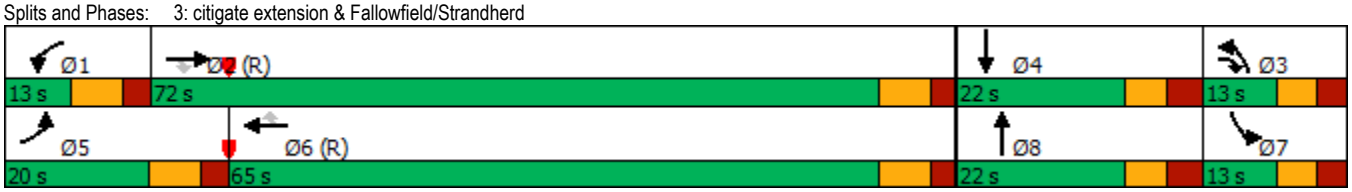
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 101 (84%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay: 40.1		Intersection LOS: D	
Intersection Capacity Utilization 91.7%		ICU Level of Service F	
Analysis Period (min) 15			

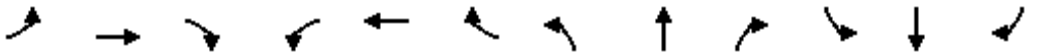
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

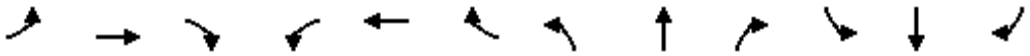
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: citigate extension & Fallowfield/Strandherd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	1101	144	21	1741	17	196	13	11	47	24	176
Future Volume (vph)	36	1101	144	21	1741	17	196	13	11	47	24	176
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	90.0			100.0			60.0			60.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.97				1.00		0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	2941	1483	3216	3221	1483	1658	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.742			0.749		
Satd. Flow (perm)	1657	2941	1483	3216	3221	1445	1295	1745	1483	1305	1745	1462
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			105			105			97			157
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		253.6			287.1			117.0			245.3	
Travel Time (s)		11.4			12.9			8.4			17.7	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	15%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	36	1101	144	21	1741	17	196	13	11	47	24	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1101	144	21	1741	17	196	13	11	47	24	176
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.9	31.8	31.8	11.9	31.8	31.8	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (s)	15.0	56.0	56.0	15.0	56.0	56.0	49.0	49.0	49.0	49.0	49.0	49.0
Total Split (%)	12.5%	46.7%	46.7%	12.5%	46.7%	46.7%	40.8%	40.8%	40.8%	40.8%	40.8%	40.8%
Maximum Green (s)	8.1	49.2	49.2	8.1	49.2	49.2	41.3	41.3	41.3	41.3	41.3	41.3
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	3.3	3.3	3.3	3.3	3.3	3.3

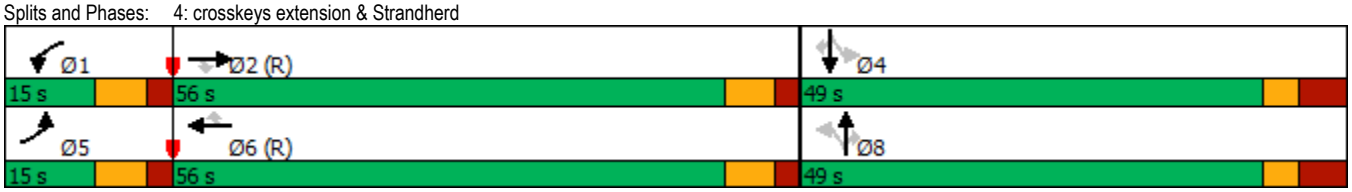


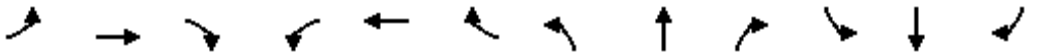
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.3	2.2	2.2	2.3	2.2	2.2	4.4	4.4	4.4	4.4	4.4	4.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.8	6.8	6.9	6.8	6.8	7.7	7.7	7.7	7.7	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
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	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	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
Flash Dont Walk (s)		18.0	18.0		18.0	18.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		1	1		1	1	1	1	1	1	1	1
Act Effct Green (s)	7.6	74.6	74.6	6.3	70.9	70.9	25.3	25.3	25.3	25.3	25.3	25.3
Actuated g/C Ratio	0.06	0.62	0.62	0.05	0.59	0.59	0.21	0.21	0.21	0.21	0.21	0.21
v/c Ratio	0.35	0.60	0.15	0.12	0.92	0.02	0.72	0.04	0.03	0.17	0.07	0.41
Control Delay	54.1	23.2	10.6	56.0	27.3	0.0	57.3	32.3	0.1	36.1	33.5	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	23.2	10.6	56.0	27.3	0.0	57.3	32.3	0.1	36.1	33.5	9.7
LOS	D	C	B	E	C	A	E	C	A	D	C	A
Approach Delay		22.6			27.4			53.0			17.1	
Approach LOS		C			C			D			B	
90th %ile Green (s)	8.4	50.2	50.2	7.4	49.2	49.2	41.0	41.0	41.0	41.0	41.0	41.0
90th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	9.2	64.4	64.4	6.7	61.9	61.9	27.5	27.5	27.5	27.5	27.5	27.5
70th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	8.0	81.8	81.8	0.0	66.9	66.9	23.7	23.7	23.7	23.7	23.7	23.7
50th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	0.0	85.5	85.5	0.0	85.5	85.5	20.0	20.0	20.0	20.0	20.0	20.0
30th %ile Term Code	Skip	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	0.0	91.0	91.0	0.0	91.0	91.0	14.5	14.5	14.5	14.5	14.5	14.5
10th %ile Term Code	Skip	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
Stops (vph)	36	652	38	23	626	0	175	10	0	36	20	29
Fuel Used(l)	4	79	6	3	112	0	19	1	0	3	2	6
CO Emissions (g/hr)	80	1470	116	50	2080	7	357	18	7	60	30	113
NOx Emissions (g/hr)	15	284	22	10	402	1	69	4	1	12	6	22
VOC Emissions (g/hr)	18	339	27	12	480	2	82	4	2	14	7	26
Dilemma Vehicles (#)	0	65	0	0	84	0	0	0	0	0	0	0
Queue Length 50th (m)	7.9	80.4	6.1	2.6	91.8	0.0	44.0	2.5	0.0	9.3	4.6	3.7
Queue Length 95th (m)	m16.4	#127.2	25.7	m3.8	#315.6	m0.0	57.6	6.5	0.0	16.3	9.8	18.2
Internal Link Dist (m)		229.6			263.1			93.0			221.3	
Turn Bay Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Base Capacity (vph)	115	1827	961	217	1902	896	445	600	574	449	600	606
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.60	0.15	0.10	0.92	0.02	0.44	0.02	0.02	0.10	0.04	0.29

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 73 (61%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 26.5 Intersection LOS: C
Intersection Capacity Utilization 93.9% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: crosskeys extension & Strandherd





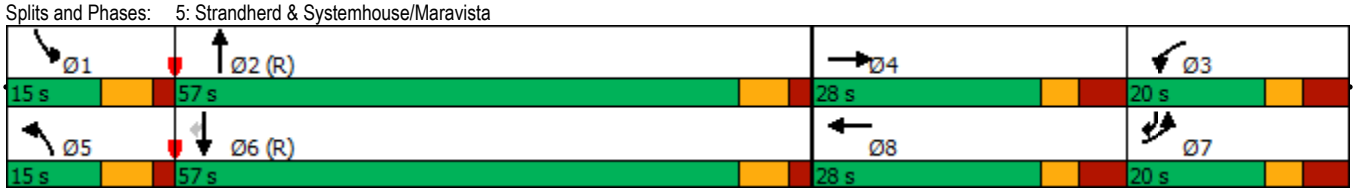
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Future Volume (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.878			0.887			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3154	1358	0	1658	1548	0	3154	3311	0	1321	3316	1363
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3154	1358	0	1653	1548	0	3154	3311	0	1321	3316	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			110			1				138
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			419.5			287.1	
Travel Time (s)		14.8			13.4			18.9			12.9	
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%	43%	7%	2%	2%	2%	4%	2%	11%	28%	2%	11%
Adj. Flow (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	58	0	7	146	0	192	1423	0	36	804	138
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	17.6		12.6	17.6		15.0	33.0		15.0	33.0	15.0
Total Split (s)	20.0	28.0		20.0	28.0		15.0	57.0		15.0	57.0	20.0
Total Split (%)	16.7%	23.3%		16.7%	23.3%		12.5%	47.5%		12.5%	47.5%	16.7%
Maximum Green (s)	12.4	20.4		12.4	20.4		8.4	50.3		8.4	50.3	12.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

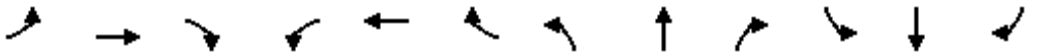
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (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	C-Max		None	C-Max	None
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								17.0			17.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	10.2	24.2		8.1	11.3		12.6	66.4		8.7	57.3	66.7
Actuated g/C Ratio	0.08	0.20		0.07	0.09		0.10	0.55		0.07	0.48	0.56
v/c Ratio	0.48	0.19		0.06	0.60		0.58	0.78		0.38	0.51	0.17
Control Delay	57.9	18.0		50.1	26.2		48.5	31.6		82.6	11.1	2.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	57.9	18.0		50.1	26.2		48.5	31.6		82.6	11.1	2.0
LOS	E	B		D	C		D	C		F	B	A
Approach Delay		45.5			27.3			33.7			12.4	
Approach LOS		D			C			C			B	
90th %ile Green (s)	13.2	11.2		17.3	15.3		12.7	50.7		12.3	50.3	13.2
90th %ile Term Code	Gap	Gap		Hold	Gap		Max	Coord		Gap	Coord	Gap
70th %ile Green (s)	11.5	30.4		0.0	11.3		14.7	58.6		10.1	54.0	11.5
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	10.2	27.8		0.0	10.0		13.6	62.7		8.6	57.7	10.2
50th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
30th %ile Green (s)	9.0	26.6		0.0	10.0		12.1	79.1		0.0	60.4	9.0
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
10th %ile Green (s)	7.3	24.9		0.0	10.0		10.0	80.8		0.0	64.2	7.3
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
Stops (vph)	120	19		8	46		170	1260		36	374	19
Fuel Used(l)	11	2		0	6		23	154		5	46	4
CO Emissions (g/hr)	204	44		9	110		433	2863		96	864	82
NOx Emissions (g/hr)	39	8		2	21		84	553		19	167	16
VOC Emissions (g/hr)	47	10		2	25		100	660		22	199	19
Dilemma Vehicles (#)	0	0		0	0		0	4		0	33	0
Queue Length 50th (m)	15.2	2.0		1.6	8.1		19.7	183.2		7.0	63.2	8.7
Queue Length 95th (m)	24.4	15.3		5.8	27.8		m29.8	#236.4		m15.6	10.1	0.0
Internal Link Dist (m)		181.3			124.8			395.5			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	329	331		185	354		331	1831		105	1584	842
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	0.39	0.18		0.04	0.41		0.58	0.78		0.34	0.51	0.16

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 83 (69%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 27.0 Intersection LOS: C
Intersection Capacity Utilization 82.8% 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: 5: Strandherd & Systemhouse/Maravista





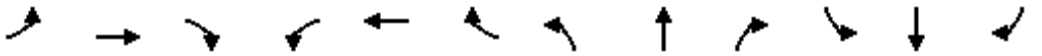
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	6	33	80	25	114	104	1431	57	58	645	82
Future Volume (vph)	55	6	33	80	25	114	104	1431	57	58	645	82
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		0.0	40.0		0.0	60.0		30.0	50.0		0.0
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (m)	7.5			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.877			0.994				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1353	1745	1483	1658	1530	0	2711	3293	0	1523	3283	1363
Flt Permitted	0.602			0.754			0.950			0.950		
Satd. Flow (perm)	857	1745	1483	1316	1530	0	2711	3293	0	1523	3283	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			94		111			5				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		358.5			381.8			229.3			419.5	
Travel Time (s)		25.8			34.4			10.3			18.9	
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 (%)	25%	2%	2%	2%	2%	2%	21%	2%	4%	11%	3%	11%
Adj. Flow (vph)	55	6	33	80	25	114	104	1431	57	58	645	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	55	6	33	80	139	0	104	1488	0	58	645	82
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		5.0	20.0		5.0	20.0	20.0
Minimum Split (s)	39.6	39.6	39.6	43.6	43.6		11.6	30.7		11.6	36.7	36.7
Total Split (s)	44.0	44.0	44.0	44.0	44.0		12.0	64.0		12.0	64.0	64.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%		10.0%	53.3%		10.0%	53.3%	53.3%
Maximum Green (s)	36.4	36.4	36.4	36.4	36.4		5.4	57.3		5.4	57.3	57.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	4.3	4.3	4.3	4.3	4.3		2.0	2.1		2.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6	7.6	7.6	7.6		6.6	6.7		6.6	6.7	6.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							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		None	C-Max		None	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)	25.0	25.0	25.0	29.0	29.0			17.0			23.0	23.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)	13.4	13.4	13.4	13.4	13.4		10.7	74.7		11.0	75.0	75.0
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.11		0.09	0.62		0.09	0.62	0.62
v/c Ratio	0.58	0.03	0.13	0.55	0.52		0.43	0.73		0.41	0.31	0.09
Control Delay	73.3	45.2	1.1	63.7	20.6		57.0	19.3		46.9	27.4	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	73.3	45.2	1.1	63.7	20.6		57.0	19.3		46.9	27.4	11.5
LOS	E	D	A	E	C		E	B		D	C	B
Approach Delay		46.2			36.3			21.7			27.2	
Approach LOS		D			D			C			C	
90th %ile Green (s)	18.9	18.9	18.9	18.9	18.9		13.0	66.3		13.9	67.2	67.2
90th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
70th %ile Green (s)	15.0	15.0	15.0	15.0	15.0		11.8	71.7		12.4	72.3	72.3
70th %ile Term Code	Gap	Gap	Gap	Gap	Gap		Gap	Coord		Gap	Coord	Coord
50th %ile Green (s)	12.7	12.7	12.7	12.7	12.7		10.9	75.1		11.3	75.5	75.5
50th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Gap	Coord		Gap	Coord	Coord
30th %ile Green (s)	10.3	10.3	10.3	10.3	10.3		9.8	78.8		10.0	79.0	79.0
30th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Gap	Coord		Gap	Coord	Coord
10th %ile Green (s)	10.0	10.0	10.0	10.0	10.0		7.9	81.5		7.6	81.2	81.2
10th %ile Term Code	Hold	Hold	Hold	Min	Min		Gap	Coord		Gap	Coord	Coord
Stops (vph)	51	7	0	74	37		97	1008		51	608	54
Fuel Used(l)	6	1	1	8	8		12	107		7	70	7
CO Emissions (g/hr)	114	11	21	153	155		223	1985		129	1298	121
NOx Emissions (g/hr)	22	2	4	29	30		43	383		25	251	23
VOC Emissions (g/hr)	26	2	5	35	36		51	458		30	299	28
Dilemma Vehicles (#)	0	0	0	0	0		0	62		0	6	0
Queue Length 50th (m)	12.6	1.3	0.0	18.2	6.1		12.1	116.8		13.2	82.6	7.4
Queue Length 95th (m)	25.3	5.1	0.0	32.7	24.2		20.7	175.2		22.2	101.4	19.1
Internal Link Dist (m)		334.5			357.8			205.3			395.5	
Turn Bay Length (m)	75.0			40.0			60.0			50.0		
Base Capacity (vph)	259	529	515	399	541		241	2051		140	2053	890
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	0.01	0.06	0.20	0.26		0.43	0.73		0.41	0.31	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 29 (24%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 25.4		Intersection LOS: C	
Intersection Capacity Utilization 86.3%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 6: Strandherd & Dealership/Kennevale





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	3	34	46	3	63	30	696	21	20	622	18
Future Volume (Veh/h)	16	3	34	46	3	63	30	696	21	20	622	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			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
Hourly flow rate (vph)	16	3	34	46	3	63	30	696	21	20	622	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1482	1439	622	1454	1436	696	640			717		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1482	1439	622	1454	1436	696	640			717		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	80	98	93	51	98	86	97			98		
cM capacity (veh/h)	78	126	483	95	126	442	921			870		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	16	37	112	30	696	21	20	622	18
Volume Left	16	0	46	30	0	0	20	0	0
Volume Right	0	34	63	0	0	21	0	0	18
cSH	78	393	172	921	1700	1700	870	1700	1700
Volume to Capacity	0.20	0.09	0.65	0.03	0.41	0.01	0.02	0.37	0.01
Queue Length 95th (m)	5.4	2.4	28.5	0.8	0.0	0.0	0.5	0.0	0.0
Control Delay (s)	62.5	15.1	58.6	9.0	0.0	0.0	9.2	0.0	0.0
Lane LOS	F	C	F	A			A		
Approach Delay (s)	29.4		58.6	0.4			0.3		
Approach LOS	D		F						

Intersection Summary					
Average Delay	5.5				
Intersection Capacity Utilization	58.9%	ICU Level of Service		B	
Analysis Period (min)	15				



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	8	0	26	8	0	27
Future Volume (Veh/h)	8	0	26	8	0	27
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	0	26	8	0	27
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			8		68	8
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			8		68	8
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	97
cM capacity (veh/h)			1612		922	1074

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	8	34	27
Volume Left	0	26	0
Volume Right	0	0	27
cSH	1700	1612	1074
Volume to Capacity	0.00	0.02	0.03
Queue Length 95th (m)	0.0	0.4	0.6
Control Delay (s)	0.0	5.6	8.4
Lane LOS		A	A
Approach Delay (s)	0.0	5.6	8.4
Approach LOS			A

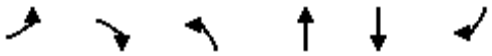
Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	35	0	65	34	0	68
Future Volume (Veh/h)	35	0	65	34	0	68
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	35	0	65	34	0	68
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			35		199	35
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			35		199	35
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		100	93
cM capacity (veh/h)			1576		757	1038

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	35	99	68
Volume Left	0	65	0
Volume Right	0	0	68
cSH	1700	1576	1038
Volume to Capacity	0.02	0.04	0.07
Queue Length 95th (m)	0.0	1.0	1.6
Control Delay (s)	0.0	5.0	8.7
Lane LOS		A	A
Approach Delay (s)	0.0	5.0	8.7
Approach LOS			A

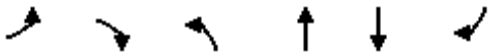
Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	68	37	36	0	0	66
Future Volume (Veh/h)	68	37	36	0	0	66
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	68	37	36	0	0	66
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	105	33	66			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	105	33	66			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	96	98			
cM capacity (veh/h)	872	1041	1536			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	105	36	66
Volume Left	68	36	0
Volume Right	37	0	66
cSH	925	1536	1700
Volume to Capacity	0.11	0.02	0.04
Queue Length 95th (m)	2.9	0.5	0.0
Control Delay (s)	9.4	7.4	0.0
Lane LOS	A	A	
Approach Delay (s)	9.4	7.4	0.0
Approach LOS	A		

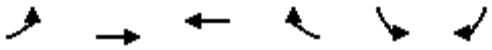
Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	21.8%	ICU Level of Service	A
Analysis Period (min)	15		



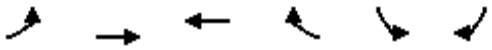
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	38	36	36	37	0
Future Volume (Veh/h)	0	38	36	36	37	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	38	36	36	37	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	145	37	37			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	145	37	37			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	98			
cM capacity (veh/h)	828	1035	1574			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	38	72	37
Volume Left	0	36	0
Volume Right	38	0	0
cSH	1035	1574	1700
Volume to Capacity	0.04	0.02	0.02
Queue Length 95th (m)	0.9	0.5	0.0
Control Delay (s)	8.6	3.8	0.0
Lane LOS	A	A	
Approach Delay (s)	8.6	3.8	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	20.8%	ICU Level of Service	A
Analysis Period (min)	15		



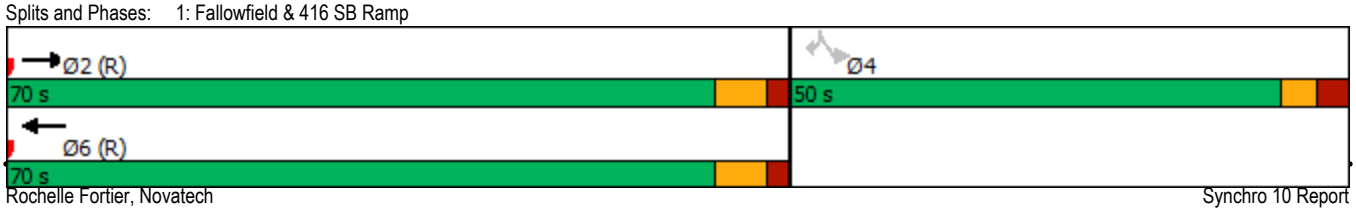
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1063	1108	0	1091	275
Future Volume (vph)	0	1063	1108	0	1091	275
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						66
Link Speed (k/h)		80	80		50	
Link Distance (m)		91.8	551.9		134.0	
Travel Time (s)		4.1	24.8		9.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	1063	1108	0	1091	275
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1063	1108	0	1091	275
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		30.3	30.3
Total Split (s)		70.0	70.0		50.0	50.0
Total Split (%)		58.3%	58.3%		41.7%	41.7%
Maximum Green (s)		63.2	63.2		43.7	43.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		Max	Max
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		63.2	63.2		43.7	43.7
Actuated g/C Ratio		0.53	0.53		0.36	0.36
v/c Ratio		0.66	0.65		0.99	0.53
Control Delay		23.0	21.9		62.2	26.7
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		23.0	21.9		62.2	26.7
LOS		C	C		E	C
Approach Delay		23.0	21.9		55.1	
Approach LOS		C	C		E	
90th %ile Green (s)		63.2	63.2		43.7	43.7
90th %ile Term Code		Coord	Coord		MaxR	MaxR
70th %ile Green (s)		63.2	63.2		43.7	43.7
70th %ile Term Code		Coord	Coord		MaxR	MaxR
50th %ile Green (s)		63.2	63.2		43.7	43.7
50th %ile Term Code		Coord	Coord		MaxR	MaxR
30th %ile Green (s)		63.2	63.2		43.7	43.7
30th %ile Term Code		Coord	Coord		MaxR	MaxR
10th %ile Green (s)		63.2	63.2		43.7	43.7
10th %ile Term Code		Coord	Coord		MaxR	MaxR
Stops (vph)		744	620		971	165
Fuel Used(l)		69	102		88	13
CO Emissions (g/hr)		1287	1903		1634	239
NOx Emissions (g/hr)		248	367		315	46
VOC Emissions (g/hr)		297	439		377	55
Dilemma Vehicles (#)		44	69		0	0
Queue Length 50th (m)		91.8	89.7		130.1	38.2
Queue Length 95th (m)		114.4	106.1		#175.9	65.0
Internal Link Dist (m)		67.8	527.9		110.0	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1619	1696		1106	521
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.66	0.65		0.99	0.53

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 4 (3%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 35.0		Intersection LOS: D	
Intersection Capacity Utilization 82.2%		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: 1: Fallowfield & 416 SB Ramp



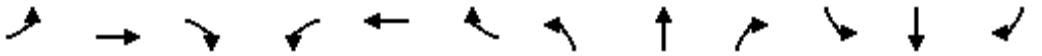
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2106	0	0	1268	123	164
Future Volume (vph)	2106	0	0	1268	123	164
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						13
Link Speed (k/h)	80			80	60	
Link Distance (m)	551.9			245.0	156.0	
Travel Time (s)	24.8			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	2106	0	0	1268	123	164
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2106	0	0	1268	123	164
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases					8	8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	85.0			85.0	35.0	35.0
Total Split (%)	70.8%			70.8%	29.2%	29.2%
Maximum Green (s)	78.3			78.3	29.7	29.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	89.9			89.9	18.1	18.1
Actuated g/C Ratio	0.75			0.75	0.15	0.15
v/c Ratio	0.88			0.52	0.55	0.73
Control Delay	10.1			4.1	55.4	62.2
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	10.1			4.1	55.4	62.2
LOS	B			A	E	E
Approach Delay	10.1			4.1	59.3	
Approach LOS	B			A	E	
90th %ile Green (s)	82.4			82.4	25.6	25.6
90th %ile Term Code	Coord			Coord	Gap	Gap
70th %ile Green (s)	86.8			86.8	21.2	21.2
70th %ile Term Code	Coord			Coord	Gap	Gap
50th %ile Green (s)	89.9			89.9	18.1	18.1
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	93.0			93.0	15.0	15.0
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	97.5			97.5	10.5	10.5
10th %ile Term Code	Coord			Coord	Gap	Gap
Stops (vph)	1233			225	109	141
Fuel Used(l)	179			65	10	15
CO Emissions (g/hr)	3322			1209	194	272
NOx Emissions (g/hr)	641			233	37	52
VOC Emissions (g/hr)	766			279	45	63
Dilemma Vehicles (#)	55			78	0	0
Queue Length 50th (m)	32.1			26.6	27.2	34.3
Queue Length 95th (m)	m#217.2			m39.6	43.4	53.7
Internal Link Dist (m)	527.9			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2391			2460	367	362
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.88			0.52	0.34	0.45

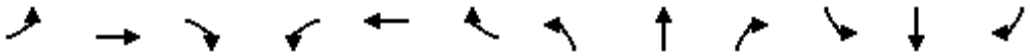
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 108 (90%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 82.2%		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: 2: 416 NB Off-ramp & Fallowfield





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	1771	108	3	1404	155	110	33	3	147	32	514
Future Volume (vph)	356	1771	108	3	1404	155	110	33	3	147	32	514
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				0.99		0.99
Frt			0.850			0.850		0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1722	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3122	2891	1483	1658	3191	1460	3216	1722	0	1646	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			160		3				394
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			311.4			414.8	
Travel Time (s)		10.6			11.4			22.4			24.9	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	356	1771	108	3	1404	155	110	33	3	147	32	514
Shared Lane Traffic (%)												
Lane Group Flow (vph)	356	1771	108	3	1404	155	110	36	0	147	32	514
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	17.0		11.5	17.0	
Total Split (s)	24.0	60.0	14.0	24.0	60.0	60.0	14.0	22.0		14.0	22.0	
Total Split (%)	20.0%	50.0%	11.7%	20.0%	50.0%	50.0%	11.7%	18.3%		11.7%	18.3%	
Maximum Green (s)	16.9	53.1	7.5	16.9	53.1	53.1	7.5	15.0		7.5	15.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	

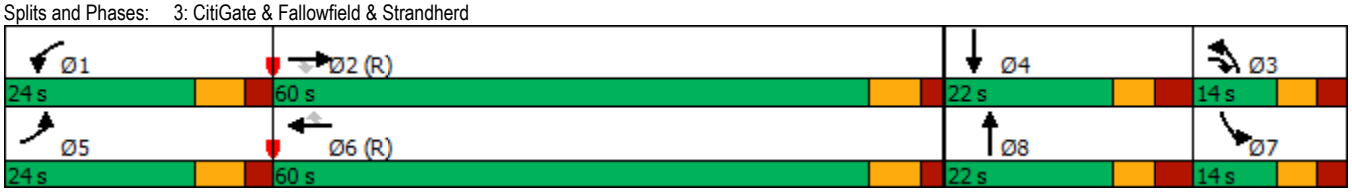


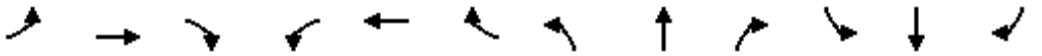
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		16.0			16.0	16.0						
Pedestrian Calls (#/hr)		1			1	1						
Act Effct Green (s)	18.1	79.7	101.8	5.8	59.1	57.3	15.7	10.1		17.4	10.1	120.0
Actuated g/C Ratio	0.15	0.66	0.85	0.05	0.49	0.48	0.13	0.08		0.14	0.08	1.00
v/c Ratio	0.76	0.92	0.08	0.04	0.89	0.20	0.26	0.24		0.61	0.22	0.36
Control Delay	54.7	23.6	1.5	85.0	24.1	1.8	50.4	52.3		61.4	55.3	0.7
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	54.7	23.6	1.5	85.0	24.1	1.8	50.4	52.3		61.4	55.3	0.7
LOS	D	C	A	F	C	A	D	D		E	E	A
Approach Delay		27.5			22.0			50.9			16.1	
Approach LOS		C			C			D			B	
90th %ile Green (s)	16.9	63.5	12.2	6.5	53.1	53.1	12.2	10.6		11.9	10.3	
90th %ile Term Code	Max	Coord	Hold	Gap	Coord	Coord	Hold	Gap		Max	Gap	
70th %ile Green (s)	16.9	77.1	12.5	0.0	53.1	53.1	12.5	10.0		12.5	10.0	
70th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Min		Max	Min	
50th %ile Green (s)	16.9	77.1	12.5	0.0	53.1	53.1	12.5	10.0		12.5	10.0	
50th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Min		Max	Min	
30th %ile Green (s)	16.8	86.9	19.7	0.0	63.0	63.0	19.7	0.0		19.7	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	13.9	85.1	21.5	0.0	64.1	64.1	21.5	0.0		21.5	0.0	
10th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
Stops (vph)	348	984	12	6	1229	23	99	32		130	31	0
Fuel Used(l)	41	138	5	1	125	5	10	3		16	4	19
CO Emissions (g/hr)	769	2575	93	11	2316	86	181	60		306	65	350
NOx Emissions (g/hr)	148	497	18	2	447	17	35	12		59	13	67
VOC Emissions (g/hr)	177	594	21	3	534	20	42	14		71	15	81
Dilemma Vehicles (#)	0	67	0	0	39	0	0	0		0	1	0
Queue Length 50th (m)	44.3	110.1	0.8	0.7	172.8	4.3	12.5	7.4		33.9	7.2	0.0
Queue Length 95th (m)	m51.9	#294.7	m2.8	m0.9	m#199.4	m5.3	21.5	17.8		#66.3	17.2	0.0
Internal Link Dist (m)		212.6			229.6			287.4			390.8	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	486	1920	1273	233	1570	780	420	217		240	218	1422
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	0.73	0.92	0.08	0.01	0.89	0.20	0.26	0.17		0.61	0.15	0.36

Intersection Summary

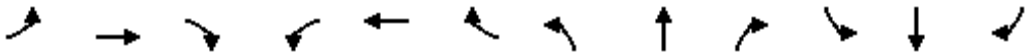
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 115 (96%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 24.6 Intersection LOS: C
Intersection Capacity Utilization 87.1% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	1533	397	43	1293	35	303	99	29	20	105	92
Future Volume (vph)	128	1533	397	43	1293	35	303	99	29	20	105	92
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	90.0			100.0			60.0			60.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.99			0.98	0.99		0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	2941	1483	3216	3221	1483	1658	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.689			0.693		
Satd. Flow (perm)	1658	2941	1465	3216	3221	1448	1194	1745	1458	1208	1745	1449
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			105			97			97
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		253.6			287.1			117.0			245.3	
Travel Time (s)		11.4			12.9			8.4			17.7	
Confl. Peds. (#/hr)							9		2	2		9
Confl. Bikes (#/hr)			1			4			5			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 (%)	2%	15%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	128	1533	397	43	1293	35	303	99	29	20	105	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	1533	397	43	1293	35	303	99	29	20	105	92
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.9	31.8	31.8	11.9	31.8	31.8	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (s)	15.0	56.0	56.0	15.0	56.0	56.0	49.0	49.0	49.0	49.0	49.0	49.0
Total Split (%)	12.5%	46.7%	46.7%	12.5%	46.7%	46.7%	40.8%	40.8%	40.8%	40.8%	40.8%	40.8%
Maximum Green (s)	8.1	49.2	49.2	8.1	49.2	49.2	41.3	41.3	41.3	41.3	41.3	41.3
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	3.3	3.3	3.3	3.3	3.3	3.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.3	2.2	2.2	2.3	2.2	2.2	4.4	4.4	4.4	4.4	4.4	4.4
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	0.0
Total Lost Time (s)	6.9	6.8	6.8	6.9	6.8	6.8	7.7	7.7	7.7	7.7	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	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	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	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
Flash Dont Walk (s)		18.0	18.0		18.0	18.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0	2	2	2	7	7	7
Act Effct Green (s)	13.5	59.4	59.4	6.9	50.4	50.4	34.7	34.7	34.7	34.7	34.7	34.7
Actuated g/C Ratio	0.11	0.50	0.50	0.06	0.42	0.42	0.29	0.29	0.29	0.29	0.29	0.29
v/c Ratio	0.69	1.05	0.50	0.23	0.96	0.05	0.88	0.20	0.06	0.06	0.21	0.19
Control Delay	62.9	67.7	21.7	64.0	28.0	0.3	65.8	31.2	0.2	28.1	31.5	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.9	67.7	21.7	64.0	28.0	0.3	65.8	31.2	0.2	28.1	31.5	5.8
LOS	E	E	C	E	C	A	E	C	A	C	C	A
Approach Delay		58.5			28.4			53.4			20.3	
Approach LOS		E			C			D			C	
90th %ile Green (s)	8.1	49.2	49.2	8.1	49.2	49.2	41.3	41.3	41.3	41.3	41.3	41.3
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Max	Hold	Hold	Hold
70th %ile Green (s)	8.8	50.3	50.3	7.7	49.2	49.2	40.6	40.6	40.6	40.6	40.6	40.6
70th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	13.2	55.4	55.4	7.0	49.2	49.2	36.2	36.2	36.2	36.2	36.2	36.2
50th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	18.0	60.9	60.9	6.3	49.2	49.2	31.4	31.4	31.4	31.4	31.4	31.4
30th %ile Term Code	Max	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	19.5	81.4	81.4	0.0	55.0	55.0	24.1	24.1	24.1	24.1	24.1	24.1
10th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
Stops (vph)	98	1110	226	43	659	1	280	71	0	15	75	11
Fuel Used(l)	14	174	28	6	95	1	32	7	1	1	7	3
CO Emissions (g/hr)	267	3239	512	103	1765	16	593	136	18	23	124	52
NOx Emissions (g/hr)	52	625	99	20	341	3	115	26	4	4	24	10
VOC Emissions (g/hr)	62	747	118	24	407	4	137	31	4	5	29	12
Dilemma Vehicles (#)	0	72	0	0	35	0	0	0	0	0	0	0
Queue Length 50th (m)	32.4	~218.1	38.3	5.5	45.1	0.0	66.7	17.2	0.0	3.3	18.4	0.0
Queue Length 95th (m)	m#46.5	m#272.2	m62.1	m7.9	#198.6	m0.0	#98.5	28.9	0.0	8.7	30.2	10.1
Internal Link Dist (m)		229.6			263.1			93.0			221.3	
Turn Bay Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Base Capacity (vph)	186	1456	796	217	1351	668	410	600	565	415	600	562
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	1.05	0.50	0.20	0.96	0.05	0.74	0.17	0.05	0.05	0.17	0.16

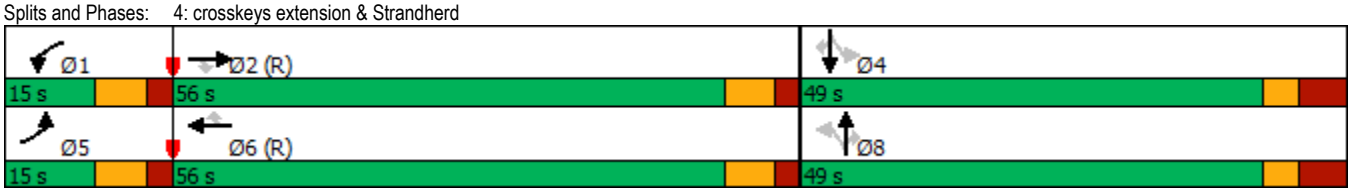
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 85 (71%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 125			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 45.8		Intersection LOS: D	
Intersection Capacity Utilization 91.7%		ICU Level of Service F	
Analysis Period (min) 15			

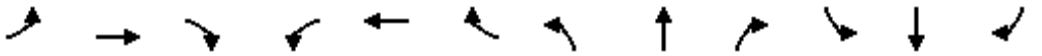
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

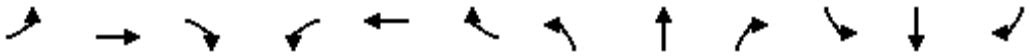
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: crosskeys extension & Strandherd





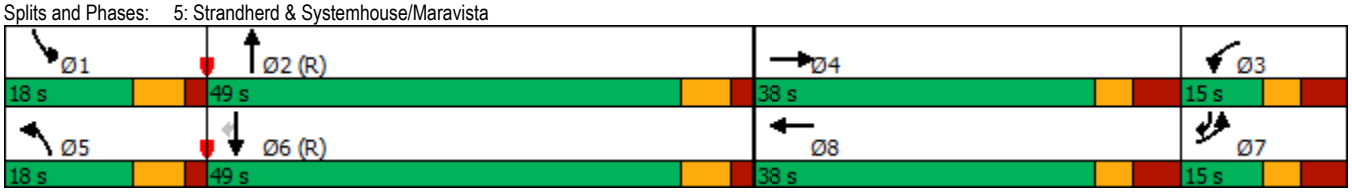
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	258	69	245	10	61	40	272	977	7	199	1269	111
Future Volume (vph)	258	69	245	10	61	40	272	977	7	199	1269	111
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99								
Frt		0.883			0.941			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3216	1521	0	1658	1563	0	3216	3312	0	1658	3316	1351
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	1521	0	1637	1563	0	3216	3312	0	1658	3316	1351
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		143			26			1				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			419.5			287.1	
Travel Time (s)		14.8			13.4			18.9			12.9	
Confl. Peds. (#/hr)			4	4								
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%	2%	2%	2%	15%	2%	2%	2%	2%	2%	12%
Adj. Flow (vph)	258	69	245	10	61	40	272	977	7	199	1269	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	258	314	0	10	101	0	272	984	0	199	1269	111
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	17.6		12.6	17.6		15.0	33.0		15.0	33.0	15.0
Total Split (s)	15.0	38.0		15.0	38.0		18.0	49.0		18.0	49.0	15.0
Total Split (%)	12.5%	31.7%		12.5%	31.7%		15.0%	40.8%		15.0%	40.8%	12.5%
Maximum Green (s)	7.4	30.4		7.4	30.4		11.4	42.3		11.4	42.3	7.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

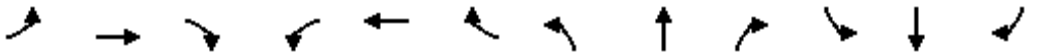


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (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	C-Max		None	C-Max	None
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								17.0			17.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	20.1	37.0		6.3	12.3		14.5	42.3		16.8	44.6	63.8
Actuated g/C Ratio	0.17	0.31		0.05	0.10		0.12	0.35		0.14	0.37	0.53
v/c Ratio	0.48	0.55		0.12	0.55		0.70	0.84		0.86	1.03	0.15
Control Delay	48.9	23.2		56.7	49.0		44.0	52.5		67.6	50.1	5.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	48.9	23.2		56.7	49.0		44.0	52.5		67.6	50.1	5.2
LOS	D	C		E	D		D	D		E	D	A
Approach Delay		34.8			49.7			50.6			49.1	
Approach LOS		C			D			D			D	
90th %ile Green (s)	21.1	30.4		7.4	16.7		11.4	42.3		11.4	42.3	21.1
90th %ile Term Code	Hold	Max		Max	Gap		Max	Coord		Max	Coord	Hold
70th %ile Green (s)	18.0	39.1		0.0	13.5		17.7	42.3		17.7	42.3	18.0
70th %ile Term Code	Gap	Hold		Skip	Gap		Max	Coord		Max	Coord	Gap
50th %ile Green (s)	18.2	37.0		0.0	11.2		16.5	42.3		19.8	45.6	18.2
50th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Max	Coord	Gap
30th %ile Green (s)	19.4	37.0		0.0	10.0		14.8	42.3		19.8	47.3	19.4
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Max	Coord	Gap
10th %ile Green (s)	23.9	41.5		0.0	10.0		12.3	42.3		15.3	45.3	23.9
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Max	Coord	Gap
Stops (vph)	229	149		12	70		240	973		168	811	29
Fuel Used(l)	20	15		1	6		32	128		24	124	5
CO Emissions (g/hr)	370	280		14	119		594	2381		455	2308	86
NOx Emissions (g/hr)	71	54		3	23		115	460		88	446	17
VOC Emissions (g/hr)	85	65		3	27		137	549		105	532	20
Dilemma Vehicles (#)	0	0		0	0		0	2		0	102	0
Queue Length 50th (m)	29.2	32.8		2.3	17.1		32.1	130.5		50.5	~88.7	5.5
Queue Length 95th (m)	41.3	67.2		7.8	33.6		#56.5	151.8		m#57.5	m#98.6	m6.5
Internal Link Dist (m)		181.3			124.8			395.5			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	539	567		102	415		389	1168		232	1231	765
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	0.48	0.55		0.10	0.24		0.70	0.84		0.86	1.03	0.15

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 82 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 47.4		Intersection LOS: D	
Intersection Capacity Utilization 82.7%		ICU Level of Service E	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 5: Strandherd & Systemhouse/Maravista





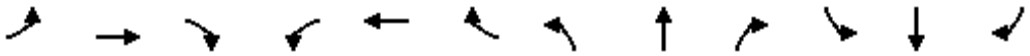
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	18	88	106	16	76	65	1030	98	155	1445	63
Future Volume (vph)	153	18	88	106	16	76	65	1030	98	155	1445	63
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		0.0	40.0		0.0	60.0		30.0	50.0		0.0
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (m)	7.5			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.876			0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	1745	1483	1658	1504	0	3216	3273	0	1642	3316	1483
Flt Permitted	0.697			0.746			0.950			0.950		
Satd. Flow (perm)	1216	1745	1483	1302	1504	0	3216	3273	0	1642	3316	1483
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			94		76			11				102
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		358.5			381.8			229.3			419.5	
Travel Time (s)		25.8			34.4			10.3			18.9	
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%	2%	2%	2%	4%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	153	18	88	106	16	76	65	1030	98	155	1445	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	18	88	106	92	0	65	1128	0	155	1445	63
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		5.0	20.0		5.0	20.0	20.0
Minimum Split (s)	39.6	39.6	39.6	43.6	43.6		11.6	30.7		11.6	36.7	36.7
Total Split (s)	44.0	44.0	44.0	44.0	44.0		12.0	60.0		16.0	64.0	64.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%		10.0%	50.0%		13.3%	53.3%	53.3%
Maximum Green (s)	36.4	36.4	36.4	36.4	36.4		5.4	53.3		9.4	57.3	57.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	4.3	4.3	4.3	4.3	4.3		2.0	2.1		2.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6	7.6	7.6	7.6		6.6	6.7		6.6	6.7	6.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							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		None	C-Max		None	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)	25.0	25.0	25.0	29.0	29.0			17.0			23.0	23.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)	20.5	20.5	20.5	20.5	20.5		7.8	57.8		20.8	73.3	73.3
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.17		0.06	0.48		0.17	0.61	0.61
v/c Ratio	0.74	0.06	0.27	0.48	0.29		0.31	0.71		0.54	0.71	0.07
Control Delay	67.0	38.5	8.7	50.5	14.1		56.9	28.2		55.5	16.0	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	67.0	38.5	8.7	50.5	14.1		56.9	28.2		55.5	16.0	1.5
LOS	E	D	A	D	B		E	C		E	B	A
Approach Delay		45.2			33.6			29.7			19.2	
Approach LOS		D			C			C			B	
90th %ile Green (s)	29.0	29.0	29.0	29.0	29.0		9.9	53.3		16.8	60.2	60.2
90th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Max	Coord	Coord
70th %ile Green (s)	24.1	24.1	24.1	24.1	24.1		8.7	54.1		20.9	66.3	66.3
70th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
50th %ile Green (s)	20.5	20.5	20.5	20.5	20.5		7.8	57.9		20.7	70.8	70.8
50th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
30th %ile Green (s)	16.9	16.9	16.9	16.9	16.9		7.0	60.9		21.3	75.2	75.2
30th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
10th %ile Green (s)	11.9	11.9	11.9	11.9	11.9		0.0	62.7		24.5	93.8	93.8
10th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Skip	Coord		Gap	Coord	Coord
Stops (vph)	142	16	12	92	23		60	868		117	1145	9
Fuel Used(l)	16	2	4	10	5		7	95		18	131	3
CO Emissions (g/hr)	303	28	72	181	94		139	1759		343	2441	50
NOx Emissions (g/hr)	58	5	14	35	18		27	340		66	471	10
VOC Emissions (g/hr)	70	6	17	42	22		32	406		79	563	11
Dilemma Vehicles (#)	0	0	0	0	0		0	47		0	13	0
Queue Length 50th (m)	34.6	3.6	0.0	22.8	3.2		7.6	106.2		25.6	171.4	0.5
Queue Length 95th (m)	53.2	9.2	11.6	37.3	16.0		14.6	142.1		m32.2	m181.5	m2.3
Internal Link Dist (m)		334.5			357.8			205.3			395.5	
Turn Bay Length (m)	75.0			40.0			60.0			50.0		
Base Capacity (vph)	368	529	515	394	509		209	1581		285	2024	945
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	0.42	0.03	0.17	0.27	0.18		0.31	0.71		0.54	0.71	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 8 (7%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 25.9		Intersection LOS: C	
Intersection Capacity Utilization 79.4%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 6: Strandherd & Dealership/Kennevale

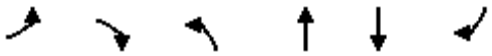




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	6	49	17	3	37	32	468	31	36	504	30
Future Volume (Veh/h)	36	6	49	17	3	37	32	468	31	36	504	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	36	6	49	17	3	37	32	468	31	36	504	30
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1146	1139	504	1160	1138	468	534			499		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1146	1139	504	1160	1138	468	534			499		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	77	97	91	88	98	94	97			97		
cM capacity (veh/h)	155	188	568	146	189	595	1034			1065		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	36	55	57	32	468	31	36	504	30
Volume Left	36	0	17	32	0	0	36	0	0
Volume Right	0	49	37	0	0	31	0	0	30
cSH	155	466	293	1034	1700	1700	1065	1700	1700
Volume to Capacity	0.23	0.12	0.19	0.03	0.28	0.02	0.03	0.30	0.02
Queue Length 95th (m)	6.5	3.0	5.4	0.7	0.0	0.0	0.8	0.0	0.0
Control Delay (s)	35.0	13.8	20.2	8.6	0.0	0.0	8.5	0.0	0.0
Lane LOS	E	B	C	A			A		
Approach Delay (s)	22.2		20.2	0.5			0.5		
Approach LOS	C		C						

Intersection Summary					
Average Delay	3.0				
Intersection Capacity Utilization	48.5%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	49	49	48	49	0
Future Volume (Veh/h)	0	49	49	48	49	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	49	49	48	49	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	195	49	49			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	195	49	49			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	95	97			
cM capacity (veh/h)	769	1020	1558			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	49	97	49
Volume Left	0	49	0
Volume Right	49	0	0
cSH	1020	1558	1700
Volume to Capacity	0.05	0.03	0.03
Queue Length 95th (m)	1.1	0.7	0.0
Control Delay (s)	8.7	3.8	0.0
Lane LOS	A	A	
Approach Delay (s)	8.7	3.8	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	22.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	8	0	34	8	0	35
Future Volume (Veh/h)	8	0	34	8	0	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	0	34	8	0	35
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			8		84	8
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			8		84	8
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	97
cM capacity (veh/h)			1612		898	1074

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	8	42	35
Volume Left	0	34	0
Volume Right	0	0	35
cSH	1700	1612	1074
Volume to Capacity	0.00	0.02	0.03
Queue Length 95th (m)	0.0	0.5	0.8
Control Delay (s)	0.0	5.9	8.5
Lane LOS		A	A
Approach Delay (s)	0.0	5.9	8.5
Approach LOS			A

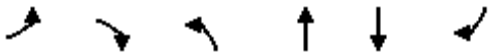
Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	19.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	43	0	85	42	0	87
Future Volume (Veh/h)	43	0	85	42	0	87
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	43	0	85	42	0	87
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			43		255	43
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			43		255	43
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		100	92
cM capacity (veh/h)			1566		694	1027

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	43	127	87
Volume Left	0	85	0
Volume Right	0	0	87
cSH	1700	1566	1027
Volume to Capacity	0.03	0.05	0.08
Queue Length 95th (m)	0.0	1.3	2.1
Control Delay (s)	0.0	5.1	8.8
Lane LOS		A	A
Approach Delay (s)	0.0	5.1	8.8
Approach LOS			A

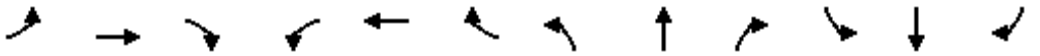
Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	26.3%	ICU Level of Service	A
Analysis Period (min)	15		



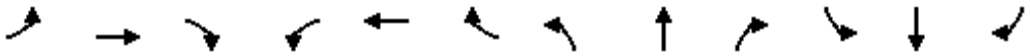
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	87	49	48	0	0	86
Future Volume (Veh/h)	87	49	48	0	0	86
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	87	49	48	0	0	86
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	139	43	86			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	139	43	86			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	95	97			
cM capacity (veh/h)	827	1027	1510			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	136	48	86
Volume Left	87	48	0
Volume Right	49	0	86
cSH	889	1510	1700
Volume to Capacity	0.15	0.03	0.05
Queue Length 95th (m)	4.1	0.7	0.0
Control Delay (s)	9.8	7.5	0.0
Lane LOS	A	A	
Approach Delay (s)	9.8	7.5	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	24.4%	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)	646	1135	92	5	1853	80	82	24	4	103	26	349
Future Volume (vph)	646	1135	92	5	1853	80	82	24	4	103	26	349
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				1.00		0.99
Frt			0.850			0.850		0.979				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1708	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3123	2891	1483	1658	3191	1459	3216	1708	0	1655	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			225		4				349
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			156.6			207.3	
Travel Time (s)		10.6			11.4			11.3			12.4	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	646	1135	92	5	1853	80	82	24	4	103	26	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	646	1135	92	5	1853	80	82	28	0	103	26	349
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	48.0		11.5	48.0	
Total Split (s)	28.0	46.0	13.0	13.0	31.0	31.0	13.0	48.0		13.0	48.0	
Total Split (%)	23.3%	38.3%	10.8%	10.8%	25.8%	25.8%	10.8%	40.0%		10.8%	40.0%	
Maximum Green (s)	20.9	39.1	6.5	5.9	24.1	24.1	6.5	41.0		6.5	41.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		16.0			16.0	16.0		34.0			34.0	
Pedestrian Calls (#/hr)		1			1	1		1			1	
Act Effct Green (s)	33.9	77.4	95.8	5.8	40.8	39.0	12.0	16.2		13.8	16.2	120.0
Actuated g/C Ratio	0.28	0.64	0.80	0.05	0.34	0.32	0.10	0.14		0.12	0.14	1.00
v/c Ratio	0.73	0.61	0.08	0.06	1.71	0.13	0.25	0.12		0.54	0.11	0.25
Control Delay	45.6	19.3	2.1	36.0	353.6	4.4	52.6	36.9		61.6	41.5	0.4
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	45.6	19.3	2.1	36.0	353.6	4.4	52.6	36.9		61.6	41.5	0.4
LOS	D	B	A	D	F	A	D	D		E	D	A
Approach Delay		27.5			338.3			48.6			15.8	
Approach LOS		C			F			D			B	
90th %ile Green (s)	20.9	39.1	6.5	5.9	24.1	24.1	6.5	41.0		6.5	41.0	
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Ped		Max	Ped	
70th %ile Green (s)	34.1	73.8	15.8	0.0	32.6	32.6	15.8	10.0		15.8	10.0	
70th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Min		Gap	Min	
50th %ile Green (s)	33.4	75.0	14.6	0.0	34.5	34.5	14.6	10.0		14.6	10.0	
50th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Min		Gap	Min	
30th %ile Green (s)	34.3	93.5	13.1	0.0	52.1	52.1	13.1	0.0		13.1	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	37.9	96.5	10.1	0.0	51.5	51.5	10.1	0.0		10.1	0.0	
10th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
Stops (vph)	519	565	8	7	1218	10	74	21		83	22	0
Fuel Used(l)	64	70	2	1	653	4	6	2		9	2	6
CO Emissions (g/hr)	1199	1309	43	14	12144	79	115	31		175	37	119
NOx Emissions (g/hr)	231	253	8	3	2344	15	22	6		34	7	23
VOC Emissions (g/hr)	277	302	10	3	2801	18	27	7		40	9	27
Dilemma Vehicles (#)	0	44	0	0	55	0	0	0		0	1	0
Queue Length 50th (m)	69.8	77.3	0.0	1.1	~364.6	0.0	9.1	5.3		22.6	5.8	0.0
Queue Length 95th (m)	#124.3	#206.8	6.3	m1.6	#445.3	m5.9	18.1	10.3		#57.7	10.4	0.0
Internal Link Dist (m)		212.6			229.6			132.6			183.3	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	882	1864	1204	82	1083	625	322	586		190	596	1422
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	0.73	0.61	0.08	0.06	1.71	0.13	0.25	0.05		0.54	0.04	0.25

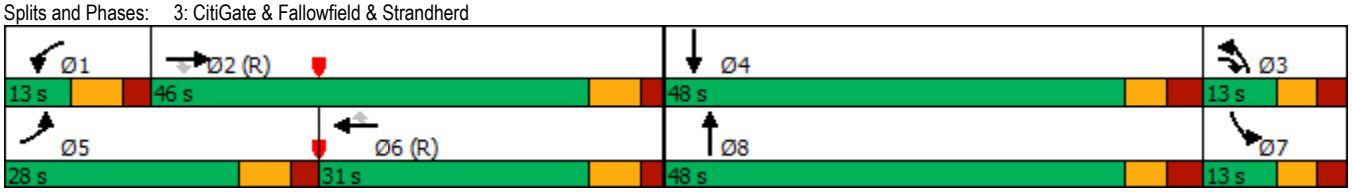
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 7 (6%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.71			
Intersection Signal Delay: 163.7		Intersection LOS: F	
Intersection Capacity Utilization 102.1%		ICU Level of Service G	
Analysis Period (min) 15			

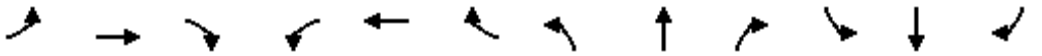
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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: 3: CitiGate & Fallowfield & Strandherd





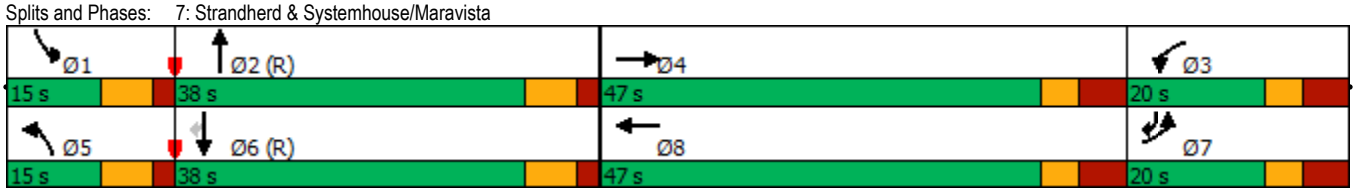
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Future Volume (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.878			0.887			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3154	1359	0	1658	1548	0	3154	3311	0	1321	3316	1363
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3154	1359	0	1656	1548	0	3154	3311	0	1321	3316	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			110							115
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
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%	43%	7%	2%	2%	2%	4%	2%	11%	28%	2%	11%
Adj. Flow (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	58	0	7	146	0	192	1423	0	36	804	138
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	47.0		15.0	47.0		15.0	33.0		15.0	33.0	15.0
Total Split (s)	20.0	47.0		20.0	47.0		15.0	38.0		15.0	38.0	20.0
Total Split (%)	16.7%	39.2%		16.7%	39.2%		12.5%	31.7%		12.5%	31.7%	16.7%
Maximum Green (s)	12.4	39.4		12.4	39.4		8.4	31.3		8.4	31.3	12.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

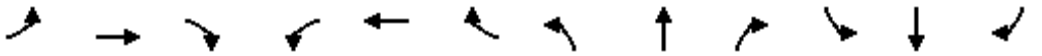
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (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	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		32.0			32.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			1			0			0	
Act Effct Green (s)	10.2	24.2		12.8	16.1		11.8	62.5		7.9	53.5	62.8
Actuated g/C Ratio	0.08	0.20		0.11	0.13		0.10	0.52		0.07	0.45	0.52
v/c Ratio	0.48	0.19		0.04	0.48		0.62	0.83		0.41	0.54	0.18
Control Delay	58.2	18.0		39.7	18.1		61.5	31.8		55.2	32.0	5.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	58.2	18.0		39.7	18.1		61.5	31.8		55.2	32.0	5.5
LOS	E	B		D	B		E	C		E	C	A
Approach Delay		45.7			19.1			35.3			29.1	
Approach LOS		D			B			D			C	
90th %ile Green (s)	12.8	11.2		40.6	39.0		8.4	31.3		8.4	31.3	12.8
90th %ile Term Code	Max	Gap		Hold	Ped		Max	Coord		Max	Coord	Max
70th %ile Green (s)	11.5	30.4		0.0	11.3		14.7	58.6		10.1	54.0	11.5
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	10.2	27.8		0.0	10.0		13.6	62.7		8.6	57.7	10.2
50th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
30th %ile Green (s)	9.0	26.6		0.0	10.0		12.1	79.1		0.0	60.4	9.0
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
10th %ile Green (s)	7.3	24.9		0.0	10.0		10.0	80.8		0.0	64.2	7.3
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
Stops (vph)	120	19		7	39		167	920		33	681	47
Fuel Used(l)	11	2		0	5		22	111		5	93	9
CO Emissions (g/hr)	204	44		8	91		406	2066		92	1731	170
NOx Emissions (g/hr)	39	8		2	18		78	399		18	334	33
VOC Emissions (g/hr)	47	10		2	21		94	476		21	399	39
Dilemma Vehicles (#)	0	0		0	0		0	52		0	21	0
Queue Length 50th (m)	15.2	2.0		1.6	8.1		22.3	142.2		7.2	94.0	6.5
Queue Length 95th (m)	24.5	15.3		4.4	20.7		#44.1	#297.8		m11.7	#139.0	27.0
Internal Link Dist (m)		181.3			124.8			185.4			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	327	477		249	582		309	1724		96	1479	792
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	0.39	0.12		0.03	0.25		0.62	0.83		0.38	0.54	0.17

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 48 (40%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 33.1 Intersection LOS: C
Intersection Capacity Utilization 82.8% 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: 7: Strandherd & Systemhouse/Maravista





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	1771	108	3	1404	155	110	33	3	147	32	514
Future Volume (vph)	356	1771	108	3	1404	155	110	33	3	147	32	514
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				1.00		0.99
Frt			0.850			0.850		0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1722	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3122	2891	1483	1658	3191	1460	3216	1722	0	1655	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			101			160		3				514
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			155.7			207.3	
Travel Time (s)		10.6			11.4			11.2			12.4	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	356	1771	108	3	1404	155	110	33	3	147	32	514
Shared Lane Traffic (%)												
Lane Group Flow (vph)	356	1771	108	3	1404	155	110	36	0	147	32	514
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	48.0		11.5	48.0	
Total Split (s)	24.0	34.0	14.0	24.0	34.0	34.0	14.0	48.0		14.0	48.0	
Total Split (%)	20.0%	28.3%	11.7%	20.0%	28.3%	28.3%	11.7%	40.0%		11.7%	40.0%	
Maximum Green (s)	16.9	27.1	7.5	16.9	27.1	27.1	7.5	41.0		7.5	41.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		16.0			16.0	16.0		34.0			34.0	
Pedestrian Calls (#/hr)		1			1	1		1			1	
Act Effct Green (s)	19.2	71.6	95.7	5.8	49.8	48.0	17.6	16.2		19.4	16.2	120.0
Actuated g/C Ratio	0.16	0.60	0.80	0.05	0.42	0.40	0.15	0.14		0.16	0.14	1.00
v/c Ratio	0.71	1.03	0.09	0.04	1.06	0.23	0.23	0.15		0.55	0.14	0.36
Control Delay	56.2	54.1	2.5	89.3	63.6	2.4	48.6	39.8		56.1	42.2	0.7
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	56.2	54.1	2.5	89.3	63.6	2.4	48.6	39.8		56.1	42.2	0.7
LOS	E	D	A	F	E	A	D	D		E	D	A
Approach Delay		51.9			57.6			46.4			14.4	
Approach LOS		D			E			D			B	
90th %ile Green (s)	16.9	37.5	7.5	6.5	27.1	27.1	7.5	41.0		7.5	41.0	
90th %ile Term Code	Max	Coord	Max	Gap	Coord	Coord	Max	Ped		Max	Ped	
70th %ile Green (s)	20.7	69.6	20.0	0.0	41.8	41.8	20.0	10.0		20.0	10.0	
70th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Min		Gap	Min	
50th %ile Green (s)	18.8	70.1	19.5	0.0	44.2	44.2	19.5	10.0		19.5	10.0	
50th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Min		Gap	Min	
30th %ile Green (s)	16.8	86.9	19.7	0.0	63.0	63.0	19.7	0.0		19.7	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	13.9	85.1	21.5	0.0	64.1	64.1	21.5	0.0		21.5	0.0	
10th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
Stops (vph)	330	1185	11	6	1025	30	98	28		112	28	0
Fuel Used(l)	41	175	3	1	187	9	8	2		13	3	10
CO Emissions (g/hr)	762	3249	53	13	3483	160	148	42		234	47	177
NOx Emissions (g/hr)	147	627	10	2	672	31	28	8		45	9	34
VOC Emissions (g/hr)	176	749	12	3	803	37	34	10		54	11	41
Dilemma Vehicles (#)	0	63	0	0	4	0	0	0		0	1	0
Queue Length 50th (m)	40.8	~233.3	0.3	0.7	~211.4	5.8	11.7	7.4		31.6	7.2	0.0
Queue Length 95th (m)	57.7	#376.9	8.8	m1.0	#315.5	m4.3	22.6	12.6		#81.2	12.1	0.0
Internal Link Dist (m)		212.6			229.6			131.7			183.3	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	516	1725	1203	233	1325	680	472	590		268	596	1422
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	0.69	1.03	0.09	0.01	1.06	0.23	0.23	0.06		0.55	0.05	0.36

Intersection Summary

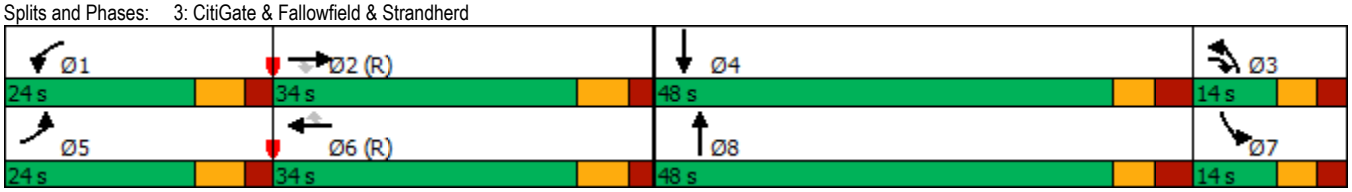
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 115 (96%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 48.0 Intersection LOS: D
Intersection Capacity Utilization 88.3% ICU Level of Service E
Analysis Period (min) 15

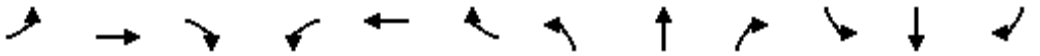
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd



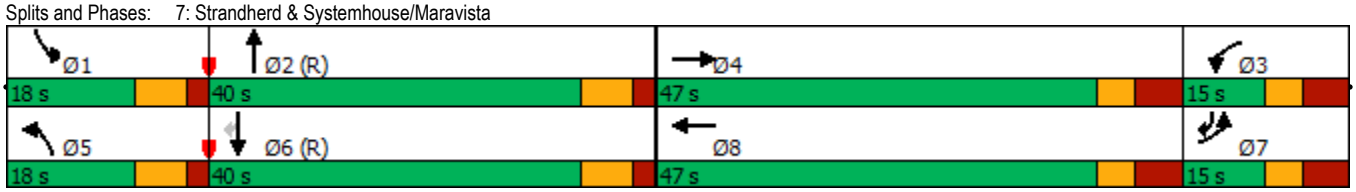


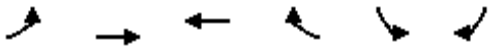
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Future Volume (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.878			0.887			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3216	1513	0	1658	1412	0	3216	3312	0	1658	3316	1351
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	1513	0	1652	1412	0	3216	3312	0	1658	3316	1351
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			110			1				111
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
Confl. Peds. (#/hr)			4	4								
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%	2%	2%	2%	15%	2%	2%	2%	2%	2%	12%
Adj. Flow (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	58	0	7	146	0	192	1423	0	36	804	138
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	47.0		15.0	47.0		15.0	33.0		15.0	33.0	15.0
Total Split (s)	15.0	47.0		15.0	47.0		18.0	40.0		18.0	40.0	15.0
Total Split (%)	12.5%	39.2%		12.5%	39.2%		15.0%	33.3%		15.0%	33.3%	12.5%
Maximum Green (s)	7.4	39.4		7.4	39.4		11.4	33.3		11.4	33.3	7.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	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	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		32.0			32.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			3			0			0	
Act Effct Green (s)	9.1	24.2		11.9	16.2		11.5	63.2		8.1	54.7	62.9
Actuated g/C Ratio	0.08	0.20		0.10	0.14		0.10	0.53		0.07	0.46	0.52
v/c Ratio	0.53	0.17		0.04	0.51		0.62	0.82		0.32	0.53	0.18
Control Delay	61.5	17.8		41.4	19.1		61.3	31.0		41.2	35.4	11.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	61.5	17.8		41.4	19.1		61.3	31.0		41.2	35.4	11.2
LOS	E	B		D	B		E	C		D	D	B
Approach Delay		47.9			20.1			34.6			32.2	
Approach LOS		D			C			C			C	
90th %ile Green (s)	7.8	10.6		36.2	39.0		11.4	33.7		11.0	33.3	7.8
90th %ile Term Code	Max	Gap		Hold	Ped		Max	Coord		Gap	Coord	Max
70th %ile Green (s)	11.4	30.9		0.0	11.9		13.9	59.0		9.2	54.3	11.4
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	10.2	27.8		0.0	10.0		12.4	63.3		8.0	58.9	10.2
50th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
30th %ile Green (s)	9.0	26.6		0.0	10.0		11.0	79.1		0.0	61.5	9.0
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
10th %ile Green (s)	7.3	24.9		0.0	10.0		8.9	80.8		0.0	65.3	7.3
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
Stops (vph)	122	19		8	39		182	928		36	560	51
Fuel Used(l)	11	2		0	5		23	111		5	88	10
CO Emissions (g/hr)	211	44		8	93		422	2058		88	1641	186
NOx Emissions (g/hr)	41	8		2	18		81	397		17	317	36
VOC Emissions (g/hr)	49	10		2	21		97	475		20	378	43
Dilemma Vehicles (#)	0	0		0	0		0	53		0	38	0
Queue Length 50th (m)	15.2	2.0		1.6	8.1		22.5	140.4		7.7	72.7	4.4
Queue Length 95th (m)	25.7	15.3		4.7	21.0		34.8	#292.0		m9.3	m99.6	m23.7
Internal Link Dist (m)		181.3			124.8			185.4			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	245	528		182	537		324	1744		157	1510	761
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	0.53	0.11		0.04	0.27		0.59	0.82		0.23	0.53	0.18

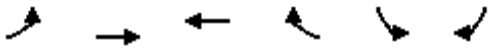
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 82 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 33.9		Intersection LOS: 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.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 7: Strandherd & Systemhouse/Maravista





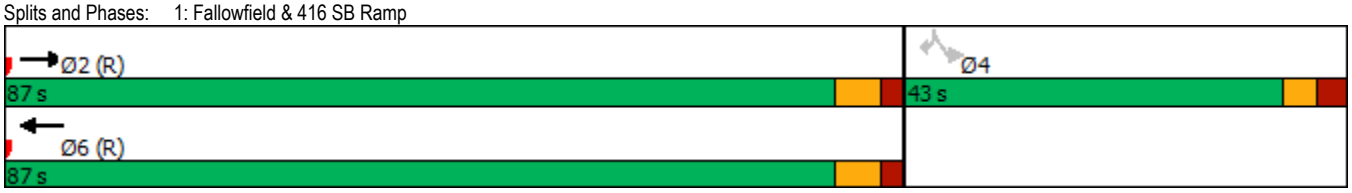
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1625	1071	0	634	121
Future Volume (vph)	0	1625	1071	0	634	121
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						110
Link Speed (k/h)		80	80		50	
Link Distance (m)		93.5	550.2		164.0	
Travel Time (s)		4.2	24.8		11.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	1625	1071	0	634	121
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1625	1071	0	634	121
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		30.3	30.3
Total Split (s)		87.0	87.0		43.0	43.0
Total Split (%)		66.9%	66.9%		33.1%	33.1%
Maximum Green (s)		80.2	80.2		36.7	36.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		None	None
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		85.0	85.0		31.9	31.9
Actuated g/C Ratio		0.65	0.65		0.25	0.25
v/c Ratio		0.81	0.51		0.85	0.30
Control Delay		21.5	4.7		58.3	10.0
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		21.5	4.7		58.3	10.0
LOS		C	A		E	A
Approach Delay		21.5	4.7		50.5	
Approach LOS		C	A		D	
90th %ile Green (s)		80.2	80.2		36.7	36.7
90th %ile Term Code		Coord	Coord		Max	Max
70th %ile Green (s)		81.1	81.1		35.8	35.8
70th %ile Term Code		Coord	Coord		Gap	Gap
50th %ile Green (s)		84.6	84.6		32.3	32.3
50th %ile Term Code		Coord	Coord		Gap	Gap
30th %ile Green (s)		87.5	87.5		29.4	29.4
30th %ile Term Code		Coord	Coord		Gap	Gap
10th %ile Green (s)		91.7	91.7		25.2	25.2
10th %ile Term Code		Coord	Coord		Gap	Gap
Stops (vph)		1179	190		591	21
Fuel Used(l)		107	61		52	3
CO Emissions (g/hr)		1981	1138		959	61
NOx Emissions (g/hr)		382	220		185	12
VOC Emissions (g/hr)		457	262		221	14
Dilemma Vehicles (#)		62	25		0	0
Queue Length 50th (m)		151.0	27.4		79.9	2.2
Queue Length 95th (m)		205.0	33.3		97.5	16.5
Internal Link Dist (m)		69.5	526.2		140.0	
Turn Bay Length (m)						70.0
Base Capacity (vph)		2011	2106		857	450
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.81	0.51		0.74	0.27

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 54 (42%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 22.6		Intersection LOS: C	
Intersection Capacity Utilization 85.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Fallowfield & 416 SB Ramp



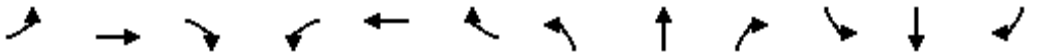
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1937	0	0	1002	176	296
Future Volume (vph)	1937	0	0	1002	176	296
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						21
Link Speed (k/h)	80			80	60	
Link Distance (m)	550.2			245.0	156.0	
Travel Time (s)	24.8			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	1937	0	0	1002	176	296
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1937	0	0	1002	176	296
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	93.9			93.9	36.1	36.1
Total Split (%)	72.2%			72.2%	27.8%	27.8%
Maximum Green (s)	87.2			87.2	30.8	30.8
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	89.7			89.7	28.3	28.3
Actuated g/C Ratio	0.69			0.69	0.22	0.22
v/c Ratio	0.88			0.44	0.55	0.91
Control Delay	16.4			11.1	51.5	76.6
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	16.4			11.1	51.5	76.6
LOS	B			B	D	E
Approach Delay	16.4			11.1	67.2	
Approach LOS	B			B	E	
90th %ile Green (s)	87.2			87.2	30.8	30.8
90th %ile Term Code	Coord			Coord	Max	Max
70th %ile Green (s)	87.2			87.2	30.8	30.8
70th %ile Term Code	Coord			Coord	Max	Max
50th %ile Green (s)	87.2			87.2	30.8	30.8
50th %ile Term Code	Coord			Coord	Max	Max
30th %ile Green (s)	90.4			90.4	27.6	27.6
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	96.6			96.6	21.4	21.4
10th %ile Term Code	Coord			Coord	Gap	Gap
Stops (vph)	1218			662	153	254
Fuel Used(l)	178			85	14	30
CO Emissions (g/hr)	3316			1572	266	552
NOx Emissions (g/hr)	640			303	51	106
VOC Emissions (g/hr)	765			363	61	127
Dilemma Vehicles (#)	69			6	0	0
Queue Length 50th (m)	127.8			79.8	39.3	68.0
Queue Length 95th (m)	208.4			m85.7	62.6	#115.2
Internal Link Dist (m)	526.2			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2202			2265	351	354
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.88			0.44	0.50	0.84

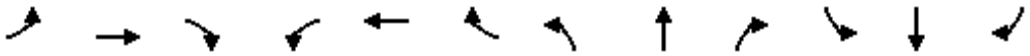
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 40 (31%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 21.9		Intersection LOS: C	
Intersection Capacity Utilization 85.9%		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: 2: 416 NB Off-ramp & Fallowfield





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	346	1135	92	5	1853	80	82	24	4	103	26	349
Future Volume (vph)	346	1135	92	5	1853	80	82	24	4	103	26	349
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				0.99		0.99
Frt			0.850			0.850		0.979				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1708	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3123	2891	1483	1658	3191	1460	3216	1708	0	1644	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93			148		4				206
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			155.7			207.3	
Travel Time (s)		10.6			11.4			11.2			12.4	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	346	1135	92	5	1853	80	82	24	4	103	26	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	346	1135	92	5	1853	80	82	28	0	103	26	349
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	17.0		11.5	17.0	
Total Split (s)	20.0	86.6	12.6	13.0	79.6	79.6	12.6	17.0		13.4	17.8	
Total Split (%)	15.4%	66.6%	9.7%	10.0%	61.2%	61.2%	9.7%	13.1%		10.3%	13.7%	
Maximum Green (s)	12.9	79.7	6.1	5.9	72.7	72.7	6.1	10.0		6.9	10.8	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		16.0			16.0	16.0						
Pedestrian Calls (#/hr)		1			1	1						
Act Effct Green (s)	17.3	96.4	112.0	5.7	76.3	74.5	9.2	10.0		11.0	10.0	130.0
Actuated g/C Ratio	0.13	0.74	0.86	0.04	0.59	0.57	0.07	0.08		0.08	0.08	1.00
v/c Ratio	0.83	0.53	0.07	0.07	0.99	0.09	0.36	0.21		0.74	0.19	0.25
Control Delay	61.6	13.8	1.1	65.2	26.6	0.1	63.5	54.1		87.7	60.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	61.6	13.8	1.1	65.2	28.2	0.1	63.5	54.1		87.7	60.0	0.4
LOS	E	B	A	E	C	A	E	D		F	E	A
Approach Delay		23.5			27.2			61.1			22.5	
Approach LOS		C			C			E			C	
90th %ile Green (s)	12.9	79.7	6.9	5.9	72.7	72.7	6.9	10.0		6.9	10.0	
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Max		Max	Min	
70th %ile Green (s)	12.9	92.7	6.9	0.0	72.7	72.7	6.9	10.0		6.9	10.0	
70th %ile Term Code	Max	Coord	Max	Skip	Coord	Coord	Max	Max		Max	Min	
50th %ile Green (s)	12.9	92.7	6.9	0.0	72.7	72.7	6.9	10.0		6.9	10.0	
50th %ile Term Code	Max	Coord	Max	Skip	Coord	Coord	Max	Max		Max	Min	
30th %ile Green (s)	20.6	102.5	14.1	0.0	74.8	74.8	14.1	0.0		14.1	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	18.4	105.3	11.3	0.0	79.8	79.8	11.3	0.0		11.3	0.0	
10th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
Stops (vph)	293	738	9	7	1134	0	78	24		83	25	0
Fuel Used(l)	41	84	4	1	140	2	7	2		11	2	6
CO Emissions (g/hr)	754	1558	78	14	2602	30	130	39		214	46	119
NOx Emissions (g/hr)	145	301	15	3	502	6	25	8		41	9	23
VOC Emissions (g/hr)	174	359	18	3	600	7	30	9		49	11	27
Dilemma Vehicles (#)	0	19	0	0	60	0	0	0		0	1	0
Queue Length 50th (m)	45.1	98.5	1.1	1.3	~133.5	0.0	10.7	5.9		26.7	6.4	0.0
Queue Length 95th (m)	m#59.7	162.0	m1.3	m1.9	#299.4	m0.2	19.2	15.8		#62.0	15.7	0.0
Internal Link Dist (m)		212.6			229.6			131.7			183.3	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	416	2143	1290	75	1873	900	227	135		140	144	1422
Starvation Cap Reductn	0	0	0	0	15	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	0.83	0.53	0.07	0.07	1.00	0.09	0.36	0.21		0.74	0.18	0.25

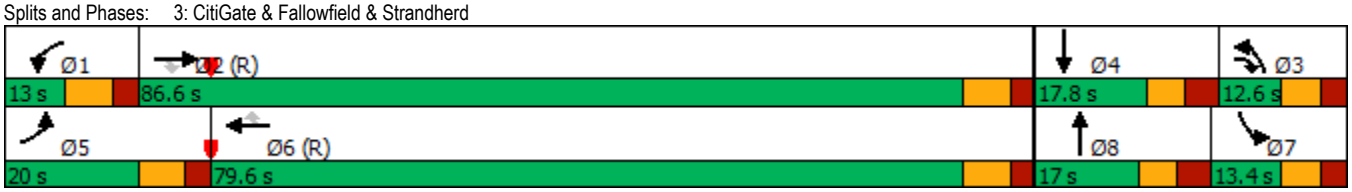
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 120 (92%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 26.1		Intersection LOS: C	
Intersection Capacity Utilization 91.7%		ICU Level of Service F	
Analysis Period (min) 15			

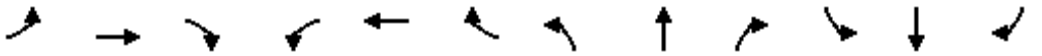
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

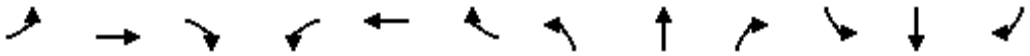
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	1101	144	21	1741	17	196	13	11	47	24	176
Future Volume (vph)	36	1101	144	21	1741	17	196	13	11	47	24	176
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	90.0			100.0			60.0			60.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.97				1.00		0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	2941	1483	3216	3221	1483	1658	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.742			0.749		
Satd. Flow (perm)	1657	2941	1483	3216	3221	1445	1295	1745	1483	1305	1745	1462
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			97			90			90
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		253.6			287.1			117.0			245.3	
Travel Time (s)		11.4			12.9			8.4			17.7	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	15%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	36	1101	144	21	1741	17	196	13	11	47	24	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1101	144	21	1741	17	196	13	11	47	24	176
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.9	31.8	31.8	11.9	31.8	31.8	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (s)	11.9	69.4	69.4	11.9	69.4	69.4	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (%)	9.2%	53.4%	53.4%	9.2%	53.4%	53.4%	37.5%	37.5%	37.5%	37.5%	37.5%	37.5%
Maximum Green (s)	5.0	62.6	62.6	5.0	62.6	62.6	41.0	41.0	41.0	41.0	41.0	41.0
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	3.3	3.3	3.3	3.3	3.3	3.3



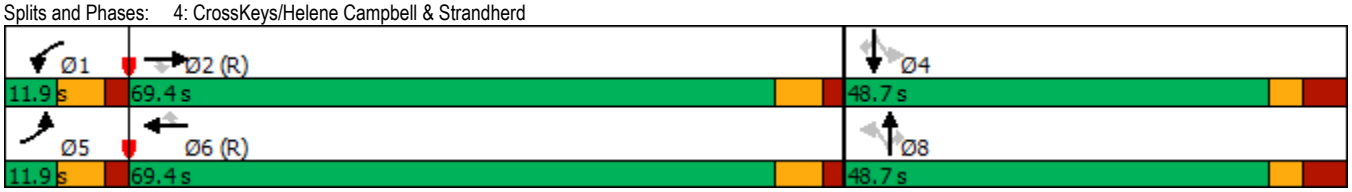
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.3	2.2	2.2	2.3	2.2	2.2	4.4	4.4	4.4	4.4	4.4	4.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.8	6.8	6.9	6.8	6.8	7.7	7.7	7.7	7.7	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
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	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	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
Flash Dont Walk (s)		18.0	18.0		18.0	18.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		1	1		1	1	1	1	1	1	1	1
Act Effct Green (s)	7.2	81.3	81.3	5.9	77.5	77.5	26.4	26.4	26.4	26.4	26.4	26.4
Actuated g/C Ratio	0.06	0.63	0.63	0.05	0.60	0.60	0.20	0.20	0.20	0.20	0.20	0.20
v/c Ratio	0.39	0.60	0.15	0.14	0.91	0.02	0.75	0.04	0.03	0.18	0.07	0.48
Control Delay	89.8	7.7	0.7	65.7	22.5	0.0	64.4	36.4	0.2	40.5	37.6	24.4
Queue Delay	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.8	7.7	0.7	65.7	25.7	0.0	64.4	36.4	0.2	40.5	37.6	24.4
LOS	F	A	A	E	C	A	E	D	A	D	D	C
Approach Delay		9.3			25.9			59.6			28.8	
Approach LOS		A			C			E			C	
90th %ile Green (s)	5.0	62.6	62.6	5.0	62.6	62.6	41.0	41.0	41.0	41.0	41.0	41.0
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	9.8	72.7	72.7	6.8	69.7	69.7	29.1	29.1	29.1	29.1	29.1	29.1
70th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	8.5	77.1	77.1	6.3	74.9	74.9	25.2	25.2	25.2	25.2	25.2	25.2
50th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	7.2	94.3	94.3	0.0	80.2	80.2	21.2	21.2	21.2	21.2	21.2	21.2
30th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	0.0	99.9	99.9	0.0	99.9	99.9	15.6	15.6	15.6	15.6	15.6	15.6
10th %ile Term Code	Skip	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
Stops (vph)	34	505	4	22	774	0	177	11	0	36	20	72
Fuel Used(l)	5	58	3	3	114	0	16	1	0	3	2	9
CO Emissions (g/hr)	96	1070	59	52	2118	7	295	14	2	63	32	168
NOx Emissions (g/hr)	19	206	11	10	409	1	57	3	0	12	6	32
VOC Emissions (g/hr)	22	247	14	12	489	2	68	3	1	14	7	39
Dilemma Vehicles (#)	0	27	0	0	71	0	0	0	0	0	0	0
Queue Length 50th (m)	9.3	25.1	0.5	2.8	68.6	0.0	48.1	2.7	0.0	10.2	5.1	19.1
Queue Length 95th (m)	m#19.1	46.6	m1.2	m4.1	#310.7	m0.0	64.0	7.2	0.0	17.9	10.7	35.4
Internal Link Dist (m)		229.6			263.1			93.0			221.3	
Turn Bay Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Base Capacity (vph)	92	1839	964	145	1919	900	408	550	529	411	550	522
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	111	0	0	0	0	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.60	0.15	0.14	0.96	0.02	0.48	0.02	0.02	0.11	0.04	0.34

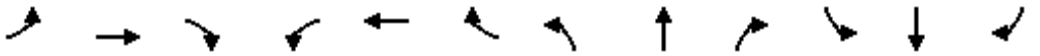
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 122 (94%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 125			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 22.2		Intersection LOS: C	
Intersection Capacity Utilization 93.9%		ICU Level of Service F	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 4: CrossKeys/Helene Campbell & Strandherd





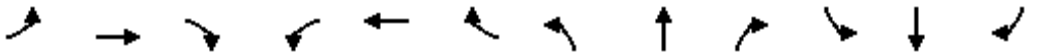
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Future Volume (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99								
Frt		0.878			0.887			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3154	1357	0	1658	1548	0	3154	3311	0	1321	3316	1363
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3154	1357	0	1646	1548	0	3154	3311	0	1321	3316	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			96			1				138
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			419.5			287.1	
Travel Time (s)		14.8			13.4			18.9			12.9	
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%	43%	7%	2%	2%	2%	4%	2%	11%	28%	2%	11%
Adj. Flow (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	58	0	7	146	0	192	1423	0	36	804	138
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	17.6		12.6	17.6		15.0	33.0		15.0	33.0	15.0
Total Split (s)	16.0	26.3		12.7	23.0		20.0	76.0		15.0	71.0	16.0
Total Split (%)	12.3%	20.2%		9.8%	17.7%		15.4%	58.5%		11.5%	54.6%	12.3%
Maximum Green (s)	8.4	18.7		5.1	15.4		13.4	69.3		8.4	64.3	8.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	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	C-Max		None	C-Max	None
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								17.0			17.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	9.4	24.7		7.2	11.6		12.2	77.9		7.7	68.2	76.8
Actuated g/C Ratio	0.07	0.19		0.06	0.09		0.09	0.60		0.06	0.52	0.59
v/c Ratio	0.56	0.20		0.08	0.65		0.65	0.72		0.46	0.46	0.16
Control Delay	68.2	19.3		58.1	35.2		77.4	13.3		97.1	6.5	0.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	68.2	19.3		58.1	35.2		77.4	13.3		97.1	6.5	0.6
LOS	E	B		E	D		E	B		F	A	A
Approach Delay		53.1			36.3			20.9			9.0	
Approach LOS		D			D			C			A	
90th %ile Green (s)	8.4	11.5		12.3	15.4		13.4	69.3		8.4	64.3	8.4
90th %ile Term Code	Max	Gap		Hold	Max		Max	Coord		Max	Coord	Max
70th %ile Green (s)	11.1	31.4		0.0	12.7		13.4	69.3		8.4	64.3	11.1
70th %ile Term Code	Max	Hold		Skip	Gap		Max	Coord		Max	Coord	Max
50th %ile Green (s)	10.7	28.3		0.0	10.0		13.2	71.9		8.9	67.6	10.7
50th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
30th %ile Green (s)	9.4	27.0		0.0	10.0		11.7	88.7		0.0	70.4	9.4
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
10th %ile Green (s)	7.6	25.2		0.0	10.0		9.4	90.5		0.0	74.5	7.6
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
Stops (vph)	122	19		8	56		192	521		36	250	4
Fuel Used(l)	12	2		1	7		29	91		6	37	3
CO Emissions (g/hr)	224	45		10	131		535	1700		104	679	63
NOx Emissions (g/hr)	43	9		2	25		103	328		20	131	12
VOC Emissions (g/hr)	52	10		2	30		124	392		24	157	15
Dilemma Vehicles (#)	0	0		0	0		0	62		0	24	0
Queue Length 50th (m)	16.5	2.2		1.8	12.4		27.0	48.8		9.7	10.7	0.2
Queue Length 95th (m)	#27.4	16.2		6.5	33.5		39.8	71.4		m16.9	8.8	0.0
Internal Link Dist (m)		181.3			124.8			395.5			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	232	310		91	268		325	1985		86	1740	862
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	0.56	0.19		0.08	0.54		0.59	0.72		0.42	0.46	0.16

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 128 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 19.8		Intersection LOS: B	
Intersection Capacity Utilization 82.8%		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: 5: Strandherd & Systemhouse/Maravista





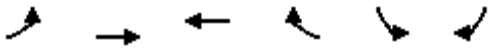
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	6	33	80	25	114	104	1431	57	58	645	82
Future Volume (vph)	55	6	33	80	25	114	104	1431	57	58	645	82
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		0.0	40.0		0.0	60.0		30.0	50.0		0.0
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (m)	7.5			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.877			0.994				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1353	1745	1483	1658	1530	0	2711	3293	0	1523	3283	1363
Flt Permitted	0.567			0.754			0.950			0.950		
Satd. Flow (perm)	807	1745	1483	1316	1530	0	2711	3293	0	1523	3283	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			86		114			4				94
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		358.5			381.8			229.3			419.5	
Travel Time (s)		25.8			34.4			10.3			18.9	
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 (%)	25%	2%	2%	2%	2%	2%	21%	2%	4%	11%	3%	11%
Adj. Flow (vph)	55	6	33	80	25	114	104	1431	57	58	645	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	55	6	33	80	139	0	104	1488	0	58	645	82
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		5.0	20.0		5.0	20.0	20.0
Minimum Split (s)	39.6	39.6	39.6	43.6	43.6		11.6	30.7		11.6	36.7	36.7
Total Split (s)	43.8	43.8	43.8	43.8	43.8		17.2	71.2		15.0	69.0	69.0
Total Split (%)	33.7%	33.7%	33.7%	33.7%	33.7%		13.2%	54.8%		11.5%	53.1%	53.1%
Maximum Green (s)	36.2	36.2	36.2	36.2	36.2		10.6	64.5		8.4	62.3	62.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	4.3	4.3	4.3	4.3	4.3		2.0	2.1		2.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6	7.6	7.6	7.6		6.6	6.7		6.6	6.7	6.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							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		None	C-Max		None	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)	25.0	25.0	25.0	29.0	29.0			17.0			23.0	23.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)	13.9	13.9	13.9	13.9	13.9		10.3	87.3		10.5	84.9	84.9
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.11		0.08	0.67		0.08	0.65	0.65
v/c Ratio	0.64	0.03	0.14	0.57	0.52		0.49	0.67		0.48	0.30	0.09
Control Delay	86.3	49.3	1.2	70.1	21.2		64.5	16.7		70.2	5.3	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	86.3	49.3	1.2	70.1	21.2		64.5	16.7		70.2	5.3	1.7
LOS	F	D	A	E	C		E	B		E	A	A
Approach Delay		54.1			39.0			19.8			9.7	
Approach LOS		D			D			B			A	
90th %ile Green (s)	19.8	19.8	19.8	19.8	19.8		13.5	74.8		14.5	75.8	75.8
90th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
70th %ile Green (s)	15.7	15.7	15.7	15.7	15.7		11.6	81.1		12.3	81.8	81.8
70th %ile Term Code	Gap	Gap	Gap	Gap	Gap		Gap	Coord		Gap	Coord	Coord
50th %ile Green (s)	13.3	13.3	13.3	13.3	13.3		10.3	85.3		10.5	85.5	85.5
50th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Gap	Coord		Gap	Coord	Coord
30th %ile Green (s)	10.8	10.8	10.8	10.8	10.8		9.0	89.5		8.8	89.3	89.3
30th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Gap	Coord		Gap	Coord	Coord
10th %ile Green (s)	10.0	10.0	10.0	10.0	10.0		7.1	105.7		0.0	92.0	92.0
10th %ile Term Code	Hold	Hold	Hold	Min	Min		Gap	Coord		Skip	Coord	Coord
Stops (vph)	53	7	0	75	36		97	893		58	78	7
Fuel Used(l)	7	1	1	9	8		13	97		8	28	3
CO Emissions (g/hr)	125	11	21	160	156		234	1808		156	528	60
NOx Emissions (g/hr)	24	2	4	31	30		45	349		30	102	12
VOC Emissions (g/hr)	29	3	5	37	36		54	417		36	122	14
Dilemma Vehicles (#)	0	0	0	0	0		0	57		0	26	0
Queue Length 50th (m)	13.8	1.4	0.0	19.9	5.9		13.4	116.4		15.8	6.1	0.0
Queue Length 95th (m)	27.1	5.4	0.0	34.8	24.7		22.2	178.2		30.7	30.6	4.3
Internal Link Dist (m)		334.5			357.8			205.3			395.5	
Turn Bay Length (m)	75.0			40.0			60.0			50.0		
Base Capacity (vph)	224	485	475	366	508		237	2212		127	2143	922
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	0.25	0.01	0.07	0.22	0.27		0.44	0.67		0.46	0.30	0.09

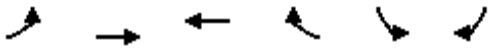
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 4 (3%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 19.6		Intersection LOS: B	
Intersection Capacity Utilization 86.3%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 6: Strandherd & Dealership/Kennevale





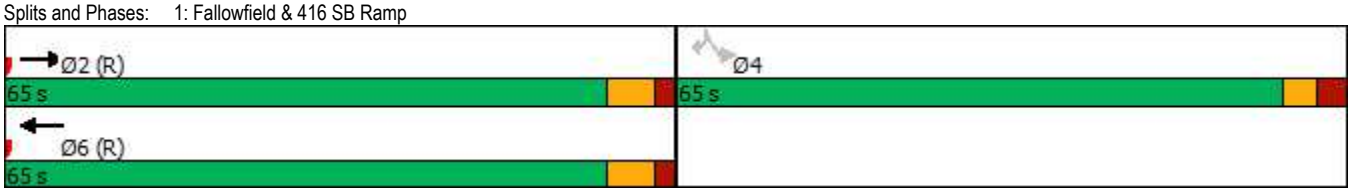
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1063	1108	0	1091	275
Future Volume (vph)	0	1063	1108	0	1091	275
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						39
Link Speed (k/h)		80	80		50	
Link Distance (m)		91.8	551.9		134.0	
Travel Time (s)		4.1	24.8		9.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	1063	1108	0	1091	275
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1063	1108	0	1091	275
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		30.3	30.3
Total Split (s)		65.0	65.0		65.0	65.0
Total Split (%)		50.0%	50.0%		50.0%	50.0%
Maximum Green (s)		58.2	58.2		58.7	58.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		Max	Max
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		58.2	58.2		58.7	58.7
Actuated g/C Ratio		0.45	0.45		0.45	0.45
v/c Ratio		0.77	0.77		0.80	0.45
Control Delay		35.1	25.5		35.9	23.5
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		35.1	25.5		35.9	23.5
LOS		D	C		D	C
Approach Delay		35.1	25.5		33.4	
Approach LOS		D	C		C	
90th %ile Green (s)		58.2	58.2		58.7	58.7
90th %ile Term Code		Coord	Coord		MaxR	MaxR
70th %ile Green (s)		58.2	58.2		58.7	58.7
70th %ile Term Code		Coord	Coord		MaxR	MaxR
50th %ile Green (s)		58.2	58.2		58.7	58.7
50th %ile Term Code		Coord	Coord		MaxR	MaxR
30th %ile Green (s)		58.2	58.2		58.7	58.7
30th %ile Term Code		Coord	Coord		MaxR	MaxR
10th %ile Green (s)		58.2	58.2		58.7	58.7
10th %ile Term Code		Coord	Coord		MaxR	MaxR
Stops (vph)		876	1025		914	161
Fuel Used(l)		87	129		64	12
CO Emissions (g/hr)		1611	2393		1200	225
NOx Emissions (g/hr)		311	462		232	43
VOC Emissions (g/hr)		372	552		277	52
Dilemma Vehicles (#)		41	10		0	0
Queue Length 50th (m)		118.8	136.4		120.9	40.5
Queue Length 95th (m)		146.0	131.6		148.7	64.6
Internal Link Dist (m)		67.8	527.9		110.0	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1376	1442		1371	615
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.77	0.77		0.80	0.45

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 76 (58%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 31.4		Intersection LOS: C	
Intersection Capacity Utilization 82.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Fallowfield & 416 SB Ramp



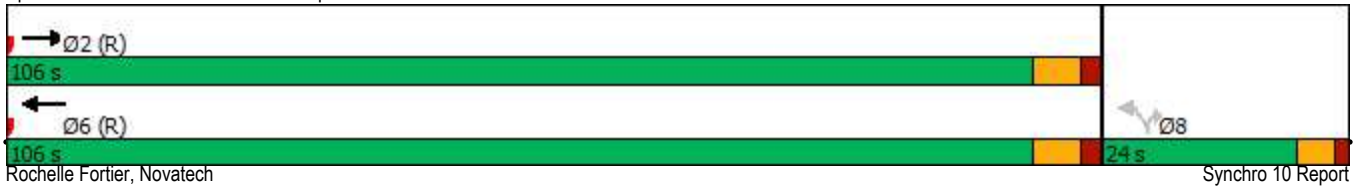


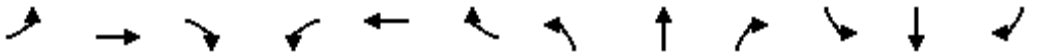
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2106	0	0	1268	123	164
Future Volume (vph)	2106	0	0	1268	123	164
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						26
Link Speed (k/h)	80			80	60	
Link Distance (m)	551.9			245.0	156.0	
Travel Time (s)	24.8			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	2106	0	0	1268	123	164
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2106	0	0	1268	123	164
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases					8	8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	106.0			106.0	24.0	24.0
Total Split (%)	81.5%			81.5%	18.5%	18.5%
Maximum Green (s)	99.3			99.3	18.7	18.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	101.6			101.6	16.4	16.4
Actuated g/C Ratio	0.78			0.78	0.13	0.13
v/c Ratio	0.84			0.49	0.66	0.81
Control Delay	12.4			11.2	70.7	74.9
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	12.4			11.2	70.7	74.9
LOS	B			B	E	E
Approach Delay	12.4			11.2	73.1	
Approach LOS	B			B	E	
90th %ile Green (s)	99.3			99.3	18.7	18.7
90th %ile Term Code	Coord			Coord	Max	Max
70th %ile Green (s)	99.3			99.3	18.7	18.7
70th %ile Term Code	Coord			Coord	Max	Max
50th %ile Green (s)	99.5			99.5	18.5	18.5
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	102.7			102.7	15.3	15.3
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	107.3			107.3	10.7	10.7
10th %ile Term Code	Coord			Coord	Gap	Gap
Stops (vph)	1464			667	116	130
Fuel Used(l)	196			97	12	16
CO Emissions (g/hr)	3637			1810	225	295
NOx Emissions (g/hr)	702			349	43	57
VOC Emissions (g/hr)	839			417	52	68
Dilemma Vehicles (#)	30			72	0	0
Queue Length 50th (m)	156.1			105.0	29.9	34.3
Queue Length 95th (m)	166.9			123.8	50.5	#65.5
Internal Link Dist (m)	527.9			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2494			2566	213	227
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.84			0.49	0.58	0.72

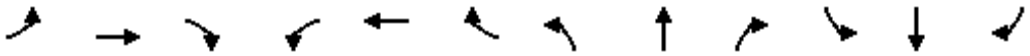
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 58 (45%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 16.7		Intersection LOS: B	
Intersection Capacity Utilization 82.2%		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: 2: 416 NB Off-ramp & Fallowfield





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	1771	108	3	1404	155	110	33	3	147	32	514
Future Volume (vph)	356	1771	108	3	1404	155	110	33	3	147	32	514
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				0.99		0.99
Frt			0.850			0.850		0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1722	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3122	2891	1483	1658	3191	1460	3216	1722	0	1648	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93			207		3				265
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			155.7			207.3	
Travel Time (s)		10.6			11.4			11.2			12.4	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	356	1771	108	3	1404	155	110	33	3	147	32	514
Shared Lane Traffic (%)												
Lane Group Flow (vph)	356	1771	108	3	1404	155	110	36	0	147	32	514
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	17.0		11.5	17.0	
Total Split (s)	23.6	83.4	15.4	13.0	72.8	72.8	15.4	17.0		16.6	18.2	
Total Split (%)	18.2%	64.2%	11.8%	10.0%	56.0%	56.0%	11.8%	13.1%		12.8%	14.0%	
Maximum Green (s)	16.5	76.5	8.9	5.9	65.9	65.9	8.9	10.0		10.1	11.2	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	



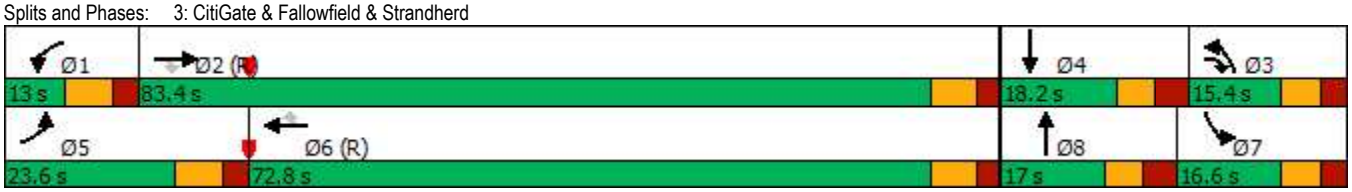
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		16.0			16.0	16.0						
Pedestrian Calls (#/hr)		1			1	1						
Act Effct Green (s)	18.4	92.8	111.9	5.7	71.7	69.9	12.7	10.0		14.6	10.1	130.0
Actuated g/C Ratio	0.14	0.71	0.86	0.04	0.55	0.54	0.10	0.08		0.11	0.08	1.00
v/c Ratio	0.81	0.86	0.08	0.04	0.80	0.18	0.35	0.27		0.79	0.24	0.36
Control Delay	68.4	11.9	0.4	61.7	13.6	0.4	59.4	58.2		85.2	60.9	0.7
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	68.4	11.9	0.4	61.7	13.6	0.4	59.4	58.2		85.2	60.9	0.7
LOS	E	B	A	E	B	A	E	E		F	E	A
Approach Delay		20.3			12.4			59.1			21.4	
Approach LOS		C			B			E			C	
90th %ile Green (s)	16.5	76.5	9.6	5.9	65.9	65.9	9.6	10.0		10.1	10.5	
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Max		Max	Gap	
70th %ile Green (s)	16.5	89.5	10.1	0.0	65.9	65.9	10.1	10.0		10.1	10.0	
70th %ile Term Code	Max	Coord	Max	Skip	Coord	Coord	Max	Max		Max	Min	
50th %ile Green (s)	16.5	89.5	10.1	0.0	65.9	65.9	10.1	10.0		10.1	10.0	
50th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Max		Max	Min	
30th %ile Green (s)	18.2	98.4	18.2	0.0	73.1	73.1	18.2	0.0		18.2	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	15.2	101.0	15.6	0.0	78.7	78.7	15.6	0.0		15.6	0.0	
10th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
Stops (vph)	319	1120	4	5	451	2	102	32		120	31	0
Fuel Used(l)	44	127	5	0	69	3	9	3		16	3	10
CO Emissions (g/hr)	821	2363	87	9	1277	61	166	53		301	57	177
NOx Emissions (g/hr)	159	456	17	2	246	12	32	10		58	11	34
VOC Emissions (g/hr)	189	545	20	2	294	14	38	12		69	13	41
Dilemma Vehicles (#)	0	29	0	0	80	0	0	0		0	1	0
Queue Length 50th (m)	44.1	145.2	0.0	0.8	51.8	0.2	14.1	8.1		38.2	7.9	0.0
Queue Length 95th (m)	m55.6	#293.5	m2.0	m1.3	62.5	m0.0	23.8	19.1		#80.4	18.3	0.0
Internal Link Dist (m)		212.6			229.6			131.7			183.3	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	447	2063	1289	75	1759	880	314	135		186	150	1422
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	0.80	0.86	0.08	0.04	0.80	0.18	0.35	0.27		0.79	0.21	0.36

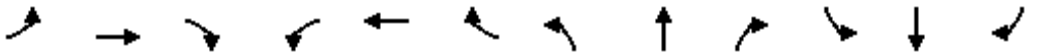
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 116 (89%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 19.0		Intersection LOS: B	
Intersection Capacity Utilization 87.1%		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.

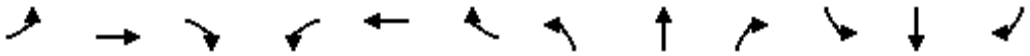
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	1533	397	43	1293	35	303	99	29	20	105	92
Future Volume (vph)	128	1533	397	43	1293	35	303	99	29	20	105	92
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	90.0			100.0			60.0			60.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.99			0.98	0.99		0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	2941	1483	3216	3221	1483	1658	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.689			0.693		
Satd. Flow (perm)	1658	2941	1465	3216	3221	1449	1193	1745	1458	1207	1745	1448
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			147			97			90			92
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		253.6			287.1			117.0			245.3	
Travel Time (s)		11.4			12.9			8.4			17.7	
Confl. Peds. (#/hr)							9		2	2		9
Confl. Bikes (#/hr)			1			4			5			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 (%)	2%	15%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	128	1533	397	43	1293	35	303	99	29	20	105	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	1533	397	43	1293	35	303	99	29	20	105	92
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.9	31.8	31.8	11.9	31.8	31.8	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (s)	17.9	69.4	69.4	11.9	63.4	63.4	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (%)	13.8%	53.4%	53.4%	9.2%	48.8%	48.8%	37.5%	37.5%	37.5%	37.5%	37.5%	37.5%
Maximum Green (s)	11.0	62.6	62.6	5.0	56.6	56.6	41.0	41.0	41.0	41.0	41.0	41.0
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	3.3	3.3	3.3	3.3	3.3	3.3



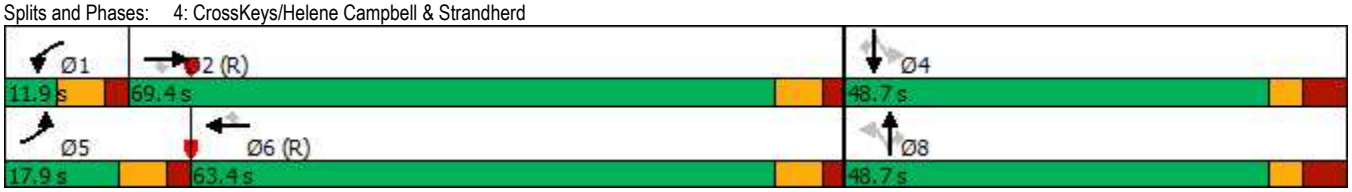
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.3	2.2	2.2	2.3	2.2	2.2	4.4	4.4	4.4	4.4	4.4	4.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.8	6.8	6.9	6.8	6.8	7.7	7.7	7.7	7.7	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
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	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	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
Flash Dont Walk (s)		18.0	18.0		18.0	18.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0	2	2	2	7	7	7
Act Effct Green (s)	12.5	68.8	68.8	5.7	59.6	59.6	36.5	36.5	36.5	36.5	36.5	36.5
Actuated g/C Ratio	0.10	0.53	0.53	0.04	0.46	0.46	0.28	0.28	0.28	0.28	0.28	0.28
v/c Ratio	0.81	0.98	0.47	0.30	0.88	0.05	0.91	0.20	0.06	0.06	0.21	0.19
Control Delay	90.6	35.1	6.1	62.9	35.0	1.0	75.0	35.3	0.2	32.3	35.6	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.6	35.1	6.1	62.9	35.0	1.0	75.0	35.3	0.2	32.3	35.6	7.2
LOS	F	D	A	E	D	A	E	D	A	C	D	A
Approach Delay		33.0			35.1			60.9			23.2	
Approach LOS		C			D			E			C	
90th %ile Green (s)	11.0	62.6	62.6	5.0	56.6	56.6	41.0	41.0	41.0	41.0	41.0	41.0
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Max	Ped	Ped	Ped
70th %ile Green (s)	11.0	62.6	62.6	5.0	56.6	56.6	41.0	41.0	41.0	41.0	41.0	41.0
70th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Max	Hold	Hold	Hold
50th %ile Green (s)	12.8	62.6	62.6	6.8	56.6	56.6	39.2	39.2	39.2	39.2	39.2	39.2
50th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	15.6	67.8	67.8	6.4	58.6	58.6	34.4	34.4	34.4	34.4	34.4	34.4
30th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	12.2	88.6	88.6	0.0	69.5	69.5	26.9	26.9	26.9	26.9	26.9	26.9
10th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
Stops (vph)	106	1070	106	38	768	2	277	72	0	15	77	13
Fuel Used(l)	18	133	16	5	108	1	27	5	0	1	7	3
CO Emissions (g/hr)	327	2482	295	97	2012	17	503	101	6	24	131	55
NOx Emissions (g/hr)	63	479	57	19	388	3	97	19	1	5	25	11
VOC Emissions (g/hr)	75	572	68	22	464	4	116	23	1	6	30	13
Dilemma Vehicles (#)	0	56	0	0	82	0	0	0	0	0	0	0
Queue Length 50th (m)	31.6	~228.6	9.3	5.1	107.7	0.0	72.8	18.8	0.0	3.6	20.0	0.0
Queue Length 95th (m)	m#45.7	#271.5	m22.8	m8.2	#130.3	m0.2	#117.6	32.4	0.0	9.7	34.1	12.1
Internal Link Dist (m)		229.6			263.1			93.0			221.3	
Turn Bay Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Base Capacity (vph)	159	1557	844	142	1476	716	376	550	521	380	550	519
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.98	0.47	0.30	0.88	0.05	0.81	0.18	0.06	0.05	0.19	0.18

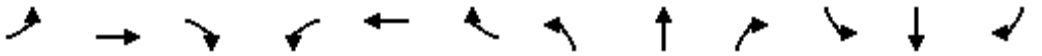
Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 120 (92%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 36.1 Intersection LOS: D
Intersection Capacity Utilization 91.7% ICU Level of Service F
Analysis Period (min) 15

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

Splits and Phases: 4: CrossKeys/Helene Campbell & Strandherd





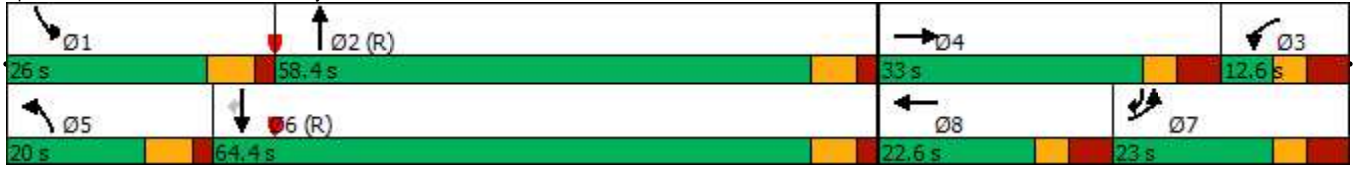
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	258	69	245	10	61	40	272	977	7	199	1269	111
Future Volume (vph)	258	69	245	10	61	40	272	977	7	199	1269	111
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.98								
Frt		0.883			0.941			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3216	1519	0	1658	1563	0	3216	3312	0	1658	3316	1351
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	1519	0	1624	1563	0	3216	3312	0	1658	3316	1351
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		122			21			1				94
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			419.5			287.1	
Travel Time (s)		14.8			13.4			18.9			12.9	
Confl. Peds. (#/hr)			4	4								
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%	2%	2%	2%	15%	2%	2%	2%	2%	2%	12%
Adj. Flow (vph)	258	69	245	10	61	40	272	977	7	199	1269	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	258	314	0	10	101	0	272	984	0	199	1269	111
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	17.6		12.6	17.6		15.0	33.0		15.0	33.0	15.0
Total Split (s)	23.0	33.0		12.6	22.6		20.0	58.4		26.0	64.4	23.0
Total Split (%)	17.7%	25.4%		9.7%	17.4%		15.4%	44.9%		20.0%	49.5%	17.7%
Maximum Green (s)	15.4	25.4		5.0	15.0		13.4	51.7		19.4	57.7	15.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

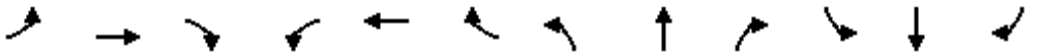
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (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	C-Max		None	C-Max	None
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								17.0			17.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	14.5	31.8		5.4	12.3		14.0	56.0		18.7	60.7	74.3
Actuated g/C Ratio	0.11	0.24		0.04	0.09		0.11	0.43		0.14	0.47	0.57
v/c Ratio	0.72	0.68		0.14	0.61		0.78	0.69		0.84	0.82	0.14
Control Delay	67.8	34.9		65.1	60.0		67.8	30.0		89.7	6.2	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	67.8	34.9		65.1	60.0		67.8	30.0		89.7	6.2	0.3
LOS	E	C		E	E		E	C		F	A	A
Approach Delay		49.8			60.4			38.2			16.3	
Approach LOS		D			E			D			B	
90th %ile Green (s)	15.4	25.4		5.0	15.0		13.4	51.7		19.4	57.7	15.4
90th %ile Term Code	Max	Max		Max	Max		Max	Coord		Max	Coord	Max
70th %ile Green (s)	16.0	38.0		0.0	14.4		13.4	51.7		19.4	57.7	16.0
70th %ile Term Code	Max	Hold		Skip	Gap		Max	Coord		Max	Coord	Max
50th %ile Green (s)	15.6	35.2		0.0	12.0		16.2	52.2		21.7	57.7	15.6
50th %ile Term Code	Gap	Hold		Skip	Gap		Max	Coord		Gap	Coord	Gap
30th %ile Green (s)	13.9	31.5		0.0	10.0		14.9	58.9		18.7	62.7	13.9
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
10th %ile Green (s)	11.4	29.0		0.0	10.0		12.3	65.7		14.4	67.8	11.4
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
Stops (vph)	245	172		12	77		259	468		178	526	3
Fuel Used(l)	24	18		1	7		38	82		28	65	3
CO Emissions (g/hr)	446	343		15	137		708	1526		529	1206	50
NOx Emissions (g/hr)	86	66		3	26		137	295		102	233	10
VOC Emissions (g/hr)	103	79		4	32		163	352		122	278	12
Dilemma Vehicles (#)	0	0		0	0		0	55		0	26	0
Queue Length 50th (m)	33.0	43.5		2.5	19.9		37.6	54.2		51.3	7.6	0.2
Queue Length 95th (m)	47.4	#91.7		8.5	37.9		#58.1	109.9		m52.4	m8.7	m0.2
Internal Link Dist (m)		181.3			124.8			395.5			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	384	463		69	198		352	1428		253	1548	822
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	0.67	0.68		0.14	0.51		0.77	0.69		0.79	0.82	0.14

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 8 (6%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 30.9 Intersection LOS: C
Intersection Capacity Utilization 82.7% 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: 5: Strandherd & Systemhouse/Maravista



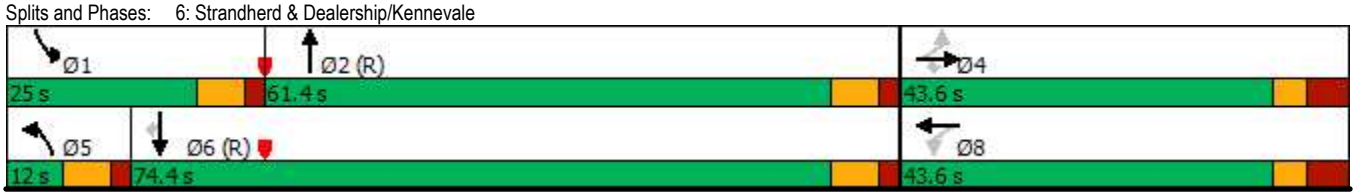


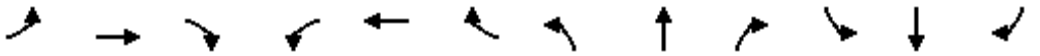
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	18	88	106	16	76	65	1030	98	155	1445	63
Future Volume (vph)	153	18	88	106	16	76	65	1030	98	155	1445	63
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		0.0	40.0		0.0	60.0		30.0	50.0		0.0
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (m)	7.5			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.876			0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	1745	1483	1658	1504	0	3216	3273	0	1642	3316	1483
Flt Permitted	0.697			0.746			0.950			0.950		
Satd. Flow (perm)	1216	1745	1483	1302	1504	0	3216	3273	0	1642	3316	1483
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			142		76			9				94
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		358.5			381.8			229.3			419.5	
Travel Time (s)		25.8			34.4			10.3			18.9	
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%	2%	2%	2%	4%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	153	18	88	106	16	76	65	1030	98	155	1445	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	18	88	106	92	0	65	1128	0	155	1445	63
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		5.0	20.0		5.0	20.0	20.0
Minimum Split (s)	39.6	39.6	39.6	43.6	43.6		11.6	30.7		11.6	36.7	36.7
Total Split (s)	43.6	43.6	43.6	43.6	43.6		12.0	61.4		25.0	74.4	74.4
Total Split (%)	33.5%	33.5%	33.5%	33.5%	33.5%		9.2%	47.2%		19.2%	57.2%	57.2%
Maximum Green (s)	36.0	36.0	36.0	36.0	36.0		5.4	54.7		18.4	67.7	67.7
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	4.3	4.3	4.3	4.3	4.3		2.0	2.1		2.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6	7.6	7.6	7.6		6.6	6.7		6.6	6.7	6.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							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		None	C-Max		None	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)	25.0	25.0	25.0	29.0	29.0			17.0			23.0	23.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)	21.7	21.7	21.7	21.7	21.7		8.0	69.9		17.5	81.9	81.9
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.17		0.06	0.54		0.13	0.63	0.63
v/c Ratio	0.76	0.06	0.24	0.49	0.29		0.33	0.64		0.70	0.69	0.07
Control Delay	73.4	42.4	2.3	55.3	15.0		62.4	25.3		78.0	8.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	73.4	42.4	2.3	55.3	15.0		62.4	25.3		78.0	8.3	0.2
LOS	E	D	A	E	B		E	C		E	A	A
Approach Delay		47.1			36.6			27.3			14.5	
Approach LOS		D			D			C			B	
90th %ile Green (s)	30.4	30.4	30.4	30.4	30.4		10.1	54.9		23.8	68.6	68.6
90th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
70th %ile Green (s)	25.3	25.3	25.3	25.3	25.3		8.9	63.6		20.2	74.9	74.9
70th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
50th %ile Green (s)	21.7	21.7	21.7	21.7	21.7		8.0	69.8		17.6	79.4	79.4
50th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
30th %ile Green (s)	18.1	18.1	18.1	18.1	18.1		7.1	76.0		15.0	83.9	83.9
30th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
10th %ile Green (s)	12.9	12.9	12.9	12.9	12.9		0.0	85.1		11.1	102.8	102.8
10th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Skip	Coord		Gap	Coord	Coord
Stops (vph)	143	16	1	93	23		60	792		154	279	0
Fuel Used(l)	17	2	3	10	5		8	88		23	73	2
CO Emissions (g/hr)	317	29	59	188	95		144	1632		432	1357	39
NOx Emissions (g/hr)	61	6	11	36	18		28	315		83	262	7
VOC Emissions (g/hr)	73	7	14	43	22		33	376		100	313	9
Dilemma Vehicles (#)	0	0	0	0	0		0	43		0	79	0
Queue Length 50th (m)	37.8	3.9	0.0	24.9	3.5		8.4	102.8		42.0	41.1	0.1
Queue Length 95th (m)	57.3	10.2	2.0	40.2	17.1		15.7	159.6		m53.8	52.1	m0.0
Internal Link Dist (m)		334.5			357.8			205.3			395.5	
Turn Bay Length (m)	75.0			40.0			60.0			50.0		
Base Capacity (vph)	336	483	513	360	471		197	1763		250	2089	969
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	0.04	0.17	0.29	0.20		0.33	0.64		0.62	0.69	0.07

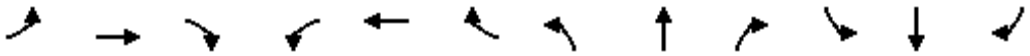
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 20 (15%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 23.0		Intersection LOS: C	
Intersection Capacity Utilization 79.4%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 6: Strandherd & Dealership/Kennevale





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	646	1135	92	5	1853	80	82	24	4	103	26	349
Future Volume (vph)	646	1135	92	5	1853	80	82	24	4	103	26	349
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				1.00		0.99
Frt			0.850			0.850		0.979				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1708	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3123	2891	1483	1658	3191	1460	3216	1708	0	1655	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93			207		4				349
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			156.6			207.3	
Travel Time (s)		10.6			11.4			11.3			12.4	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	646	1135	92	5	1853	80	82	24	4	103	26	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	646	1135	92	5	1853	80	82	28	0	103	26	349
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	48.0		11.5	48.0	
Total Split (s)	22.0	57.5	11.5	13.0	48.5	48.5	11.5	48.0		11.5	48.0	
Total Split (%)	16.9%	44.2%	8.8%	10.0%	37.3%	37.3%	8.8%	36.9%		8.8%	36.9%	
Maximum Green (s)	14.9	50.6	5.0	5.9	41.6	41.6	5.0	41.0		5.0	41.0	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		16.0			16.0	16.0		34.0			34.0	
Pedestrian Calls (#/hr)		1			1	1		1			1	
Act Effct Green (s)	38.0	84.5	105.8	5.8	43.8	42.0	14.9	16.2		16.7	16.2	130.0
Actuated g/C Ratio	0.29	0.65	0.81	0.04	0.34	0.32	0.11	0.12		0.13	0.12	1.00
v/c Ratio	0.71	0.60	0.08	0.07	1.72	0.13	0.22	0.13		0.49	0.12	0.25
Control Delay	47.3	18.8	2.1	68.4	355.5	1.7	55.8	41.5		61.7	46.7	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	47.3	18.8	2.1	68.4	355.5	1.7	55.8	41.5		61.7	46.7	0.4
LOS	D	B	A	E	F	A	E	D		E	D	A
Approach Delay		27.8			340.2			52.2			16.1	
Approach LOS		C			F			D			B	
90th %ile Green (s)	14.9	50.6	5.0	5.9	41.6	41.6	5.0	41.0		5.0	41.0	
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Ped		Max	Ped	
70th %ile Green (s)	33.8	82.5	17.1	0.0	41.6	41.6	17.1	10.0		17.1	10.0	
70th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Min		Gap	Min	
50th %ile Green (s)	34.2	82.9	16.7	0.0	41.6	41.6	16.7	10.0		16.7	10.0	
50th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Min		Gap	Min	
30th %ile Green (s)	48.9	99.7	16.9	0.0	43.7	43.7	16.9	0.0		16.9	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	49.1	97.8	18.8	0.0	41.6	41.6	18.8	0.0		18.8	0.0	
10th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
Stops (vph)	474	608	8	5	1203	4	71	21		78	22	0
Fuel Used(l)	63	72	2	1	655	4	6	2		9	2	6
CO Emissions (g/hr)	1166	1348	43	14	12180	70	118	33		172	39	119
NOx Emissions (g/hr)	225	260	8	3	2351	13	23	6		33	8	23
VOC Emissions (g/hr)	269	311	10	3	2809	16	27	8		40	9	27
Dilemma Vehicles (#)	0	42	0	0	56	0	0	0		0	1	0
Queue Length 50th (m)	77.9	81.6	0.0	1.3	~369.7	0.0	9.8	5.9		24.5	6.4	0.0
Queue Length 95th (m)	#158.6	#196.4	7.0	m2.5	#405.8	m2.3	#22.5	11.5		#68.5	11.5	0.0
Internal Link Dist (m)		212.6			229.6			132.6			183.3	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	912	1879	1224	76	1075	611	368	541		212	550	1422
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	0.71	0.60	0.08	0.07	1.72	0.13	0.22	0.05		0.49	0.05	0.25

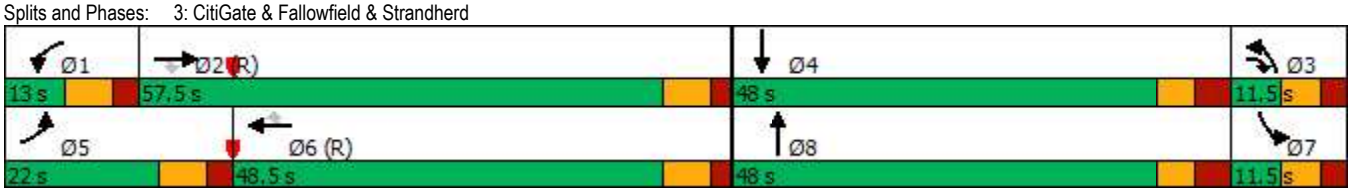
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 126 (97%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.72			
Intersection Signal Delay: 164.8		Intersection LOS: F	
Intersection Capacity Utilization 102.1%		ICU Level of Service G	
Analysis Period (min) 15			

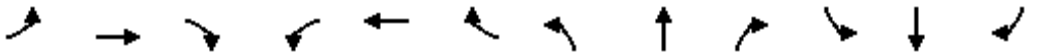
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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: 3: CitiGate & Fallowfield & Strandherd





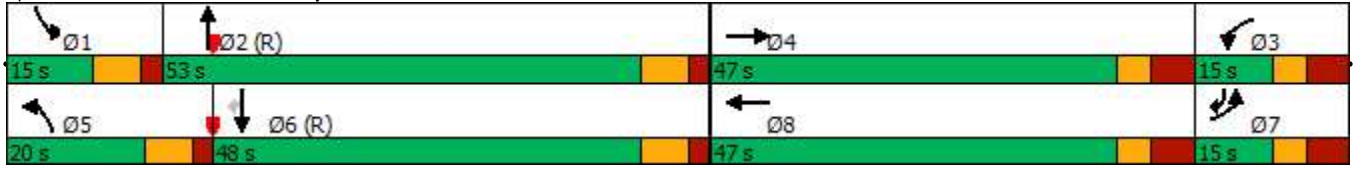
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Future Volume (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.878			0.887			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3154	1359	0	1658	1548	0	3154	3311	0	1321	3316	1363
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3154	1359	0	1656	1548	0	3154	3311	0	1321	3316	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			110			1				108
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
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%	43%	7%	2%	2%	2%	4%	2%	11%	28%	2%	11%
Adj. Flow (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	58	0	7	146	0	192	1423	0	36	804	138
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	47.0		15.0	47.0		15.0	33.0		15.0	33.0	15.0
Total Split (s)	15.0	47.0		15.0	47.0		20.0	53.0		15.0	48.0	15.0
Total Split (%)	11.5%	36.2%		11.5%	36.2%		15.4%	40.8%		11.5%	36.9%	11.5%
Maximum Green (s)	7.4	39.4		7.4	39.4		13.4	46.3		8.4	41.3	7.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	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	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		32.0			32.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			1			0			0	
Act Effct Green (s)	9.7	24.8		11.8	16.1		12.5	72.8		8.1	63.2	72.0
Actuated g/C Ratio	0.07	0.19		0.09	0.12		0.10	0.56		0.06	0.49	0.55
v/c Ratio	0.55	0.20		0.05	0.51		0.64	0.77		0.44	0.50	0.17
Control Delay	67.2	19.3		46.7	20.2		66.2	28.4		88.2	19.3	4.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	67.2	19.3		46.7	20.2		66.2	28.4		88.2	19.3	4.8
LOS	E	B		D	C		E	C		F	B	A
Approach Delay		52.3			21.5			32.9			19.8	
Approach LOS		D			C			C			B	
90th %ile Green (s)	7.8	11.5		35.3	39.0		13.4	46.3		8.4	41.3	7.8
90th %ile Term Code	Max	Gap		Hold	Ped		Max	Coord		Max	Coord	Max
70th %ile Green (s)	12.2	31.4		0.0	11.6		14.7	67.2		10.5	63.0	12.2
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	10.9	28.5		0.0	10.0		13.2	71.7		8.9	67.4	10.9
50th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
30th %ile Green (s)	9.7	27.3		0.0	10.0		11.7	88.4		0.0	70.1	9.7
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
10th %ile Green (s)	7.8	25.4		0.0	10.0		9.4	90.3		0.0	74.3	7.8
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
Stops (vph)	119	19		8	39		183	936		36	412	20
Fuel Used(l)	12	2		0	5		23	108		6	70	8
CO Emissions (g/hr)	220	45		9	96		436	2014		112	1299	140
NOx Emissions (g/hr)	43	9		2	18		84	389		22	251	27
VOC Emissions (g/hr)	51	10		2	22		101	465		26	300	32
Dilemma Vehicles (#)	0	0		0	0		0	51		0	39	0
Queue Length 50th (m)	16.5	2.2		1.8	8.9		24.6	145.0		9.1	28.2	0.7
Queue Length 95th (m)	#30.0	16.2		5.1	22.7		37.1	#277.5		m16.1	67.6	18.8
Internal Link Dist (m)		181.3			124.8			185.4			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	234	444		165	545		331	1854		90	1612	803
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	0.55	0.13		0.04	0.27		0.58	0.77		0.40	0.50	0.17

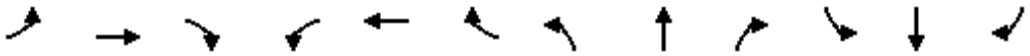
Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 29.2 Intersection LOS: C
Intersection Capacity Utilization 82.8% 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: 7: Strandherd & Systemhouse/Maravista



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	1771	108	3	1404	155	110	33	3	147	32	514
Future Volume (vph)	356	1771	108	3	1404	155	110	33	3	147	32	514
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				1.00		0.99
Frt			0.850			0.850		0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1722	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3122	2891	1483	1658	3191	1460	3216	1722	0	1655	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93			148		3				514
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			155.7			207.3	
Travel Time (s)		10.6			11.4			11.2			12.4	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	356	1771	108	3	1404	155	110	33	3	147	32	514
Shared Lane Traffic (%)												
Lane Group Flow (vph)	356	1771	108	3	1404	155	110	36	0	147	32	514
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	48.0		11.5	48.0	
Total Split (s)	18.0	56.0	12.8	13.0	51.0	51.0	12.8	48.0		13.0	48.2	
Total Split (%)	13.8%	43.1%	9.8%	10.0%	39.2%	39.2%	9.8%	36.9%		10.0%	37.1%	
Maximum Green (s)	10.9	49.1	6.3	5.9	44.1	44.1	6.3	41.0		6.5	41.2	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		16.0			16.0	16.0		34.0			34.0	
Pedestrian Calls (#/hr)		1			1	1		1			1	
Act Effct Green (s)	24.1	78.7	105.8	5.7	52.0	50.2	20.7	16.2		22.5	16.2	130.0
Actuated g/C Ratio	0.19	0.61	0.81	0.04	0.40	0.39	0.16	0.12		0.17	0.12	1.00
v/c Ratio	0.62	1.01	0.09	0.04	1.10	0.24	0.22	0.17		0.51	0.15	0.36
Control Delay	54.6	50.6	2.5	69.7	86.1	10.6	51.8	44.7		57.3	47.5	0.7
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	54.6	50.6	2.5	69.7	86.1	10.6	51.8	44.7		57.3	47.5	0.7
LOS	D	D	A	E	F	B	D	D		E	D	A
Approach Delay		48.9			78.6			50.1			14.9	
Approach LOS		D			E			D			B	
90th %ile Green (s)	10.9	49.1	6.5	5.9	44.1	44.1	6.5	41.0		6.5	41.0	
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Ped		Max	Ped	
70th %ile Green (s)	23.7	78.1	21.5	0.0	47.3	47.3	21.5	10.0		21.5	10.0	
70th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Min		Gap	Min	
50th %ile Green (s)	23.7	77.8	21.8	0.0	47.0	47.0	21.8	10.0		21.8	10.0	
50th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Min		Gap	Min	
30th %ile Green (s)	24.6	93.1	23.5	0.0	61.4	61.4	23.5	0.0		23.5	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	28.4	86.6	30.0	0.0	51.1	51.1	30.0	0.0		30.0	0.0	
10th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
Stops (vph)	286	1276	11	6	1026	39	92	28		108	28	0
Fuel Used(l)	38	175	3	1	212	10	8	2		13	3	10
CO Emissions (g/hr)	707	3258	53	12	3937	188	150	45		235	49	177
NOx Emissions (g/hr)	136	629	10	2	760	36	29	9		45	10	34
VOC Emissions (g/hr)	163	752	12	3	908	43	35	10		54	11	41
Dilemma Vehicles (#)	0	60	0	0	70	0	0	0		0	1	0
Queue Length 50th (m)	43.0	~225.8	0.6	0.8	~220.3	0.0	12.6	8.1		34.2	7.9	0.0
Queue Length 95th (m)	#86.2	#379.8	9.2	m1.1	#269.8	m23.7	#27.5	13.9		#92.7	13.4	0.0
Internal Link Dist (m)		212.6			229.6			131.7			183.3	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	578	1750	1224	75	1275	654	511	545		286	553	1422
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	0.62	1.01	0.09	0.04	1.10	0.24	0.22	0.07		0.51	0.06	0.36

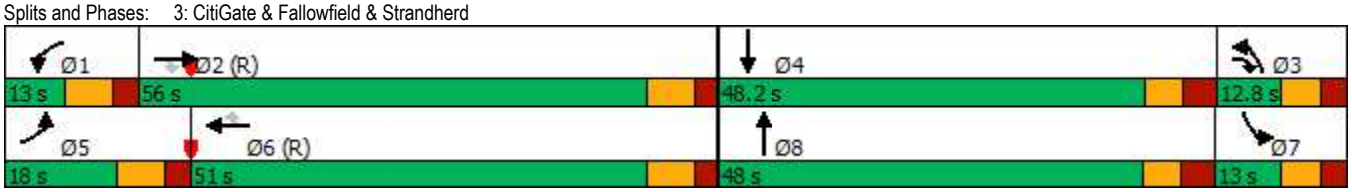
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 120 (92%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.10			
Intersection Signal Delay: 53.9		Intersection LOS: D	
Intersection Capacity Utilization 88.3%		ICU Level of Service E	
Analysis Period (min) 15			

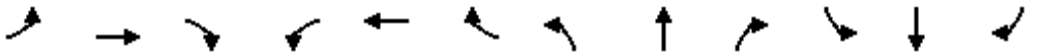
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd





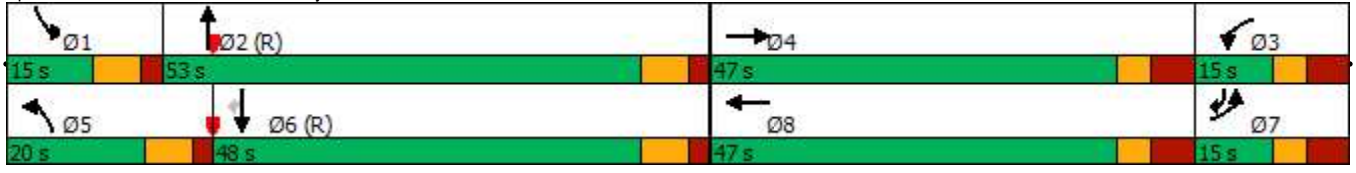
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Future Volume (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		1.00								
Frt		0.878			0.887			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3216	1512	0	1658	1412	0	3216	3312	0	1658	3316	1351
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	1512	0	1652	1412	0	3216	3312	0	1658	3316	1351
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			110			1				108
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			209.4			287.1	
Travel Time (s)		14.8			13.4			9.4			12.9	
Confl. Peds. (#/hr)			4	4								
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%	2%	2%	2%	15%	2%	2%	2%	2%	2%	12%
Adj. Flow (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	58	0	7	146	0	192	1423	0	36	804	138
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	47.0		15.0	47.0		15.0	33.0		15.0	33.0	15.0
Total Split (s)	15.0	47.0		15.0	47.0		20.0	53.0		15.0	48.0	15.0
Total Split (%)	11.5%	36.2%		11.5%	36.2%		15.4%	40.8%		11.5%	36.9%	11.5%
Maximum Green (s)	7.4	39.4		7.4	39.4		13.4	46.3		8.4	41.3	7.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

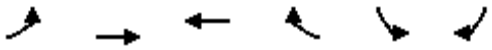
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (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	C-Max		None	C-Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		32.0			32.0			17.0			17.0	
Pedestrian Calls (#/hr)		0			3			0			0	
Act Effct Green (s)	9.6	24.7		11.9	16.3		12.4	73.1		7.7	63.3	72.0
Actuated g/C Ratio	0.07	0.19		0.09	0.13		0.10	0.56		0.06	0.49	0.55
v/c Ratio	0.55	0.18		0.05	0.53		0.63	0.76		0.37	0.50	0.17
Control Delay	67.0	19.1		46.4	21.4		66.0	28.1		73.2	18.3	4.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	67.0	19.1		46.4	21.4		66.0	28.1		73.2	18.3	4.5
LOS	E	B		D	C		E	C		E	B	A
Approach Delay		52.2			22.5			32.6			18.3	
Approach LOS		D			C			C			B	
90th %ile Green (s)	7.8	10.9		35.9	39.0		13.4	46.3		8.4	41.3	7.8
90th %ile Term Code	Max	Gap		Hold	Ped		Max	Coord		Max	Coord	Max
70th %ile Green (s)	12.0	31.9		0.0	12.3		14.5	67.7		9.5	62.7	12.0
70th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	Gap
50th %ile Green (s)	10.8	28.4		0.0	10.0		13.0	72.5		8.2	67.7	10.8
50th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
30th %ile Green (s)	9.6	27.2		0.0	10.0		11.5	88.5		0.0	70.4	9.6
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
10th %ile Green (s)	7.7	25.3		0.0	10.0		9.4	90.4		0.0	74.4	7.7
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
Stops (vph)	119	19		8	39		182	930		32	338	21
Fuel Used(l)	12	2		0	5		23	108		5	65	8
CO Emissions (g/hr)	220	45		9	98		434	2001		100	1207	141
NOx Emissions (g/hr)	42	9		2	19		84	386		19	233	27
VOC Emissions (g/hr)	51	10		2	23		100	462		23	278	32
Dilemma Vehicles (#)	0	0		0	0		0	51		0	47	0
Queue Length 50th (m)	16.5	2.3		1.8	8.9		24.6	142.6		9.2	34.3	3.2
Queue Length 95th (m)	#29.4	16.2		5.1	23.2		37.0	#277.5		m10.0	m49.0	m8.1
Internal Link Dist (m)		181.3			124.8			185.4			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	236	491		167	504		336	1862		110	1614	796
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	0.55	0.12		0.04	0.29		0.57	0.76		0.33	0.50	0.17

Intersection Summary

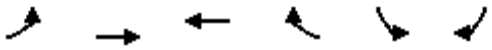
Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 28.6 Intersection LOS: C
Intersection Capacity Utilization 85.0% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Strandherd & Systemhouse/Maravista





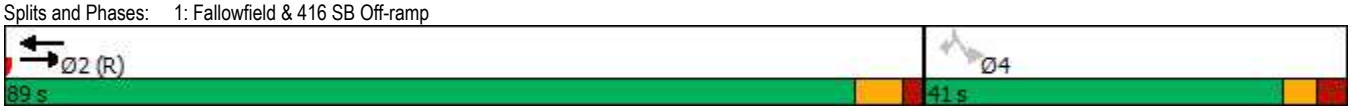
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1625	1071	0	634	121
Future Volume (vph)	0	1625	1071	0	634	121
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						116
Link Speed (k/h)		80	80		50	
Link Distance (m)		144.8	498.8		111.1	
Travel Time (s)		6.5	22.4		8.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	1625	1071	0	634	121
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1625	1071	0	634	121
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	2			
Permitted Phases					4	4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.4	30.4		30.3	30.3
Total Split (s)		89.0	89.0		41.0	41.0
Total Split (%)		68.5%	68.5%		31.5%	31.5%
Maximum Green (s)		82.2	82.2		34.7	34.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		None	None
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		1	1		1	1
Act Effct Green (s)		85.7	85.7		31.2	31.2
Actuated g/C Ratio		0.66	0.66		0.24	0.24
v/c Ratio		0.80	0.50		0.87	0.30
Control Delay		20.7	7.1		60.7	9.2
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		20.7	7.1		60.7	9.2
LOS		C	A		E	A
Approach Delay		20.7	7.1		52.4	
Approach LOS		C	A		D	
90th %ile Green (s)		82.2	82.2		34.7	34.7
90th %ile Term Code		Coord	Coord		Max	Max
70th %ile Green (s)		82.2	82.2		34.7	34.7
70th %ile Term Code		Coord	Coord		Max	Max
50th %ile Green (s)		84.7	84.7		32.2	32.2
50th %ile Term Code		Coord	Coord		Gap	Gap
30th %ile Green (s)		87.6	87.6		29.3	29.3
30th %ile Term Code		Coord	Coord		Gap	Gap
10th %ile Green (s)		91.7	91.7		25.2	25.2
10th %ile Term Code		Coord	Coord		Gap	Gap
Stops (vph)		1156	522		595	19
Fuel Used(l)		111	78		50	3
CO Emissions (g/hr)		2059	1448		923	48
NOx Emissions (g/hr)		397	280		178	9
VOC Emissions (g/hr)		475	334		213	11
Dilemma Vehicles (#)		62	27		0	0
Queue Length 50th (m)		150.6	25.4		80.0	1.0
Queue Length 95th (m)		195.7	30.5		99.6	15.6
Internal Link Dist (m)		120.8	474.8		87.1	
Turn Bay Length (m)						70.0
Base Capacity (vph)		2026	2122		810	436
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.80	0.50		0.78	0.28

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 52 (40%), Referenced to phase 2:EBWB, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 23.4		Intersection LOS: C	
Intersection Capacity Utilization 82.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Fallowfield & 416 SB Off-ramp



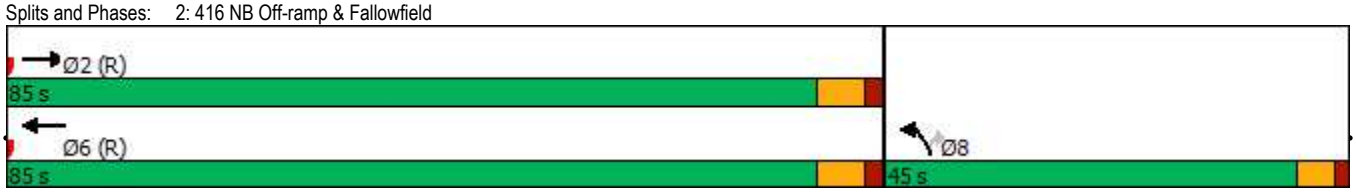
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1812	0	0	1002	176	296
Future Volume (vph)	1812	0	0	1002	176	296
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						18
Link Speed (k/h)	80			80	60	
Link Distance (m)	498.8			245.0	156.0	
Travel Time (s)	22.4			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	1812	0	0	1002	176	296
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1812	0	0	1002	176	296
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	85.0			85.0	45.0	45.0
Total Split (%)	65.4%			65.4%	34.6%	34.6%
Maximum Green (s)	78.3			78.3	39.7	39.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

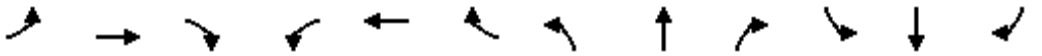
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	87.4			87.4	30.6	30.6
Actuated g/C Ratio	0.67			0.67	0.24	0.24
v/c Ratio	0.85			0.45	0.50	0.85
Control Delay	17.7			7.3	46.9	65.2
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	17.7			7.3	46.9	65.2
LOS	B			A	D	E
Approach Delay	17.7			7.3	58.4	
Approach LOS	B			A	E	
90th %ile Green (s)	78.3			78.3	39.7	39.7
90th %ile Term Code	Coord			Coord	Max	Max
70th %ile Green (s)	82.7			82.7	35.3	35.3
70th %ile Term Code	Coord			Coord	Gap	Gap
50th %ile Green (s)	86.9			86.9	31.1	31.1
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	91.3			91.3	26.7	26.7
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	97.6			97.6	20.4	20.4
10th %ile Term Code	Coord			Coord	Gap	Gap
Stops (vph)	1080			487	147	262
Fuel Used(l)	158			72	13	27
CO Emissions (g/hr)	2933			1331	251	508
NOx Emissions (g/hr)	566			257	48	98
VOC Emissions (g/hr)	677			307	58	117
Dilemma Vehicles (#)	73			9	0	0
Queue Length 50th (m)	138.2			56.5	39.2	68.6
Queue Length 95th (m)	#279.2			m94.4	56.6	94.6
Internal Link Dist (m)	474.8			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2144			2206	452	448
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.85			0.45	0.39	0.66

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 38 (29%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 20.3 Intersection LOS: C
Intersection Capacity Utilization 82.2% 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: 2: 416 NB Off-ramp & Fallowfield





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	346	1135	92	5	1653	80	82	24	4	103	26	349
Future Volume (vph)	346	1135	92	5	1653	80	82	24	4	103	26	349
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				0.99		0.99
Frt			0.850			0.850		0.979				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1708	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3123	2891	1483	1658	3191	1460	3216	1708	0	1646	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93			148		4				208
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			155.7			207.3	
Travel Time (s)		10.6			11.4			11.2			12.4	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	346	1135	92	5	1653	80	82	24	4	103	26	349
Shared Lane Traffic (%)												
Lane Group Flow (vph)	346	1135	92	5	1653	80	82	28	0	103	26	349
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	17.0		11.5	17.0	
Total Split (s)	17.1	85.0	13.8	13.0	80.9	80.9	13.8	17.0		15.0	18.2	
Total Split (%)	13.2%	65.4%	10.6%	10.0%	62.2%	62.2%	10.6%	13.1%		11.5%	14.0%	
Maximum Green (s)	10.0	78.1	7.3	5.9	74.0	74.0	7.3	10.0		8.5	11.2	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	

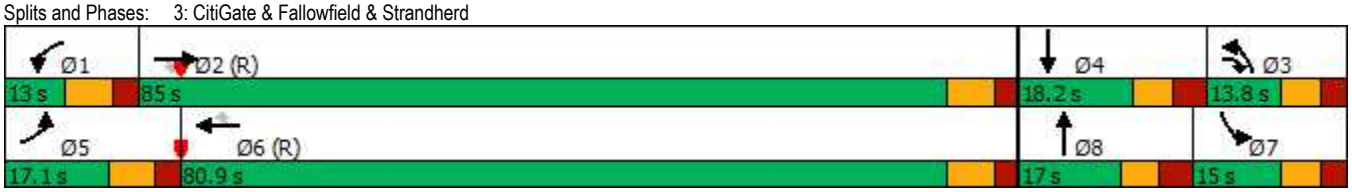
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		16.0			16.0	16.0						
Pedestrian Calls (#/hr)		1			1	1						
Act Effct Green (s)	17.7	96.2	112.0	5.7	75.8	74.0	9.4	10.0		11.2	10.0	130.0
Actuated g/C Ratio	0.14	0.74	0.86	0.04	0.58	0.57	0.07	0.08		0.09	0.08	1.00
v/c Ratio	0.81	0.53	0.07	0.07	0.89	0.09	0.35	0.21		0.73	0.19	0.25
Control Delay	60.7	16.9	1.7	67.8	14.1	0.1	62.3	54.1		85.8	60.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	60.7	16.9	1.7	67.8	14.6	0.1	62.3	54.1		85.8	60.0	0.4
LOS	E	B	A	E	B	A	E	D		F	E	A
Approach Delay		25.6			14.1			60.2			22.0	
Approach LOS		C			B			E			C	
90th %ile Green (s)	10.0	78.1	8.5	5.9	74.0	74.0	8.5	10.0		8.5	10.0	
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Max		Max	Min	
70th %ile Green (s)	10.0	91.1	8.5	0.0	74.0	74.0	8.5	10.0		8.5	10.0	
70th %ile Term Code	Max	Coord	Max	Skip	Coord	Coord	Max	Max		Max	Min	
50th %ile Green (s)	10.0	91.1	8.5	0.0	74.0	74.0	8.5	10.0		8.5	10.0	
50th %ile Term Code	Max	Coord	Max	Skip	Coord	Coord	Max	Max		Max	Min	
30th %ile Green (s)	23.3	104.4	12.2	0.0	74.0	74.0	12.2	0.0		12.2	0.0	
30th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	26.3	107.4	9.2	0.0	74.0	74.0	9.2	0.0		9.2	0.0	
10th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
Stops (vph)	249	712	13	7	747	0	76	24		93	25	0
Fuel Used(l)	39	86	4	1	94	2	7	2		12	2	6
CO Emissions (g/hr)	722	1592	81	14	1745	30	127	39		217	46	119
NOx Emissions (g/hr)	139	307	16	3	337	6	25	8		42	9	23
VOC Emissions (g/hr)	167	367	19	3	402	7	29	9		50	11	27
Dilemma Vehicles (#)	0	59	0	0	35	0	0	0		0	1	0
Queue Length 50th (m)	~56.0	103.1	1.8	1.3	87.8	0.0	10.5	5.9		26.4	6.4	0.0
Queue Length 95th (m)	m#75.2	167.8	m2.5	m1.9	42.7	m0.1	18.9	15.8		#56.6	15.7	0.0
Internal Link Dist (m)		212.6			229.6			131.7			183.3	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	425	2139	1290	75	1860	894	232	135		142	150	1422
Starvation Cap Reductn	0	0	0	0	37	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	0.81	0.53	0.07	0.07	0.91	0.09	0.35	0.21		0.73	0.17	0.25

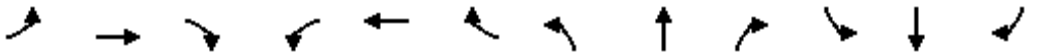
Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 120 (92%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 21.0 Intersection LOS: C
Intersection Capacity Utilization 85.8% ICU Level of Service E
Analysis Period (min) 15

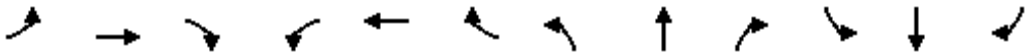
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	1101	144	21	1736	17	196	13	11	47	24	176
Future Volume (vph)	36	1101	144	21	1736	17	196	13	11	47	24	176
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	90.0			100.0			60.0			60.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.97				1.00		0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	2941	1483	3216	3221	1483	1658	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.742			0.749		
Satd. Flow (perm)	1657	2941	1483	3216	3221	1445	1295	1745	1483	1305	1745	1462
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			97			90			90
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		253.6			287.1			117.0			245.3	
Travel Time (s)		11.4			12.9			8.4			17.7	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	15%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	36	1101	144	21	1736	17	196	13	11	47	24	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1101	144	21	1736	17	196	13	11	47	24	176
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.9	31.8	31.8	11.9	31.8	31.8	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (s)	11.9	69.4	69.4	11.9	69.4	69.4	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (%)	9.2%	53.4%	53.4%	9.2%	53.4%	53.4%	37.5%	37.5%	37.5%	37.5%	37.5%	37.5%
Maximum Green (s)	5.0	62.6	62.6	5.0	62.6	62.6	41.0	41.0	41.0	41.0	41.0	41.0
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	3.3	3.3	3.3	3.3	3.3	3.3



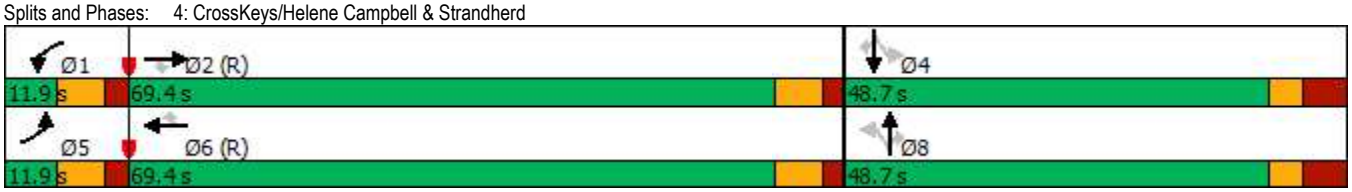
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.3	2.2	2.2	2.3	2.2	2.2	4.4	4.4	4.4	4.4	4.4	4.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.8	6.8	6.9	6.8	6.8	7.7	7.7	7.7	7.7	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
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	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	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
Flash Dont Walk (s)		18.0	18.0		18.0	18.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		1	1		1	1	1	1	1	1	1	1
Act Effct Green (s)	7.2	81.3	81.3	5.9	77.5	77.5	26.4	26.4	26.4	26.4	26.4	26.4
Actuated g/C Ratio	0.06	0.63	0.63	0.05	0.60	0.60	0.20	0.20	0.20	0.20	0.20	0.20
v/c Ratio	0.39	0.60	0.15	0.14	0.90	0.02	0.75	0.04	0.03	0.18	0.07	0.48
Control Delay	87.3	7.5	0.9	65.7	22.3	0.0	64.4	36.4	0.2	40.5	37.6	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.3	7.5	0.9	65.7	22.3	0.0	64.4	36.4	0.2	40.5	37.6	24.4
LOS	F	A	A	E	C	A	E	D	A	D	D	C
Approach Delay		9.0			22.6			59.6			28.8	
Approach LOS		A			C			E			C	
90th %ile Green (s)	5.0	62.6	62.6	5.0	62.6	62.6	41.0	41.0	41.0	41.0	41.0	41.0
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Ped	Ped	Ped	Ped	Ped	Ped
70th %ile Green (s)	9.8	72.7	72.7	6.8	69.7	69.7	29.1	29.1	29.1	29.1	29.1	29.1
70th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	8.5	77.1	77.1	6.3	74.9	74.9	25.2	25.2	25.2	25.2	25.2	25.2
50th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	7.2	94.3	94.3	0.0	80.2	80.2	21.2	21.2	21.2	21.2	21.2	21.2
30th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	0.0	99.9	99.9	0.0	99.9	99.9	15.6	15.6	15.6	15.6	15.6	15.6
10th %ile Term Code	Skip	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
Stops (vph)	34	393	7	22	765	0	177	11	0	36	20	72
Fuel Used(l)	5	51	3	3	113	0	16	1	0	3	2	9
CO Emissions (g/hr)	95	946	63	52	2099	7	295	14	2	63	32	168
NOx Emissions (g/hr)	18	183	12	10	405	1	57	3	0	12	6	32
VOC Emissions (g/hr)	22	218	14	12	484	2	68	3	1	14	7	39
Dilemma Vehicles (#)	0	25	0	0	71	0	0	0	0	0	0	0
Queue Length 50th (m)	9.5	31.5	0.5	2.8	68.2	0.0	48.1	2.7	0.0	10.2	5.1	19.1
Queue Length 95th (m)	m#19.1	28.0	m1.4	m4.1	#309.4	m0.0	64.0	7.2	0.0	17.9	10.7	35.4
Internal Link Dist (m)		229.6			263.1			93.0			221.3	
Turn Bay Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Base Capacity (vph)	92	1839	964	145	1919	900	408	550	529	411	550	522
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.60	0.15	0.14	0.90	0.02	0.48	0.02	0.02	0.11	0.04	0.34

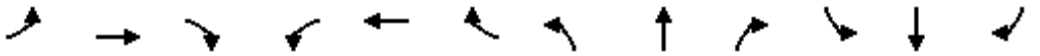
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 122 (94%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 125			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 20.4		Intersection LOS: C	
Intersection Capacity Utilization 93.8%		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.

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

Splits and Phases: 4: CrossKeys/Helene Campbell & Strandherd





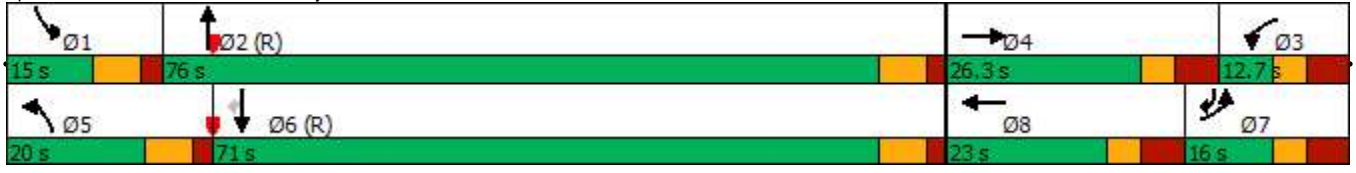
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Future Volume (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.99								
Frt		0.878			0.887			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3154	1357	0	1658	1548	0	3154	3311	0	1321	3316	1363
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3154	1357	0	1646	1548	0	3154	3311	0	1321	3316	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			96			1				138
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			419.5			287.1	
Travel Time (s)		14.8			13.4			18.9			12.9	
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%	43%	7%	2%	2%	2%	4%	2%	11%	28%	2%	11%
Adj. Flow (vph)	129	11	47	7	36	110	192	1414	9	36	804	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	58	0	7	146	0	192	1423	0	36	804	138
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	17.6		12.6	17.6		15.0	33.0		15.0	33.0	15.0
Total Split (s)	16.0	26.3		12.7	23.0		20.0	76.0		15.0	71.0	16.0
Total Split (%)	12.3%	20.2%		9.8%	17.7%		15.4%	58.5%		11.5%	54.6%	12.3%
Maximum Green (s)	8.4	18.7		5.1	15.4		13.4	69.3		8.4	64.3	8.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

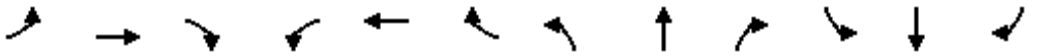
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (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	C-Max		None	C-Max	None
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								17.0			17.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	9.4	24.7		7.2	11.6		12.2	77.9		7.7	68.2	76.8
Actuated g/C Ratio	0.07	0.19		0.06	0.09		0.09	0.60		0.06	0.52	0.59
v/c Ratio	0.56	0.20		0.08	0.65		0.65	0.72		0.46	0.46	0.16
Control Delay	68.2	19.3		58.1	35.2		77.4	13.3		96.1	7.8	1.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	68.2	19.3		58.1	35.2		77.4	13.3		96.1	7.8	1.0
LOS	E	B		E	D		E	B		F	A	A
Approach Delay		53.1			36.3			20.9			10.1	
Approach LOS		D			D			C			B	
90th %ile Green (s)	8.4	11.5		12.3	15.4		13.4	69.3		8.4	64.3	8.4
90th %ile Term Code	Max	Gap		Hold	Max		Max	Coord		Max	Coord	Max
70th %ile Green (s)	11.1	31.4		0.0	12.7		13.4	69.3		8.4	64.3	11.1
70th %ile Term Code	Max	Hold		Skip	Gap		Max	Coord		Max	Coord	Max
50th %ile Green (s)	10.7	28.3		0.0	10.0		13.2	71.9		8.9	67.6	10.7
50th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
30th %ile Green (s)	9.4	27.0		0.0	10.0		11.7	88.7		0.0	70.4	9.4
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
10th %ile Green (s)	7.6	25.2		0.0	10.0		9.4	90.5		0.0	74.5	7.6
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Skip	Coord	Gap
Stops (vph)	122	19		8	56		192	521		36	273	10
Fuel Used(l)	12	2		1	7		29	91		6	39	4
CO Emissions (g/hr)	224	45		10	131		535	1700		103	719	71
NOx Emissions (g/hr)	43	9		2	25		103	328		20	139	14
VOC Emissions (g/hr)	52	10		2	30		124	392		24	166	16
Dilemma Vehicles (#)	0	0		0	0		0	62		0	26	0
Queue Length 50th (m)	16.5	2.2		1.8	12.4		27.0	48.8		9.7	11.4	0.2
Queue Length 95th (m)	#27.4	16.2		6.5	33.5		39.8	71.4		m16.9	16.1	0.1
Internal Link Dist (m)		181.3			124.8			395.5			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	232	310		91	268		325	1985		86	1740	862
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	0.56	0.19		0.08	0.54		0.59	0.72		0.42	0.46	0.16

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 128 (98%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 20.1 Intersection LOS: C
Intersection Capacity Utilization 82.8% 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: 5: Strandherd & Systemhouse/Maravista





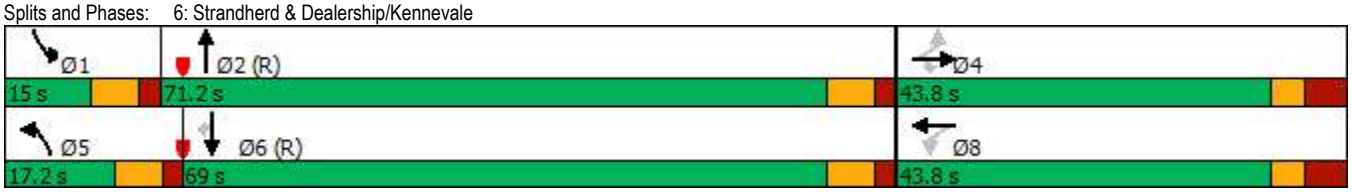
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	6	33	80	25	114	104	1431	57	58	645	82
Future Volume (vph)	55	6	33	80	25	114	104	1431	57	58	645	82
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		0.0	40.0		0.0	60.0		30.0	50.0		0.0
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (m)	7.5			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.877			0.994				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1353	1745	1483	1658	1530	0	2711	3293	0	1523	3283	1363
Flt Permitted	0.567			0.754			0.950			0.950		
Satd. Flow (perm)	807	1745	1483	1316	1530	0	2711	3293	0	1523	3283	1363
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			86		114			4				94
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		358.5			381.8			229.3			419.5	
Travel Time (s)		25.8			34.4			10.3			18.9	
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 (%)	25%	2%	2%	2%	2%	2%	21%	2%	4%	11%	3%	11%
Adj. Flow (vph)	55	6	33	80	25	114	104	1431	57	58	645	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	55	6	33	80	139	0	104	1488	0	58	645	82
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		5.0	20.0		5.0	20.0	20.0
Minimum Split (s)	39.6	39.6	39.6	43.6	43.6		11.6	30.7		11.6	36.7	36.7
Total Split (s)	43.8	43.8	43.8	43.8	43.8		17.2	71.2		15.0	69.0	69.0
Total Split (%)	33.7%	33.7%	33.7%	33.7%	33.7%		13.2%	54.8%		11.5%	53.1%	53.1%
Maximum Green (s)	36.2	36.2	36.2	36.2	36.2		10.6	64.5		8.4	62.3	62.3
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	4.3	4.3	4.3	4.3	4.3		2.0	2.1		2.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6	7.6	7.6	7.6		6.6	6.7		6.6	6.7	6.7

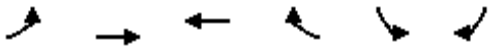
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0	7.0
Flash Dont Walk (s)	25.0	25.0	25.0	29.0	29.0			17.0			23.0	23.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)	13.9	13.9	13.9	13.9	13.9		10.3	87.3		10.5	84.9	84.9
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.11		0.08	0.67		0.08	0.65	0.65
v/c Ratio	0.64	0.03	0.14	0.57	0.52		0.49	0.67		0.48	0.30	0.09
Control Delay	86.3	49.3	1.2	70.1	21.2		64.5	16.7		71.1	5.6	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	86.3	49.3	1.2	70.1	21.2		64.5	16.7		71.1	5.6	1.3
LOS	F	D	A	E	C		E	B		E	A	A
Approach Delay		54.1			39.0			19.8			10.0	
Approach LOS		D			D			B			B	
90th %ile Green (s)	19.8	19.8	19.8	19.8	19.8		13.5	74.8		14.5	75.8	75.8
90th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
70th %ile Green (s)	15.7	15.7	15.7	15.7	15.7		11.6	81.1		12.3	81.8	81.8
70th %ile Term Code	Gap	Gap	Gap	Gap	Gap		Gap	Coord		Gap	Coord	Coord
50th %ile Green (s)	13.3	13.3	13.3	13.3	13.3		10.3	85.3		10.5	85.5	85.5
50th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Gap	Coord		Gap	Coord	Coord
30th %ile Green (s)	10.8	10.8	10.8	10.8	10.8		9.0	89.5		8.8	89.3	89.3
30th %ile Term Code	Hold	Hold	Hold	Gap	Gap		Gap	Coord		Gap	Coord	Coord
10th %ile Green (s)	10.0	10.0	10.0	10.0	10.0		7.1	105.7		0.0	92.0	92.0
10th %ile Term Code	Hold	Hold	Hold	Min	Min		Gap	Coord		Skip	Coord	Coord
Stops (vph)	53	7	0	75	36		97	893		58	87	5
Fuel Used(l)	7	1	1	9	8		13	97		8	29	3
CO Emissions (g/hr)	125	11	21	160	156		234	1808		157	541	57
NOx Emissions (g/hr)	24	2	4	31	30		45	349		30	104	11
VOC Emissions (g/hr)	29	3	5	37	36		54	417		36	125	13
Dilemma Vehicles (#)	0	0	0	0	0		0	57		0	24	0
Queue Length 50th (m)	13.8	1.4	0.0	19.9	5.9		13.4	116.4		15.8	8.5	0.0
Queue Length 95th (m)	27.1	5.4	0.0	34.8	24.7		22.2	178.2		30.7	27.1	3.3
Internal Link Dist (m)		334.5			357.8			205.3			395.5	
Turn Bay Length (m)	75.0			40.0			60.0			50.0		
Base Capacity (vph)	224	485	475	366	508		237	2212		127	2143	922
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	0.25	0.01	0.07	0.22	0.27		0.44	0.67		0.46	0.30	0.09

Intersection Summary

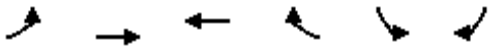
Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 4 (3%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 19.7 Intersection LOS: B
Intersection Capacity Utilization 86.3% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 6: Strandherd & Dealership/Kennevale





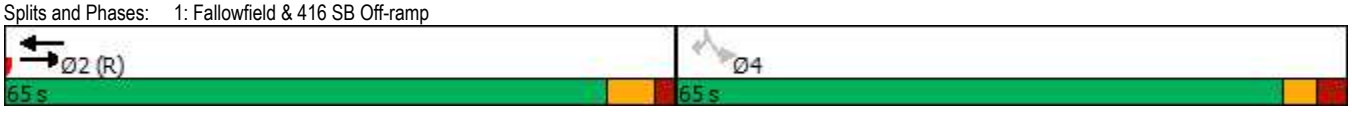
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1063	1108	0	1091	275
Future Volume (vph)	0	1063	1108	0	1091	275
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						39
Link Speed (k/h)		80	80		50	
Link Distance (m)		144.8	498.8		111.1	
Travel Time (s)		6.5	22.4		8.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	1063	1108	0	1091	275
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1063	1108	0	1091	275
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	2			
Permitted Phases					4	4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.4	30.4		30.3	30.3
Total Split (s)		65.0	65.0		65.0	65.0
Total Split (%)		50.0%	50.0%		50.0%	50.0%
Maximum Green (s)		58.2	58.2		58.7	58.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		None	None
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		1	1		1	1
Act Effct Green (s)		63.5	63.5		53.4	53.4
Actuated g/C Ratio		0.49	0.49		0.41	0.41
v/c Ratio		0.71	0.70		0.88	0.49
Control Delay		30.1	19.6		43.8	26.4
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		30.1	19.6		43.8	26.4
LOS		C	B		D	C
Approach Delay		30.1	19.6		40.3	
Approach LOS		C	B		D	
90th %ile Green (s)		58.2	58.2		58.7	58.7
90th %ile Term Code		Coord	Coord		Max	Max
70th %ile Green (s)		59.3	59.3		57.6	57.6
70th %ile Term Code		Coord	Coord		Gap	Gap
50th %ile Green (s)		62.5	62.5		54.4	54.4
50th %ile Term Code		Coord	Coord		Gap	Gap
30th %ile Green (s)		65.9	65.9		51.0	51.0
30th %ile Term Code		Coord	Coord		Gap	Gap
10th %ile Green (s)		71.8	71.8		45.1	45.1
10th %ile Term Code		Coord	Coord		Gap	Gap
Stops (vph)		820	688		971	170
Fuel Used(l)		84	100		70	12
CO Emissions (g/hr)		1559	1854		1303	229
NOx Emissions (g/hr)		301	358		251	44
VOC Emissions (g/hr)		360	428		301	53
Dilemma Vehicles (#)		41	54		0	0
Queue Length 50th (m)		111.1	81.2		128.8	43.2
Queue Length 95th (m)		146.0	119.2		148.7	64.6
Internal Link Dist (m)		120.8	474.8		87.1	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1502	1574		1371	615
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.71	0.70		0.80	0.45

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 42 (32%), Referenced to phase 2:EBWB, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 30.8		Intersection LOS: C	
Intersection Capacity Utilization 82.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Fallowfield & 416 SB Off-ramp





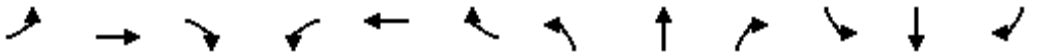
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2106	0	0	1268	123	164
Future Volume (vph)	2106	0	0	1268	123	164
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						26
Link Speed (k/h)	80			80	60	
Link Distance (m)	498.8			245.0	156.0	
Travel Time (s)	22.4			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	2106	0	0	1268	123	164
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2106	0	0	1268	123	164
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases					8	8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	106.0			106.0	24.0	24.0
Total Split (%)	81.5%			81.5%	18.5%	18.5%
Maximum Green (s)	99.3			99.3	18.7	18.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	101.6			101.6	16.4	16.4
Actuated g/C Ratio	0.78			0.78	0.13	0.13
v/c Ratio	0.84			0.49	0.66	0.81
Control Delay	9.1			2.1	70.7	74.9
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	9.1			2.1	70.7	74.9
LOS	A			A	E	E
Approach Delay	9.1			2.1	73.1	
Approach LOS	A			A	E	
90th %ile Green (s)	99.3			99.3	18.7	18.7
90th %ile Term Code	Coord			Coord	Max	Max
70th %ile Green (s)	99.3			99.3	18.7	18.7
70th %ile Term Code	Coord			Coord	Max	Max
50th %ile Green (s)	99.5			99.5	18.5	18.5
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	102.7			102.7	15.3	15.3
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	107.3			107.3	10.7	10.7
10th %ile Term Code	Coord			Coord	Gap	Gap
Stops (vph)	1119			124	116	130
Fuel Used(l)	162			57	12	16
CO Emissions (g/hr)	3006			1065	225	295
NOx Emissions (g/hr)	580			206	43	57
VOC Emissions (g/hr)	693			246	52	68
Dilemma Vehicles (#)	74			24	0	0
Queue Length 50th (m)	32.4			20.7	29.9	34.3
Queue Length 95th (m)	230.0			23.5	50.5	#65.5
Internal Link Dist (m)	474.8			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2494			2566	213	227
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.84			0.49	0.58	0.72

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 126 (97%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 11.7		Intersection LOS: B	
Intersection Capacity Utilization 82.2%		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: 2: 416 NB Off-ramp & Fallowfield





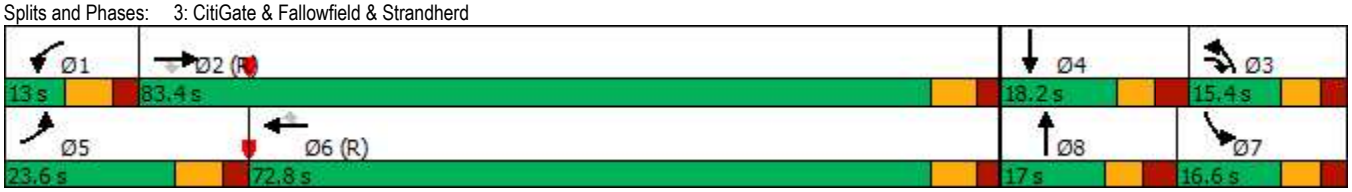
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	1771	108	3	1404	155	110	33	3	147	32	514
Future Volume (vph)	356	1771	108	3	1404	155	110	33	3	147	32	514
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	150.0		30.0	30.0		30.0	65.0		0.0	45.0		170.0
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (m)	100.0			95.0			100.0			60.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.98				0.99		0.99
Frt			0.850			0.850		0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3124	2891	1483	1658	3191	1483	3216	1722	0	1658	1745	1441
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3122	2891	1483	1658	3191	1460	3216	1722	0	1648	1745	1422
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93			207		3				265
Link Speed (k/h)		80			80			50			60	
Link Distance (m)		236.6			253.6			155.7			207.3	
Travel Time (s)		10.6			11.4			11.2			12.4	
Confl. Peds. (#/hr)	2					2				2		2
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	17%	2%	2%	6%	2%	2%	2%	2%	2%	2%	5%
Adj. Flow (vph)	356	1771	108	3	1404	155	110	33	3	147	32	514
Shared Lane Traffic (%)												
Lane Group Flow (vph)	356	1771	108	3	1404	155	110	36	0	147	32	514
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	2	2	1	1	2	2	1	2		2	2	2
Detector Template			Right	Left			Left	Thru			Thru	
Leading Detector (m)	15.2	15.2	2.0	2.0	15.2	15.2	2.0	10.0		15.2	10.0	15.2
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	1.8	1.8	2.0	2.0	1.8	1.8	2.0	0.6		1.8	0.6	1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)	13.4	13.4			13.4	13.4		9.4		13.4	9.4	13.4
Detector 2 Size(m)	1.8	1.8			1.8	1.8		0.6		1.8	0.6	1.8
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA		Prot	NA	Free
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2	3	1	6	6	3	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	20.0	5.0	5.0	20.0	20.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	17.1	29.9	11.5	13.0	29.9	29.9	11.5	17.0		11.5	17.0	
Total Split (s)	23.6	83.4	15.4	13.0	72.8	72.8	15.4	17.0		16.6	18.2	
Total Split (%)	18.2%	64.2%	11.8%	10.0%	56.0%	56.0%	11.8%	13.1%		12.8%	14.0%	
Maximum Green (s)	16.5	76.5	8.9	5.9	65.9	65.9	8.9	10.0		10.1	11.2	
Yellow Time (s)	4.6	4.6	3.7	4.6	4.6	4.6	3.7	3.7		3.7	3.7	

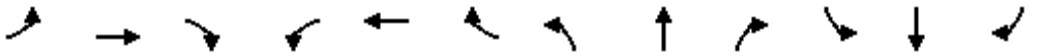
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5	2.3	2.8	2.5	2.3	2.3	2.8	3.3		2.8	3.3	
Lost Time Adjust (s)	-1.8	-1.8	0.0	0.0	-1.8	0.0	0.0	0.0		-1.8	0.0	
Total Lost Time (s)	5.3	5.1	6.5	7.1	5.1	6.9	6.5	7.0		4.7	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lead	
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	C-Max	None	None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		7.0			7.0	7.0						
Flash Dont Walk (s)		16.0			16.0	16.0						
Pedestrian Calls (#/hr)		1			1	1						
Act Effct Green (s)	18.4	92.8	111.9	5.7	71.7	69.9	12.7	10.0		14.6	10.1	130.0
Actuated g/C Ratio	0.14	0.71	0.86	0.04	0.55	0.54	0.10	0.08		0.11	0.08	1.00
v/c Ratio	0.81	0.86	0.08	0.04	0.80	0.18	0.35	0.27		0.79	0.24	0.36
Control Delay	53.3	18.3	1.5	63.0	11.0	0.2	59.4	58.2		85.2	60.9	0.7
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	53.3	18.3	1.5	63.0	11.0	0.2	59.4	58.2		85.2	60.9	0.7
LOS	D	B	A	E	B	A	E	E		F	E	A
Approach Delay		23.1			10.0			59.1			21.4	
Approach LOS		C			B			E			C	
90th %ile Green (s)	16.5	76.5	9.6	5.9	65.9	65.9	9.6	10.0		10.1	10.5	
90th %ile Term Code	Max	Coord	Max	Max	Coord	Coord	Max	Max		Max	Gap	
70th %ile Green (s)	16.5	89.5	10.1	0.0	65.9	65.9	10.1	10.0		10.1	10.0	
70th %ile Term Code	Max	Coord	Max	Skip	Coord	Coord	Max	Max		Max	Min	
50th %ile Green (s)	16.5	89.5	10.1	0.0	65.9	65.9	10.1	10.0		10.1	10.0	
50th %ile Term Code	Max	Coord	Hold	Skip	Coord	Coord	Hold	Max		Max	Min	
30th %ile Green (s)	18.2	98.4	18.2	0.0	73.1	73.1	18.2	0.0		18.2	0.0	
30th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
10th %ile Green (s)	15.2	101.0	15.6	0.0	78.7	78.7	15.6	0.0		15.6	0.0	
10th %ile Term Code	Gap	Coord	Hold	Skip	Coord	Coord	Hold	Skip		Gap	Skip	
Stops (vph)	326	967	12	4	395	0	102	32		120	31	0
Fuel Used(l)	40	131	5	0	63	3	9	3		16	3	10
CO Emissions (g/hr)	749	2431	93	8	1164	58	166	53		301	57	177
NOx Emissions (g/hr)	145	469	18	2	225	11	32	10		58	11	34
VOC Emissions (g/hr)	173	561	21	2	269	13	38	12		69	13	41
Dilemma Vehicles (#)	0	74	0	0	22	0	0	0		0	1	0
Queue Length 50th (m)	44.5	136.7	0.5	0.0	42.3	0.0	14.1	8.1		38.2	7.9	0.0
Queue Length 95th (m)	m56.2	#293.3	m2.7	m1.3	47.2	m0.3	23.8	19.1		#80.4	18.3	0.0
Internal Link Dist (m)		212.6			229.6			131.7			183.3	
Turn Bay Length (m)	150.0		30.0	30.0		30.0	65.0			45.0		170.0
Base Capacity (vph)	447	2063	1289	75	1759	880	314	135		186	150	1422
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	0.80	0.86	0.08	0.04	0.80	0.18	0.35	0.27		0.79	0.21	0.36

Intersection Summary

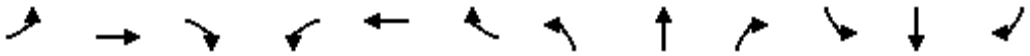
Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 128 (98%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 19.6 Intersection LOS: B
Intersection Capacity Utilization 87.1% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: CitiGate & Fallowfield & Strandherd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	1283	397	43	1293	35	303	99	29	20	105	92
Future Volume (vph)	128	1283	397	43	1293	35	303	99	29	20	105	92
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	90.0			100.0			60.0			60.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.99			0.98	0.99		0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	2941	1483	3216	3221	1483	1658	1745	1483	1658	1745	1483
Flt Permitted	0.950			0.950			0.689			0.693		
Satd. Flow (perm)	1658	2941	1465	3216	3221	1449	1193	1745	1458	1207	1745	1448
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			176			155			148			148
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		253.6			287.1			117.0			245.3	
Travel Time (s)		11.4			12.9			8.4			17.7	
Confl. Peds. (#/hr)							9		2	2		9
Confl. Bikes (#/hr)			1			4			5			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 (%)	2%	15%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	128	1283	397	43	1293	35	303	99	29	20	105	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	1283	397	43	1293	35	303	99	29	20	105	92
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.9	31.8	31.8	11.9	31.8	31.8	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (s)	19.0	69.4	69.4	11.9	62.3	62.3	48.7	48.7	48.7	48.7	48.7	48.7
Total Split (%)	14.6%	53.4%	53.4%	9.2%	47.9%	47.9%	37.5%	37.5%	37.5%	37.5%	37.5%	37.5%
Maximum Green (s)	12.1	62.6	62.6	5.0	55.5	55.5	41.0	41.0	41.0	41.0	41.0	41.0
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	3.3	3.3	3.3	3.3	3.3	3.3



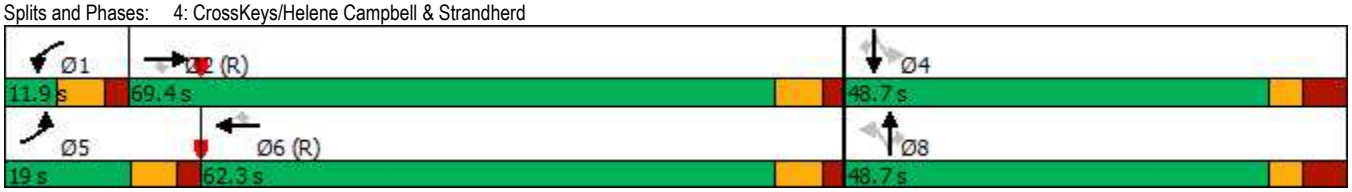
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.3	2.2	2.2	2.3	2.2	2.2	4.4	4.4	4.4	4.4	4.4	4.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.8	6.8	6.9	6.8	6.8	7.7	7.7	7.7	7.7	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
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	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	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
Flash Dont Walk (s)		18.0	18.0		18.0	18.0	34.0	34.0	34.0	34.0	34.0	34.0
Pedestrian Calls (#/hr)		0	0		0	0	2	2	2	7	7	7
Act Effct Green (s)	12.7	68.8	68.8	5.7	59.4	59.4	36.5	36.5	36.5	36.5	36.5	36.5
Actuated g/C Ratio	0.10	0.53	0.53	0.04	0.46	0.46	0.28	0.28	0.28	0.28	0.28	0.28
v/c Ratio	0.80	0.82	0.46	0.30	0.88	0.05	0.91	0.20	0.06	0.06	0.21	0.18
Control Delay	86.1	26.3	9.3	62.0	34.3	0.1	75.0	35.3	0.2	32.3	35.6	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.1	26.3	9.3	62.0	34.3	0.1	75.0	35.3	0.2	32.3	35.6	1.4
LOS	F	C	A	E	C	A	E	D	A	C	D	A
Approach Delay		26.8			34.3			60.9			20.8	
Approach LOS		C			C			E			C	
90th %ile Green (s)	12.1	62.6	62.6	5.0	55.5	55.5	41.0	41.0	41.0	41.0	41.0	41.0
90th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Max	Ped	Ped	Ped
70th %ile Green (s)	12.1	62.6	62.6	5.0	55.5	55.5	41.0	41.0	41.0	41.0	41.0	41.0
70th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Max	Max	Max	Hold	Hold	Hold
50th %ile Green (s)	13.9	62.6	62.6	6.8	55.5	55.5	39.2	39.2	39.2	39.2	39.2	39.2
50th %ile Term Code	Max	Coord	Coord	Max	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	14.3	67.8	67.8	6.4	59.9	59.9	34.4	34.4	34.4	34.4	34.4	34.4
30th %ile Term Code	Gap	Coord	Coord	Gap	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	10.9	88.6	88.6	0.0	70.8	70.8	26.9	26.9	26.9	26.9	26.9	26.9
10th %ile Term Code	Gap	Coord	Coord	Skip	Coord	Coord	Gap	Gap	Gap	Hold	Hold	Hold
Stops (vph)	113	980	163	38	759	0	277	72	0	15	77	1
Fuel Used(l)	18	108	20	5	107	1	27	5	0	1	7	2
CO Emissions (g/hr)	326	2004	374	97	1988	15	503	101	6	24	131	42
NOx Emissions (g/hr)	63	387	72	19	384	3	97	19	1	5	25	8
VOC Emissions (g/hr)	75	462	86	22	459	3	116	23	1	6	30	10
Dilemma Vehicles (#)	0	68	0	0	81	0	0	0	0	0	0	0
Queue Length 50th (m)	32.9	151.5	16.7	5.0	102.2	0.0	72.8	18.8	0.0	3.6	20.0	0.0
Queue Length 95th (m)	m40.8	#167.9	m26.8	m8.1	#205.7	m0.0	#117.6	32.4	0.0	9.7	34.1	1.8
Internal Link Dist (m)		229.6			263.1			93.0			221.3	
Turn Bay Length (m)	70.0		35.0	65.0		15.0	55.0		65.0	15.0		60.0
Base Capacity (vph)	164	1557	858	142	1473	746	376	550	561	380	550	558
Starvation Cap Reductn	0	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	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.82	0.46	0.30	0.88	0.05	0.81	0.18	0.05	0.05	0.19	0.16

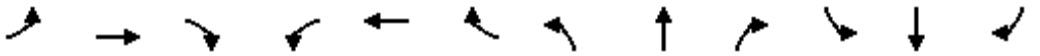
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 128 (98%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 115			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 33.0		Intersection 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.

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

Splits and Phases: 4: CrossKeys/Helene Campbell & Strandherd





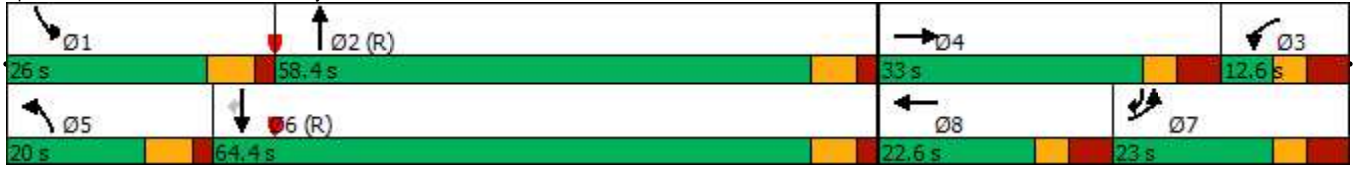
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	258	69	245	10	61	40	272	977	7	199	1269	111
Future Volume (vph)	258	69	245	10	61	40	272	977	7	199	1269	111
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	85.0		0.0	25.0		0.0	130.0		0.0	140.0		50.0
Storage Lanes	2		0	1		0	2		0	1		1
Taper Length (m)	50.0			50.0			65.0			45.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor		0.99		0.98								
Frt		0.883			0.941			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3216	1519	0	1658	1563	0	3216	3312	0	1658	3316	1351
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	1519	0	1624	1563	0	3216	3312	0	1658	3316	1351
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		122			21			1				94
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		205.3			148.8			419.5			287.1	
Travel Time (s)		14.8			13.4			18.9			12.9	
Confl. Peds. (#/hr)			4	4								
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%	2%	2%	2%	15%	2%	2%	2%	2%	2%	12%
Adj. Flow (vph)	258	69	245	10	61	40	272	977	7	199	1269	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	258	314	0	10	101	0	272	984	0	199	1269	111
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Detector Phase	7	4		3	8		5	2		1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0		5.0	20.0	5.0
Minimum Split (s)	15.0	17.6		12.6	17.6		15.0	33.0		15.0	33.0	15.0
Total Split (s)	23.0	33.0		12.6	22.6		20.0	58.4		26.0	64.4	23.0
Total Split (%)	17.7%	25.4%		9.7%	17.4%		15.4%	44.9%		20.0%	49.5%	17.7%
Maximum Green (s)	15.4	25.4		5.0	15.0		13.4	51.7		19.4	57.7	15.4
Yellow Time (s)	3.3	3.3		3.3	3.3		4.6	4.6		4.6	4.6	3.3
All-Red Time (s)	4.3	4.3		4.3	4.3		2.0	2.1		2.0	2.1	4.3

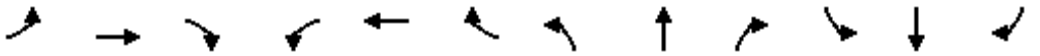
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.6	6.7		6.6	6.7	7.6
Lead/Lag	Lag	Lead		Lag	Lead		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (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	C-Max		None	C-Max	None
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								17.0			17.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	14.5	31.8		5.4	12.3		14.0	56.0		18.7	60.7	74.3
Actuated g/C Ratio	0.11	0.24		0.04	0.09		0.11	0.43		0.14	0.47	0.57
v/c Ratio	0.72	0.68		0.14	0.61		0.78	0.69		0.84	0.82	0.14
Control Delay	67.8	34.9		65.1	60.0		69.6	28.8		97.8	13.6	0.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	67.8	34.9		65.1	60.0		69.6	28.8		97.8	13.6	0.4
LOS	E	C		E	E		E	C		F	B	A
Approach Delay		49.8			60.4			37.6			23.3	
Approach LOS		D			E			D			C	
90th %ile Green (s)	15.4	25.4		5.0	15.0		13.4	51.7		19.4	57.7	15.4
90th %ile Term Code	Max	Max		Max	Max		Max	Coord		Max	Coord	Max
70th %ile Green (s)	16.0	38.0		0.0	14.4		13.4	51.7		19.4	57.7	16.0
70th %ile Term Code	Max	Hold		Skip	Gap		Max	Coord		Max	Coord	Max
50th %ile Green (s)	15.6	35.2		0.0	12.0		16.2	52.2		21.7	57.7	15.6
50th %ile Term Code	Gap	Hold		Skip	Gap		Max	Coord		Gap	Coord	Gap
30th %ile Green (s)	13.9	31.5		0.0	10.0		14.9	58.9		18.7	62.7	13.9
30th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
10th %ile Green (s)	11.4	29.0		0.0	10.0		12.3	65.7		14.4	67.8	11.4
10th %ile Term Code	Gap	Hold		Skip	Min		Gap	Coord		Gap	Coord	Gap
Stops (vph)	245	172		12	77		261	448		178	819	2
Fuel Used(l)	24	18		1	7		39	80		30	89	3
CO Emissions (g/hr)	446	343		15	137		716	1487		552	1655	49
NOx Emissions (g/hr)	86	66		3	26		138	287		107	319	10
VOC Emissions (g/hr)	103	79		4	32		165	343		127	382	11
Dilemma Vehicles (#)	0	0		0	0		0	55		0	41	0
Queue Length 50th (m)	33.0	43.5		2.5	19.9		38.1	52.3		51.4	68.8	0.1
Queue Length 95th (m)	47.4	#91.7		8.5	37.9		#58.6	104.9		m#65.7	89.4	m0.0
Internal Link Dist (m)		181.3			124.8			395.5			263.1	
Turn Bay Length (m)	85.0			25.0			130.0			140.0		50.0
Base Capacity (vph)	384	463		69	198		352	1428		253	1548	822
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	0.67	0.68		0.14	0.51		0.77	0.69		0.79	0.82	0.14

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 14 (11%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 33.9 Intersection LOS: C
Intersection Capacity Utilization 82.7% 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: 5: Strandherd & Systemhouse/Maravista



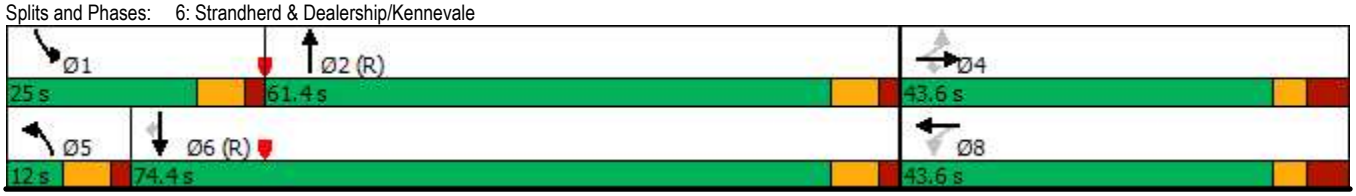


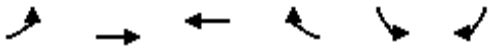
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	18	88	106	16	76	65	1030	98	155	1445	63
Future Volume (vph)	153	18	88	106	16	76	65	1030	98	155	1445	63
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	75.0		0.0	40.0		0.0	60.0		30.0	50.0		0.0
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (m)	7.5			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.876			0.987				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	1745	1483	1658	1504	0	3216	3273	0	1642	3316	1483
Flt Permitted	0.697			0.746			0.950			0.950		
Satd. Flow (perm)	1216	1745	1483	1302	1504	0	3216	3273	0	1642	3316	1483
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			142		76			9				94
Link Speed (k/h)		50			40			80			80	
Link Distance (m)		358.5			381.8			229.3			419.5	
Travel Time (s)		25.8			34.4			10.3			18.9	
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%	2%	2%	2%	4%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	153	18	88	106	16	76	65	1030	98	155	1445	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	18	88	106	92	0	65	1128	0	155	1445	63
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8								6
Detector Phase	4	4	4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		5.0	20.0		5.0	20.0	20.0
Minimum Split (s)	39.6	39.6	39.6	43.6	43.6		11.6	30.7		11.6	36.7	36.7
Total Split (s)	43.6	43.6	43.6	43.6	43.6		12.0	61.4		25.0	74.4	74.4
Total Split (%)	33.5%	33.5%	33.5%	33.5%	33.5%		9.2%	47.2%		19.2%	57.2%	57.2%
Maximum Green (s)	36.0	36.0	36.0	36.0	36.0		5.4	54.7		18.4	67.7	67.7
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		4.6	4.6		4.6	4.6	4.6
All-Red Time (s)	4.3	4.3	4.3	4.3	4.3		2.0	2.1		2.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6	7.6	7.6	7.6		6.6	6.7		6.6	6.7	6.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag							Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?							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		None	C-Max		None	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)	25.0	25.0	25.0	29.0	29.0			17.0			23.0	23.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	0
Act Effct Green (s)	21.7	21.7	21.7	21.7	21.7		8.0	69.9		17.5	81.9	81.9
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.17		0.06	0.54		0.13	0.63	0.63
v/c Ratio	0.76	0.06	0.24	0.49	0.29		0.33	0.64		0.70	0.69	0.07
Control Delay	73.4	42.4	2.3	55.3	15.0		62.4	25.3		76.6	9.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	73.4	42.4	2.3	55.3	15.0		62.4	25.3		76.6	9.1	0.3
LOS	E	D	A	E	B		E	C		E	A	A
Approach Delay		47.1			36.6			27.3			15.1	
Approach LOS		D			D			C			B	
90th %ile Green (s)	30.4	30.4	30.4	30.4	30.4		10.1	54.9		23.8	68.6	68.6
90th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
70th %ile Green (s)	25.3	25.3	25.3	25.3	25.3		8.9	63.6		20.2	74.9	74.9
70th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
50th %ile Green (s)	21.7	21.7	21.7	21.7	21.7		8.0	69.8		17.6	79.4	79.4
50th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
30th %ile Green (s)	18.1	18.1	18.1	18.1	18.1		7.1	76.0		15.0	83.9	83.9
30th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Gap	Coord		Gap	Coord	Coord
10th %ile Green (s)	12.9	12.9	12.9	12.9	12.9		0.0	85.1		11.1	102.8	102.8
10th %ile Term Code	Gap	Gap	Gap	Hold	Hold		Skip	Coord		Gap	Coord	Coord
Stops (vph)	143	16	1	93	23		60	792		154	307	1
Fuel Used(l)	17	2	3	10	5		8	88		23	75	2
CO Emissions (g/hr)	317	29	59	188	95		144	1632		429	1404	40
NOx Emissions (g/hr)	61	6	11	36	18		28	315		83	271	8
VOC Emissions (g/hr)	73	7	14	43	22		33	376		99	324	9
Dilemma Vehicles (#)	0	0	0	0	0		0	43		0	79	0
Queue Length 50th (m)	37.8	3.9	0.0	24.9	3.5		8.4	102.8		41.9	40.9	0.0
Queue Length 95th (m)	57.3	10.2	2.0	40.2	17.1		15.7	159.6		m53.8	58.6	m0.0
Internal Link Dist (m)		334.5			357.8			205.3			395.5	
Turn Bay Length (m)	75.0			40.0			60.0			50.0		
Base Capacity (vph)	336	483	513	360	471		197	1763		250	2089	969
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	0.04	0.17	0.29	0.20		0.33	0.64		0.62	0.69	0.07

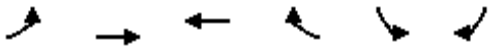
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 24 (18%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 23.3		Intersection LOS: C	
Intersection Capacity Utilization 79.4%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 6: Strandherd & Dealership/Kennevale





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2076	1195	0	814	127
Future Volume (vph)	0	2076	1195	0	814	127
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						52
Link Speed (k/h)		80	80		50	
Link Distance (m)		96.1	547.6		149.1	
Travel Time (s)		4.3	24.6		10.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	2076	1195	0	814	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2076	1195	0	814	127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		30.3	30.3
Total Split (s)		70.0	70.0		50.0	50.0
Total Split (%)		58.3%	58.3%		41.7%	41.7%
Maximum Green (s)		63.2	63.2		43.7	43.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		Max	Max
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		63.2	63.2		43.7	43.7
Actuated g/C Ratio		0.53	0.53		0.36	0.36
v/c Ratio		1.28	0.70		0.74	0.25
Control Delay		159.4	26.6		38.0	17.1
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		159.4	26.6		38.0	17.1
LOS		F	C		D	B
Approach Delay		159.4	26.6		35.2	
Approach LOS		F	C		D	
90th %ile Green (s)		63.2	63.2		43.7	43.7
90th %ile Term Code		Coord	Coord		MaxR	MaxR
70th %ile Green (s)		63.2	63.2		43.7	43.7
70th %ile Term Code		Coord	Coord		MaxR	MaxR
50th %ile Green (s)		63.2	63.2		43.7	43.7
50th %ile Term Code		Coord	Coord		MaxR	MaxR
30th %ile Green (s)		63.2	63.2		43.7	43.7
30th %ile Term Code		Coord	Coord		MaxR	MaxR
10th %ile Green (s)		63.2	63.2		43.7	43.7
10th %ile Term Code		Coord	Coord		MaxR	MaxR
Stops (vph)		1642	988		690	52
Fuel Used(l)		365	133		51	5
CO Emissions (g/hr)		6782	2467		944	86
NOx Emissions (g/hr)		1309	476		182	17
VOC Emissions (g/hr)		1564	569		218	20
Dilemma Vehicles (#)		67	27		0	0
Queue Length 50th (m)		~326.5	122.4		85.1	11.8
Queue Length 95th (m)		#368.3	159.7		107.9	26.3
Internal Link Dist (m)		72.1	523.6		125.1	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1619	1696		1106	512
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		1.28	0.70		0.74	0.25

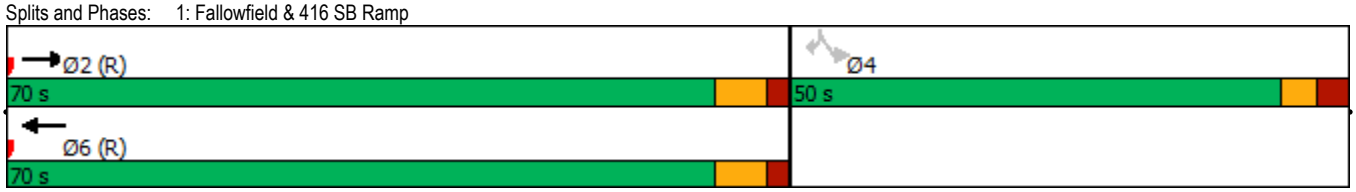
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 20 (17%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.28
Intersection Signal Delay: 94.0 Intersection LOS: F
Intersection Capacity Utilization 109.9% ICU Level of Service H
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: 1: Fallowfield & 416 SB Ramp



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2556	0	0	1125	184	388
Future Volume (vph)	2556	0	0	1125	184	388
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						5
Link Speed (k/h)	80			80	60	
Link Distance (m)	547.6			245.0	156.0	
Travel Time (s)	24.6			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	2556	0	0	1125	184	388
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2556	0	0	1125	184	388
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	85.0			85.0	35.0	35.0
Total Split (%)	70.8%			70.8%	29.2%	29.2%
Maximum Green (s)	78.3			78.3	29.7	29.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	78.3			78.3	29.7	29.7
Actuated g/C Ratio	0.65			0.65	0.25	0.25
v/c Ratio	1.23			0.53	0.50	1.09
Control Delay	130.7			12.1	44.4	116.2
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	130.7			12.1	44.4	116.2
LOS	F			B	D	F
Approach Delay	130.7			12.1	93.1	
Approach LOS	F			B	F	
90th %ile Green (s)	78.3			78.3	29.7	29.7
90th %ile Term Code	Coord			Coord	Max	Max
70th %ile Green (s)	78.3			78.3	29.7	29.7
70th %ile Term Code	Coord			Coord	Max	Max
50th %ile Green (s)	78.3			78.3	29.7	29.7
50th %ile Term Code	Coord			Coord	Max	Max
30th %ile Green (s)	78.3			78.3	29.7	29.7
30th %ile Term Code	Coord			Coord	Max	Max
10th %ile Green (s)	78.3			78.3	29.7	29.7
10th %ile Term Code	Coord			Coord	Max	Max
Stops (vph)	2172			563	156	320
Fuel Used(l)	492			64	14	50
CO Emissions (g/hr)	9150			1199	257	935
NOx Emissions (g/hr)	1766			231	50	181
VOC Emissions (g/hr)	2110			277	59	216
Dilemma Vehicles (#)	5			47	0	0
Queue Length 50th (m)	~401.8			67.9	37.4	~102.0
Queue Length 95th (m)	m#306.4			83.6	60.1	#162.3
Internal Link Dist (m)	523.6			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2082			2142	367	356
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	1.23			0.53	0.50	1.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 81 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay: 94.3		Intersection LOS: F	
Intersection Capacity Utilization 109.9%		ICU Level of Service H	
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: 2: 416 NB Off-ramp & Fallowfield



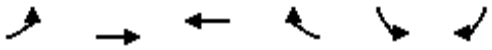
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2335	0	0	1690	129	183
Future Volume (vph)	2335	0	0	1690	129	183
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						8
Link Speed (k/h)	80			80	60	
Link Distance (m)	542.9			245.0	156.0	
Travel Time (s)	24.4			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	2335	0	0	1690	129	183
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2335	0	0	1690	129	183
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases					8	8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	85.0			85.0	35.0	35.0
Total Split (%)	70.8%			70.8%	29.2%	29.2%
Maximum Green (s)	78.3			78.3	29.7	29.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	88.0			88.0	20.0	20.0
Actuated g/C Ratio	0.73			0.73	0.17	0.17
v/c Ratio	1.00			0.70	0.52	0.75
Control Delay	25.9			11.8	52.0	63.4
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	25.9			11.8	52.0	63.4
LOS	C			B	D	E
Approach Delay	25.9			11.8	58.7	
Approach LOS	C			B	E	
90th %ile Green (s)	80.2			80.2	27.8	27.8
90th %ile Term Code	Coord			Coord	Gap	Gap
70th %ile Green (s)	84.7			84.7	23.3	23.3
70th %ile Term Code	Coord			Coord	Gap	Gap
50th %ile Green (s)	87.9			87.9	20.1	20.1
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	91.2			91.2	16.8	16.8
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	95.9			95.9	12.1	12.1
10th %ile Term Code	Coord			Coord	Gap	Gap
Stops (vph)	1578			909	113	163
Fuel Used(l)	237			100	11	17
CO Emissions (g/hr)	4405			1862	196	310
NOx Emissions (g/hr)	850			359	38	60
VOC Emissions (g/hr)	1016			429	45	71
Dilemma Vehicles (#)	120			70	0	0
Queue Length 50th (m)	237.4			101.1	28.0	39.7
Queue Length 95th (m)	m#334.5			160.1	44.0	60.1
Internal Link Dist (m)	518.9			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2339			2407	367	359
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	1.00			0.70	0.35	0.51

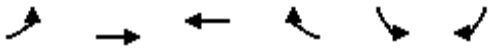
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 108 (90%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 22.8		Intersection LOS: C	
Intersection Capacity Utilization 90.1%		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.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 2: 416 NB Off-ramp & Fallowfield





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1199	1455	0	1160	287
Future Volume (vph)	0	1199	1455	0	1160	287
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						26
Link Speed (k/h)		80	80		50	
Link Distance (m)		100.9	542.9		149.8	
Travel Time (s)		4.5	24.4		10.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	1199	1455	0	1160	287
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1199	1455	0	1160	287
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		30.3	30.3
Total Split (s)		70.0	70.0		50.0	50.0
Total Split (%)		58.3%	58.3%		41.7%	41.7%
Maximum Green (s)		63.2	63.2		43.7	43.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3

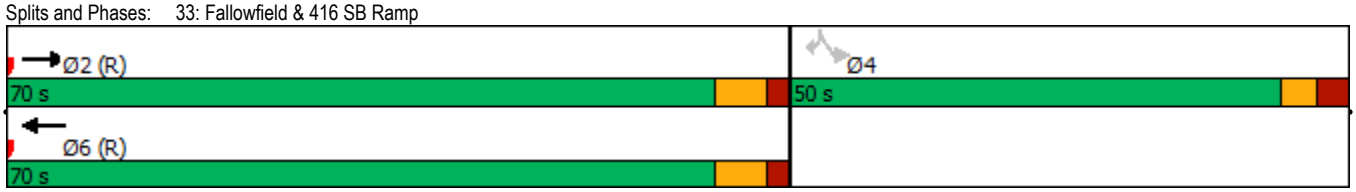


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		Max	Max
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		63.2	63.2		43.7	43.7
Actuated g/C Ratio		0.53	0.53		0.36	0.36
v/c Ratio		0.74	0.86		1.05	0.58
Control Delay		25.6	22.9		78.3	33.4
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		25.6	22.9		78.3	33.4
LOS		C	C		E	C
Approach Delay		25.6	22.9		69.4	
Approach LOS		C	C		E	
90th %ile Green (s)		63.2	63.2		43.7	43.7
90th %ile Term Code		Coord	Coord		MaxR	MaxR
70th %ile Green (s)		63.2	63.2		43.7	43.7
70th %ile Term Code		Coord	Coord		MaxR	MaxR
50th %ile Green (s)		63.2	63.2		43.7	43.7
50th %ile Term Code		Coord	Coord		MaxR	MaxR
30th %ile Green (s)		63.2	63.2		43.7	43.7
30th %ile Term Code		Coord	Coord		MaxR	MaxR
10th %ile Green (s)		63.2	63.2		43.7	43.7
10th %ile Term Code		Coord	Coord		MaxR	MaxR
Stops (vph)		903	1240		1019	212
Fuel Used(l)		85	159		109	16
CO Emissions (g/hr)		1579	2957		2032	302
NOx Emissions (g/hr)		305	571		392	58
VOC Emissions (g/hr)		364	682		469	70
Dilemma Vehicles (#)		50	56		0	0
Queue Length 50th (m)		111.0	155.4		~153.2	49.2
Queue Length 95th (m)		137.7	167.5		#193.7	78.1
Internal Link Dist (m)		76.9	518.9		125.8	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1619	1696		1106	495
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.74	0.86		1.05	0.58

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 20 (17%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 40.1 Intersection LOS: D
Intersection Capacity Utilization 90.1% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 33: Fallowfield & 416 SB Ramp



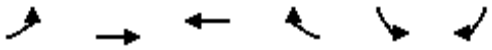
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2556	0	0	1125	184	388
Future Volume (vph)	2556	0	0	1125	184	388
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						6
Link Speed (k/h)	80			80	60	
Link Distance (m)	547.6			245.0	156.0	
Travel Time (s)	24.6			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	2556	0	0	1125	184	388
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2556	0	0	1125	184	388
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	95.0			95.0	35.0	35.0
Total Split (%)	73.1%			73.1%	26.9%	26.9%
Maximum Green (s)	88.3			88.3	29.7	29.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	88.3			88.3	29.7	29.7
Actuated g/C Ratio	0.68			0.68	0.23	0.23
v/c Ratio	1.18			0.50	0.54	1.18
Control Delay	101.3			11.1	51.2	149.4
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	101.3			11.1	51.2	149.4
LOS	F			B	D	F
Approach Delay	101.3			11.1	117.8	
Approach LOS	F			B	F	
90th %ile Green (s)	88.3			88.3	29.7	29.7
90th %ile Term Code	Coord			Coord	Max	Max
70th %ile Green (s)	88.3			88.3	29.7	29.7
70th %ile Term Code	Coord			Coord	Max	Max
50th %ile Green (s)	88.3			88.3	29.7	29.7
50th %ile Term Code	Coord			Coord	Max	Max
30th %ile Green (s)	88.3			88.3	29.7	29.7
30th %ile Term Code	Coord			Coord	Max	Max
10th %ile Green (s)	88.3			88.3	29.7	29.7
10th %ile Term Code	Coord			Coord	Max	Max
Stops (vph)	2095			518	160	311
Fuel Used(l)	430			61	15	60
CO Emissions (g/hr)	7989			1136	277	1114
NOx Emissions (g/hr)	1542			219	53	215
VOC Emissions (g/hr)	1843			262	64	257
Dilemma Vehicles (#)	86			43	0	0
Queue Length 50th (m)	~413.2			67.9	41.9	~117.7
Queue Length 95th (m)	m#379.6			82.5	66.1	#179.9
Internal Link Dist (m)	523.6			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2167			2229	338	330
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	1.18			0.50	0.54	1.18

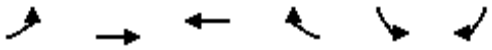
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 44 (34%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.18			
Intersection Signal Delay: 79.7		Intersection LOS: E	
Intersection Capacity Utilization 109.9%		ICU Level of Service H	
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: 2: 416 NB Off-ramp & Fallowfield





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2076	1195	0	814	127
Future Volume (vph)	0	2076	1195	0	814	127
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						94
Link Speed (k/h)		80	80		50	
Link Distance (m)		96.1	547.6		149.1	
Travel Time (s)		4.3	24.6		10.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	2076	1195	0	814	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2076	1195	0	814	127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		30.3	30.3
Total Split (s)		91.0	91.0		39.0	39.0
Total Split (%)		70.0%	70.0%		30.0%	30.0%
Maximum Green (s)		84.2	84.2		32.7	32.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		Max	Max
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		84.2	84.2		32.7	32.7
Actuated g/C Ratio		0.65	0.65		0.25	0.25
v/c Ratio		1.04	0.57		1.07	0.32
Control Delay		55.8	10.5		97.6	14.9
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		55.8	10.5		97.6	14.9
LOS		E	B		F	B
Approach Delay		55.8	10.5		86.5	
Approach LOS		E	B		F	
90th %ile Green (s)		84.2	84.2		32.7	32.7
90th %ile Term Code		Coord	Coord		MaxR	MaxR
70th %ile Green (s)		84.2	84.2		32.7	32.7
70th %ile Term Code		Coord	Coord		MaxR	MaxR
50th %ile Green (s)		84.2	84.2		32.7	32.7
50th %ile Term Code		Coord	Coord		MaxR	MaxR
30th %ile Green (s)		84.2	84.2		32.7	32.7
30th %ile Term Code		Coord	Coord		MaxR	MaxR
10th %ile Green (s)		84.2	84.2		32.7	32.7
10th %ile Term Code		Coord	Coord		MaxR	MaxR
Stops (vph)		1769	451		714	33
Fuel Used(l)		206	87		89	4
CO Emissions (g/hr)		3839	1618		1650	74
NOx Emissions (g/hr)		741	312		318	14
VOC Emissions (g/hr)		885	373		380	17
Dilemma Vehicles (#)		75	40		0	0
Queue Length 50th (m)		~302.5	62.0		~118.5	6.5
Queue Length 95th (m)		#343.7	63.6		#157.1	23.4
Internal Link Dist (m)		72.1	523.6		125.1	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1991	2086		764	401
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		1.04	0.57		1.07	0.32

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 34 (26%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay: 49.8		Intersection LOS: D	
Intersection Capacity Utilization 109.9%		ICU Level of Service H	
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: 33: Fallowfield & 416 SB Ramp



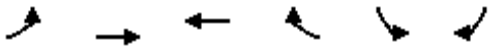
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2335	0	0	1690	129	183
Future Volume (vph)	2335	0	0	1690	129	183
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						17
Link Speed (k/h)	80			80	60	
Link Distance (m)	542.9			245.0	156.0	
Travel Time (s)	24.4			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	2335	0	0	1690	129	183
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2335	0	0	1690	129	183
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases					8	8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	106.6			106.6	23.4	23.4
Total Split (%)	82.0%			82.0%	18.0%	18.0%
Maximum Green (s)	99.9			99.9	18.1	18.1
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	100.7			100.7	17.3	17.3
Actuated g/C Ratio	0.77			0.77	0.13	0.13
v/c Ratio	0.94			0.67	0.65	0.89
Control Delay	14.1			8.5	69.6	90.4
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	14.1			8.5	69.6	90.4
LOS	B			A	E	F
Approach Delay	14.1			8.5	81.8	
Approach LOS	B			A	F	
90th %ile Green (s)	99.9			99.9	18.1	18.1
90th %ile Term Code	Coord			Coord	Max	Max
70th %ile Green (s)	99.9			99.9	18.1	18.1
70th %ile Term Code	Coord			Coord	Max	Max
50th %ile Green (s)	99.9			99.9	18.1	18.1
50th %ile Term Code	Coord			Coord	Max	Max
30th %ile Green (s)	99.9			99.9	18.1	18.1
30th %ile Term Code	Coord			Coord	Max	Max
10th %ile Green (s)	103.7			103.7	14.3	14.3
10th %ile Term Code	Coord			Coord	Gap	Gap
Stops (vph)	1600			736	122	151
Fuel Used(l)	217			86	13	20
CO Emissions (g/hr)	4035			1598	234	373
NOx Emissions (g/hr)	779			308	45	72
VOC Emissions (g/hr)	931			369	54	86
Dilemma Vehicles (#)	72			65	0	0
Queue Length 50th (m)	188.0			93.4	31.6	42.3
Queue Length 95th (m)	#289.5			112.4	52.9	#83.4
Internal Link Dist (m)	518.9			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2471			2541	206	213
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.94			0.67	0.63	0.86

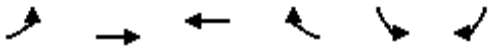
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 20 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 16.8		Intersection LOS: B	
Intersection Capacity Utilization 90.1%		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: 2: 416 NB Off-ramp & Fallowfield





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1199	1455	0	1160	287
Future Volume (vph)	0	1199	1455	0	1160	287
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						18
Link Speed (k/h)		80	80		50	
Link Distance (m)		100.9	542.9		149.8	
Travel Time (s)		4.5	24.4		10.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	1199	1455	0	1160	287
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1199	1455	0	1160	287
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	6			
Permitted Phases					4	4
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.8	30.8		30.3	30.3
Total Split (s)		70.0	70.0		60.0	60.0
Total Split (%)		53.8%	53.8%		46.2%	46.2%
Maximum Green (s)		63.2	63.2		53.7	53.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3

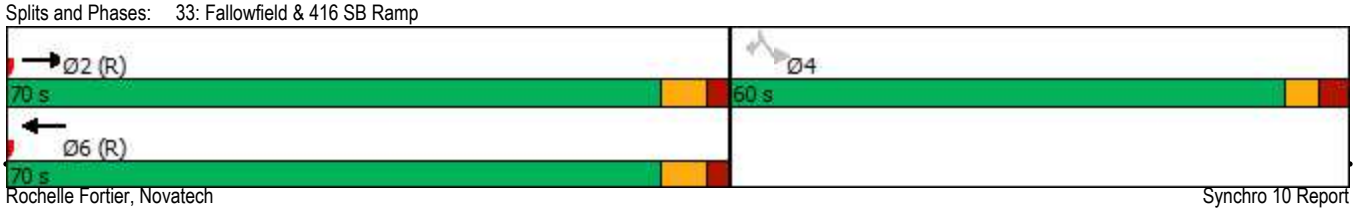


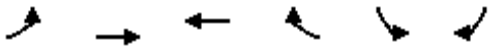
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		Max	Max
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)		63.2	63.2		53.7	53.7
Actuated g/C Ratio		0.49	0.49		0.41	0.41
v/c Ratio		0.80	0.93		0.93	0.52
Control Delay		33.3	35.7		49.5	30.6
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		33.3	35.7		49.5	30.6
LOS		C	D		D	C
Approach Delay		33.3	35.7		45.7	
Approach LOS		C	D		D	
90th %ile Green (s)		63.2	63.2		53.7	53.7
90th %ile Term Code		Coord	Coord		MaxR	MaxR
70th %ile Green (s)		63.2	63.2		53.7	53.7
70th %ile Term Code		Coord	Coord		MaxR	MaxR
50th %ile Green (s)		63.2	63.2		53.7	53.7
50th %ile Term Code		Coord	Coord		MaxR	MaxR
30th %ile Green (s)		63.2	63.2		53.7	53.7
30th %ile Term Code		Coord	Coord		MaxR	MaxR
10th %ile Green (s)		63.2	63.2		53.7	53.7
10th %ile Term Code		Coord	Coord		MaxR	MaxR
Stops (vph)		986	1298		1035	200
Fuel Used(l)		97	177		84	15
CO Emissions (g/hr)		1801	3285		1560	285
NOx Emissions (g/hr)		348	634		301	55
VOC Emissions (g/hr)		415	758		360	66
Dilemma Vehicles (#)		46	51		0	0
Queue Length 50th (m)		132.7	183.3		143.6	50.8
Queue Length 95th (m)		162.5	#231.5		#187.2	78.5
Internal Link Dist (m)		76.9	518.9		125.8	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1494	1565		1254	554
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.80	0.93		0.93	0.52

Intersection Summary

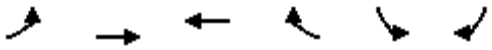
Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 52 (40%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 38.5 Intersection LOS: D
Intersection Capacity Utilization 90.1% 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: 33: Fallowfield & 416 SB Ramp





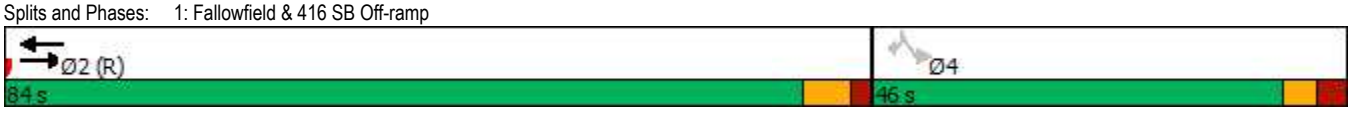
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1676	1195	0	664	127
Future Volume (vph)	0	1676	1195	0	664	127
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						75
Link Speed (k/h)		80	80		50	
Link Distance (m)		144.8	498.8		111.1	
Travel Time (s)		6.5	22.4		8.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	1676	1195	0	664	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1676	1195	0	664	127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	2			
Permitted Phases					4	4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.4	30.4		30.3	30.3
Total Split (s)		84.0	84.0		46.0	46.0
Total Split (%)		64.6%	64.6%		35.4%	35.4%
Maximum Green (s)		77.2	77.2		39.7	39.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		None	None
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		1	1		1	1
Act Effct Green (s)		83.3	83.3		33.6	33.6
Actuated g/C Ratio		0.64	0.64		0.26	0.26
v/c Ratio		0.85	0.58		0.85	0.32
Control Delay		24.8	15.4		56.3	18.1
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		24.8	15.4		56.3	18.1
LOS		C	B		E	B
Approach Delay		24.8	15.4		50.2	
Approach LOS		C	B		D	
90th %ile Green (s)		77.2	77.2		39.7	39.7
90th %ile Term Code		Coord	Coord		Max	Max
70th %ile Green (s)		79.7	79.7		37.2	37.2
70th %ile Term Code		Coord	Coord		Gap	Gap
50th %ile Green (s)		83.2	83.2		33.7	33.7
50th %ile Term Code		Coord	Coord		Gap	Gap
30th %ile Green (s)		86.1	86.1		30.8	30.8
30th %ile Term Code		Coord	Coord		Gap	Gap
10th %ile Green (s)		90.4	90.4		26.5	26.5
10th %ile Term Code		Coord	Coord		Gap	Gap
Stops (vph)		1254	664		614	44
Fuel Used(l)		123	99		50	4
CO Emissions (g/hr)		2289	1845		921	76
NOx Emissions (g/hr)		442	356		178	15
VOC Emissions (g/hr)		528	426		213	18
Dilemma Vehicles (#)		63	46		0	0
Queue Length 50th (m)		166.9	86.2		83.5	10.3
Queue Length 95th (m)		#234.6	120.2		99.2	25.8
Internal Link Dist (m)		120.8	474.8		87.1	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1971	2064		927	453
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.85	0.58		0.72	0.28

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 34 (26%), Referenced to phase 2:EBWB, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 27.2		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: 1: Fallowfield & 416 SB Off-ramp

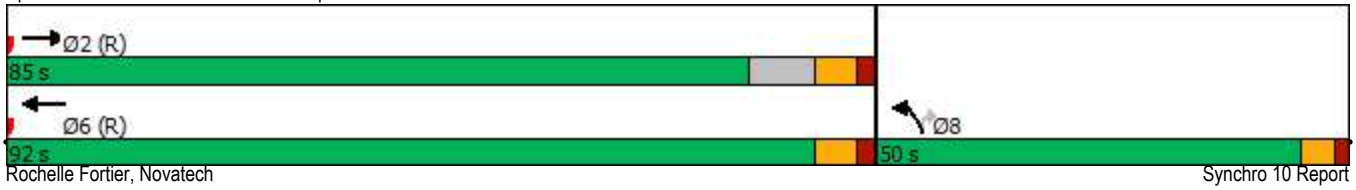


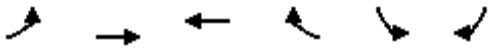
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1806	0	0	1125	184	313
Future Volume (vph)	1806	0	0	1125	184	313
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						18
Link Speed (k/h)	80			80	60	
Link Distance (m)	498.8			245.0	156.0	
Travel Time (s)	22.4			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	1806	0	0	1125	184	313
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1806	0	0	1125	184	313
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	85.0			92.0	50.0	50.0
Total Split (%)	59.9%			64.8%	35.2%	35.2%
Maximum Green (s)	78.3			85.3	44.7	44.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	95.2			95.2	34.8	34.8
Actuated g/C Ratio	0.67			0.67	0.25	0.25
v/c Ratio	0.84			0.51	0.51	0.86
Control Delay	24.1			13.8	49.8	70.0
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	24.1			13.8	49.8	70.0
LOS	C			B	D	E
Approach Delay	24.1			13.8	62.5	
Approach LOS	C			B	E	
90th %ile Green (s)	85.3			85.3	44.7	44.7
90th %ile Term Code	Coord			Coord	Max	Max
70th %ile Green (s)	90.2			90.2	39.8	39.8
70th %ile Term Code	Coord			Coord	Gap	Gap
50th %ile Green (s)	94.7			94.7	35.3	35.3
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	99.4			99.4	30.6	30.6
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	106.2			106.2	23.8	23.8
10th %ile Term Code	Coord			Coord	Gap	Gap
Stops (vph)	1295			555	153	278
Fuel Used(l)	179			65	14	30
CO Emissions (g/hr)	3324			1217	269	559
NOx Emissions (g/hr)	641			235	52	108
VOC Emissions (g/hr)	767			281	62	129
Dilemma Vehicles (#)	63			40	0	0
Queue Length 50th (m)	190.9			78.5	44.7	80.0
Queue Length 95th (m)	#289.2			115.7	62.5	107.3
Internal Link Dist (m)	474.8			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2138			2200	466	461
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.84			0.51	0.39	0.68

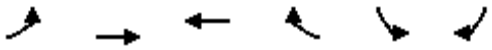
Intersection Summary			
Area Type:	Other		
Cycle Length: 142			
Actuated Cycle Length: 142			
Offset: 36 (25%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 26.3		Intersection LOS: 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: 2: 416 NB Off-ramp & Fallowfield





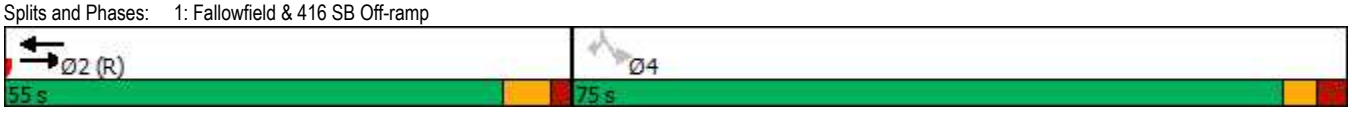
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1199	1255	0	1060	287
Future Volume (vph)	0	1199	1255	0	1060	287
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0			0.0	0.0	70.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3075	3221	0	3038	1316
Flt Permitted					0.950	
Satd. Flow (perm)	0	3075	3221	0	3038	1316
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						10
Link Speed (k/h)		80	80		50	
Link Distance (m)		144.8	498.8		111.1	
Travel Time (s)		6.5	22.4		8.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	10%	5%	2%	8%	15%
Adj. Flow (vph)	0	1199	1255	0	1060	287
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1199	1255	0	1060	287
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	24			14	24	14
Number of Detectors		2	2		1	1
Detector Template		Thru	Thru		Left	Right
Leading Detector (m)		10.0	10.0		2.0	2.0
Trailing Detector (m)		0.0	0.0		0.0	0.0
Detector 1 Position(m)		0.0	0.0		0.0	0.0
Detector 1 Size(m)		0.6	0.6		2.0	2.0
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Perm	Perm
Protected Phases		2	2			
Permitted Phases					4	4
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		20.0	20.0		10.0	10.0
Minimum Split (s)		30.4	30.4		30.3	30.3
Total Split (s)		55.0	55.0		75.0	75.0
Total Split (%)		42.3%	42.3%		57.7%	57.7%
Maximum Green (s)		48.2	48.2		68.7	68.7
Yellow Time (s)		4.6	4.6		3.3	3.3
All-Red Time (s)		2.2	2.2		3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.8	6.8		6.3	6.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Max	C-Max		None	None
Walk Time (s)		13.0	13.0		7.0	7.0
Flash Dont Walk (s)		9.0	9.0		17.0	17.0
Pedestrian Calls (#/hr)		1	1		1	1
Act Effct Green (s)		61.1	61.1		55.8	55.8
Actuated g/C Ratio		0.47	0.47		0.43	0.43
v/c Ratio		0.83	0.83		0.81	0.50
Control Delay		37.3	29.6		37.6	28.3
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		37.3	29.6		37.6	28.3
LOS		D	C		D	C
Approach Delay		37.3	29.6		35.6	
Approach LOS		D	C		D	
90th %ile Green (s)		51.7	51.7		65.2	65.2
90th %ile Term Code		Coord	Coord		Gap	Gap
70th %ile Green (s)		56.6	56.6		60.3	60.3
70th %ile Term Code		Coord	Coord		Gap	Gap
50th %ile Green (s)		60.7	60.7		56.2	56.2
50th %ile Term Code		Coord	Coord		Gap	Gap
30th %ile Green (s)		64.8	64.8		52.1	52.1
30th %ile Term Code		Coord	Coord		Gap	Gap
10th %ile Green (s)		71.6	71.6		45.3	45.3
10th %ile Term Code		Coord	Coord		Gap	Gap
Stops (vph)		967	1031		891	193
Fuel Used(l)		104	137		62	14
CO Emissions (g/hr)		1926	2548		1150	253
NOx Emissions (g/hr)		372	492		222	49
VOC Emissions (g/hr)		444	588		265	58
Dilemma Vehicles (#)		44	43		0	0
Queue Length 50th (m)		138.2	148.8		120.1	50.6
Queue Length 95th (m)		#206.5	#215.4		128.3	67.1
Internal Link Dist (m)		120.8	474.8		87.1	
Turn Bay Length (m)						70.0
Base Capacity (vph)		1444	1513		1605	700
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.83	0.83		0.66	0.41

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 46 (35%), Referenced to phase 2:EBWB, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 34.2		Intersection LOS: C	
Intersection Capacity Utilization 82.8%		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.			

Splits and Phases: 1: Fallowfield & 416 SB Off-ramp



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2085	0	0	1690	129	183
Future Volume (vph)	2085	0	0	1690	129	183
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	50.0
Storage Lanes		0	0		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	3191	0	0	3283	1483	1427
Flt Permitted					0.950	
Satd. Flow (perm)	3191	0	0	3283	1483	1427
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						24
Link Speed (k/h)	80			80	60	
Link Distance (m)	498.8			245.0	156.0	
Travel Time (s)	22.4			11.0	9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	2%	2%	3%	14%	6%
Adj. Flow (vph)	2085	0	0	1690	129	183
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2085	0	0	1690	129	183
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2			2	1	1
Detector Template	Thru			Thru	Left	Right
Leading Detector (m)	10.0			10.0	2.0	2.0
Trailing Detector (m)	0.0			0.0	0.0	0.0
Detector 1 Position(m)	0.0			0.0	0.0	0.0
Detector 1 Size(m)	0.6			0.6	2.0	2.0
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	0.0
Detector 1 Queue (s)	0.0			0.0	0.0	0.0
Detector 1 Delay (s)	0.0			0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA			NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases					8	8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	20.0			20.0	10.0	10.0
Minimum Split (s)	30.7			30.7	23.4	23.4
Total Split (s)	103.0			103.0	27.0	27.0
Total Split (%)	79.2%			79.2%	20.8%	20.8%
Maximum Green (s)	96.3			96.3	21.7	21.7
Yellow Time (s)	4.6			4.6	3.7	3.7
All-Red Time (s)	2.1			2.1	1.6	1.6
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.7			6.7	5.3	5.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	7.0			7.0		
Flash Dont Walk (s)	17.0			17.0		
Pedestrian Calls (#/hr)	1			1		
Act Effct Green (s)	99.5			99.5	18.5	18.5
Actuated g/C Ratio	0.77			0.77	0.14	0.14
v/c Ratio	0.85			0.67	0.61	0.82
Control Delay	12.3			9.5	64.5	73.9
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	12.3			9.5	64.5	73.9
LOS	B			A	E	E
Approach Delay	12.3			9.5	70.0	
Approach LOS	B			A	E	
90th %ile Green (s)	96.3			96.3	21.7	21.7
90th %ile Term Code	Coord			Coord	Max	Max
70th %ile Green (s)	96.3			96.3	21.7	21.7
70th %ile Term Code	Coord			Coord	Max	Max
50th %ile Green (s)	97.8			97.8	20.2	20.2
50th %ile Term Code	Coord			Coord	Gap	Gap
30th %ile Green (s)	101.1			101.1	16.9	16.9
30th %ile Term Code	Coord			Coord	Gap	Gap
10th %ile Green (s)	106.0			106.0	12.0	12.0
10th %ile Term Code	Coord			Coord	Gap	Gap
Stops (vph)	1214			781	120	151
Fuel Used(l)	171			90	12	18
CO Emissions (g/hr)	3184			1669	224	330
NOx Emissions (g/hr)	615			322	43	64
VOC Emissions (g/hr)	734			385	52	76
Dilemma Vehicles (#)	69			65	0	0
Queue Length 50th (m)	148.3			101.4	31.0	39.6
Queue Length 95th (m)	181.5			129.1	51.1	#69.6
Internal Link Dist (m)	474.8			221.0	132.0	
Turn Bay Length (m)						50.0
Base Capacity (vph)	2442			2512	247	258
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.85			0.67	0.52	0.71

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 10 (8%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 15.5		Intersection LOS: B	
Intersection Capacity Utilization 82.8%		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.			

Splits and Phases: 2: 416 NB Off-ramp & Fallowfield



Operational Data

Main Geometry (m)

Geometry and Design Target

Leg	Leg Names	Approach Geometry (m)				Target	Circulating and Exit Geom		
		Bearing (deg)	Grade Sep G	Half Width V	Lanes n	Average Delay (sec/veh)	Inscribed Diameter D	Half Width Vx	Lanes n
1	Citigate	0	0	5.50	1	15	40.00	5.50	1
2	Crosskeys (future)	90	0	5.50	1	15	40.00	5.50	1
3	Citigate (future)	180	0	5.50	1	15	40.00	5.50	1
4	Crosskeys	270	0	5.50	1	15	40.00	5.50	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (m)	Default Capacity	Calib Capacity	V (m)	Default Capacity	Calib Capacity
1	Citigate	0	1.000	0	1.000	6.00	2695	0	5.50	2695	0
2	Crosskeys (future)	0	1.000	0	1.000	6.00	2695	0	5.50	2695	0
3	Citigate (future)	0	1.000	0	1.000	6.00	2695	0	5.50	2695	0
4	Crosskeys	0	1.000	0	1.000	6.00	2695	0	5.50	2695	0

Operational Results

Geometry for Target Input

Geometry Options for 2021 AM Peak

Leg 1 - Citigate					
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	2	5.50	0.00

Geometry Options for 2021 AM Peak

Leg 2 - Crosskeys (future)					
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	2	5.50	0.00

Geometry Options for 2021 AM Peak

Leg 3 - Citigate (future)					
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	1	5.50	0.00

Geometry Options for 2021 AM Peak

Leg 4 - Crosskeys					
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	2	5.50	0.00

2021 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Citigate	None	96		90		102	1269		0.0756	
2	Crosskeys (future)	None	152		87		99	1271		0.1196	
3	Citigate (future)	None	68		124		115	1249		0.0545	
4	Crosskeys	None	111		81		111	1275		0.0871	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Citigate	None	2.91		2.91	0.21		A		A
2	Crosskeys (future)	None	3.04		3.04	0.34		A		A
3	Citigate (future)	None	2.89		2.89	0.14		A		A
4	Crosskeys	None	2.93		2.93	0.24		A		A

2021 AM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Citigate	None	96		90		102	1269		0.0756	
2	Crosskeys (future)	None	152		87		99	1271		0.1196	
3	Citigate (future)	None	68		124		115	1249		0.0545	
4	Crosskeys	None	111		81		111	1275		0.0871	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Citigate	None	2.91		2.91	0.21		A		A
2	Crosskeys (future)	None	3.04		3.04	0.34		A		A
3	Citigate (future)	None	2.89		2.89	0.14		A		A
4	Crosskeys	None	2.93		2.93	0.24		A		A

Operational Data

Main Geometry (m)

Geometry and Design Target

Leg	Leg Names	Approach Geometry (m)				Target	Circulating and Exit Geom		
		Bearing (deg)	Grade Sep G	Half Width V	Lanes n	Average Delay (sec/veh)	Inscribed Diameter D	Half Width Vx	Lanes n
1	N - Citigate	0	0	5.50	1	15	40.00	5.50	1
2	W - Crosskeys (future)	90	0	5.50	1	15	40.00	5.50	1
3	S - Citigate (future)	180	0	5.50	1	15	40.00	5.50	1
4	E - Crosskeys	270	0	5.50	1	15	40.00	5.50	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (m)	Default Capacity	Calib Capacity	V (m)	Default Capacity	Calib Capacity
1	N - Citigate	0	1.000	0	1.000	6.00	2695	0	5.50	2695	0
2	W - Crosskeys (future)	0	1.000	0	1.000	6.00	2695	0	5.50	2695	0
3	S - Citigate (future)	0	1.000	0	1.000	6.00	2695	0	5.50	2695	0
4	E - Crosskeys	0	1.000	0	1.000	6.00	2695	0	5.50	2695	0

Traffic Flow Data (veh/hr)

2021 PM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	N - Citigate	0	72	34	68	0	5.0	1.00	1.000
2	W - Crosskeys (future)	0	69	61	0	0	5.0	1.00	1.000
3	S - Citigate (future)	0	0	34	53	0	5.0	1.00	1.000
4	E - Crosskeys	21	52	59	8	0	5.0	1.00	1.000

Operational Results

Geometry for Target Input

Geometry Options for 2021 PM Peak

Leg 1 - N - Citigate					
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	2	5.50	0.00

Geometry Options for 2021 PM Peak

Leg 2 - W - Crosskeys (future)					
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	2	5.50	0.00

Geometry Options for 2021 PM Peak

Leg 3 - S - Citigate (future)					
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	1	5.50	0.00

Geometry Options for 2021 PM Peak

Leg 4 - E - Crosskeys					
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	2	5.50	0.00

2021 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	N - Citigate	None	174		132		111	1244		0.1399	
2	W - Crosskeys (future)	None	130		179		127	1216		0.1070	
3	S - Citigate (future)	None	87		223		86	1189		0.0732	
4	E - Crosskeys	None	140		103		207	1261		0.1110	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	N - Citigate	None	3.17		3.17	0.40		A		A
2	W - Crosskeys (future)	None	3.14		3.14	0.30		A		A
3	S - Citigate (future)	None	3.10		3.10	0.20		A		A
4	E - Crosskeys	None	3.03		3.03	0.31		A		A

2021 PM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	N - Citigate	None	174		132		111	1244		0.1399	
2	W - Crosskeys (future)	None	130		179		127	1216		0.1070	
3	S - Citigate (future)	None	87		223		86	1189		0.0732	
4	E - Crosskeys	None	140		103		207	1261		0.1110	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	N - Citigate	None	3.18		3.18	0.40		A		A
2	W - Crosskeys (future)	None	3.14		3.14	0.30		A		A
3	S - Citigate (future)	None	3.10		3.10	0.20		A		A
4	E - Crosskeys	None	3.04		3.04	0.31		A		A

Operational Data

Main Geometry (m)

Geometry and Design Target

Leg	Leg Names	Approach Geometry (m)				Target	Circulating and Exit Geom		
		Bearing (deg)	Grade Sep G	Half Width V	Lanes n	Average Delay (sec/veh)	Inscribed Diameter D	Half Width Vx	Lanes n
1	Citigate	0	0	5.50	1	15	40.00	5.50	1
2	Crosskeys (future)	90	0	5.50	1	15	40.00	5.50	1
3	Citigate (future)	180	0	5.50	1	15	40.00	5.50	1
4	Crosskeys	270	0	5.50	1	15	40.00	5.50	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (m)	Default Capacity	Calib Capacity	V (m)	Default Capacity	Calib Capacity
1	Citigate	0	1.000	0	1.000	6.00	2695	0	5.50	2695	0
2	Crosskeys (future)	0	1.000	0	1.000	6.00	2695	0	5.50	2695	0
3	Citigate (future)	0	1.000	0	1.000	6.00	2695	0	5.50	2695	0
4	Crosskeys	0	1.000	0	1.000	6.00	2695	0	5.50	2695	0

Traffic Flow Data (veh/hr)

2026 AM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	Citigate	0	18	26	52	0	5.0	1.00	1.000
2	Crosskeys (future)	0	54	49	49	0	5.0	1.00	1.000
3	Citigate (future)	0	0	27	41	0	5.0	1.00	1.000
4	Crosskeys	3	40	47	21	0	5.0	1.00	1.000

Operational Results

Geometry for Target Input

Geometry Options for 2026 AM Peak

Leg 1 - Citigate					
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	2	5.50	0.00

Geometry Options for 2026 AM Peak

Leg 2 - Crosskeys (future)					
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	2	5.50	0.00

Geometry Options for 2026 AM Peak

Leg 3 - Citigate (future)					
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	1	5.50	0.00

Geometry Options for 2026 AM Peak

Leg 4 - Crosskeys					
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	2	5.50	0.00

2026 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Citigate	None	96		90		102	1269		0.0756	
2	Crosskeys (future)	None	152		87		99	1271		0.1196	
3	Citigate (future)	None	68		124		115	1249		0.0545	
4	Crosskeys	None	111		81		111	1275		0.0871	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Citigate	None	2.91		2.91	0.21		A		A
2	Crosskeys (future)	None	3.04		3.04	0.34		A		A
3	Citigate (future)	None	2.89		2.89	0.14		A		A
4	Crosskeys	None	2.93		2.93	0.24		A		A

2026 AM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	Citigate	None	96		90		102	1269		0.0756	
2	Crosskeys (future)	None	152		87		99	1271		0.1196	
3	Citigate (future)	None	68		124		115	1249		0.0545	
4	Crosskeys	None	111		81		111	1275		0.0871	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	Citigate	None	2.91		2.91	0.21		A		A
2	Crosskeys (future)	None	3.04		3.04	0.34		A		A
3	Citigate (future)	None	2.89		2.89	0.14		A		A
4	Crosskeys	None	2.93		2.93	0.24		A		A

Operational Data

Main Geometry (m)

Geometry and Design Target

Leg	Leg Names	Approach Geometry (m)				Target	Circulating and Exit Geom		
		Bearing (deg)	Grade Sep G	Half Width V	Lanes n	Average Delay (sec/veh)	Inscribed Diameter D	Half Width Vx	Lanes n
1	N - Citigate	0	0	5.50	1	15	40.00	5.50	1
2	W - Crosskeys (future)	90	0	5.50	1	15	40.00	5.50	1
3	S - Citigate (future)	180	0	5.50	1	15	40.00	5.50	1
4	E - Crosskeys	270	0	5.50	1	15	40.00	5.50	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (m)	Default Capacity	Calib Capacity	V (m)	Default Capacity	Calib Capacity
1	N - Citigate	0	1.000	0	1.000	6.00	2695	0	5.50	2695	0
2	W - Crosskeys (future)	0	1.000	0	1.000	6.00	2695	0	5.50	2695	0
3	S - Citigate (future)	0	1.000	0	1.000	6.00	2695	0	5.50	2695	0
4	E - Crosskeys	0	1.000	0	1.000	6.00	2695	0	5.50	2695	0

Traffic Flow Data (veh/hr)

2026 PM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	N - Citigate	0	72	34	68	0	5.0	1.00	1.000
2	W - Crosskeys (future)	0	69	61	0	0	5.0	1.00	1.000
3	S - Citigate (future)	0	0	34	53	0	5.0	1.00	1.000
4	E - Crosskeys	21	52	59	8	0	5.0	1.00	1.000

Operational Results

Geometry for Target Input

Geometry Options for 2026 PM Peak

Leg 1 - N - Citigate					
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	2	5.50	0.00

Geometry Options for 2026 PM Peak

Leg 2 - W - Crosskeys (future)					
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	2	5.50	0.00

Geometry Options for 2026 PM Peak

Leg 3 - S - Citigate (future)					
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	1	5.50	0.00

Geometry Options for 2026 PM Peak

Leg 4 - E - Crosskeys					
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	2	5.50	0.00

2026 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	N - Citigate	None	174		132		111	1244		0.1399	
2	W - Crosskeys (future)	None	130		179		127	1216		0.1070	
3	S - Citigate (future)	None	87		223		86	1189		0.0732	
4	E - Crosskeys	None	140		103		207	1261		0.1110	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	N - Citigate	None	3.17		3.17	0.40		A		A
2	W - Crosskeys (future)	None	3.14		3.14	0.30		A		A
3	S - Citigate (future)	None	3.10		3.10	0.20		A		A
4	E - Crosskeys	None	3.03		3.03	0.31		A		A

2026 PM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	N - Citigate	None	174		132		111	1244		0.1399	
2	W - Crosskeys (future)	None	130		179		127	1216		0.1070	
3	S - Citigate (future)	None	87		223		86	1189		0.0732	
4	E - Crosskeys	None	140		103		207	1261		0.1110	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	N - Citigate	None	3.18		3.18	0.40		A		A
2	W - Crosskeys (future)	None	3.14		3.14	0.30		A		A
3	S - Citigate (future)	None	3.10		3.10	0.20		A		A
4	E - Crosskeys	None	3.04		3.04	0.31		A		A