



Transportation Impact Study

699 Paris Church Plains Road

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Executive Summary

Arcadis IBI Group (Arcadis) was retained by Miller Aggregates to prepare a Transportation Impact Study (TIS) in support of a Zoning By-law Amendment application for a proposed gravel pit development at 699 Paris Church Plains Road in the County of Brant, Ontario.

The proposed gravel pit will occupy an approximate 125.8-hectare site with a maximum annual extraction limit of 1 million tonnes of material. Access to the site will be accommodated through the existing property at 304 Pinehurst Road which was purchased by the proponent and is included in the licensing agreement for the proposed gravel pit in order to facilitate direct access to the arterial road network (i.e. Pinehurst Road) and future planned haul route within closest proximity to the site. Shipping from the site is anticipated to occur between 6am to 6pm on weekdays and 8am to 2pm on Saturdays. It is expected that the site will be fully operational by 2027, therefore a horizon year of 2032 was selected for this TIS.

Based on typical operating conditions for a comparable gravel pit with an upper extraction limit of approximately 1,000,000 tonnes per year, it is estimated that the proposed development will generate approximately 60 truck-trips per hour (30 inbound and 30 outbound) during the weekday morning, weekday afternoon and Saturday peak hours. Given the larger dimensions and different operating characteristics of large trucks, the site-generated truck traffic was converted into passenger car equivalents (PCEs) by multiplying the number of trips generated by 2.0.

Site-generated truck traffic is expected to primarily travel to/from the north (75%), while the remaining truck traffic (25%) travels south via Alternative 24A Route (also known as the West Paris Bypass route) which avoids downtown Paris by using a combination of Watts Pond Road, Ayr Road, Keg Lane, Oxford Brant Road, King Edward Street, Bishopsgate Road and Powerline Road.

An intersection capacity analysis was undertaken for all key intersections along the south haul route which have not been recently upgraded to roundabouts and two potential traffic operational issues within the timeframe of this study:

- **Watt's Pond & Pinehurst:** The results of the analysis identified delays slightly in excess of acceptable thresholds at the Watt's Pond & Pinehurst intersection. Given that this intersection is expected to be upgraded by the County of Brant to a roundabout between 2031 and 2041 with or without site-generated traffic impacts and the delays with the existing stop-controlled configuration are just 1.1s above the threshold for LOS 'D', no interim mitigation measures are recommended. It is anticipated that the implementation of a roundabout configuration will address these potential capacity issues.
- **Highway 403 Westbound On/Off-Ramp at Rest Acres Road:** The analysis conducted for this TIS also identified existing capacity issues at the Highway 403 westbound intersection at Rest Acres Road during the critical weekday afternoon peak hour. These capacity issues can be mitigated through regular signal optimization up to 2027 with and without site-generated traffic. It is recommended, however, that the planned upgrade of this intersection to a roundabout configuration occur by 2032 to reduce expected traffic operational issues resulting from the growth in background travel demand which is no longer expected to be manageable through signal optimization by this time. Site-generated traffic will mostly contribute to the westbound channelized right-turn movement which is free-flow, has a negligible impact on the overall traffic operations at this intersection and is not dependent on its upgrade to a future roundabout configuration to operate safely. It is emphasized that any future capacity constraints identified through capacity analysis conducted for this intersection will exist without the pit-generated truck traffic and are not expected to be exacerbated by site-generated traffic contributions.

An auxiliary left-turn and right-turn lane analysis was completed at all unsignalized study area intersections and identified the need for a dedicated turning facility at the following location exclusively to support site-generated traffic contributions:

- **Pinehurst Road & Site Access:** Southbound left-turn lane with at least 40m of storage.

The auxiliary lane analyses also indicated that the following dedicated turning lanes are required as a result of background traffic (i.e. not pit-generated traffic) and will not be significantly impacted by site-generated traffic:

- **Pinehurst Road & Paris Plains Church Road:** Northbound left-turn lane with a minimum of 15m of storage.
- **Pinehurst Road & Watts Pond Road:** Northbound and southbound left-turn lanes with a minimum of 25m and 15m of storage, respectively.
- **Brant Oxford Road & Keg Lane:** Southbound left-turn lane with a minimum of 25m of storage.
- **Bishopsgate Road & Powerline Road:** Southbound left-turn lane with a minimum of 25m of storage. The need for an auxiliary left-turn lane is a result of background traffic but the addition of site-generated truck traffic results in the need for an additional 10m of storage (included in the total noted above). It is important to note, however, that once the Bishopsgate interchange with Highway 403 is implemented, which is planned to occur within the timeframe of this study, site-generated truck traffic is anticipated to no longer contribute additional volumes to this left-turning movement. As such, in the mid- to long-term any upgrades to this intersection would only be required to support background traffic.

The 2022 County of Brant Transportation Master Plan (TMP) identifies future upgrades to Powerline Road (2021-2031), as well as upgrades to comply with arterial road standards on Watts Pond Road, Ayr Road, Keg Lane between 2031 and 2041. It is, therefore, expected that the auxiliary left-turn lanes required at the last three intersections above will be implemented as part of these TMP projects to support growth in overall travel demand and are therefore not dependent on site-generated travel demands for implementation.

A review of auxiliary right-turn lane thresholds at all study area intersections indicate that no new right-turn facilities are required. At the request of the County of Brant, traffic signal warrant analysis was also completed for the Pinehurst & Paris Church Plains intersection and determined that traffic signals are not required at this intersection either.

A desktop sightline review was conducted to evaluate Intersection Sight Distance (ISD) and Stopping Sight Distance (SSD) criteria per the Transportation Association of Canada (TAC) Geometric Design Guidelines for each location along the Paris West Bypass route where site-generated truck turning movements will occur. Highlights of this review are provided below:

- At the proposed site access, sightline visibility to/from the north on may be slightly restricted due to the vertical alignment of Pinehurst Road, however based on the sightline review conducted for this TIS, both ISD and SSD requirements are met upstream and downstream of the proposed site access driveway location.
- A significant existing sightline deficiency was identified on the eastern leg of the Ayr Road & Keg Lane intersection and therefore both ISD and SSD were not achievable in this direction. As an interim mitigation strategy, it was observed that a 'Hidden Intersection' warning sign exists approximately 350m east of Ayr Road to caution westbound vehicles on Keg Lane of this upcoming intersection. A flashing red beacon was also installed to remind motorists to come to a full stop and observe oncoming traffic on Ayr Road, prior to turning onto Keg Lane. As a more effective solution for the longer-term, it is recommended

that the County advance its current timeline of 2031-2041 for upgrades to Ayr & Keg Lane into a roundabout configuration, given that this intersection forms part of the official Alternative 24A Bypass Route and is used by all regional truck traffic.

The overall conclusion of this TIS is that traffic generated by the proposed gravel pit can be safely accommodated on the adjacent road network with consideration of the recommended roadway improvements identified within this TIS report.

1 Introduction

Arcadis was retained by Miller Aggregates to undertake a Transportation Impact Study (TIS) in support of a Zoning By-law Amendment for a proposed gravel pit development at 699 Paris Church Plains Road, located in the County of Brant, Ontario.

Access to the public road network will be accommodated through the property at 304 Pinehurst Road, immediately west of the subject site and will provide an all-movements vehicular connection to Pinehurst Road.

The site location and its surrounding context are shown in **Figure 1** below.

Figure 1 – Site Location



The primary objective of this study is to provide an estimate of anticipated site-generated traffic impacts on the surrounding community, including proposed haul routes and the expected frequency of heavy vehicle traffic to ensure that the proposed development will have minimal adverse safety impacts.

1.1 Study Methodology

The following items will be addressed as part of this TIS in general accordance with Section 20 of the Development & Engineering Standards: Traffic Impact Study Guidelines, published by the County of Brant in November 2018:

- 1) Summarize the existing and future transportation network within the vicinity of the site.
- 2) Identify any future developments within the vicinity of the site.
- 3) Summarize the expected number of site-generated trips during the weekday morning and afternoon peak hours of adjacent street traffic.

- 4) Analyse future background and total traffic conditions and identify any necessary road improvements required to accommodate the proposed gravel pit.
- 5) Review the location of existing site access intersection to ensure conformance with the best practices established in the Transportation Association of Canada's Geometric Design Guide for Canadian Roads relating to auxiliary turn lanes or slip-around lanes.

The minimum study parameters and assumptions were agreed to by County of Brant technical staff on October 13, 2022:

- Study Area
- Background Traffic Counts
- Analysis Horizons and Periods
- Trip Generation Rates
- Transit Mode Share
- Traffic Growth Rate Assumptions
- Road Network Assumptions

The recently published County of Brant Transportation Master Plan (TMP), published in December 2022, was referenced for guidance on future infrastructure projects and implementation timeframes. Weekday and Saturday turning movement counts were undertaken to capture peak traffic volumes on the adjacent road network at the study area intersections.

Future traffic volumes were estimated by applying a growth factor to existing traffic counts based on historical growth rates. Appropriate trip generation rates for the proposed gravel pit development were based on typical and comparable facilities with upper limit extractions of approximately 1,000,000 tonnes per year. Trip distribution and trip assignment were developed with consideration of the proximity to 400-series highways and nearby facilities which would make use of extracted materials from the proposed gravel pit. The intersection capacity analysis was completed using Synchro v11 and SIDRA v9 analysis software.

2 Proposed Development

The proposed gravel pit development at 699 Paris Plains Church Road will be accommodated on an approximate 125.8-hectare greenfield site and will have a separate Aggregate Resources Act Licence and includes the following condition most directly correlated to the site's overall trip generation:

- No more than 1 million tonnes of material shall be removed from this site in any calendar year.

It should be noted that the 304 Pinehurst Road property was purchased by the proponent and is included in the licensing agreement for the proposed gravel pit in order to facilitate direct access to the arterial road network and future planned haul route within closest proximity to the site. Furthermore, Paris Plains Church Road which directly abuts the subject site to the south, has seasonal load restrictions of no more than 5 tonnes per axle from March 1 to April 30th. As such, Paris Plains Church Road will not be used for truck traffic.

Based on discussions with the proponent, it is understood that the estimated shipping and operating hours of the proposed gravel pit are as follows:

- Shipping hours Monday to Friday are 6am to 6pm

- Operating (production) Hours Monday to Friday are 7am to 7pm
- Saturday the pit will ship from 8am to 2pm

As discussed with the proponent, estimated travel characteristics of the proposed gravel pit development are provided below:

- From December to April there will be between 140-200 truck movements each day
- From May to November there will be 200-300 truck movements each day
- The peak truck shipping hours will be early in the morning, likely between 6am and 9am.

3 Study Analysis Years

As confirmed with the County of Brant through the submission of the TIS Parameters document at the onset of this study, an evaluation of following analysis years was required for this TIS in addition to Existing conditions:

- 2027 – Full build-out
- 2032 – 5 years beyond full build-out

4 Time Periods

The analysis undertaken in this TIS will review traffic conditions on the adjacent roadways within the study area during the weekday morning, weekday afternoon and Saturday peak hour periods to coincide with the peak operating hours of the proposed gravel pit and background traffic constraints.

5 Existing Transportation Network & Future Planned Scenarios

5.1 Existing Roadways

The following roads have the potential to be impacted by site-generated traffic as outlined in **Table 1** below. It should be noted that the classification, cross-section and speed limit characteristics are only described for segments which are most relevant for this study and may not be representative of the entire length of each corridor.

Table 1 – Existing Roadways

NAME	CLASS	JURISDICTION	ORIENTATION & EXTENTS	CROSS SECTION	SPEED LIMIT (KM/H)
Pinehurst Road	Arterial	County of Brant	Woodslee Avenue to Brant-Waterloo Road	2-Lane, Rural, Undivided	80 (near Paris Plains Church) 50 (near Watts Pond)
Ayr Road	Arterial	County of Brant	Keg Lane to Brant Waterloo Road	2-Lane, Rural, Undivided	80
Paris Plains Church Road	Local	County of Brant	W River Road to Brant Oxford Road	2-Lane, Rural, Undivided	80
Powerline Road	Arterial	County of Brant	Bishopsgate Road to Grand River	2-Lane, Rural, Undivided	70
Watts Pond Road	Arterial	County of Brant	Watt's Pond Road to Ayr Road	2-Lane, Rural, Undivided	60
Bishopsgate Road	Arterial	County of Brant	King Edward Street to Elliott Road	2-Lane, Rural, Undivided	60
Keg Lane	Arterial	County of Brant	Brant Oxford Road to Silver Street	2-Lane, Rural, Undivided	80
Brant Oxford Road	Arterial	County of Brant	Drumbo Road/Oxford Road 29 to Governors Road W	2-Lane, Rural, Undivided	80 (near Keg Lane) 60 (near King Edward St)
Rest Acres Road	Arterial	County of Brant	King Edward Street to Colborne Street W	2-Lane, Rural, Undivided	60

5.2 Haul Routes

In order to mitigate the impacts of truck traffic within downtown Paris, Alternative 24A Route was established to provide a north-south corridor to accommodate these larger vehicles, as illustrated in **Figure 2** (right). This haul route is also referred to as the Paris West Bypass route and generally follows the arterial road network and includes portions of Ayr Road, Keg Lane, Brant Oxford Road, King Edward Street and Rest Acres Road to access Highway 403.

Figure 2 – Alternative 24A Route



Source: Exhibit 2.4, 2022 County of Brant TMP

5.3 Existing Traffic Volumes & Intersection Control

Aside from the proposed site access driveway, the existing intersections of significance within the established study area are indicated below, along with the current intersection control and dates of weekday/Saturday turning movement counts collected for this TIS:

- Paris Plains Church Road & Pinehurst Road (stop-controlled) – June 1 & November 17, 2022
- Pinehurst Road & Watts Pond Road (stop-controlled) – November 12 & 22, 2022
- Watts Pond Road & Ayr Road (stop-controlled) – November 12 & 17, 2022
- Ayr Road & Keg Lane (stop-controlled) – November 12 & 17, 2022
- Brant Oxford Road & Keg Lane (stop-controlled) – November 12 & 17, 2022
- Bishopsgate Road & Powerline Road (stop-controlled) – November 12 & 17, 2022
- Highway 403 & EB On/Off-Ramp at Rest Acres Road (stop-controlled) – November 12 & 17, 2022
- Highway 403 & WB On/Off-Ramp at Rest Acres Road (signalized) – November 12 & 17, 2022

Existing lane configurations and intersection control for the above noted study area intersections are illustrated in **Exhibit 1**, while traffic volumes representative of Existing conditions and based on the traffic count data are illustrated in **Exhibit 2** below.

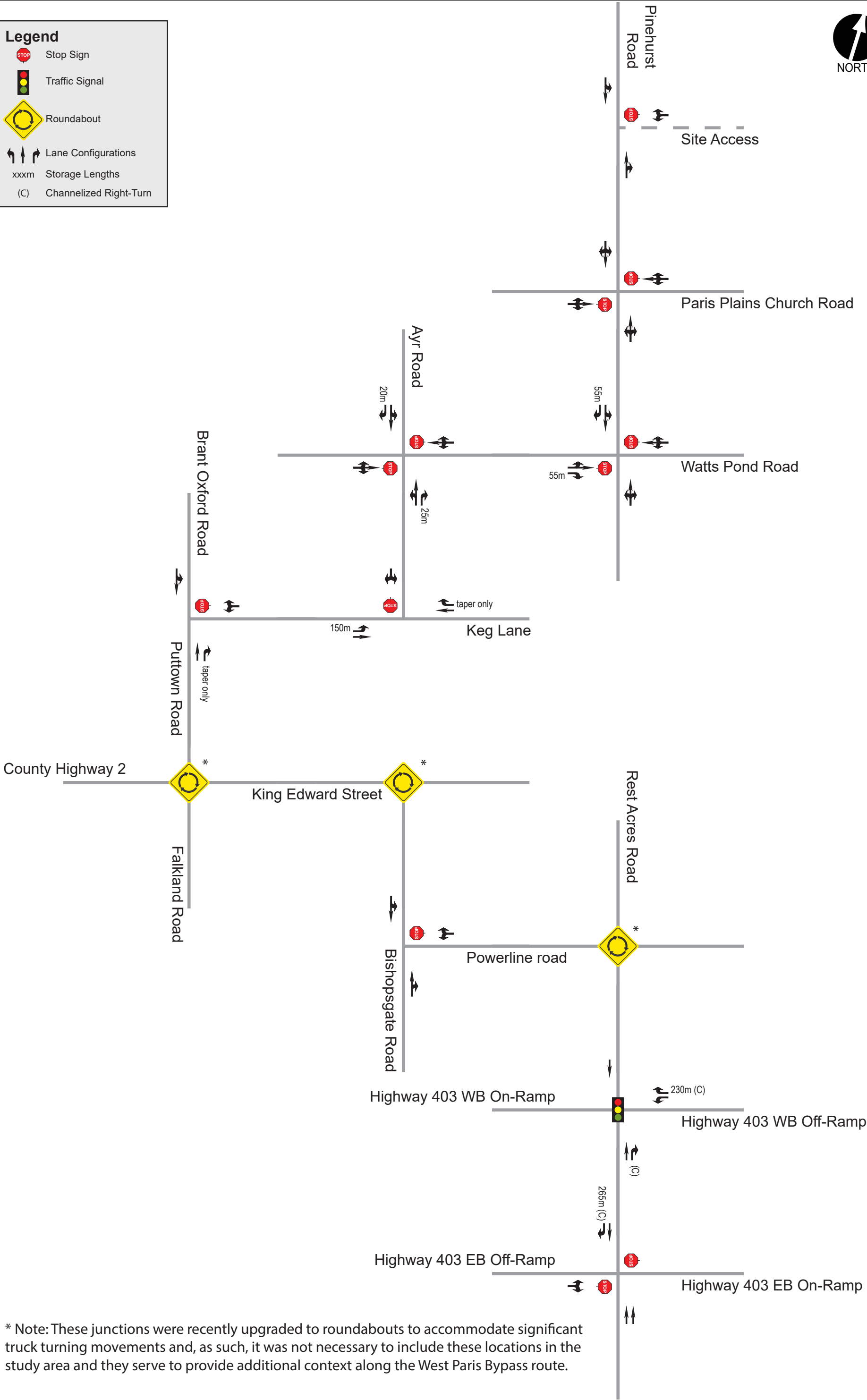
Intersections along the Alternative 24A Route that were recently upgraded to roundabout configurations, including King Edward Street & Puttown Road, King Edward Street & Bishopsgate Road, as well as Rest Acres Road & Powerline Road, were exempt from further review as part of this study. It is assumed that these junctions have been designed with features such as truck turning aprons which can accommodate turning radii associated with heavy vehicles, as well as the ability to reduce vehicular operate speeds, mitigate any potential sightline issues or other traffic operational issues which existed prior to their upgrades.

The turning movement counts collected for this study are provided in **Appendix A**.



Legend

- Stop Sign
- Traffic Signal
- Roundabout
- Lane Configurations
- Storage Lengths
- Channelized Right-Turn



* Note: These junctions were recently upgraded to roundabouts to accommodate significant truck turning movements and, as such, it was not necessary to include these locations in the study area and they serve to provide additional context along the West Paris Bypass route.



LEGEND

Permitted Movements

xx

xx

xx

Weekday AM (PM) [SAT]

xx

xx

xx

Peak Hour Vehicular Volume

Map showing existing traffic at the intersection of 699 Paris Church Plains Road and Highway 403. The map includes various roads like Pinehurst Road, Watts Pond Road, Keg Lane, and Highway 403 with on-ramps and off-ramps. Traffic volumes are provided for each movement.

Legend:

- Permitted Movements: Left turn arrow, Through/Right turn arrow, Right turn arrow.
- Weekday AM (PM) [SAT]: xx (xx) (xx).
- Peak Hour Vehicular Volume: xx (xx) (xx).

Key Features:

- Site Access:** Located on Pinehurst Road, south of Watts Pond Road.
- Highway 403:** Westbound (WB) and Eastbound (EB) lanes with on-ramps and off-ramps.
- Other Roads:** Pinehurst Road, Watts Pond Road, Keg Lane, Brant Oxford Road, Puttoun Road, Falkland Road, King Edward Street, Powerline road, Bishopsgate Road, Rest Acres Road.

Traffic Volumes (Left Turn | Through/Right Turn | Right Turn):

- Pinehurst Road:**
 - Northbound: [217] (365) 185
 - Southbound: [2] (2) 0, [213] (359) 184, [2] (4) 1
- Watts Pond Road:**
 - Northbound: 2 (2) [3], 342 (267) [198], 7 (16) [14]
 - Southbound: 3 (4) [1], 11 (8) [0], 6 (8) [8]
- Watts Pond Road / Keg Lane:**
 - Westbound: 8 (11) [13], 344 (280) [220], 25 (65) [53]
 - Eastbound: [8] (15) 28, [1] (4) 4, [41] (31) 37
- Keg Lane:**
 - Westbound: 11 (9) [5], 63 (68) [51], 1 (1) [1]
 - Eastbound: 53 (53) [41], 77 (137) [82]
- Brant Oxford Road:**
 - Westbound: [39] (42) 33, [71] (112) 58, [2] (0) 1
 - Eastbound: 20 (49) [38], 2 (8) [9], 12 (12) [7]
- Puttoun Road:**
 - Westbound: [35] (38) 31, [141] (280) 147
 - Eastbound: 24 (30) [28], 68 (134) [75]
- King Edward Street:**
 - Westbound: [14] (21) 24, [96] (115) 98
 - Eastbound: [59] (79) 57, [19] (41) 20
- Powerline road:**
 - Westbound: 14 (24) [16], 120 (135) [103]
 - Eastbound: 73 (127) [57], 10 (27) [24]
- Highway 403:**
 - WB On-Ramp:** [463] (551) 477, [41] (41) 49
 - WB Off-Ramp:** 221 (391) [231], 327 (537) [320]
 - EB Off-Ramp:** 76 (111) [58], 299 (345) [262]
 - EB On-Ramp:** [498] (837) 536, [234] (249) 318

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Exhibit 2:

Existing Traffic

PROJECT No. 139382

SCALE: N.T.S.

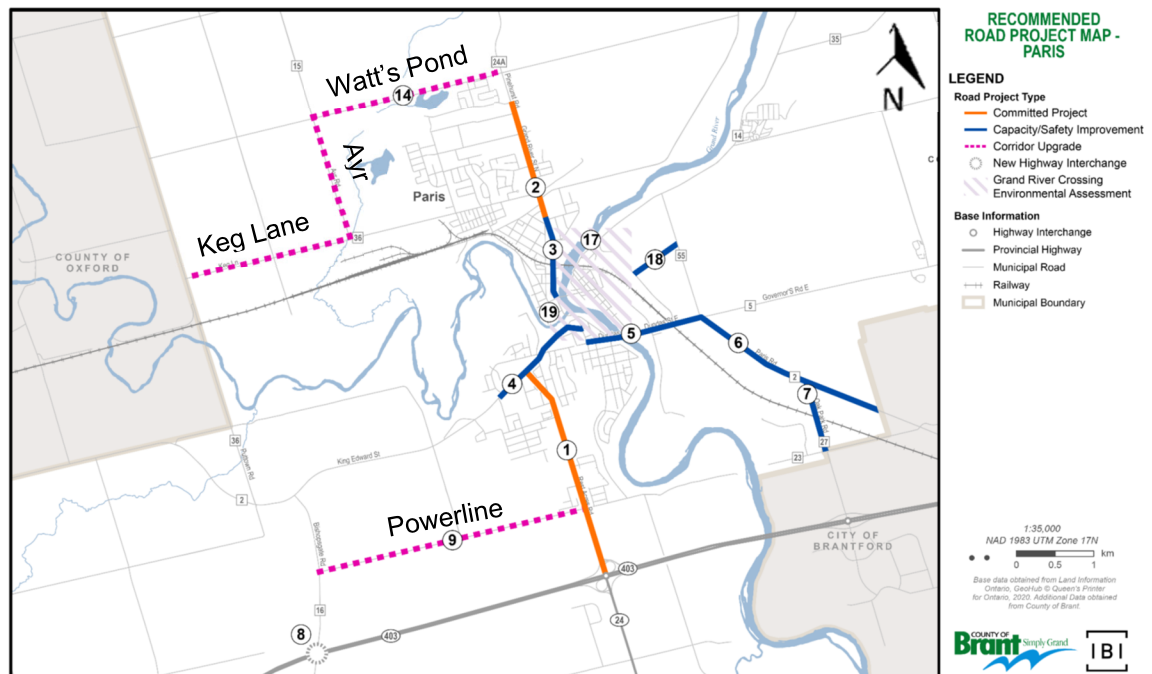
6 Future Conditions

6.1 Future Transportation Network

Based on the 2022 County of Brant Transportation Masterplan (TMP), the relevant roadway network modifications within the study area are listed below and illustrated in **Figure 3** below:

- Project 1 - Rest Acres Road
 - Currently undergoing road widening to 4 lanes from King Edward Street to Highway 403 which is expected to be complete by 2024.
 - Based on discussions with Ontario Ministry of Transportation (MTO) technical staff regarding the upgrade of the Highway 403 eastbound and westbound ramp terminals at Rest Acres Road, the detailed design of the roundabout configurations is ongoing, however there is no timeline available for its implementation at this time. An extract of the functional design approved as part of the Rest Acres Road Environmental Assessment Addendum (BTE, 2018) prepared for the County of Brant is provided in **Appendix B**.
- Project 8 - Bishopsgate Interchange (Bishopsgate Road and Highway 403)
 - Construction of an interchange to complete the Paris West Bypass route. The expected timing of the project is between 2021 and 2031.
- Project 9 - Powerline Road
 - Upgrade corridor to an arterial road standard cross-section to improve the Paris West Bypass route from Bishopsgate Road to Rest Acres Road. Expected timing of the project is between 2021 and 2031 and it is intended that this would be used as an interim route to access Highway 403, prior to the construction of the Bishopsgate interchange.
- Project 14 – Road Upgrades
 - Involves the upgrade of Watts Pond Road (Pinehurst to Ayr), Ayr Road (Watt's Pond to Keg Lane) and Keg Lane (Ayr to Brand Oxford) to a rural arterial road standard between 2031 and 2041.

Figure 3 – County of Brant 2022 TMP - Recommended Road Projects



Source: Map 2 of the County of Brant 2022 TMP

6.2 Haul Routes – Paris West Bypass Strategy

The 2022 County of Brant TMP recommends incremental road upgrades to further improve Alternative 24A Route/Paris West Bypass, as discussed previously.

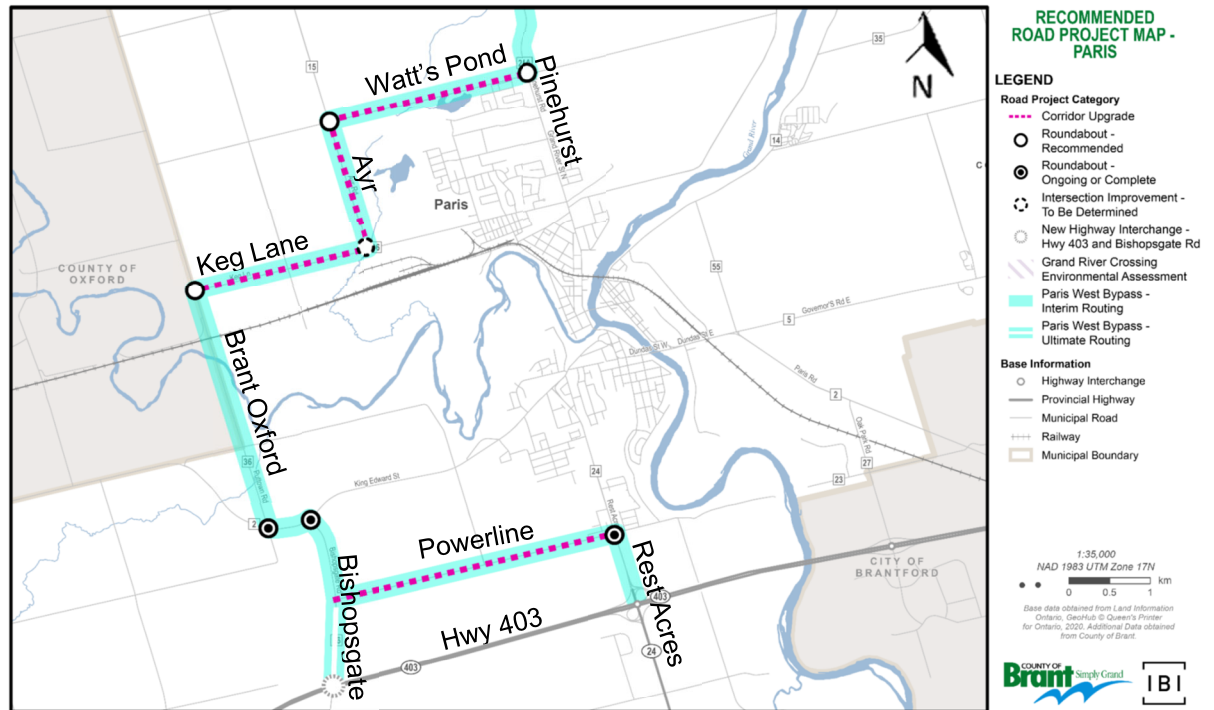
The recommended interim and ultimate Paris West Bypass Routes are shown in **Figure 4** below. In the interim, Powerline Road will be upgraded to accommodate year-round truck traffic. Ultimately, a new Highway 403 interchange is proposed at Bishopsgate Road to provide a more direct connection to this key regional transportation corridor and, once constructed, will form part of a realigned Paris West Bypass Route in the medium to longer-term. These improvements are expected to be implemented by 2031 and therefore have an increased likelihood to occur within the 2032 study horizon year, however the analysis in this study will provide a more conservative evaluation without the benefits associated with this additional interchange.

Accompanying road upgrades associated with Projects 9 and 14 in the 2022 TMP, as discussed in the preceding section, is the recommended upgrade of stop-controlled intersections to roundabouts at the following locations in order to better accommodate turning movements associated with heavy vehicles utilizing this official route:

- Watts Pond Road & Pinehurst Road
- Watts Pond Road & Ayr Road
- Ayr Road & Keg Lane
- Keg Lane & Brant Oxford Road

The expected timing of the above noted intersection upgrades is anticipated to occur between 2031 and 2041 and therefore is likely to occur beyond the 2032 study horizon year.

Figure 4 – Paris West Bypass Interim & Ultimate Haul Routes



Source: Map 3, 2022 County of Brant TMP

6.3 Adjacent Developments

Based on discussions with the County of Brant staff, it is understood that the following development is anticipated to be built out within the timeframe of this study:

- Pinehurst Road and Watts Pond Road Mixed-Use Development
 - Consists of 253 single-detached residential units, 505 low-rise residential units, 238 mid-rise residential units, as well as approximately 2,796 square metres of commercial Gross Floor Area (GFA) and approximately 18,097 square metres of park/landscaped area.
 - Full build-out was assumed to be by 2026.

At the time of preparing this study, no TIS was available for the proposed residential and commercial development at 982 Rest Acres Road and therefore this development was not explicitly considered in the assembly of future background traffic volumes. It is assumed that any traffic contributions associated with this development which occurs within the timeframe of this study would be captured in the background traffic growth rate, discussed in the following section.

6.4 Background Traffic Growth

Based on discussions with the County of Brant staff, it was agreed that a 2.2% average annual growth rate would be applied to through movements on arterial/regional roads and all movements at arterial-arterial intersections to estimate future background traffic volumes on the adjacent road network.

The movements to which the liner annual background growth rate was applied are summarized below:

- Pinehurst Road – north/south through movements only
- Ayr Road – north/south through movements only
- Ayr Road & Keg Lane – all movements at this intersection
- Brant Oxford & Keg Lane – all movements at this intersection
- Bishopsgate Road & Powerline Road – all movements at this intersection
- Highway 403 WB On/Off-Ramp at Rest Acres Road – all movements at this interchange
- Highway 403 EB On/off Ramp at Rest Acres Road – all movements at this interchange

6.5 Future Background Traffic

Future background traffic volumes projections have been established by combining the adjacent development traffic and background traffic derived through the application of a growth rate, as discussed previously. Future background traffic volumes anticipated for the 2027 and 2032 analysis years are presented in **Exhibit 3** and **Exhibit 4**, respectively.



LEGEND

Permitted Movements

Weekday AM (PM) [SAT]

Peak Hour Vehicular Volume

The map displays a network of roads including Pinehurst Road, Paris Plains Church Road, Watts Pond Road, Ayr Road, Brant Oxford Road, Puttawn Road, County Highway 2, King Edward Street, Rest Acres Road, Powerline road, Bishopsgate Road, and Falkland Road. It also shows Highway 403 with its WB and EB on-ramps and off-ramps. Traffic volumes are provided for various road segments and intersections, often in brackets to indicate AM, PM, and Saturday volumes. Permitted movements are indicated by arrows at each intersection. A 'Site Access' point is marked on Pinehurst Road. A legend in the top left corner defines the symbols for permitted movements, weekday traffic volumes, and peak hour vehicular volumes.

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Exhibit 3:

Future (2027)

Background Traffic

PROJECT No. 139382

SCALE: N.T.S.



LEGEND

Permitted Movements

xx

xx

xx

Weekday AM (PM) [SAT]

xx

xx

xx

Peak Hour Vehicular Volume

Map Details:

- Site Access:** Located on Pinehurst Road, south of Paris Plains Church Road.
- Key Roads:** Pinehurst Road, Paris Plains Church Road, Watts Pond Road, Ayr Road, Brant Oxford Road, Puttoun Road, King Edward Street, Rest Acres Road, Powerline road, Bishopsgate Road, Highway 403 WB On-Ramp, Highway 403 WB Off-Ramp, Highway 403 EB Off-Ramp, Highway 403 EB On-Ramp.
- Traffic Volumes (AM, PM, SAT):**
 - Pinehurst Road (Northbound): [330] (510) 249
 - Pinehurst Road (Southbound): [2] (2) 0, [325] (503) 247, [2] (4) 1
 - Paris Plains Church Road (Westbound): [2] (2) 0, [325] (503) 247, [2] (4) 1
 - Paris Plains Church Road (Eastbound): [2] (2) 0, [325] (503) 247, [2] (4) 1
 - Watts Pond Road (Westbound): [2] (2) 8, [299] (475) 222, [9] (22) 13
 - Watts Pond Road (Eastbound): [2] (2) 8, [299] (475) 222, [9] (22) 13
 - Ayr Road (Westbound): [56] (58) 39, [87] (137) 71, [2] (0) 1
 - Ayr Road (Eastbound): [56] (58) 39, [87] (137) 71, [2] (0) 1
 - Brant Oxford Road (Westbound): [43] (47) 38, [172] (342) 179
 - Brant Oxford Road (Eastbound): [43] (47) 38, [172] (342) 179
 - Puttoun Road (Westbound): [110] (137) [87], [254] (276) [160]
 - Puttoun Road (Eastbound): [110] (137) [87], [254] (276) [160]
 - King Edward Street (Westbound): [19] (29) 31, [117] (140) 120
 - King Edward Street (Eastbound): [19] (29) 31, [117] (140) 120
 - Rest Acres Road (Westbound): [8] (15) 28, [8] (11) 6, [55] (45) 42
 - Rest Acres Road (Eastbound): [8] (15) 28, [8] (11) 6, [55] (45) 42
 - Powerline road (Westbound): [13] (12) [7], [77] (83) [62], [1] (1) [1]
 - Powerline road (Eastbound): [13] (12) [7], [77] (83) [62], [1] (1) [1]
 - Bishopsgate Road (Westbound): [84] (135) 96, [107] (228) 102
 - Bishopsgate Road (Eastbound): [84] (135) 96, [107] (228) 102
 - Highway 403 WB On-Ramp: [565] (672) 582, [50] (50) 60
 - Highway 403 WB Off-Ramp: [93] (135) [71], [365] (421) [320]
 - Highway 403 EB Off-Ramp: [608] (1021) 654, [285] (304) 388
 - Highway 403 EB On-Ramp: [40] (60) 29, [68] (92) 87

ARCADIS

IBI GROUP

699 Paris Church Plains Road

Transportation Impact Study

Exhibit 4:

Future (2032)

Background Traffic

PROJECT No. 139382

SCALE: N.T.S.

6.6 Trip Generation

As confirmed with the County of Brant, the trip generation for this study was developed using 'First-Principles', as opposed to the Institute of Transportation Engineers' (ITE) Trip Generation Manual (11th Edition). This method is further justified, given that a review of the ITE Trip Generation Manual did not provide any comparable land uses.

Based on observations of a typical facility with an upper extraction limit of approximately 1 million tonnes per year, it is estimated that the proposed development will consist of at most 60 truck trips (30 trucks) per hour during each of the three analysis time periods. It is assumed that these trips will be divided evenly between the inbound and outbound directions.

For the purposes of any traffic analysis including left-turn warrants, each truck will be converted to 2.0 passenger car equivalents (PCEs) and therefore the site-generated traffic during the weekday morning, weekday afternoon and Saturday peak hour periods.

The analysis in this study will evaluate the relative impacts of the gravel pit by applying the highest hourly volume of truck traffic expected to be generated over the course of a day to provide a conservative analysis. The peak trip generation estimates for the proposed gravel pit development is therefore assumed to align with the peak hours of traffic on the adjacent road network, as summarized in **Table 2** below.

Table 2 – Trip Generation Summary

VEHICLE TYPE	PERIOD	VEHICLES PER HOUR (VPH)		
		INBOUND	OUTBOUND	TOTAL
Trucks	AM	30	30	60
	PM	30	30	60
	SAT	30	30	60
Passenger Car Equivalent - PCE (x2)	AM	60	60	120
	PM	60	60	120
	SAT	60	60	120

6.7 Trip Distribution

Based on discussions with the proponent, the distribution of site-generated traffic was assumed to be as follows:

- **North Haul Route (75% of Trips)** – Highway 401/Kitchener (Tri City Ready Mix Plant)
- **South Haul Route (25% of Trips)** – Highway 403 (east of Hamilton and west of London)

It should be noted that the majority of the North Haul Route is located within the Township of North Dumfries which identifies the proposed route as part of the 'Regional Road' Network in Map 3A of the North Dumfries Official Plan (2018) and therefore these roads are already considered appropriate to accommodate truck traffic for the proposed gravel pit.

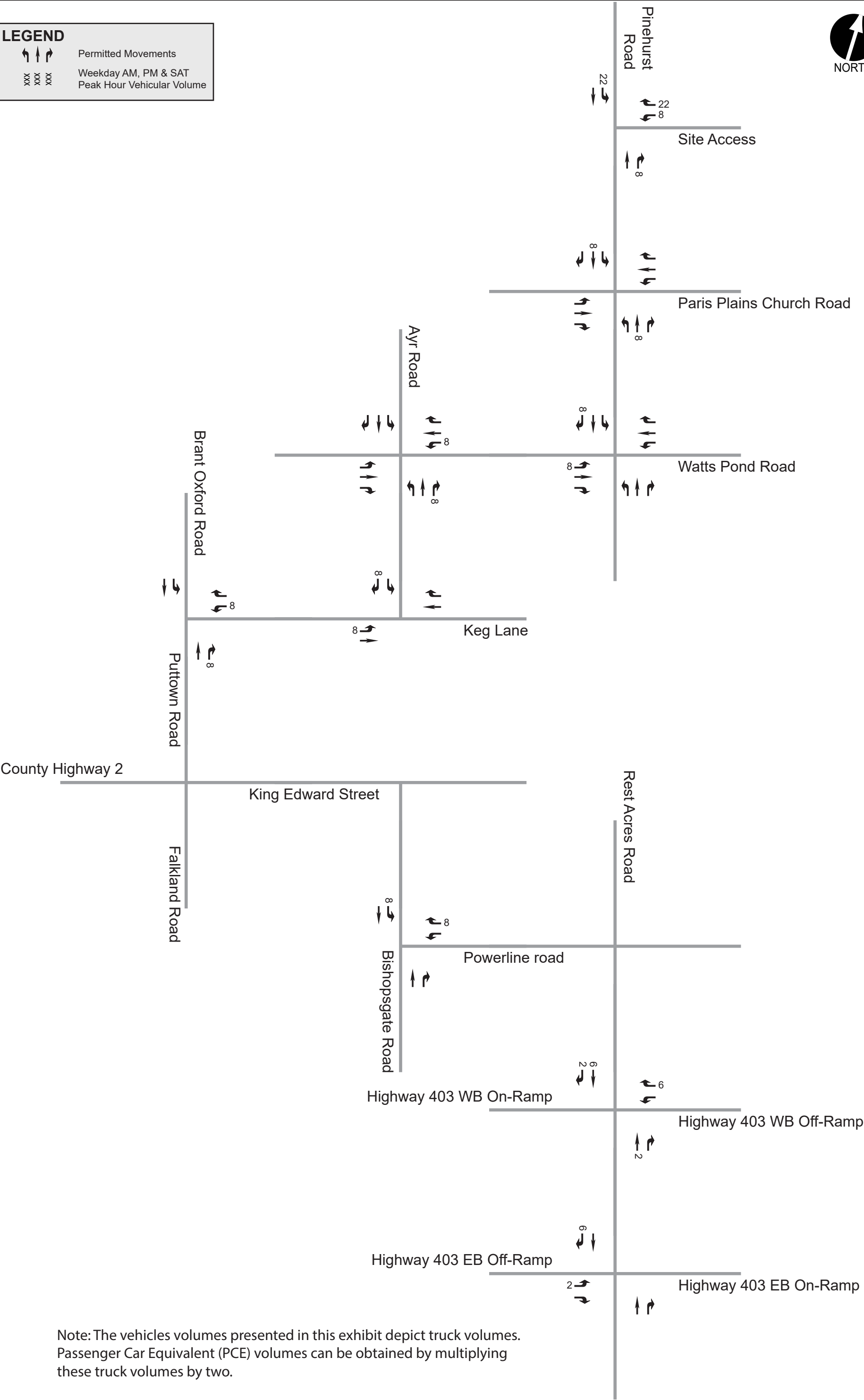
Exhibit 5 below illustrates future site-generated traffic volumes at full build-out/operation of the proposed gravel pit gravel pit, with the distribution outlined above.



LEGEND



Permitted Movements
Weekday AM, PM & SAT
Peak Hour Vehicular Volume



Note: The vehicles volumes presented in this exhibit depict truck volumes. Passenger Car Equivalent (PCE) volumes can be obtained by multiplying these truck volumes by two.

6.8 Future Total Traffic

Future (2027 & 2032) Total Traffic volumes were estimated by superimposing site-generated traffic volumes onto corresponding Future (2027 & 2032) Background Traffic volumes in **Exhibit 6** and **Exhibit 7**, respectively.



LEGEND

Permitted Movements

xx (xx) [xx]

xx (xx) [xx]

xx (xx) [xx]

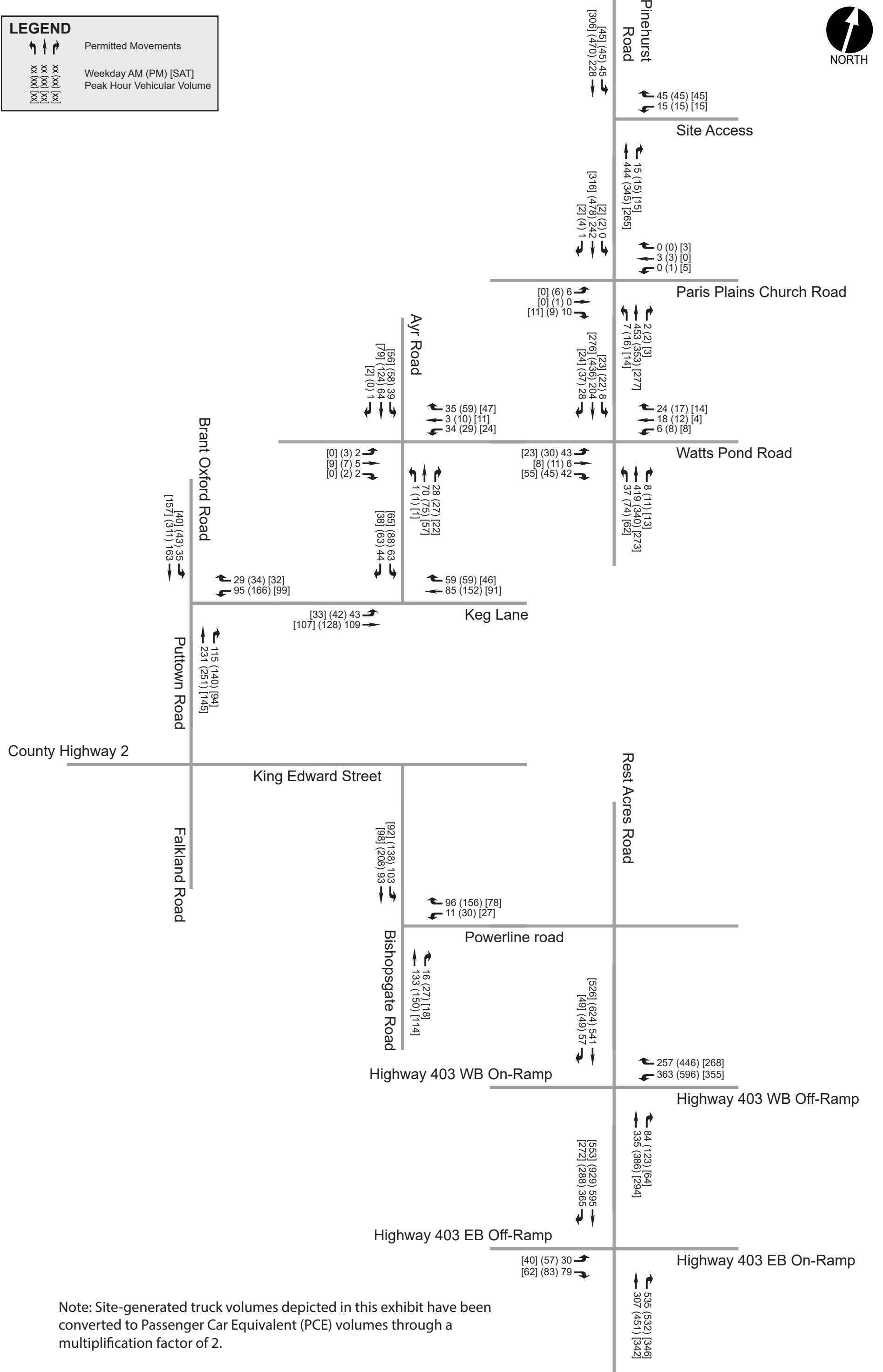
Weekday AM (PM) [SAT]

xx (xx) [xx]

xx (xx) [xx]

xx (xx) [xx]

Peak Hour Vehicular Volume



Note: Site-generated truck volumes depicted in this exhibit have been converted to Passenger Car Equivalent (PCE) volumes through a multiplication factor of 2.

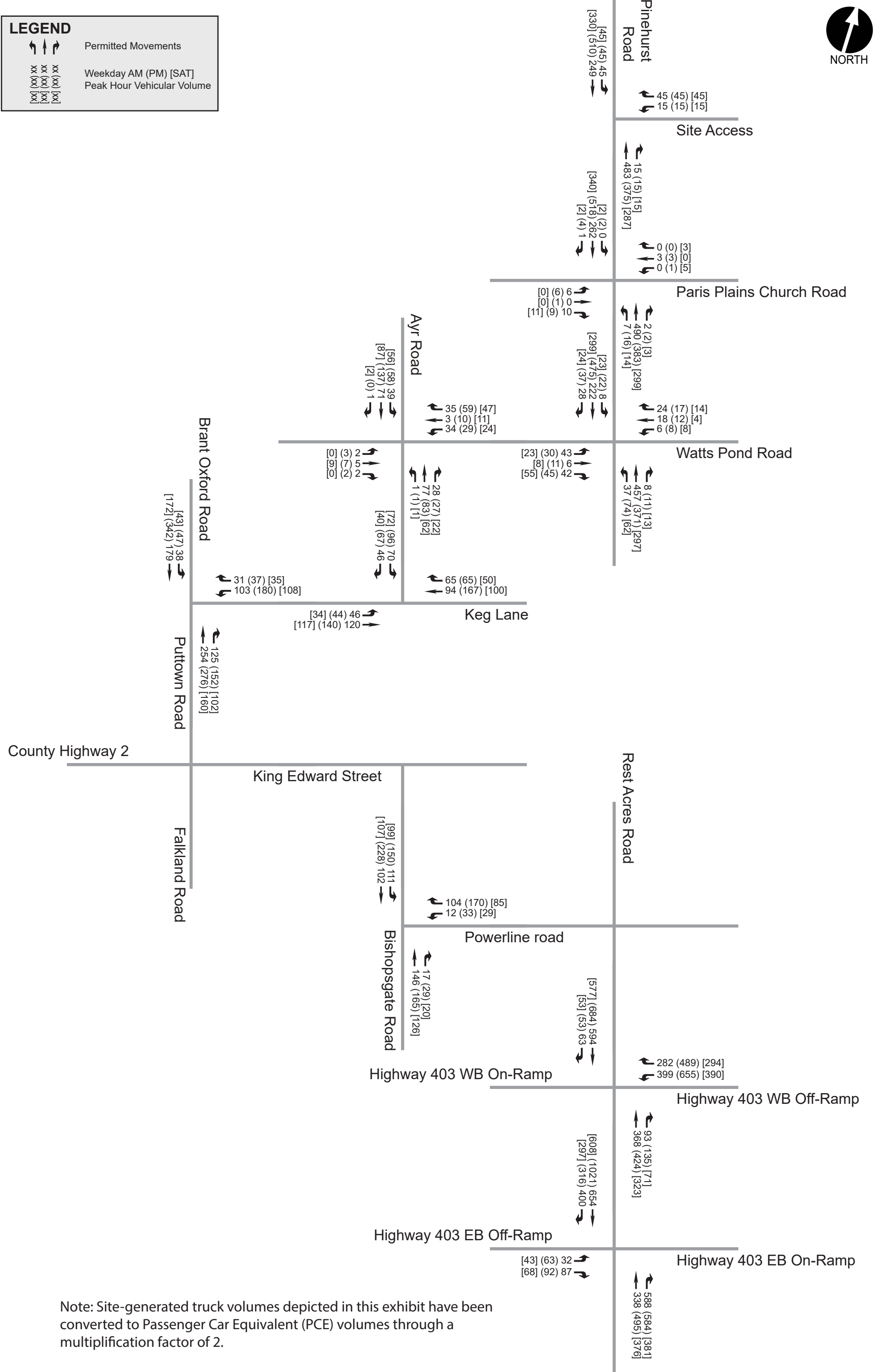


LEGEND

Permitted Movements

Weekday AM (PM) [SAT]

Peak Hour Vehicular Volume



7 Intersection Operation Review

7.1 Intersection Capacity Analysis Criteria

In qualitative terms, Level of Service (LOS) describes a user's perception of the operational conditions of a transportation facility. For vehicular LOS, these conditions are generally defined in terms of delay, speed and travel time, freedom to manoeuvre, traffic interruptions, safety, comfort, and convenience. The two key metrics used to evaluate vehicular LOS are as follows:

- **Volume to Capacity (v/c) Ratio:** The ratio of traffic volume (either measured or forecast) to the capacity of the intersection or roadway.
- **Average Delay:** The average elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line, including the time required for a vehicle to travel from the last-in-queue position to the first-in-queue position.

LOS is given a letter designation from 'A' to 'F'. LOS 'A' represents the best operating conditions and LOS 'E' represents the level at which the intersection, or an approach to the intersection, is carrying the maximum traffic volume that can, practicably, be accommodated. LOS 'F' indicates that the facility is operating beyond its theoretical capacity.

The Highway Capacity Manual (HCM) 2010, prepared by the Transportation Research Board, includes Level of Service (LOS) criteria for signalized and unsignalized intersections, including stop-controlled junctions or roundabouts. The criteria for each intersection type is summarized in **Table 3** below.

Table 3 – Level of Service Thresholds

LEVEL OF SERVICE	SIGNALIZED	UNSIGNALIZED (STOP-CONTROLLED OR ROUNDABOUT)
	Delay (Seconds per Vehicle)	
A	<10	<10
B	>10 and <20	>10 and <15
C	>20 and <35	>15 and <25
D	>35 and <55	>25 and <35
E	>55 and <80	>35 and <50
F	>80	>50

The acceptable criteria for intersection operations used for this study are as follows:

- Unsignalized - Intersection performance exceeds LOS 'E' (i.e. LOS 'D' or better is acceptable)
- Intersection v/c ratio below 0.85 for overall intersections, through movements or shared through/turning lanes.

7.2 Intersection Capacity Analysis Results

Following the established intersection capacity analysis criteria described above, existing and future traffic conditions were analysed during the weekday and Saturday peak traffic volumes derived for this study.

The following section presents the results of the intersection capacity analysis. All tables summarize the overall intersection Level of Service as well as the delay or v/c ratio of the critical movement.

Any analysis of stop-controlled or signalized intersections was conducted with Synchro v11 traffic modelling software, while roundabout analysis was undertaken using SIDRA v9. Both of these software programs are recognized across the industry for use in performing analysis for transportation impact studies.

Synchro and SIDRA analysis output files have been provided in **Appendix C**.

7.2.1 Existing Traffic

An intersection capacity analysis has been undertaken using the Existing Traffic volumes presented in **Exhibit 2**, yielding the following results:

Table 4 – Intersection Capacity Analysis Results: Existing Traffic

INTERSECTION	TRAFFIC CONTROL	PEAK HOUR	INTERSECTION LOS (DELAY)	CRITICAL MOVEMENT (DELAY OR V/C RATIO)
Pinehurst Road & Paris Plains Church Road	Stop-Controlled	AM	B (14.3s)	WBTRL (14.3s)
		PM	C (16.2s)	WBTRL (16.2s)
		SAT	B (11.3s)	WBTRL (11.3s)
Pinehurst Road & Watts Pond Road	Stop-Controlled	AM	C (16.3s)	WBTRL (16.3s)
		PM	C (19.4s)	EBTL (19.4s)
		SAT	B (14.3s)	EBTL (14.3s)
Ayr Road & Watts Pond Road	Stop-Controlled	AM	B (10.5s)	EBTRL (10.5s)
		PM	B (10.7s)	EBTRL (10.7s)
		SAT	B (10.5s)	EBTRL (10.5s)
Ayr Road & Keg Lane	Stop-Controlled	AM	B (10.2s)	SBRL (10.2s)
		PM	B (11.1s)	SBRL (11.1s)
		SAT	A (10.0s)	SBRL (10.0s)
Brant Oxford Road & Keg Lane	Stop-Controlled	AM	B (12.9s)	WBRL (12.9s)
		PM	C (18.4s)	WBRL (18.4s)
		SAT	B (11.7s)	WBRL (11.7s)
Bishopsgate Road & Powerline Road	Stop-Controlled	AM	A (9.8s)	WBRL (9.8s)
		PM	B (11.2s)	WBRL (11.2s)
		SAT	A (10.0s)	WBRL (10.0s)
Highway 403 WB On/Off-Ramp at Rest Acres Road	Signalized	AM	B (16.4s)	SBT (0.71)
		PM	C (23.4s)	SBT (0.86)
		SAT	B (15.2s)	SBT (0.69)
Highway 403 EB On/Off-Ramp at Rest Acres Road	Stop-Controlled	AM	B (11.6s)	EBRL (11.6s)
		PM	B (13.5s)	EBRL (13.5s)
		SAT	A (9.6s)	EBRL (9.6s)

As indicated **Table 4** above, all study area intersections are currently operating at acceptable Levels of Service (i.e. LOS 'D' or better and v/c ratio of 0.85), with the exception of the Highway

403 WB off-ramp at Rest Acres Road which is operating slightly above the desired v/c threshold of 0.85 during the weekday afternoon peak hour. Potential measures to mitigate these capacity issues have been outlined in future analysis scenarios presented in subsequent sections of this study.

It should be noted as well that the westbound approach of the Ayr & Keg Lane intersection and the northbound approach of the Brant Oxford & Keg intersection were modelled with a shared through-right configuration to provide a more conservative analysis. The right-turn auxiliary lanes only provide taper for deceleration without any effective storage length at either location. These assumptions were carried forward for all analysis scenarios evaluated in this study.

7.2.2 Future (2027) Background Traffic

An intersection capacity analysis has been undertaken using the Future (2027) Background Traffic volumes presented in **Exhibit 3**, yielding the following results:

Table 5 – Intersection Capacity Analysis Results: Future (2027) Background Traffic

INTERSECTION	TRAFFIC CONTROL	PEAK HOUR	INTERSECTION LOS (DELAY)	CRITICAL MOVEMENT (DELAY OR V/C RATIO)
Pinehurst Road & Paris Plains Church Road	Stop-Controlled	AM	C (16.4s)	WBTRL (16.4s)
		PM	C (19.7s)	WBTRL (19.7s)
		SAT	B (12.8s)	WBTRL (12.8s)
Pinehurst Road & Watts Pond Road	Stop-Controlled	AM	C (21.0s)	EBTL (21.0s)
		PM	D (27.7s)	EBTL (27.7s)
		SAT	C (18.2s)	EBTL (18.2s)
Ayr Road & Watts Pond Road	Stop-Controlled	AM	B (10.8s)	EBTRL (10.8s)
		PM	B (11.3s)	EBTRL (11.3s)
		SAT	B (10.9s)	EBTRL (10.9s)
Ayr Road & Keg Lane	Stop-Controlled	AM	B (10.5s)	SBRL (10.5s)
		PM	B (11.7s)	SBRL (11.7s)
		SAT	B (10.3s)	SBRL (10.3s)
Brant Oxford Road & Keg Lane	Stop-Controlled	AM	B (14.0s)	WBRL (14.0s)
		PM	C (22.6s)	WBRL (22.6s)
		SAT	B (12.4s)	WBRL (12.4s)
Bishopsgate Road & Powerline Road	Stop-Controlled	AM	A (10.0s)	WBRL (10.0s)
		PM	B (11.8s)	WBRL (11.8s)
		SAT	B (10.3s)	WBRL (10.3s)
Highway 403 WB On/Off-Ramp at Rest Acres Road	Signalized	AM	B (18.6s)	SBT (0.77)
		PM	C (31.6s)	SBT (0.99)
		SAT	B (16.4s)	SBT (0.72)
	>Signalized ¹	PM	C (27.6s)	WBL (0.85)
Highway 403 EB On/Off-Ramp at Rest Acres Road	Stop-Controlled	AM	B (12.4s)	EBL (12.4s)
		PM	C (15.7s)	EBL (15.7s)
		SAT	B (10.1s)	EBL (10.1s)

Notes: ¹ Signal optimization

² Roundabout configurations per functional design in Rest Acres Road Class EA Addendum (BTE, 2018)

Based on the intersection capacity analysis presented in **Table 5** above, it is anticipated that Highway 403 westbound ramp terminal at Rest Acres Road will continue to operate with a v/c ratio above 0.85 during the weekday afternoon peak hour on the critical southbound-through movement and will likely approach its theoretical capacity of 1.0 under Future (2027) Background Traffic conditions (i.e. without site-generated traffic). These capacity issues should be mitigatable through regular signal optimization which is anticipated to significantly reduce the maximum v/c ratio at this intersection to 0.85 and approach acceptable standards. Although signal optimization does not completely resolve the traffic operational issues during the critical weekday afternoon peak hour, it is considered acceptable as an interim mitigation strategy in this traffic analysis scenario.

7.2.3 Future (2032) Background Traffic

An intersection capacity analysis has been undertaken using the Future (2032) Background Traffic volumes presented in **Exhibit 4**, yielding the following results:

Table 6 – Intersection Capacity Analysis Results: Future (2032) Background Traffic

INTERSECTION	TRAFFIC CONTROL	PEAK HOUR	INTERSECTION LOS (DELAY)	CRITICAL MOVEMENT (DELAY OR V/C RATIO)
Pinehurst Road & Paris Plains Church Road	Stop-Controlled	AM	C (17.4s)	WBTRL (17.4s)
		PM	C (21.4s)	WBTRL (21.4s)
		SAT	B (13.3s)	WBTRL (13.3s)
Pinehurst Road & Watts Pond Road	Stop-Controlled	AM	C (23.1s)	EBTL (23.1s)
		PM	D (31.3s)	EBTL (31.3s)
		SAT	C (19.3s)	EBTL (19.3s)
Ayr Road & Watts Pond Road	Stop-Controlled	AM	B (10.9s)	EBTRL (10.9s)
		PM	B (11.5s)	EBTRL (11.5s)
		SAT	B (11.1s)	EBTRL (11.1s)
Ayr Road & Keg Lane	Stop-Controlled	AM	B (10.8s)	SBRL (10.8s)
		PM	B (12.2s)	SBRL (12.2s)
		SAT	B (10.5s)	SBRL (10.5s)
Brant Oxford Road & Keg Lane	Stop-Controlled	AM	C (15.2s)	WBRL (15.2s)
		PM	D (29.0s)	WBRL (29.0s)
		SAT	B (13.1s)	WBRL (13.1s)
Bishopsgate Road & Powerline Road	Stop-Controlled	AM	B (10.2s)	WBRL (10.2s)
		PM	B (12.5s)	WBRL (12.5s)
		SAT	B (10.6s)	WBRL (10.6s)
Highway 403 WB On/Off-Ramp at Rest Acres Road	> Signalized ¹	AM	C (21.4s)	SBT (0.79)
		PM	C (33.5s)	SBT (0.91)
		SAT	B (18.9s)	SBT (0.80)
	>Roundabout ²	AM	A (9.0s)	SBR (9.0s)
		PM	B (14.6s)	SBR (14.6s)
		SAT	A (7.7s)	SBT (7.7s)
Highway 403 EB On/off Ramp at Rest Acres Road	Stop-Controlled	AM	B (13.5s)	EBL (13.5s)
		PM	C (19.7s)	EBL (19.7s)
		SAT	B (10.7s)	EBL (10.7s)
	>Roundabout ²	AM	A (7.3s)	EBR (7.3s)
		PM	A (9.7s)	EBL (9.7s)
		SAT	A (5.6s)	EBL (5.6s)

Notes: ¹ Signal optimization

² Roundabout configurations per functional design in Rest Acres Road Class EA Addendum (BTE, 2018)

By 2032, it is recommended that the Highway 403 westbound ramp terminal at Rest Acres Road be upgraded to a roundabout configuration which is expected to help mitigate any potential

capacity issues that were identified under Existing and Future (2027) Background Traffic conditions (i.e. without site-generated traffic contributions) and are no longer anticipated to be manageable through regular signal optimization with the existing geometric configuration of the intersection.

7.2.4 Future (2027) Total Traffic

An intersection capacity analysis has been undertaken using the Future (2027) Total Traffic volumes presented in **Exhibit 6**, yielding the following results:

Table 7 – Intersection Capacity Analysis Results: Future (2027) Total Traffic

INTERSECTION	TRAFFIC CONTROL	PEAK HOUR	INTERSECTION LOS (DELAY)	CRITICAL MOVEMENT (DELAY OR V/C RATIO)
Pinehurst Road & Paris Plains Church Road	Stop-Controlled	AM	C (17.0s)	WBTRL (17.0s)
		PM	C (20.3s)	WBTRL (20.3s)
		SAT	B (13.1s)	WBTRL (13.1s)
Pinehurst Road & Watts Pond Road	Stop-Controlled	AM	C (22.2s)	EBTL (22.2s)
		PM	D (31.2s)	EBTL (31.2s)
		SAT	C (19.4s)	EBTL (19.4s)
Ayr Road & Watts Pond Road	Stop-Controlled	AM	B (10.9s)	EBTRL (10.9s)
		PM	B (11.4s)	EBTRL (11.4s)
		SAT	B (11.1s)	EBTRL (11.1s)
Ayr Road & Keg Lane	Stop-Controlled	AM	B (10.8s)	SBRL (10.8s)
		PM	B (12.0s)	SBRL (12.0s)
		SAT	B (10.4s)	SBRL (10.4s)
Brant Oxford Road & Keg Lane	Stop-Controlled	AM	B (14.7s)	WBRL (14.7s)
		PM	C (24.6s)	WBRL (24.6s)
		SAT	B (12.9s)	WBRL (12.9s)
Bishopsgate Road & Powerline Road	Stop-Controlled	AM	B (10.1s)	WBRL (10.1s)
		PM	B (12.0s)	WBRL (12.0s)
		SAT	B (10.4s)	WBRL (10.4s)
Highway 403 WB On/Off-Ramp at Rest Acres Road	Signalized	AM	B (19.0s)	WBL (0.79)
		PM	C (33.4s)	WBL (1.01)
		SAT	B (16.7s)	WBL (0.74)
	>Signalized ¹	PM	C (28.0s)	WBL (0.85)
Highway 403 EB On/off Ramp at Rest Acres Road	Stop-Controlled	AM	B (12.2s)	EBL (12.2s)
		PM	C (16.3s)	EBL (16.3s)
		SAT	B (10.0s)	EBL (10.0s)
	>Roundabout ²	AM	A (6.8s)	EBR (6.8s)
		PM	A (8.6s)	EBL (8.6s)
		SAT	A (5.2s)	EBL (5.2s)
Pinehurst Road & Site Access	Stop-Controlled	AM	B (13.3s)	WBL (13.3s)
		PM	B (13.4s)	WBL (13.4s)

Notes: ¹ Signal optimization

² Roundabout configurations per functional design in Rest Acres Road Class EA Addendum (BTE, 2018)

Based on the analysis presented above under Future (2027) Total Traffic conditions, the westbound Highway 403 interchange with Rest Acres Road is expected to operate slightly above its theoretical capacity during the critical weekday afternoon peak hour. Similar to the Future

(2027) Background Traffic weekday afternoon peak hour scenario, signal optimization is anticipated to substantially improve the v/c ratio of the critical westbound left-turn movement to within 0.85 and approaching acceptable standards. It is important to note as well that any capacity issues identified through the analysis conducted under Future (2027) Background Traffic conditions are a direct consequence of background traffic demand and will not be exacerbated by additional site-generated travel demand contributions.

The implementation of roundabout configurations, which is the ultimate treatment planned by the Ontario Ministry of Transportation (MTO) at both Highway 403 ramp terminals at Rest Acres Road, is expected to significantly improve traffic operations to LOS 'A' or 'B', particularly for the westbound interchange, consistent with the Future (2032) Background Traffic scenario.

7.2.5 Future (2032) Total Traffic

An intersection capacity analysis has been undertaken using the Future (2032) Total Traffic volumes presented in **Exhibit 7**, yielding the following results:

Table 8 – Intersection Capacity Analysis Results: Future (2032) Total Traffic

INTERSECTION	TRAFFIC CONTROL	PEAK HOUR	INTERSECTION LOS (DELAY)	CRITICAL MOVEMENT (DELAY OR V/C RATIO)
Pinehurst Road & Paris Plains Church Road	Stop-Controlled	AM	C (18.0s)	WBTRL (18.0s)
		PM	C (22.2s)	WBTRL (22.2s)
		SAT	B (13.7s)	WBTRL (13.7s)
Pinehurst Road & Watts Pond Road	Stop-Controlled	AM	C (24.4s)	EBTL (24.4s)
		PM	E (36.1s)	EBTL (36.1s)
		SAT	C (20.8s)	EBTL (20.8s)
Ayr Road & Watts Pond Road	Stop-Controlled	AM	B (11.0s)	EBTRL (11.0s)
		PM	B (11.6s)	EBTRL (11.6s)
		SAT	B (11.2s)	EBTRL (11.2s)
Ayr Road & Keg Lane	Stop-Controlled	AM	B (11.1s)	SBRL (11.1s)
		PM	B (12.6s)	SBRL (12.6s)
		SAT	B (10.7s)	SBRL (10.7s)
Brant Oxford Road & Keg Lane	Stop-Controlled	AM	C (16.0s)	WBRL (16.0s)
		PM	D (32.7s)	WBRL (32.7s)
		SAT	B (13.7s)	WBRL (13.7s)
Bishopsgate Road & Powerline Road	Stop-Controlled	AM	B (10.3s)	WBRL (10.3s)
		PM	B (12.8s)	WBRL (12.8s)
		SAT	B (10.7s)	WBRL (10.7s)
Highway 403 WB On/Off-Ramp at Rest Acres Road	>Signalized ¹	AM	C (21.4s)	WBL (0.79)
		PM	C (33.8s)	WBL (0.92)
		SAT	B (19.0s)	SBT (0.77)
	>Roundabout ²	AM	A (9.1s)	WBR (9.1s)
		PM	B (15.0s)	SBR (15.0s)
		SAT	A (7.8s)	SBT (7.8s)
Highway 403 EB On/Off-Ramp at Rest Acres Road	Stop-Controlled	AM	B (13.3s)	EBL (13.3s)
		PM	C (20.6s)	EBL (20.6s)
		SAT	B (10.5s)	EBL (10.5s)
	>Roundabout ²	AM	A (7.4s)	EBR (7.4s)
		PM	A (9.8s)	EBL (9.8s)
		SAT	A (5.6s)	EBL (5.6s)
Pinehurst Road & Site Access	Stop-Controlled	AM	B (13.9s)	WBL (13.9s)
		PM	B (14.1s)	WBL (14.1s)
		SAT	B (11.9s)	WBL (11.9s)

Notes: ¹ Signal optimization

² Roundabout configurations per functional design in Rest Acres Road Class EA Addendum (BTE, 2018)

Based on the traffic analysis results conducted for the Future (2032) Total Traffic scenario and summarized in **Table 8** above, the addition of site-generated traffic will result in slight delays on the eastbound through-left lane of the Pinehurst & Watts Pond intersection in exceedance of the 35s threshold for LOS 'D' by 1.1s. Given that the intersection is slated for reconstruction as a roundabout by the County of Brant between 2031 and 2041 and is anticipated to resolve any minor/potential capacity issues, no interim mitigation measures are recommended.

It is important to note that these capacity issues described below are a direct consequence of background traffic demand and will not be exacerbated by site-generated travel demands at full build-out of the proposed development. Consistent with the analysis results under Future (2032) Background Traffic conditions, the westbound Highway 403 interchange with Rest Acres Road is expected to operate above its desired v/c ratio of 0.85 during the critical weekday afternoon peak hour, even with signal optimization and is shown to experience minimal impacts with the added contributions of site-generated traffic. Site-generated traffic will mostly contribute to the westbound channelized right-turn movement which is free-flow, has a negligible impact on the overall traffic operations at this intersection and is not dependent on its upgrade to a roundabout configuration to operate safely. Even if the existing intersection geometry and control is maintained, queue spillback during the critical weekday afternoon peak hour is not anticipated to result in a blockage of the westbound channelized right-turn lane under Future (2032) Total Traffic conditions.

The implementation of roundabout configurations, which is the ultimate treatment planned by the Ontario Ministry of Transportation (MTO) at both Highway 403 ramp terminals at Rest Acres Road, is expected to significantly improve traffic operations to LOS 'A' or 'B', particularly for the westbound interchange with and without site-generated traffic.

7.3 Auxiliary Lane Analysis

7.3.1 Auxiliary Left-Turn Lane Warrant Analysis

An auxiliary left-turn lane warrant analysis was conducted for all study area intersections. The results of the warrant analysis are provided in **Appendix D**.

The Ontario Ministry of Transportation (MTO) Design Supplement to the Geometric Design Guide for Canadian Roads recommends providing additional storage at locations with high truck volumes (10% of left-turn traffic or higher). As such, in addition to completing the left-turn warrants for all study area intersections, the truck volumes at locations that warrant left-turn lanes have also been reviewed to determine whether additional storage is required.

The results of the left-turn lane warrant analysis are summarized below in **Table 9**.

Table 9 – Auxiliary Left-Turn Lane Warrant Analysis Results

INTERSECTION	MOVEMENT	PEAK PERIOD	STORAGE LENGTH WARRANTED	% HEAVY VEHICLES	ADDITIONAL STORAGE LENGTH REQUIRED	RECOMMENDED PARALLEL LANE LENGTH (M)
Pinehurst Road & Paris Plains Church Road	NBL	PM	15m	0%	0m	15m
Pinehurst Road & Watts Pond Road	NBL	PM	25m	4%	0m	25m
		SAT	15m	2%	0m	15m
	SBL	PM	15m	0%	0m	15m
Brant Oxford Road & Keg Lane	SBL	AM	15m	10%	10m	25m
		PM	15m	2%	10m	25m
		SAT	15m	0%	0m	15m
Bishopsgate Road & Powerline Road	SBL	PM	15m	9%	10m	25m
Pinehurst Road & Site Access	SBL	AM	15m	100%	15m	30m
		PM	25m	100%	15m	40m
		SAT	15m	100%	15m	30m

As noted above, auxiliary left-turn lanes are warranted at a number of locations within the study area. In general, the need for auxiliary left-turn lanes is due to background traffic with the following exception:

Pinehurst Road & Site Access: All southbound left-turn traffic at this location is due to site-generated traffic and, therefore, the need for an auxiliary southbound left-turn lane with 40 metres of storage is solely to accommodate the proposed development. As requested by the County of Brant, a conceptual/preliminary design of these off-site road modifications at the proposed site access triggered exclusively by site-generated traffic is provided in **Appendix E**.

The need for auxiliary left-turn lanes at all other locations is triggered exclusively by background traffic demand (i.e. not site-generate traffic). Based on the above analysis, it is recommended that the following auxiliary left-turn lanes be provided:

- **Pinehurst Road & Paris Plains Church Road:** Northbound left-turn lane with a minimum of 15m of storage.
- **Pinehurst Road & Watts Pond Road:** Northbound and southbound left-turn lane with a minimum of 25m and 15m of storage, respectively.
- **Brant Oxford Road & Keg Lane:** Southbound left-turn lane with a minimum of 25m of storage.
- **Bishopsgate Road & Powerline Road:** Southbound left-turn lane with a minimum of 15m of storage.
- **Bishopsgate Road & Powerline Road:** Based on the analysis conducted for this study, an auxiliary southbound left-turn lane with 25m of storage is warranted at this location as a result of background traffic. The addition of site-generated traffic triggers the need for an additional 10m of storage; however, once the Bishopsgate interchange with Highway 403 is implemented, which is planned to occur by 2031, site-generated truck traffic is anticipated to no longer contribute additional volumes to this left-turning movement. As such, in the mid- to long-term any requirement for a southbound left-turn auxiliary lane would be exclusively a result of background traffic.

The Pinehurst & Watts Pond intersection, the Brant Oxford & Keg intersection and the Bishopsgate & Powerline intersection are planned to be upgraded between 2031 to 2041 as part of Project 9 and 14 of the 2022 County of Brant TMP. It is therefore expected that the auxiliary left-turn lanes required at these intersections can be implemented at that time.

7.3.2 Auxiliary Right-Turn Lane Warrant Analysis

Section 9.14.2 of the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads suggests that auxiliary right-turn lanes be considered when more than 10% of vehicles on an approach are turning right and when the peak hour demand exceeds 60 vehicles.

Based on a review of Future (2032) Background & Total Traffic volumes, the westbound approach at Ayr & Keg Lane and the northbound approach at Brant Oxford & Keg Lane were identified as possible requiring auxiliary right-turn facilities to accommodate background traffic growth within the timeframe of this study, based on the TAC criteria for auxiliary right-turn lanes identified above.

It is important to note, however, that the above intersections currently have auxiliary right-turn tapers to accommodate vehicle deceleration. Furthermore, the results of the intersection capacity analysis indicate that both intersections are anticipated to continue operating at acceptable levels of service (i.e. LOS 'D' or better) beyond the 2032 study horizon year with site-generated traffic contributions and any queuing associated with right-turning movement is anticipated to be minimal, given that these movements are essentially free-flow. As such, upon further review, no modifications to these existing right-turn facilities are required to safely accommodate Future (2032) Background Traffic, nor will the inclusion of site-generated traffic exacerbate these projected operating conditions.

7.4 Traffic Signal Warrant Analysis

Traffic signal warrant analysis has been completed for the intersection of Pinehurst & Paris Church Plains under Existing and Future (2032) Total Traffic conditions in accordance with the methodology outlined in Ontario Traffic Manual Book 12, published in March 2012. Although traffic signals are not operationally required at this intersection, the County of Brant has requested that

traffic signal warrant analysis be completed regardless. The results of the traffic signal warrant analysis are presented in **Appendix F** and demonstrate that traffic signals are not warranted at this location, as a result of the nominal crossing volumes on Paris Plains Church Road, along with collision data for the Pinehurst & Paris Plains Church Road intersection which was purchased from the County of Brant.

8 Sightline Analyses

Sightlines along the south haul route were reviewed to ensure that they meet the minimum intersection and stopping sight distance requirements for trucks. Only the turning movements that site-generated truck traffic will be contributing traffic volumes to were reviewed as part of this exercise.

TAC indicates that for sightline analysis, a driver eye heights of 2.3m and 1.08m should be applied for driver eye heights associated with single-unit trucks and passenger cars, respectively. For the object/obstacle, a height of 1.3m was assumed, corresponding to the height of a passenger car.

For roads posted at 80km/h, the design speed was assumed to be 20km/h above the posted speed limit, while roads with speeds posted at less than 80km/h were generally assumed to have a design speed of 10km/h above the posted speed limit.

The Highway 403 ramp terminals at Rest Acres Road were exempt from this sightline analysis, as both intersections are designed to accommodate significant regional traffic flows and a range of design vehicles, including heavy trucks.

Table 10 summarizes the results of the sightline review. Detailed sightline analysis results have been provided in **Appendix G**.

Table 10 – Sightline Analysis Results

INTERSECTION	TURNING MOVEMENT	DESIGN SPEED	MINIMUM INTERSECTION SIGHT DISTANCE (ISD)	MINIMUM STOPPING SIGHT DISTANCE (SSD)	AVAILABLE SIGHT DISTANCE
Pinehurst Road & Site Access	Westbound Left & Right	100 km/h	Left-turn: 265m Right-turn: 240m	185m	To/from the North: 265m To/from the South: > 240m
Pinehurst Road & Watts Pond Road	Eastbound Left	70 km/h	185m	105m	>185m
Ayr Road & Watts Pond Road	Westbound Left	100 km/h	265m	185m	>265m
Ayr Road & Keg Lane	Southbound Right	100 km/h	240m	185m	ISD: ~104m SSD: ~85m
Oxford Brant Road & Keg Lane	Westbound Left	100 km/h	265m	185m	>265m
Bishopsgate Road & Powerline Road	Westbound Right	80 km/h	190m	130m	>190m

As shown **Table 10** above, sight distance requirements are generally met throughout the study area with the exception of the following two locations:

- **Pinehurst Road & Site Access:** Sightline visibility to/from the north on may be slightly restricted due to the vertical alignment of Pinehurst Road, however based on the sightline review conducted for this TIS, both Intersection Sight Distance (ISD) and Stopping Sight Distance (SSD) requirements are met upstream north and south of the proposed site access driveway location.
- **Ayr Road & Keg Lane:** Sightlines to/from the east of this intersection are significantly restricted by the vertical alignment of Keg Lane. Neither the intersection nor stopping sight distance requirements are met. It is recommended that the County advance its timeline for upgrading the Ayr & Keg Lane intersection to a roundabout to mitigate these sightline deficiencies. Upon further review, it was observed that a 'Hidden Intersection' warning sign exists approximately 350m east of Ayr Road to caution westbound vehicles on Keg Lane of this upcoming intersection. A flashing red beacon was also installed to remind motorists to come to a full stop and observe oncoming traffic on Ayr Road, prior to turning onto Keg Lane. **As a more effective solution for the longer-term, it is recommended that the County advance its current timeline of 2031-2041 for upgrades to Ayr & Keg Lane into a roundabout configuration, given that this intersection forms part of the official Alternative 24A Bypass Route currently for all regional truck traffic.**

9 Conclusion

Based on observations from a typical gravel pit with an upper extraction limit of approximately 1,000,000 tonnes per year, it is estimated that the proposed development will generate approximately 60 truck trips (30 trucks) per hour during each of the weekday morning, weekday afternoon and Saturday peak hour periods. These truck-trips are expected to be evenly divided between inbound and outbound trips. The majority of site-generated truck traffic is expected to travel to/from the north (75%), while the remainder travelling to/from the south (25%) along the Paris West Bypass route.

An intersection capacity analysis was conducted for all key intersections along the south haul route and identified two potential traffic operational issues within the timeframe of this study:

- **Watt's Pond & Pinehurst:** The results of the analysis indicated delays slightly in excess of acceptable thresholds at the Watt's Pond & Pinehurst intersection of LOS 'D'. Given the potential exceedance in acceptable delays of just 1.1s occurs is not anticipated to occur until 2032, no interim mitigation measures are recommended. Furthermore, it is anticipated that the implementation of a roundabout at this location by the County of Brant will address any potential capacity issues in the mid- to long-term (i.e. 2031 to 2041), given the overlap of this planned implementation timeframe with the anticipated full build-out of the subject site.
- **Highway 403 Westbound On/Off-Ramp at Rest Acres Road:** The analysis conducted for this TIS also identified Existing and Future Background capacity issues (i.e. not related to pit-generated traffic) at the Highway 403 westbound interchange at Rest Acres Road during the critical weekday afternoon peak hour. These capacity issues can be mitigated through regular signal optimization up to 2027 with and without site-generated traffic. It is recommended, however, that the County of Brant upgrade this intersection to a roundabout configuration occur by 2032 to reduce expected traffic operational issues resulting from the growth in background travel demand which is no longer expected to be manageable through signal optimization by this time. Site-generated traffic will mostly contribute to the westbound channelized right-turn movement which is free-flow, has a negligible impact on the overall traffic operations at this intersection and is not dependent on its upgrade to a roundabout configuration to operate safely.

An auxiliary left-turn and right-turn lane analysis was undertaken at all unsignalized study area intersections and identified the need for a dedicated turning facility at the proposed site access to support pit-generated traffic contributions. It is important to note that this is the only off-site road modification upgrade required at the on-set of the gravel pit's operation to support the proposed development's travel demand.

- **Pinehurst Road & Site Access:** Southbound left-turn lane with at least 40m of storage.

The auxiliary lane analysis conducted for this study also indicated that the following left-turn lane warrant requirements were triggered as a result of background traffic demand and these requirements were consistent when evaluated with the additional contributions of site-generated traffic for the intersections listed below:

- **Pinehurst Road & Paris Plains Church Road:** Northbound left-turn lane with a minimum of 15m of storage. Site-generated traffic is not anticipated to contribute additional volumes to this movement.
- **Pinehurst Road & Watts Pond Road:** Northbound and southbound left-turn lane with a minimum of 25m and 15m of storage, respectively. Site-generated traffic is not anticipated to contribute additional volumes these movements.

- **Brant Oxford Road & Keg Lane:** Southbound left-turn lane with a minimum of 25m of storage. Site-generated traffic is not anticipated to contribute additional volumes to this movement.
- **Bishopsgate Road & Powerline Road:** Southbound left-turn lane with a minimum of 25m of storage. The need for an auxiliary left-turn lane is a result of background traffic but the addition of site-generated truck traffic results in the need for an additional 10m of storage (included in the total noted above). It is important to note, however, that once the Bishopsgate interchange with Highway 403 is implemented, which is planned to occur within the timeframe of this study, site-generated truck traffic is anticipated to no longer contribute additional volumes to this left-turning movement. As such, in the mid- to long-term any upgrades to this intersection would only be required to accommodate background traffic.

Traffic signal warrant analysis was conducted for the Pinehurst & Paris Church Plains intersection. The results of the analysis indicate that traffic signals are not warranted at that location, primarily as a result of the nominal east-west crossing volumes on Paris Plains Church Road.

Based on the desktop sightline review conducted for this TIS, both Intersection Sight Distance (ISD) and Stopping Sight Distance (SSD) requirements are achievable in accordance with Transportation Association of Canada (TAC) Geometric Design Guidelines both upstream and downstream of the proposed site access driveway location.

An existing sightline deficiency was identified at the Ayr Road & Keg Lane intersection. As an interim mitigation strategy, it was observed that a 'Hidden Intersection' warning sign exists approximately 350m east of Ayr Road to caution westbound vehicles on Keg Lane of this upcoming intersection. A flashing red beacon was also installed to remind motorists to come to a full stop and observe oncoming traffic on Ayr Road, prior to turning onto Keg Lane. As a more effective solution for the longer-term, it is recommended that the County advance its current timeline of 2031-2041 for upgrades to Ayr & Keg Lane into a roundabout configuration, given that this intersection forms part of the official Alternative 24A Bypass Route for all regional truck traffic.

The overall conclusion of this TIS is that traffic generated by the proposed gravel pit can be safely accommodated on the adjacent road network with consideration of the recommended roadway improvements identified within the report.

10 Professional Authorization

Report Prepared By:



Ben Pascolo-Neveu, P.Eng.

Appendix A – Turning Movement Counts

Paris Plains Church Rd @ Pinehurst Rd

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 10:00:00

One Hour Peak

From: 7:30:00

To: 8:30:00

Municipality: Paris

Site #: 0000000002

Intersection: Pinehurst Rd & Paris Plains Church

TFR File #: 2

Count date: 1-Jun-2022

Weather conditions:

Clear/Dry

Person(s) who counted:

Cam

** Non-Signalized Intersection **

Major Road: Pinehurst Rd runs N/S

North Leg Total: 533

North Entering: 185

North Peds: 0

Peds Cross: $\times$

	Heavys	Trucks	Cars	Totals
North	0	17	0	17
East	0	5	0	5
South	1	162	0	163
Totals	1	184	0	



Heavys 19

Trucks 7

Cars 322

Totals 348

East Leg Total: 5

East Entering: 3

East Peds: 0

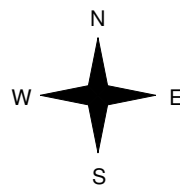
Peds Cross: $\times$

Heavys	Trucks	Cars	Totals
0	1	10	11



Paris Plains Church Rd

Heavys	Trucks	Cars	Totals
0	0	6	6
0	0	0	0
0	0	10	10
0	0	16	



Pinehurst Rd



Cars	Trucks	Heavys	Totals
0	0	0	0
2	1	0	3
0	0	0	0
2	1	0	

Paris Plains Church Rd



Cars	Trucks	Heavys	Totals
1	1	0	2

Peds Cross: $\times$

West Peds: 0

West Entering: 16

West Leg Total: 27

	Cars	Trucks	Heavys	Totals
West	172	5	17	194
North	7	0	0	7
East	316	7	19	342
South	1	1	0	2
Totals	324	8	19	



Peds Cross: $\times$

South Peds: 0

South Entering: 351

South Leg Total: 545

Comments

Paris Plains Church Rd @ Pinehurst Rd

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 16:00:00

To: 17:00:00

Municipality: Paris

Site #: 0000000002

Intersection: Pinehurst Rd & Paris Plains Church

TFR File #: 2

Count date: 1-Jun-2022

Weather conditions:

Clear/Dry

Person(s) who counted:

Cam

** Non-Signalized Intersection **

Major Road: Pinehurst Rd runs N/S

North Leg Total: 638

North Entering: 365

North Peds: 0

Peds Cross: $\times$

Heavys	0	3	0	3
Trucks	0	4	0	4
Cars	4	352	2	358
Totals	4	359	2	

Heavys	3
Trucks	1
Cars	269
Totals	273

East Leg Total: 9

East Entering: 4

East Peds: 0

Peds Cross: $\times$

Heavys	0
Trucks	1
Cars	22
Totals	23



Paris Plains Church Rd

Heavys	0
Trucks	0
Cars	6
Totals	6
Heavys	0
Trucks	0
Cars	1
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Totals	9
Heavys	0
Trucks	0
Cars	16
Totals	16

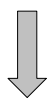
Peds Cross: $\times$

West Peds: 0

West Entering: 16

West Leg Total: 39

Cars	362
Trucks	4
Heavys	3
Totals	369



Pinehurst Rd

Cars	16
Trucks	0
Heavys	0
Totals	16
Cars	263
Trucks	1
Heavys	3
Totals	267
Cars	2
Trucks	0
Heavys	0
Totals	2

Cars	0
Trucks	0
Heavys	0
Totals	0
Cars	2
Trucks	1
Heavys	0
Totals	3
Cars	1
Trucks	0
Heavys	0
Totals	1
Cars	3
Trucks	1
Heavys	0
Totals	4

Paris Plains Church Rd

Cars	5
Trucks	0
Heavys	0
Totals	5

Peds Cross: $\times$

South Peds: 0

South Entering: 285

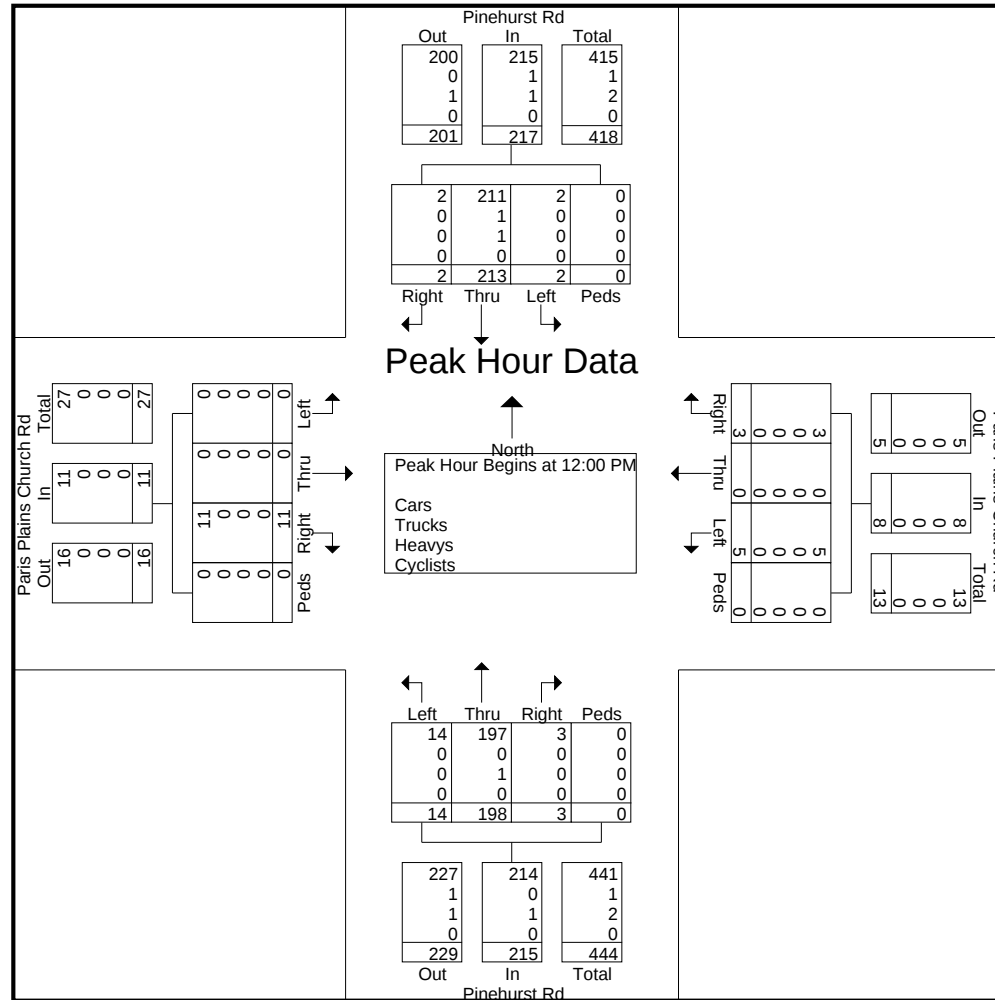
South Leg Total: 654

Comments

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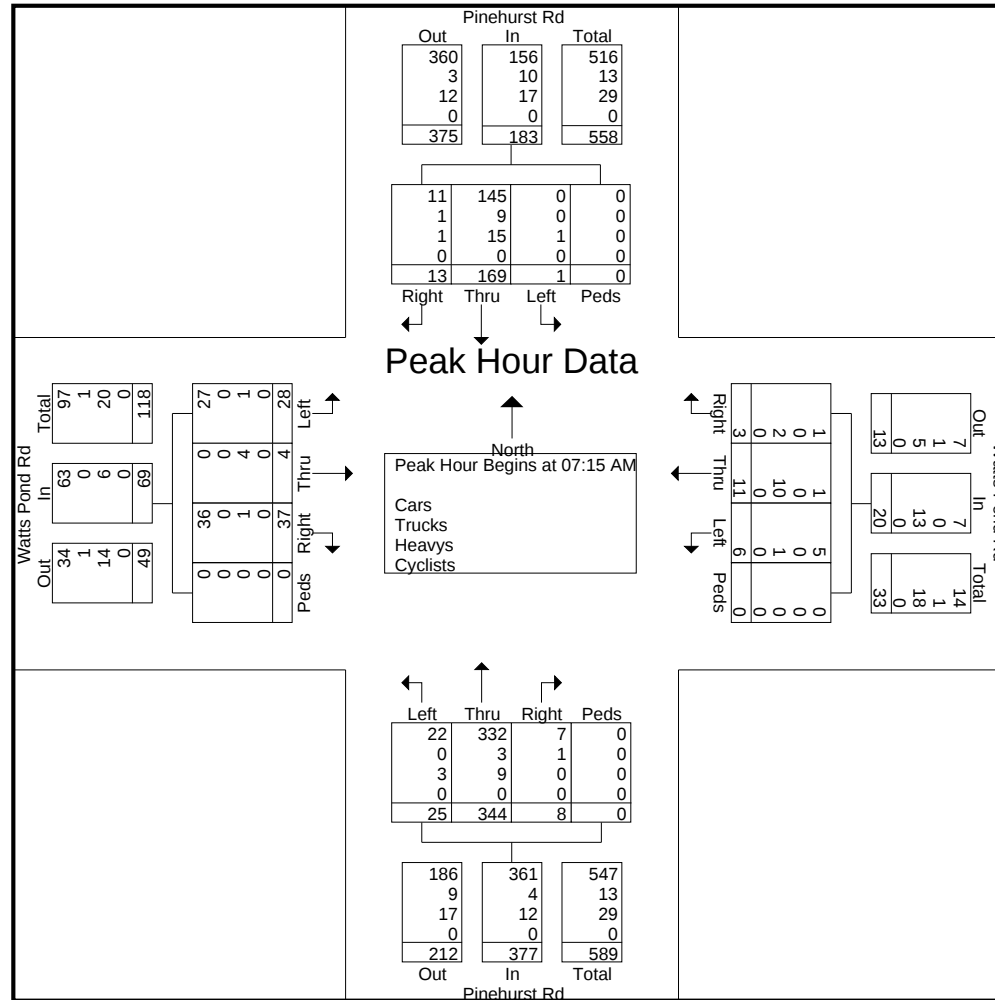
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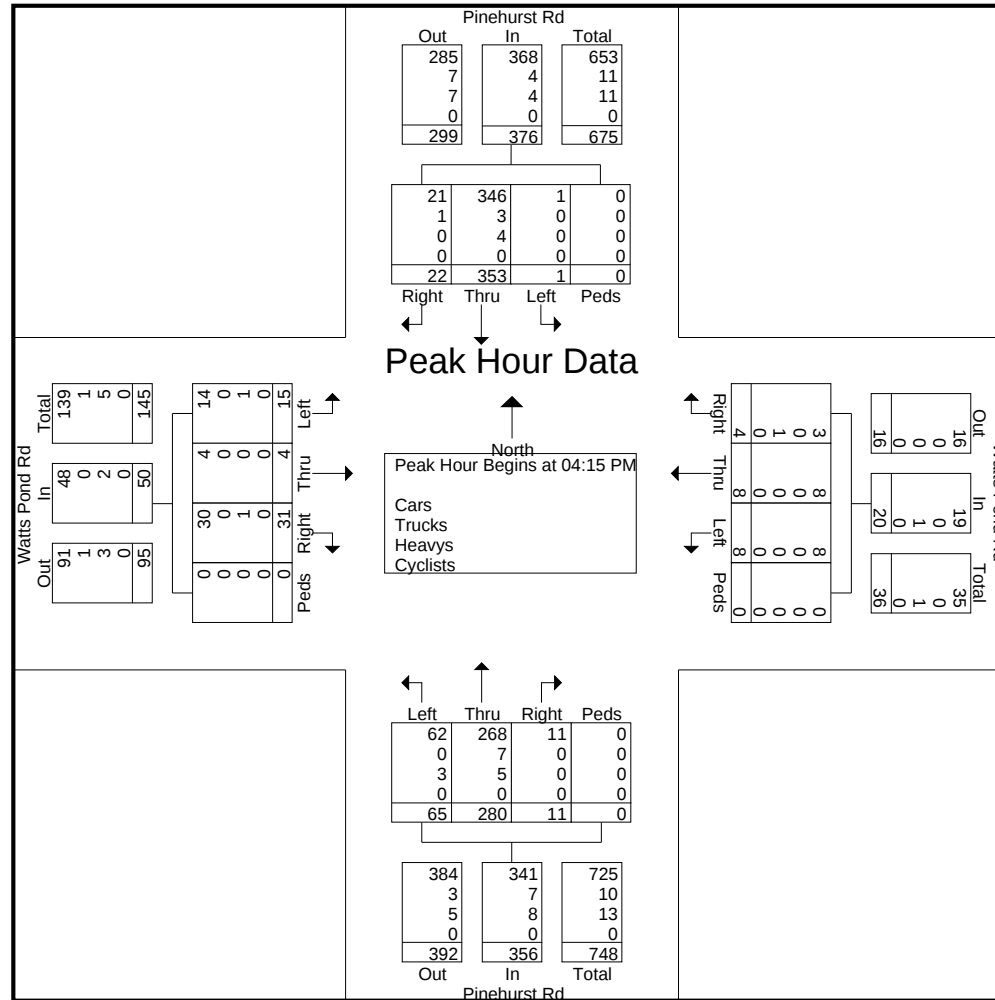
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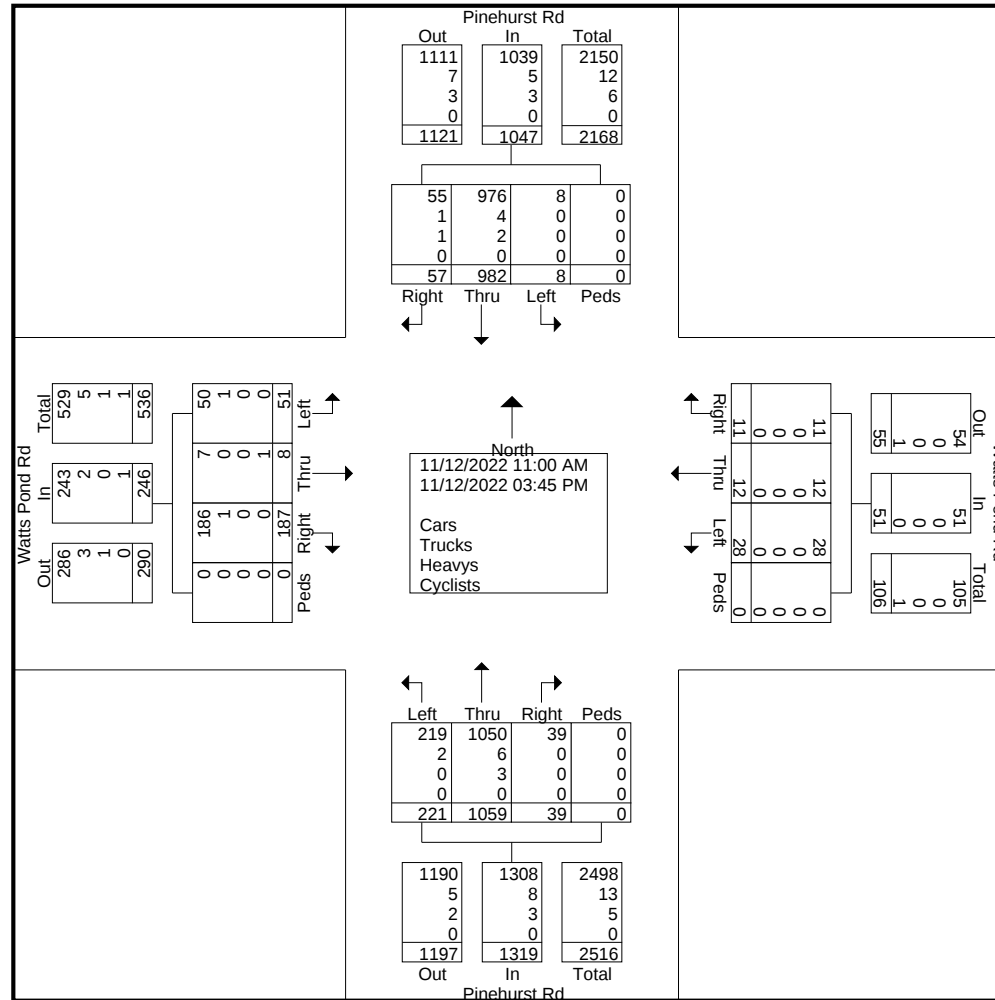
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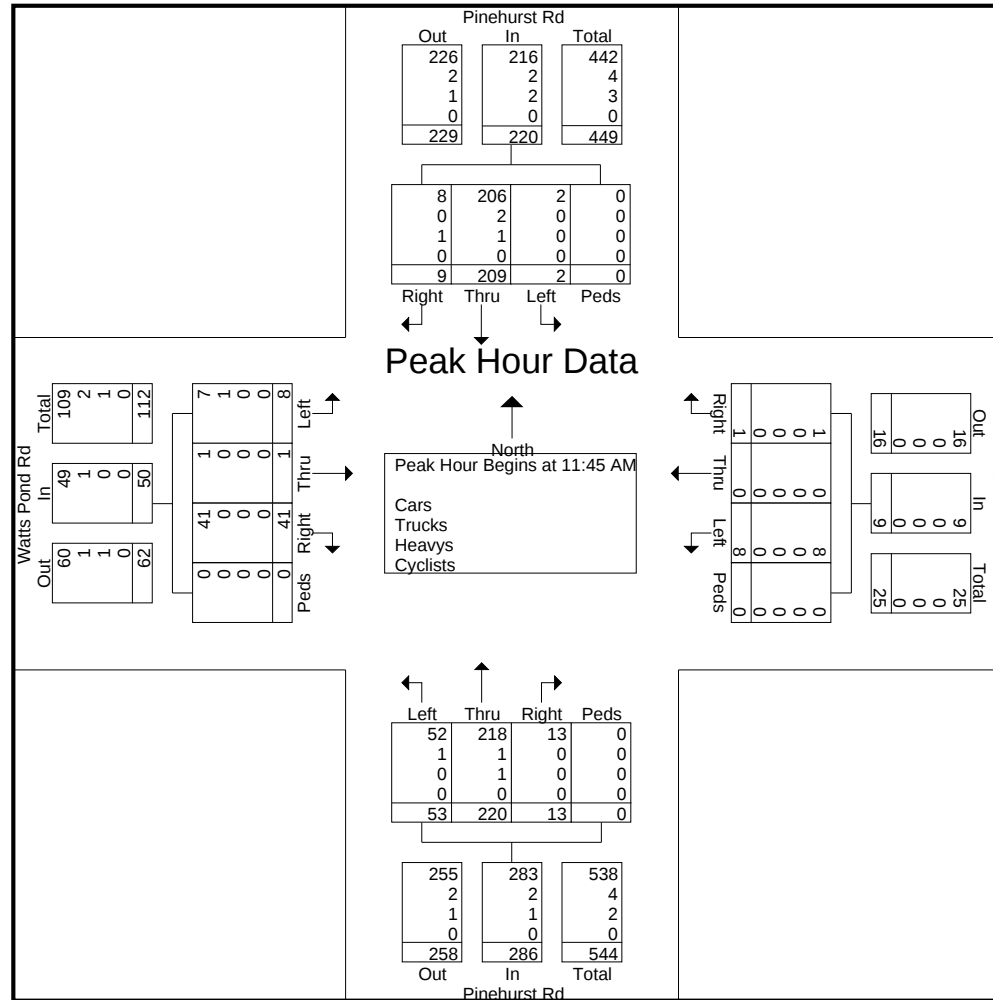
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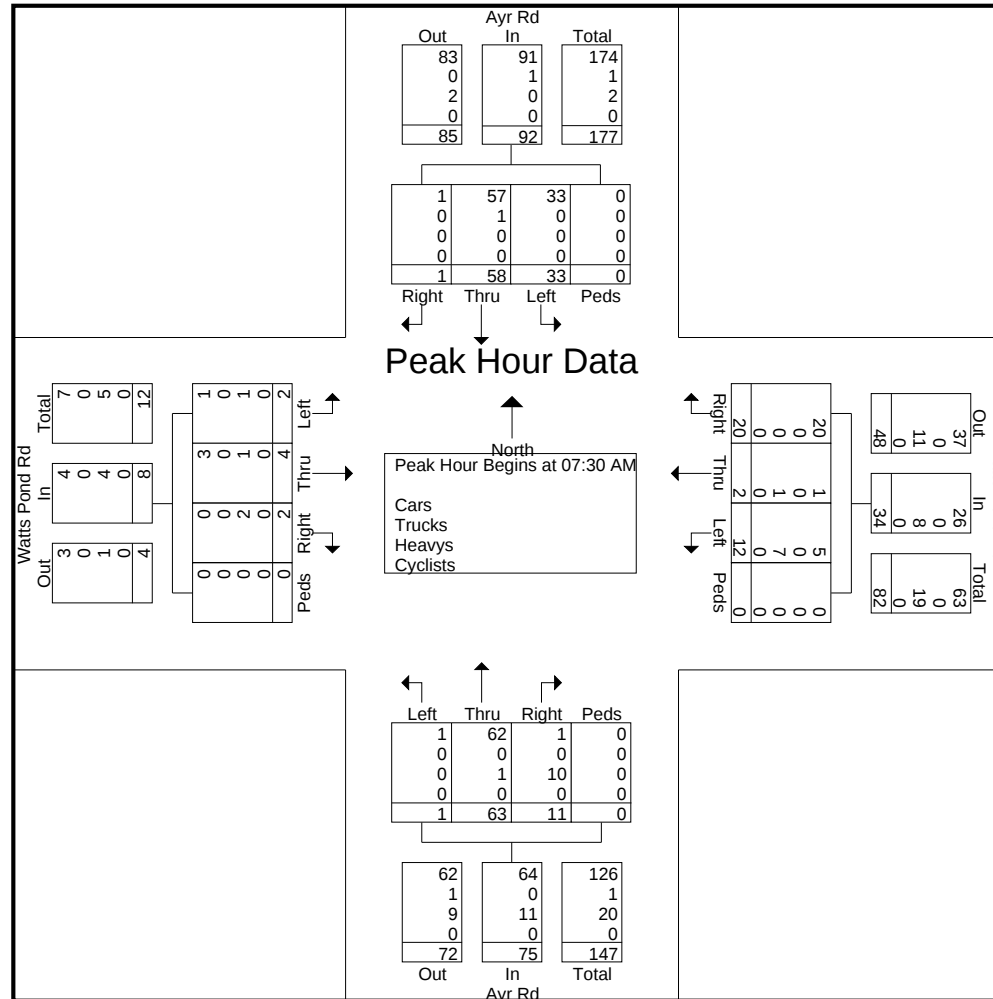
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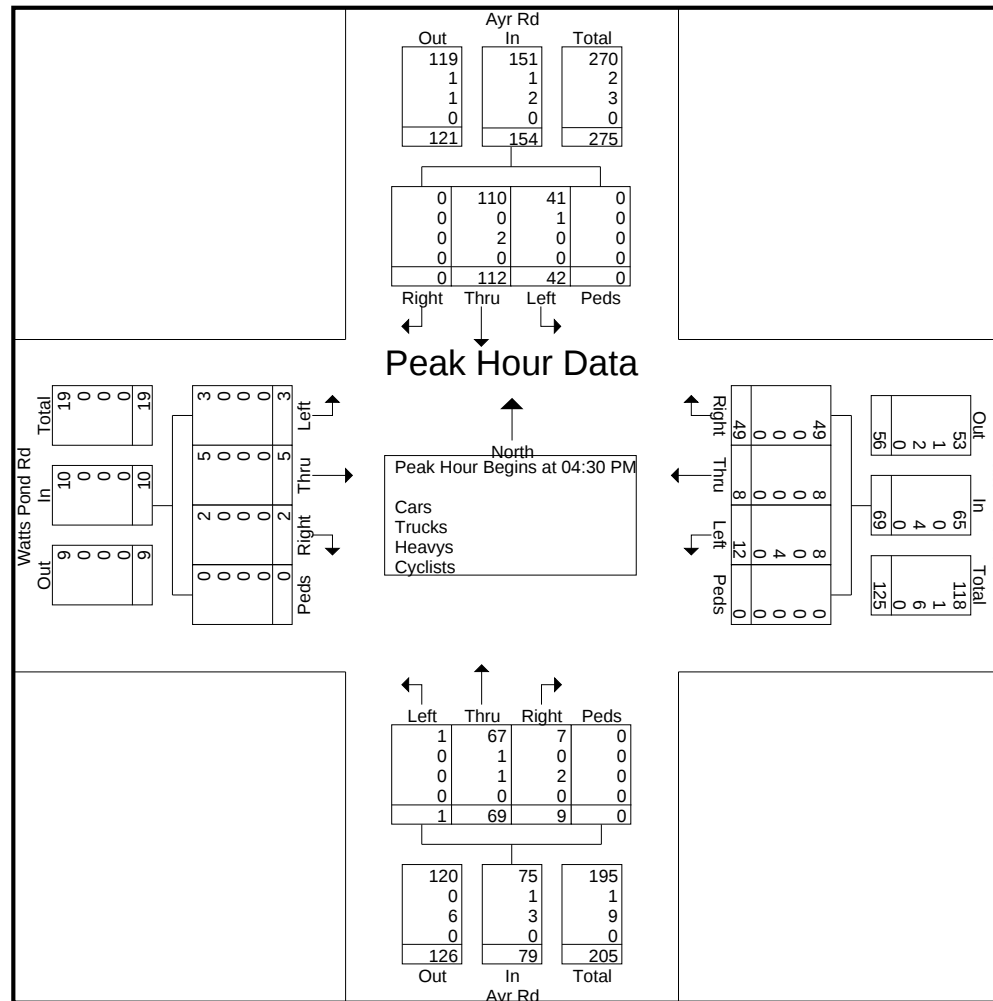
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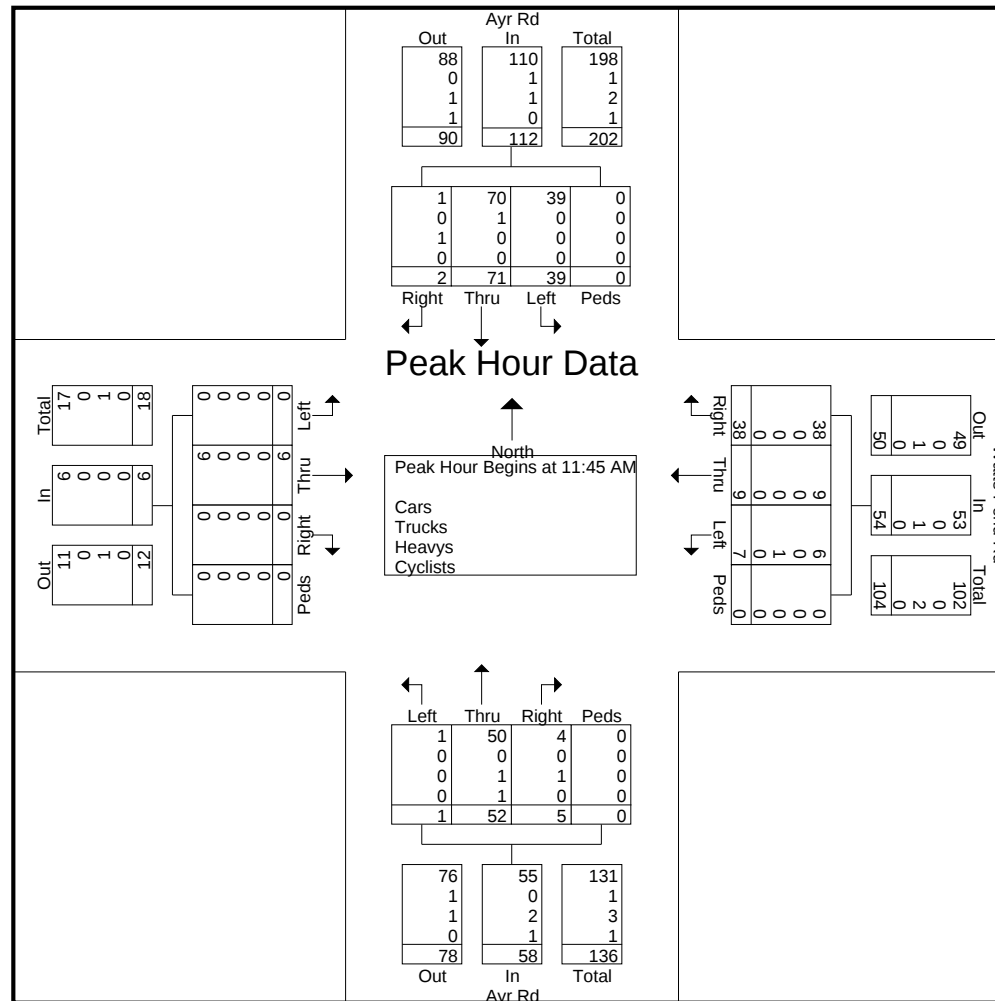
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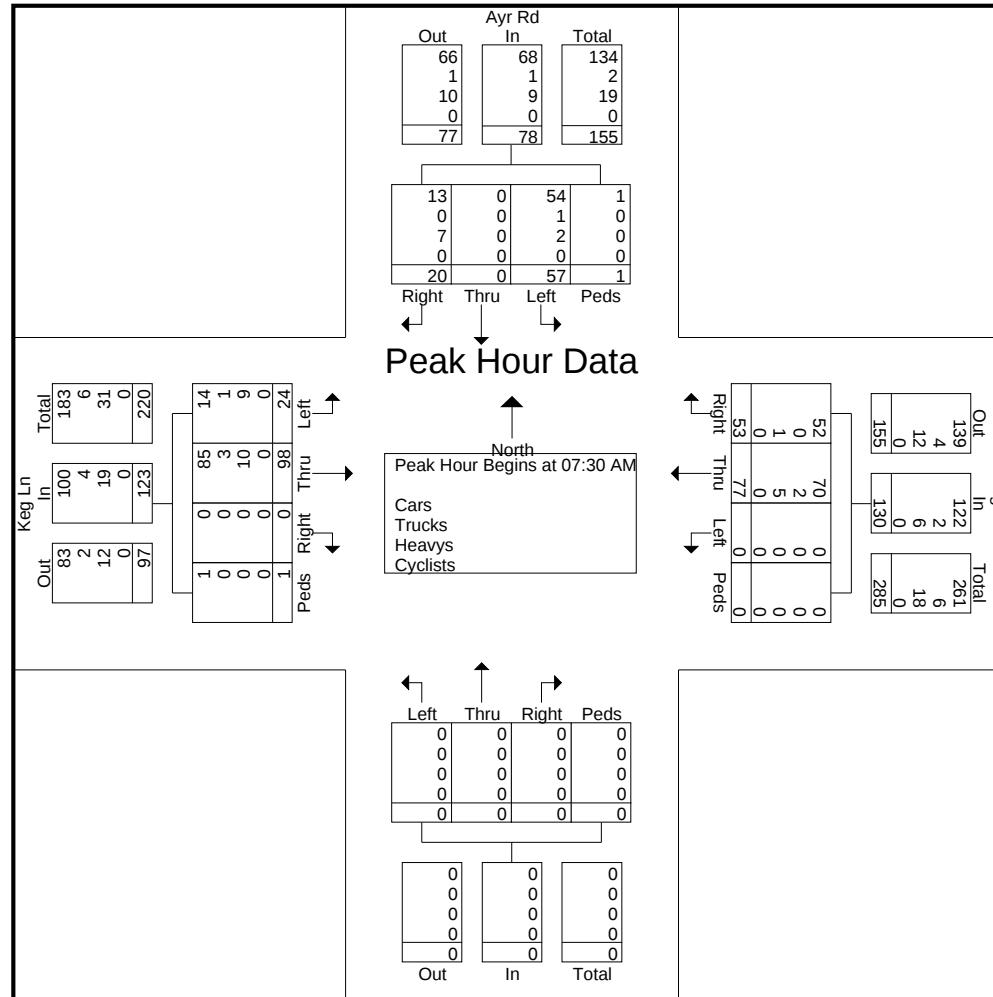
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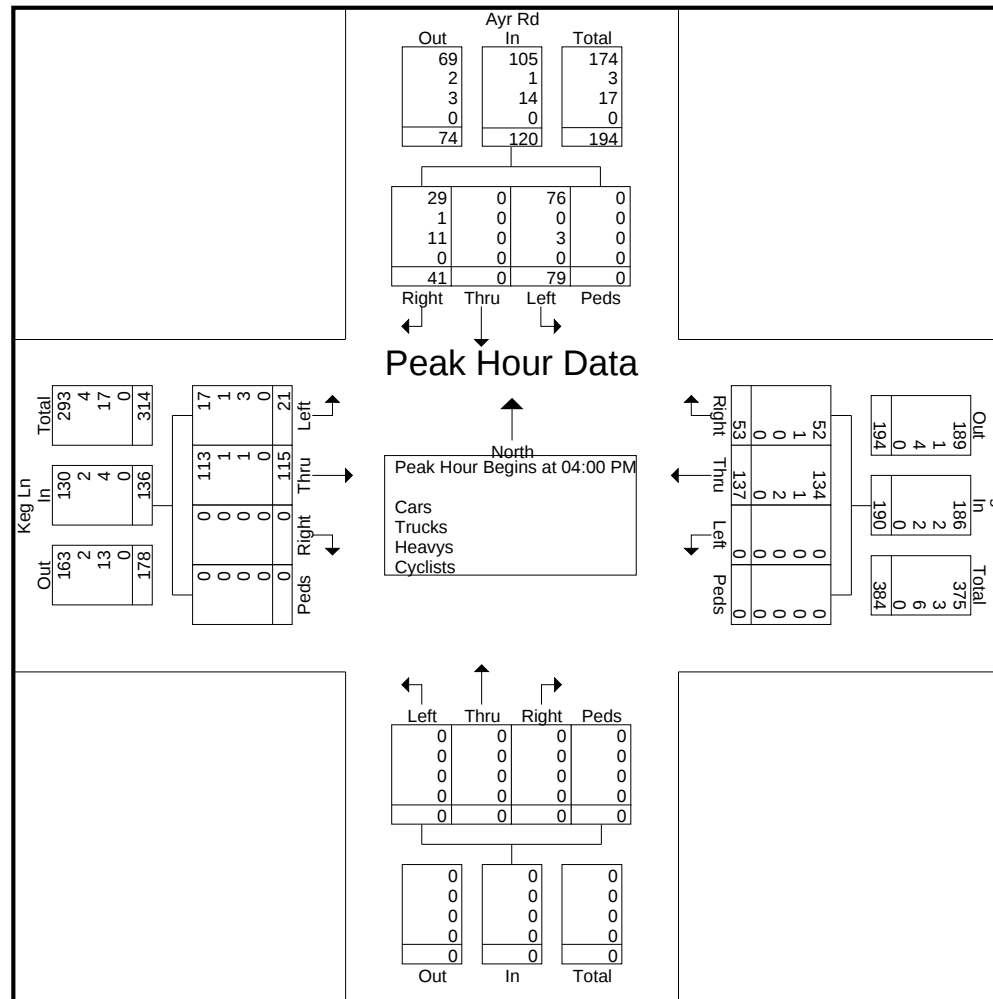
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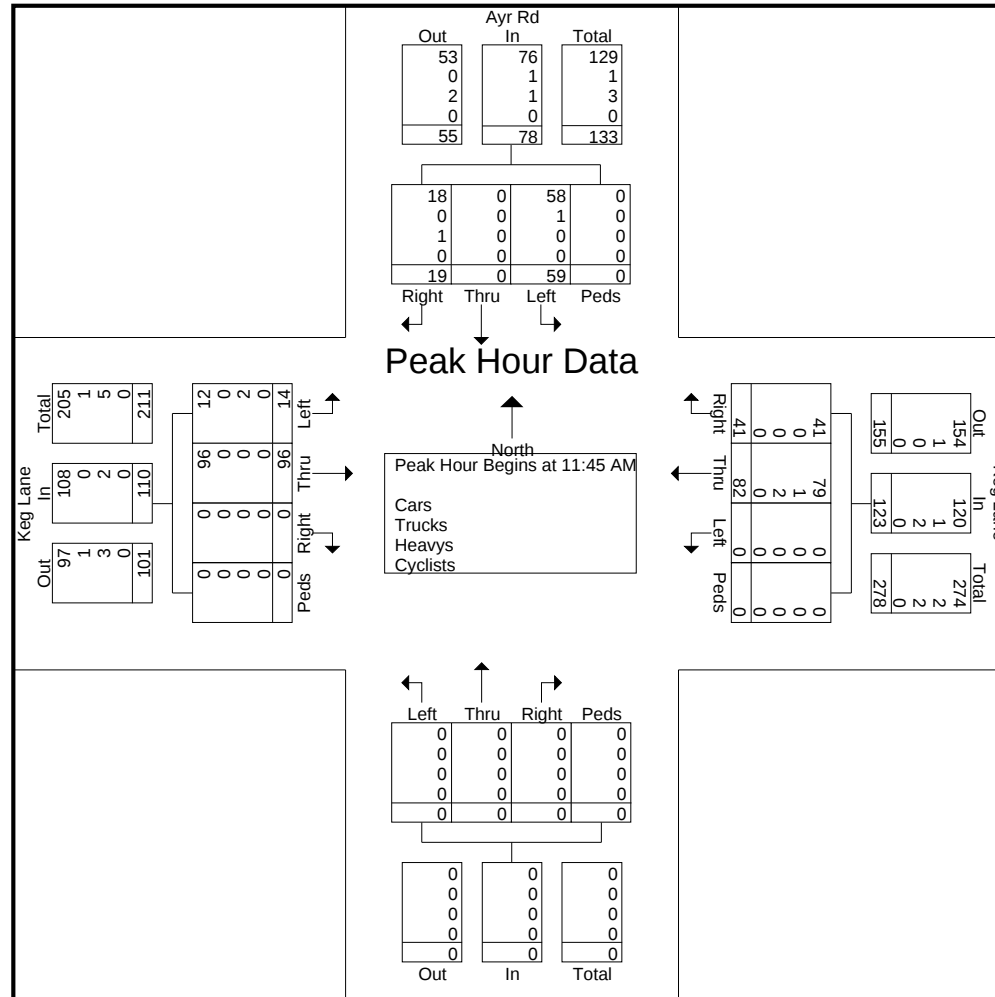
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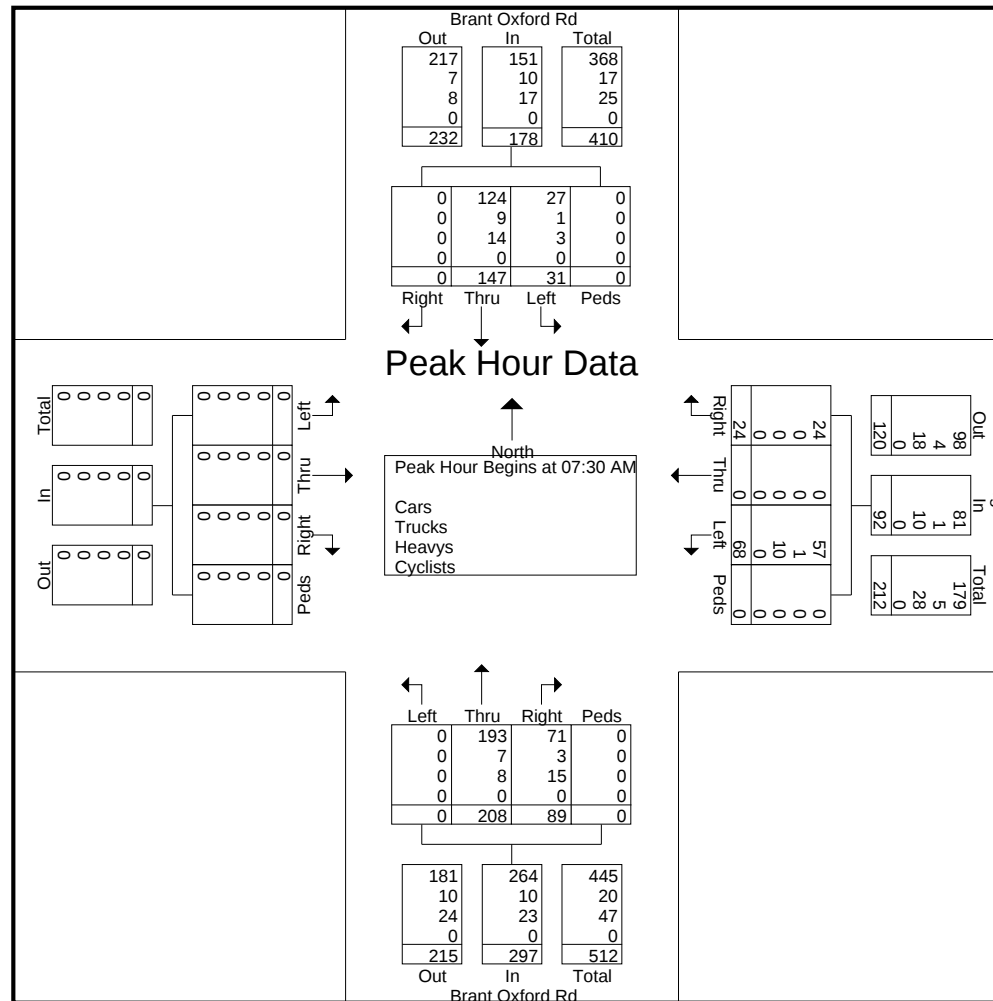
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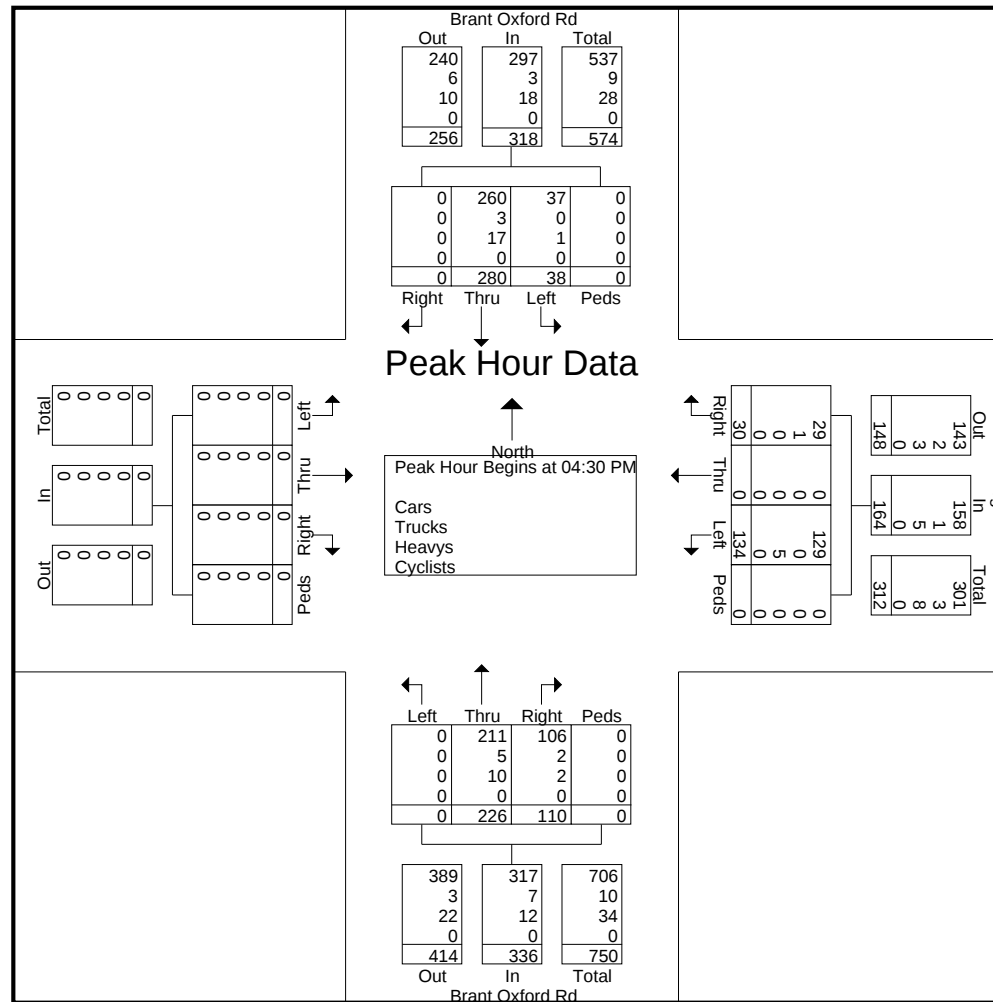
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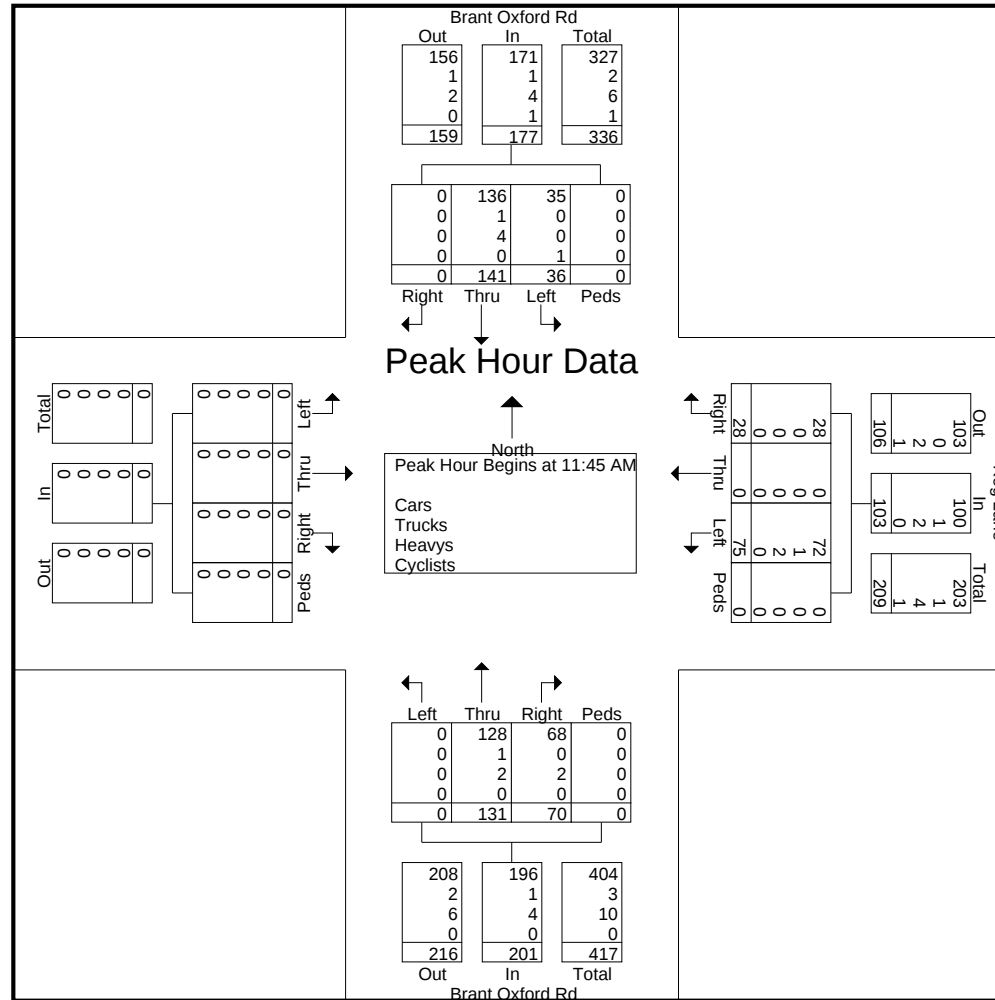
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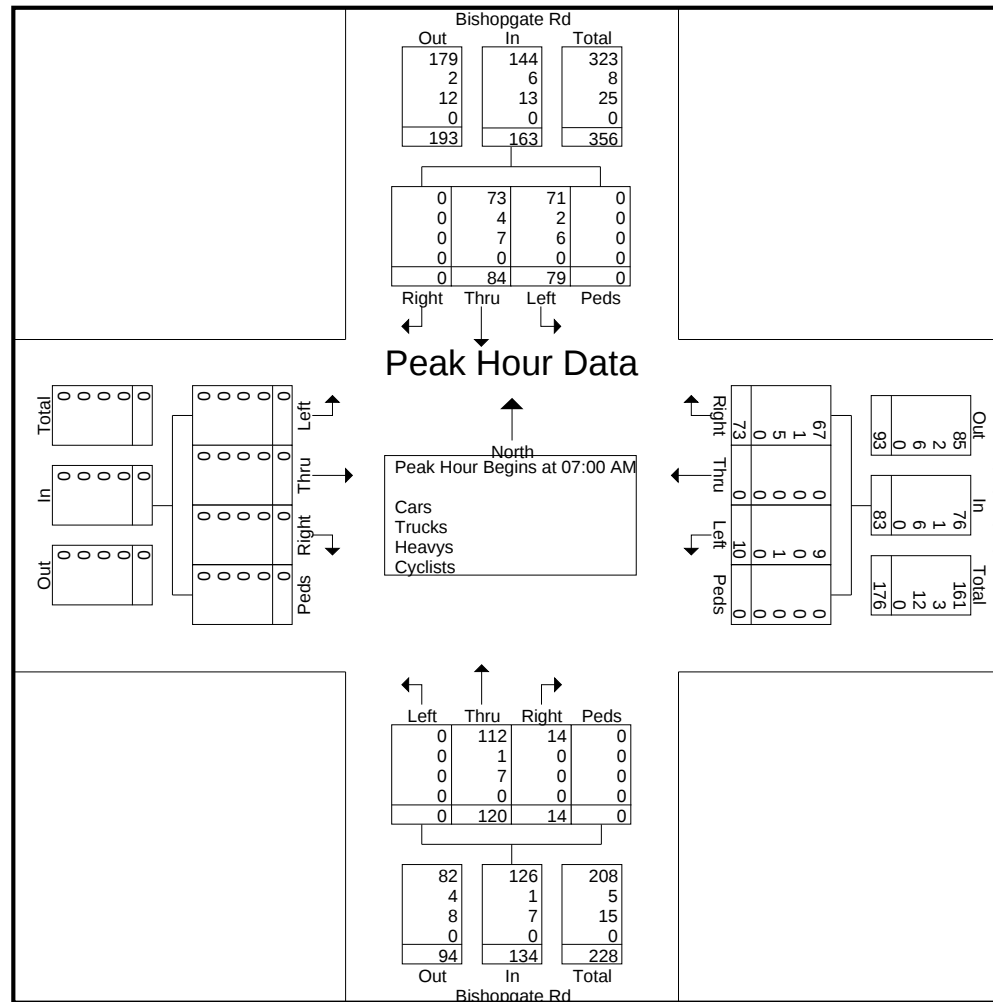
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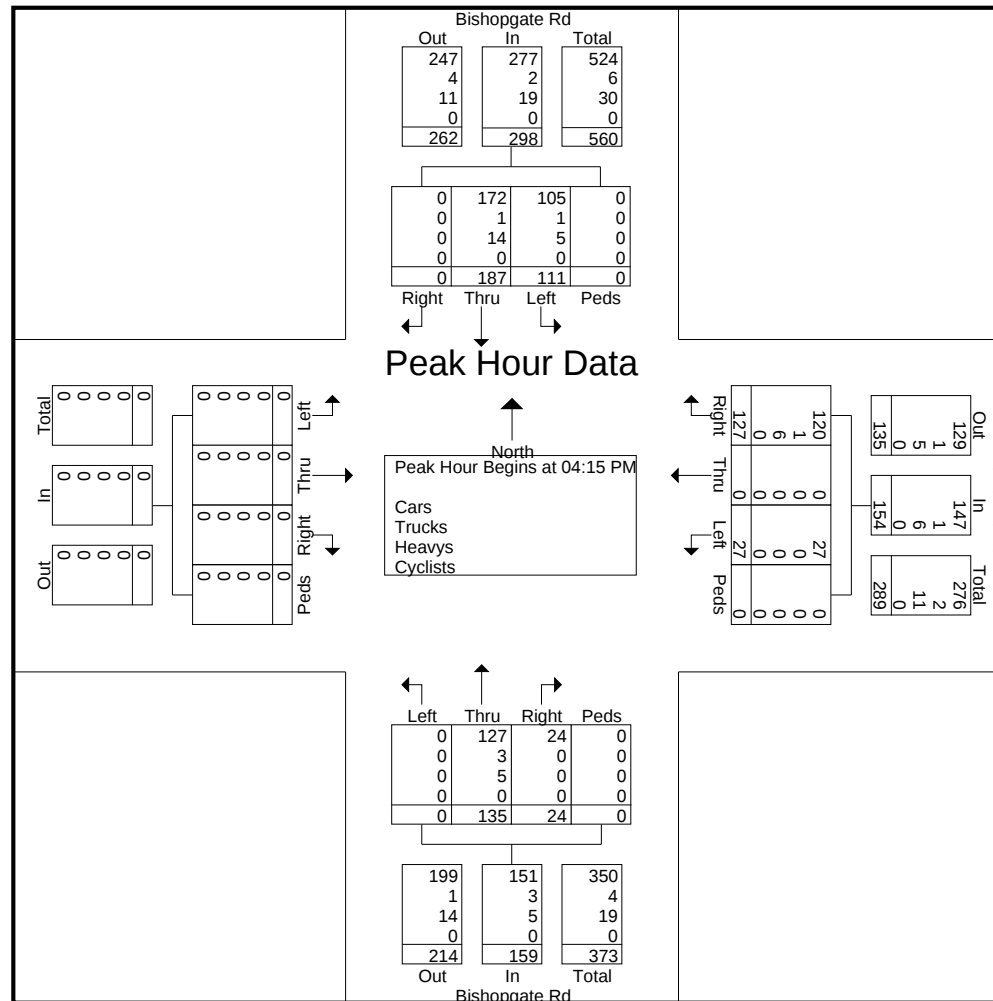
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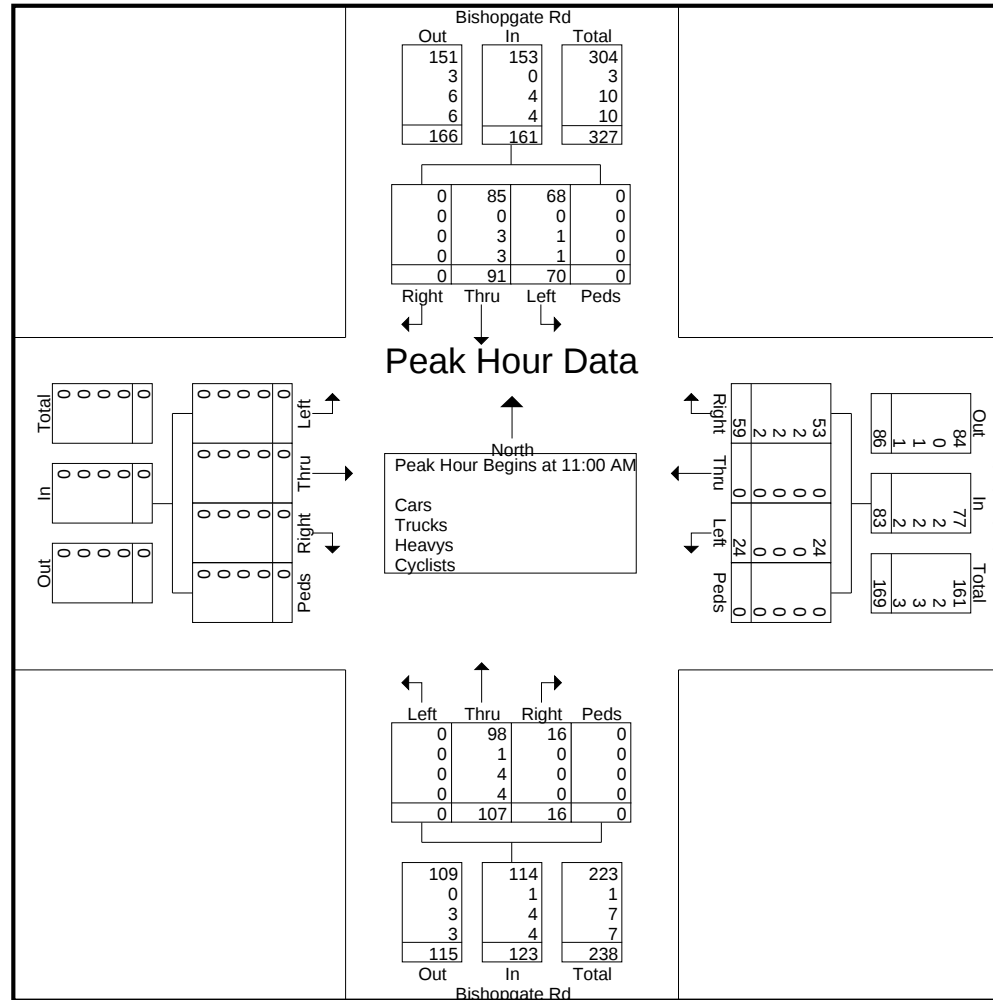
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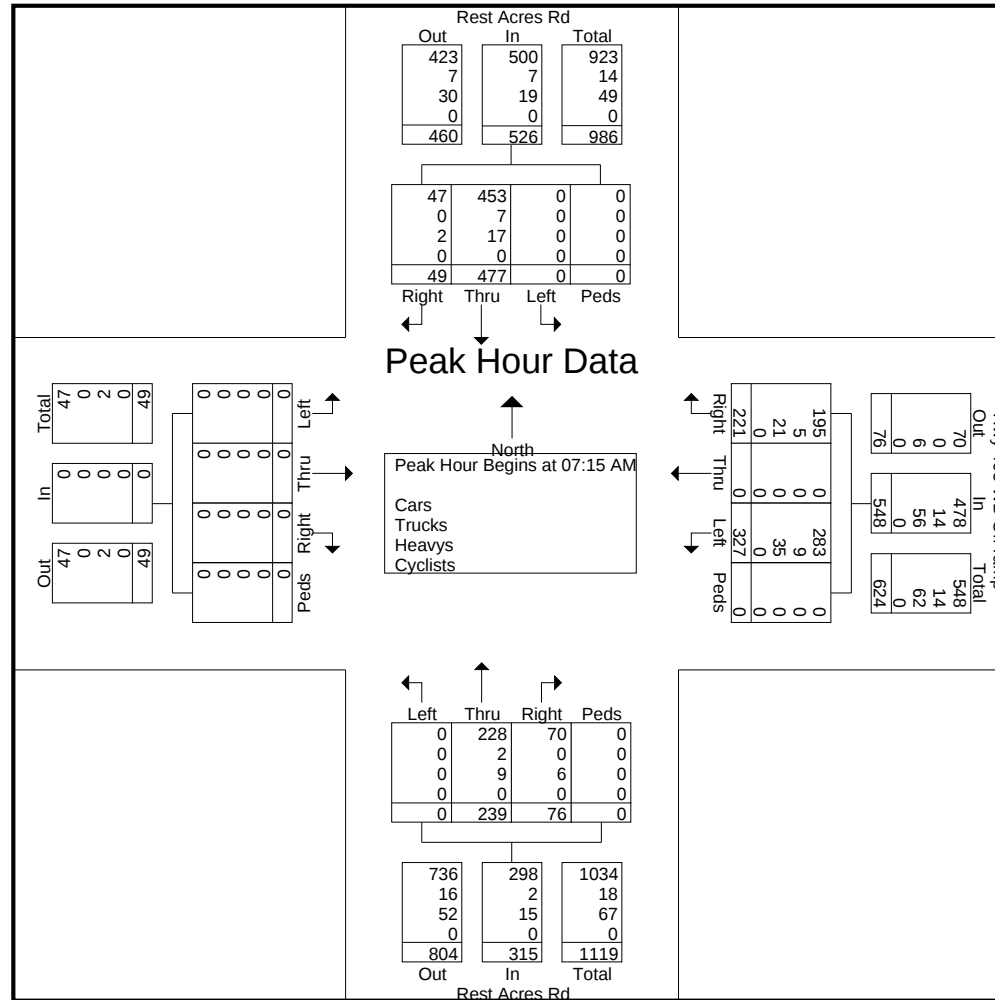
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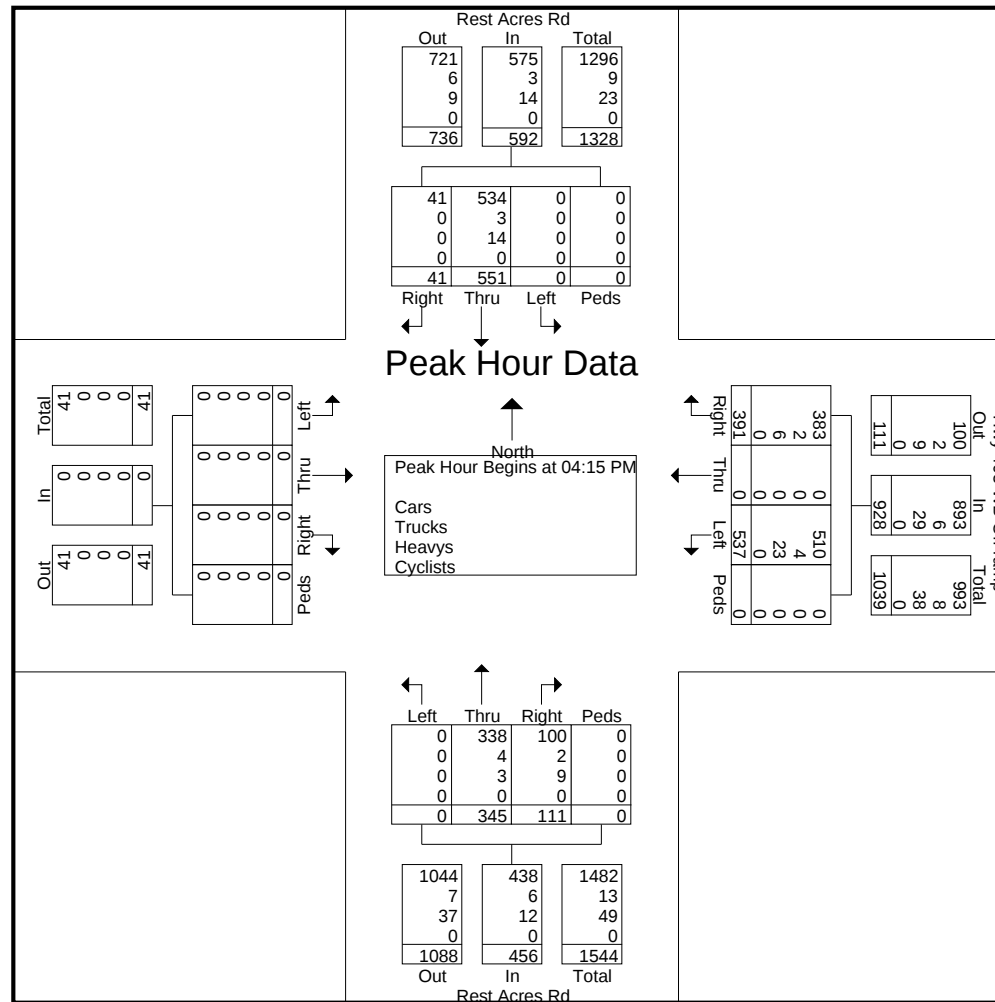
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"Your Traffic Count Specialist"

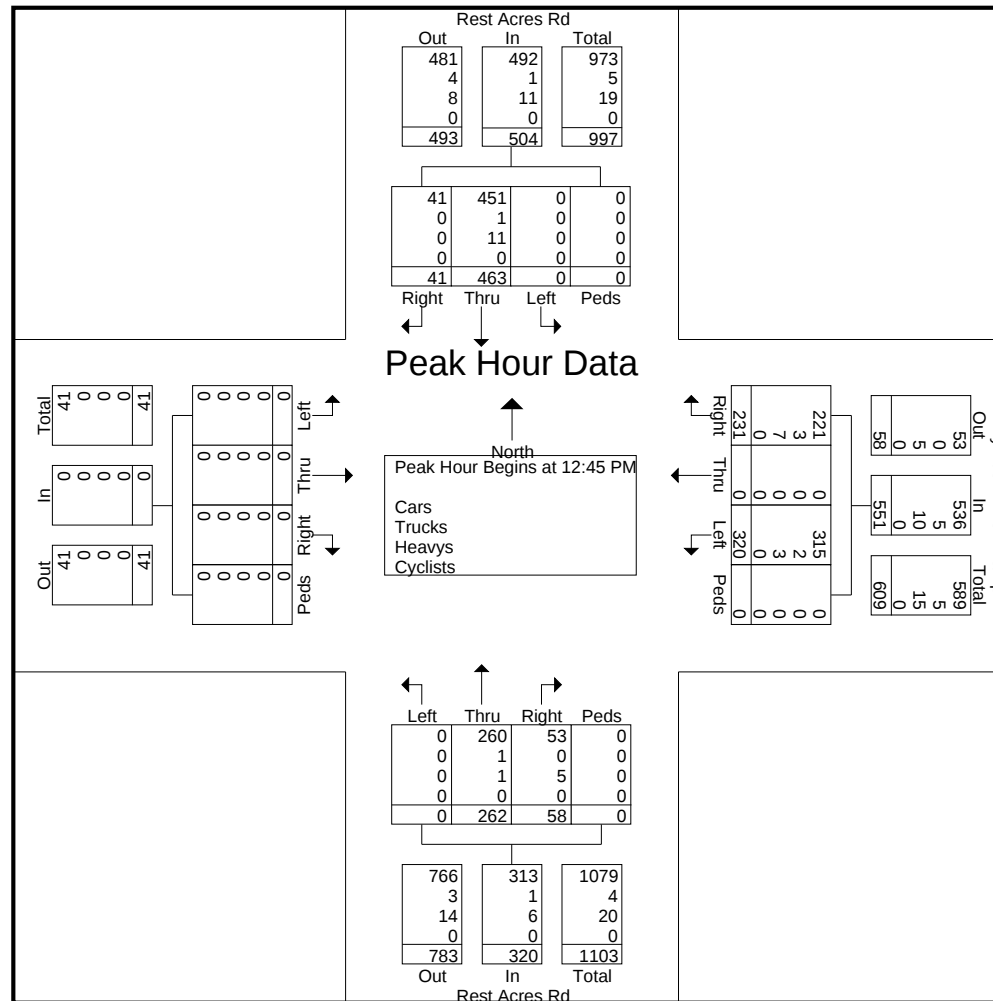
File Name : Rest Acres Road at Hwy 403 WB Ramp
Site Code : 00000000
Start Date : 11/17/2022
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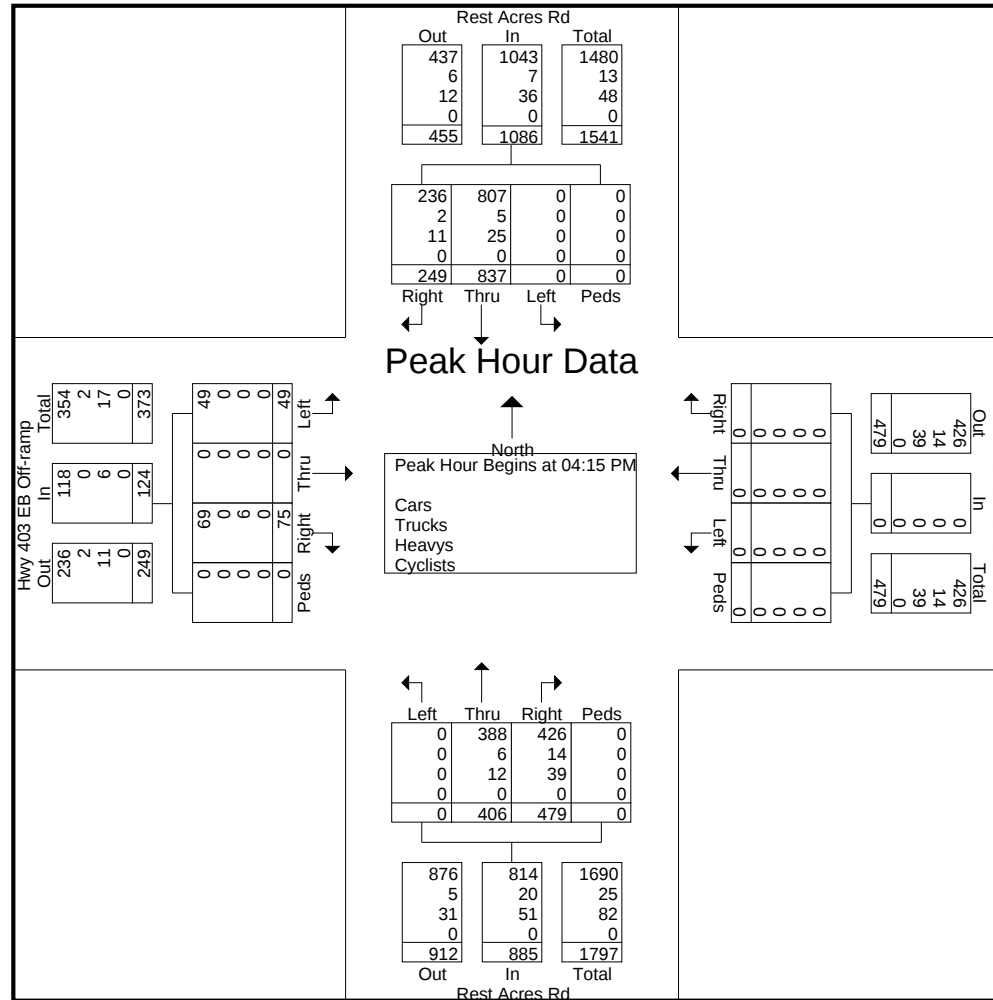
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 Site Code : 00000000
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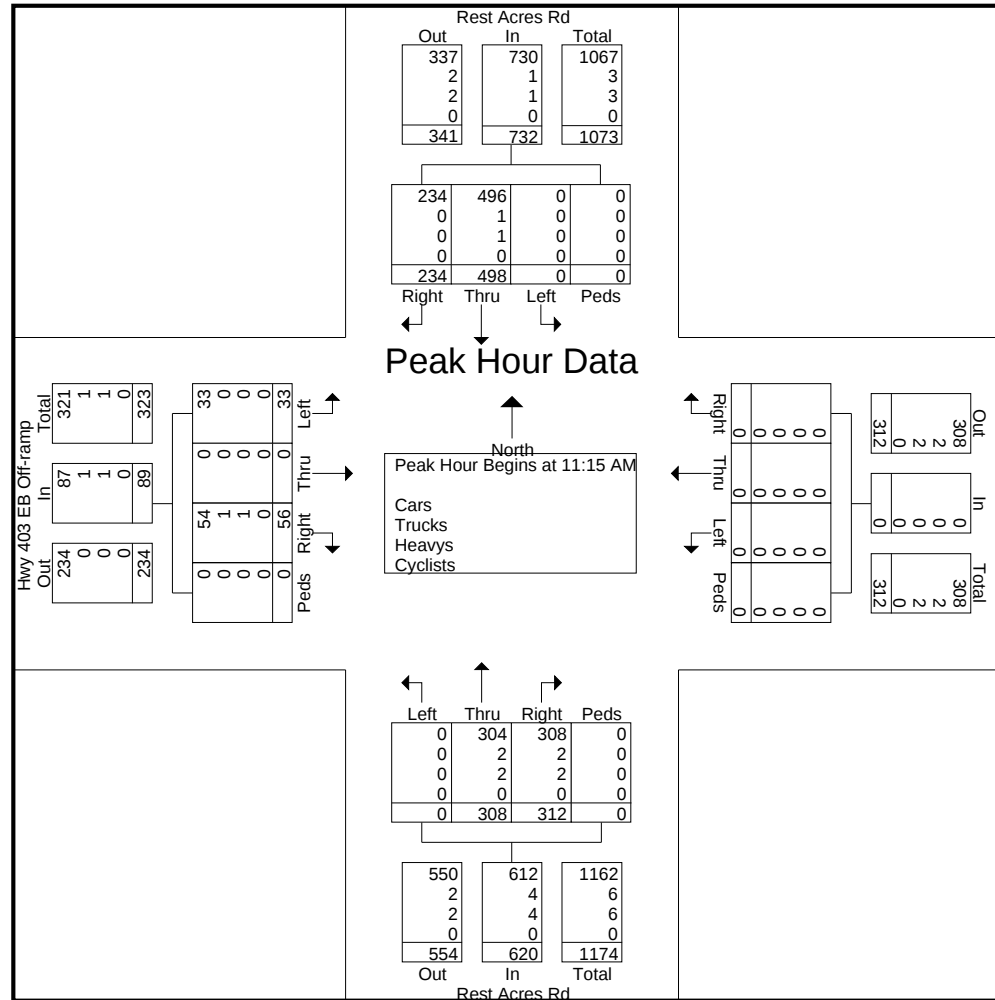
File Name : Rest Acres Road at Hwy 403 EB Ramp
Site Code : 00000000
Start Date : 11/17/2022
Page No : 8



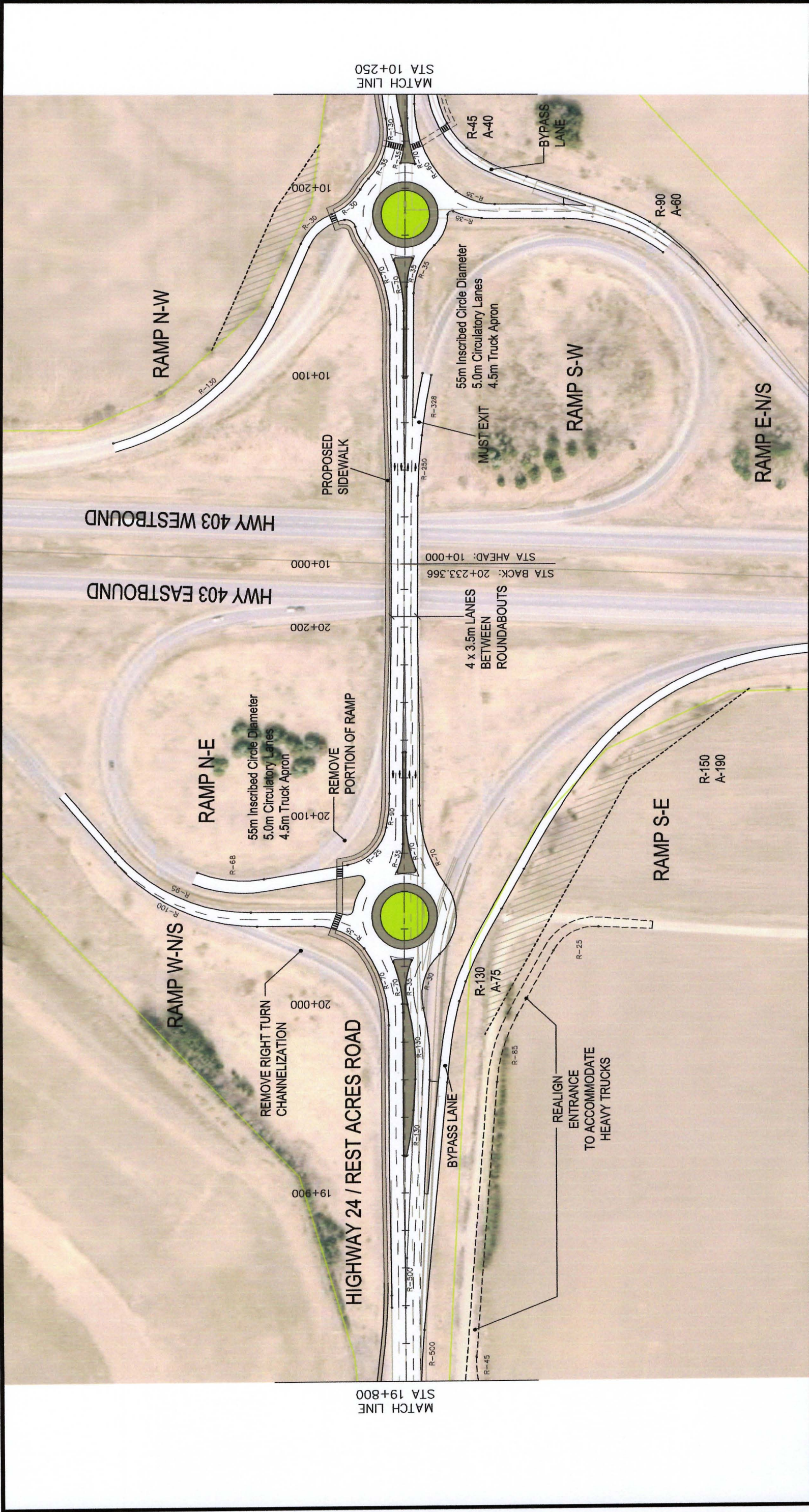
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File Name : Rest Acres Road at Hwy 403 South Terminal-SAT
 Site Code : 00000000
 Start Date : 11/12/2022
 Page No : 5



Appendix B – Rest Acres Road EA Extracts



Legend:

- EXISTING RIGHT-OF-WAY & PROPERTY FABRIC
- PRELIMINARY PROPERTY REQUIREMENTS
- PROPOSED SIDEWALK, MULTI USE PATH
- PROPOSED CONCRETE ISLAND & MEDIAN

PLATE 2
RECOMMENDED PLAN
Sta 19+800 to Sta 10+250

REST ACRES ROAD
FUNCTIONAL DESIGN



SCALE
1"= 60'
HORIZONTAL 1:2,000

Appendix C – Intersection Capacity Analysis Results

Existing Traffic

1: Pinehurst Road & Paris Plains Church Road
699 Paris Plains Church Road

Existing Traffic
Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	0	10	0	3	0	7	342	2	0	184	1
Future Vol, veh/h	6	0	10	0	3	0	7	342	2	0	184	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	33	0	0	8	50	0	12	0
Mvmt Flow	6	0	11	0	3	0	7	360	2	0	194	1
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	572	571	195	575	570	361	195	0	0	362	0	0
Stage 1	195	195	-	375	375	-	-	-	-	-	-	-
Stage 2	377	376	-	200	195	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.83	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4.297	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	434	434	851	432	392	688	1390	-	-	1208	-	-
Stage 1	811	743	-	650	566	-	-	-	-	-	-	-
Stage 2	649	620	-	806	685	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	429	431	851	425	390	688	1390	-	-	1208	-	-
Mov Cap-2 Maneuver	429	431	-	425	390	-	-	-	-	-	-	-
Stage 1	806	743	-	646	563	-	-	-	-	-	-	-
Stage 2	641	616	-	796	685	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	10.9		14.3			0.2			0			
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1390	-	-	622	390	1208	-	-				
HCM Lane V/C Ratio	0.005	-	-	0.027	0.008	-	-	-				
HCM Control Delay (s)	7.6	0	-	10.9	14.3	0	-	-				
HCM Lane LOS	A	A	-	B	B	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

2: Pinehurst Road & Watts Pond Road
699 Paris Plains Church Road

Existing Traffic
Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰	↱
Traffic Vol, veh/h	28	4	37	6	11	3	25	344	8	1	169	13
Future Vol, veh/h	28	4	37	6	11	3	25	344	8	1	169	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	550	-	-	-	-	-	-	-	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	100	3	17	91	67	12	3	12	100	14	15
Mvmt Flow	29	4	39	6	12	3	26	362	8	1	178	14

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	606	602	178	627	612	366	192	0	0	370	0	0
Stage 1	180	180	-	418	418	-	-	-	-	-	-	-
Stage 2	426	422	-	209	194	-	-	-	-	-	-	-
Critical Hdwy	7.14	7.5	6.23	7.27	7.41	6.87	4.22	-	-	5.1	-	-
Critical Hdwy Stg 1	6.14	6.5	-	6.27	6.41	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	6.5	-	6.27	6.41	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.9	3.327	3.653	4.819	3.903	2.308	-	-	3.1	-	-
Pot Cap-1 Maneuver	406	307	862	375	311	556	1324	-	-	803	-	-
Stage 1	817	599	-	584	463	-	-	-	-	-	-	-
Stage 2	602	451	-	760	600	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	384	299	862	347	303	556	1324	-	-	803	-	-
Mov Cap-2 Maneuver	384	299	-	347	303	-	-	-	-	-	-	-
Stage 1	797	598	-	569	451	-	-	-	-	-	-	-
Stage 2	569	440	-	720	599	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	12.3		16.3		0.5		0.1	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1324	-	-	371	862	339	803	-	-
HCM Lane V/C Ratio	0.02	-	-	0.091	0.045	0.062	0.001	-	-
HCM Control Delay (s)	7.8	0	-	15.7	9.4	16.3	9.5	0	-
HCM Lane LOS	A	A	-	C	A	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.1	0.2	0	-	-

3: Ayr Road & Watts Pond Road/Watts Pond Road
699 Paris Plains Church Road

Existing Traffic
Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	4	2	12	2	20	1	63	11	33	58	1
Future Vol, veh/h	2	4	2	12	2	20	1	63	11	33	58	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	250	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	50	25	100	58	50	0	0	2	91	0	2	0
Mvmt Flow	2	4	2	13	2	21	1	66	12	35	61	1
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	217	211	61	203	200	66	62	0	0	78	0	0
Stage 1	131	131	-	68	68	-	-	-	-	-	-	-
Stage 2	86	80	-	135	132	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.75	7.2	7.68	7	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.6	5.75	-	6.68	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	5.75	-	6.68	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4.225	4.2	4.022	4.45	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	648	648	786	649	619	1003	1554	-	-	1533	-	-
Stage 1	770	746	-	819	753	-	-	-	-	-	-	-
Stage 2	816	786	-	751	704	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	621	632	786	631	604	1003	1554	-	-	1533	-	-
Mov Cap-2 Maneuver	621	632	-	631	604	-	-	-	-	-	-	-
Stage 1	769	728	-	818	752	-	-	-	-	-	-	-
Stage 2	796	785	-	727	687	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.5		9.7		0.1		2.7					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1554	-	-	661	804	1533	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.013	0.045	0.023	-	-				
HCM Control Delay (s)	7.3	0	-	10.5	9.7	7.4	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0.1	-	-				

4: Keg Lane & Ayr Road
699 Paris Plains Church Road

Existing Traffic
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	24	98	77	53	57	20
Future Vol, veh/h	24	98	77	53	57	20
Conflicting Peds, #/hr	1	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	1500	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	42	13	9	2	5	35
Mvmt Flow	25	103	81	56	60	21
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	138	0	-	0	235	83
Stage 1	-	-	-	-	82	-
Stage 2	-	-	-	-	153	-
Critical Hdwy	4.52	-	-	-	6.45	6.55
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.578	-	-	-	3.545	3.615
Pot Cap-1 Maneuver	1233	-	-	-	747	892
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	868	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1232	-	-	-	731	890
Mov Cap-2 Maneuver	-	-	-	-	731	-
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	867	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.6	0		10.2		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1232	-	-	-	767	
HCM Lane V/C Ratio	0.021	-	-	-	0.106	
HCM Control Delay (s)	8	-	-	-	10.2	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4	

5: Brant Oxford Road & Keg Lane
699 Paris Plains Church Road

Existing Traffic
Weekday AM Peak Hour

Intersection

Int Delay, s/veh 2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	68	24	208	89	31	147
Future Vol, veh/h	68	24	208	89	31	147
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	16	0	7	20	13	16
Mvmt Flow	72	25	219	94	33	155

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	487	266	0
Stage 1	266	-	-
Stage 2	221	-	-
Critical Hdwy	6.56	6.2	-
Critical Hdwy Stg 1	5.56	-	-
Critical Hdwy Stg 2	5.56	-	-
Follow-up Hdwy	3.644	3.3	-
Pot Cap-1 Maneuver	515	778	-
Stage 1	747	-	-
Stage 2	784	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	500	778	-
Mov Cap-2 Maneuver	500	-	-
Stage 1	747	-	-
Stage 2	760	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	1.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	551	1188
HCM Lane V/C Ratio	-	-	0.176	0.027
HCM Control Delay (s)	-	-	12.9	8.1
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1

6: Bishopsgate Road & Powerline Road
699 Paris Plains Church Road

Existing Traffic
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	3.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	73	120	14	79	84
Future Vol, veh/h	10	73	120	14	79	84
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	10	8	7	0	10	13
Mvmt Flow	11	77	126	15	83	88
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	388	134	0	0	141	0
Stage 1	134	-	-	-	-	-
Stage 2	254	-	-	-	-	-
Critical Hdwy	6.5	6.28	-	-	4.2	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.372	-	-	2.29	-
Pot Cap-1 Maneuver	600	899	-	-	1394	-
Stage 1	873	-	-	-	-	-
Stage 2	770	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	562	899	-	-	1394	-
Mov Cap-2 Maneuver	562	-	-	-	-	-
Stage 1	873	-	-	-	-	-
Stage 2	721	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.8	0		3.8		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	838		1394	-	
HCM Lane V/C Ratio	-	0.104		0.06	-	
HCM Control Delay (s)	-	9.8		7.7	0	
HCM Lane LOS	-	A		A	A	
HCM 95th %tile Q(veh)	-	0.3		0.2	-	

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Existing Traffic
Weekday AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	327	221	299	76	0	477
Future Volume (vph)	327	221	299	76	0	477
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1615	1458	1847	1512	0	1830
Flt Permitted	0.950					
Satd. Flow (perm)	1615	1458	1847	1512	0	1830
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		233		80		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	13%	12%	4%	8%	0%	5%
Adj. Flow (vph)	344	233	315	80	0	502
Shared Lane Traffic (%)						
Lane Group Flow (vph)	344	233	315	80	0	502
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	50.0	50.0	31.0	31.0		31.0
Total Split (%)	61.7%	61.7%	38.3%	38.3%		38.3%
Maximum Green (s)	42.8	42.8	23.8	23.8		23.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	21.0	21.0	22.4	22.4		22.4
Actuated g/C Ratio	0.36	0.36	0.39	0.39		0.39
v/c Ratio	0.59	0.34	0.44	0.13		0.71
Control Delay	20.1	3.8	15.7	4.2		22.1
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	20.1	3.8	15.7	4.2		22.1
LOS	C	A	B	A		C
Approach Delay	13.5		13.4			22.1

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Existing Traffic
Weekday AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	B		B		C	
Queue Length 50th (m)	29.8	0.0	22.8	0.0	41.6	
Queue Length 95th (m)	51.7	11.2	45.9	6.9	#82.3	
Internal Link Dist (m)	208.7		345.9		710.7	
Turn Bay Length (m)	230.0					
Base Capacity (vph)	1198	1141	762	671	755	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.29	0.20	0.41	0.12	0.66	

Intersection Summary

Area Type: Other

Cycle Length: 81

Actuated Cycle Length: 57.9

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 16.4

Intersection LOS: B

Intersection Capacity Utilization 55.2%

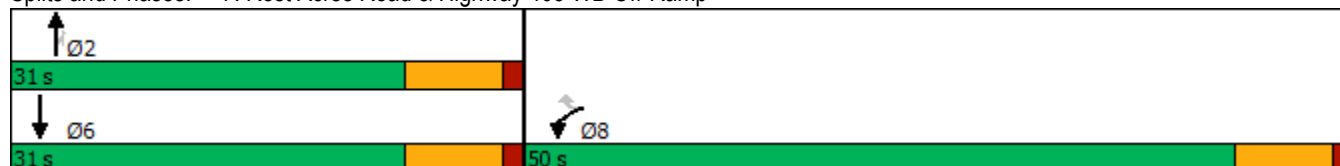
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



8: Rest Acres Road /Rest Acres Road & Highway 403 EB Off-Ramp
699 Paris Plains Church Road

Existing Traffic
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	71	0	277	536	318
Future Vol, veh/h	24	71	0	277	536	318
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	0	-	-	-	-	2650
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	20	0	6	14	6
Mvmt Flow	25	75	0	292	564	335
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	710	564	-	0	-	0
Stage 1	564	-	-	-	-	-
Stage 2	146	-	-	-	-	-
Critical Hdwy	6.66	6.5	-	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.538	3.49	-	-	-	-
Pot Cap-1 Maneuver	380	484	0	-	-	0
Stage 1	563	-	0	-	-	0
Stage 2	861	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	380	484	-	-	-	-
Mov Cap-2 Maneuver	380	-	-	-	-	-
Stage 1	563	-	-	-	-	-
Stage 2	861	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.6	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT EBLn1		SBT			
Capacity (veh/h)	- 648		-			
HCM Lane V/C Ratio	- 0.154		-			
HCM Control Delay (s)	- 11.6		-			
HCM Lane LOS	- B		-			
HCM 95th %tile Q(veh)	- 0.5		-			

9: Pinehurst Road & Site Access
699 Paris Plains Church Road

Existing Traffic
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	348	0	0	185
Future Vol, veh/h	0	0	348	0	0	185
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	7	0	0	12
Mvmt Flow	0	0	366	0	0	195
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	561	366	0	0	366	0
Stage 1	366	-	-	-	-	-
Stage 2	195	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	492	684	-	-	1204	-
Stage 1	706	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	492	684	-	-	1204	-
Mov Cap-2 Maneuver	492	-	-	-	-	-
Stage 1	706	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	-	1204	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	-	-	0	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

1: Pinehurst Road & Paris Plains Church Road
699 Paris Plains Church Road

Existing Traffic
Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	1	9	1	3	0	16	267	2	2	359	4
Future Vol, veh/h	6	1	9	1	3	0	16	267	2	2	359	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	33	0	0	1	0	0	2	0
Mvmt Flow	6	1	9	1	3	0	17	281	2	2	378	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	702	701	380	705	702	282	382	0	0	283	0	0
Stage 1	384	384	-	316	316	-	-	-	-	-	-	-
Stage 2	318	317	-	389	386	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.83	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4.297	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	355	365	671	354	327	762	1188	-	-	1291	-	-
Stage 1	643	615	-	699	603	-	-	-	-	-	-	-
Stage 2	698	658	-	639	560	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	347	358	671	343	321	762	1188	-	-	1291	-	-
Mov Cap-2 Maneuver	347	358	-	343	321	-	-	-	-	-	-	-
Stage 1	632	614	-	687	593	-	-	-	-	-	-	-
Stage 2	682	647	-	628	559	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	12.8		16.2		0.5		0	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1188	-	-	478	326	1291	-	-
HCM Lane V/C Ratio	0.014	-	-	0.035	0.013	0.002	-	-
HCM Control Delay (s)	8.1	0	-	12.8	16.2	7.8	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

2: Pinehurst Road & Watts Pond Road
699 Paris Plains Church Road

Existing Traffic
Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰	↱
Traffic Vol, veh/h	15	4	31	8	8	4	65	280	11	1	353	22
Future Vol, veh/h	15	4	31	8	8	4	65	280	11	1	353	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	550	-	-	-	-	-	-	-	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	0	3	0	0	25	5	4	0	0	2	5
Mvmt Flow	16	4	33	8	8	4	68	295	12	1	372	23

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	817	817	372	841	834	301	395	0	0	307	0	0
Stage 1	374	374	-	437	437	-	-	-	-	-	-	-
Stage 2	443	443	-	404	397	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.5	6.23	7.1	6.5	6.45	4.15	-	-	4.1	-	-
Critical Hdwy Stg 1	6.17	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4	3.327	3.5	4	3.525	2.245	-	-	2.2	-	-
Pot Cap-1 Maneuver	289	313	672	287	306	688	1147	-	-	1265	-	-
Stage 1	637	621	-	602	583	-	-	-	-	-	-	-
Stage 2	584	579	-	627	607	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	265	290	672	255	284	688	1147	-	-	1265	-	-
Mov Cap-2 Maneuver	265	290	-	255	284	-	-	-	-	-	-	-
Stage 1	591	620	-	559	541	-	-	-	-	-	-	-
Stage 2	530	537	-	592	606	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	13.9		17.6		1.5		0	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1147	-	-	270	672	306	1265	-	-
HCM Lane V/C Ratio	0.06	-	-	0.074	0.049	0.069	0.001	-	-
HCM Control Delay (s)	8.3	0	-	19.4	10.6	17.6	7.8	0	-
HCM Lane LOS	A	A	-	C	B	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	0.2	0.2	0	-	-

3: Ayr Road & Watts Pond Road/Watts Pond Road
699 Paris Plains Church Road

Existing Traffic
Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	3	5	2	12	8	49	1	68	9	42	112	0
Future Vol, veh/h	3	5	2	12	8	49	1	68	9	42	112	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	250	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	33	0	0	0	1	22	2	2	0
Mvmt Flow	3	5	2	13	8	52	1	72	9	44	118	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	315	289	118	284	280	72	118	0	0	81	0	0
Stage 1	206	206	-	74	74	-	-	-	-	-	-	-
Stage 2	109	83	-	210	206	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.43	6.5	6.2	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.43	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.43	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.797	4	3.3	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	642	624	939	611	632	996	1483	-	-	1517	-	-
Stage 1	801	735	-	864	837	-	-	-	-	-	-	-
Stage 2	901	830	-	726	735	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	587	604	939	591	612	996	1483	-	-	1517	-	-
Mov Cap-2 Maneuver	587	604	-	591	612	-	-	-	-	-	-	-
Stage 1	800	712	-	863	836	-	-	-	-	-	-	-
Stage 2	845	829	-	697	712	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.7		9.7		0.1		2					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1483	-	-	644	836	1517	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.016	0.087	0.029	-	-				
HCM Control Delay (s)	7.4	0	-	10.7	9.7	7.4	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0.1	-	-				

4: Keg Lane & Ayr Road
699 Paris Plains Church Road

Existing Traffic
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	3.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	115	137	53	79	41
Future Vol, veh/h	21	115	137	53	79	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	1500	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	19	2	2	2	4	29
Mvmt Flow	22	121	144	56	83	43
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	200	0	-	0	309	144
Stage 1	-	-	-	-	144	-
Stage 2	-	-	-	-	165	-
Critical Hdwy	4.29	-	-	-	6.44	6.49
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.371	-	-	-	3.536	3.561
Pot Cap-1 Maneuver	1277	-	-	-	679	837
Stage 1	-	-	-	-	878	-
Stage 2	-	-	-	-	859	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1277	-	-	-	667	837
Mov Cap-2 Maneuver	-	-	-	-	667	-
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	859	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.2	0		11.1		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1277	-	-	-	717	
HCM Lane V/C Ratio	0.017	-	-	-	0.176	
HCM Control Delay (s)	7.9	-	-	-	11.1	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6	

5: Brant Oxford Road & Keg Lane
699 Paris Plains Church Road

Existing Traffic
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	4.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	134	30	226	110	38	280
Future Vol, veh/h	134	30	226	110	38	280
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	3	7	4	3	7
Mvmt Flow	141	32	238	116	40	295
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	671	296	0	0	354	0
Stage 1	296	-	-	-	-	-
Stage 2	375	-	-	-	-	-
Critical Hdwy	6.44	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	419	741	-	-	1199	-
Stage 1	750	-	-	-	-	-
Stage 2	691	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	402	741	-	-	1199	-
Mov Cap-2 Maneuver	402	-	-	-	-	-
Stage 1	750	-	-	-	-	-
Stage 2	663	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	18.4	0		1		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	439	1199	-	
HCM Lane V/C Ratio	-	-	0.393	0.033	-	
HCM Control Delay (s)	-	-	18.4	8.1	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q(veh)	-	-	1.8	0.1	-	

6: Bishopsgate Road & Powerline Road
699 Paris Plains Church Road

Existing Traffic
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	127	135	24	111	187
Future Vol, veh/h	27	127	135	24	111	187
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	6	0	5	8
Mvmt Flow	28	134	142	25	117	197
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	586	155	0	0	167	0
Stage 1	155	-	-	-	-	-
Stage 2	431	-	-	-	-	-
Critical Hdwy	6.4	6.26	-	-	4.15	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.354	-	-	2.245	-
Pot Cap-1 Maneuver	476	880	-	-	1393	-
Stage 1	878	-	-	-	-	-
Stage 2	660	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	431	880	-	-	1393	-
Mov Cap-2 Maneuver	431	-	-	-	-	-
Stage 1	878	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	11.2	0	2.9			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	744	1393	-	
HCM Lane V/C Ratio	-	-	0.218	0.084	-	
HCM Control Delay (s)	-	-	11.2	7.8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.8	0.3	-	

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Existing Traffic
Weekday PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	537	391	345	111	0	551
Future Volume (vph)	537	391	345	111	0	551
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1738	1601	1883	1484	0	1865
Flt Permitted	0.950					
Satd. Flow (perm)	1738	1601	1883	1484	0	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		217		117		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	2%	2%	10%	0%	3%
Adj. Flow (vph)	565	412	363	117	0	580
Shared Lane Traffic (%)						
Lane Group Flow (vph)	565	412	363	117	0	580
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	50.0	50.0	31.0	31.0		31.0
Total Split (%)	61.7%	61.7%	38.3%	38.3%		38.3%
Maximum Green (s)	42.8	42.8	23.8	23.8		23.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	28.0	28.0	24.1	24.1		24.1
Actuated g/C Ratio	0.42	0.42	0.36	0.36		0.36
v/c Ratio	0.78	0.52	0.53	0.19		0.86
Control Delay	24.3	8.4	22.4	5.3		37.7
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	24.3	8.4	22.4	5.3		37.7
LOS	C	A	C	A		D
Approach Delay	17.6		18.2			37.7

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Existing Traffic
Weekday PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	B		B		D	
Queue Length 50th (m)	56.8	15.1	33.8	0.0	63.1	
Queue Length 95th (m)	88.4	33.3	75.1	10.7	#155.0	
Internal Link Dist (m)	208.7		345.9		710.7	
Turn Bay Length (m)	230.0					
Base Capacity (vph)	1129	1116	680	611	673	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.50	0.37	0.53	0.19	0.86	

Intersection Summary

Area Type: Other

Cycle Length: 81

Actuated Cycle Length: 66.7

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 23.4

Intersection LOS: C

Intersection Capacity Utilization 70.8%

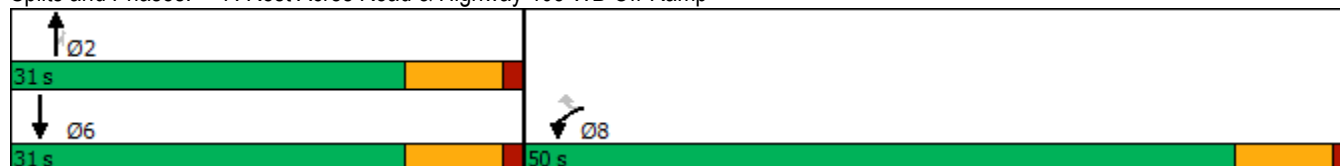
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



8: Rest Acres Road /Rest Acres Road & Highway 403 EB Off-Ramp
699 Paris Plains Church Road

Existing Traffic
Weekday PM Peak Hour

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	49	75	0	406	837	249
Future Vol, veh/h	49	75	0	406	837	249
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	0	-	-	-	-	2650
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	8	0	4	4	5
Mvmt Flow	52	79	0	427	881	262

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1095	881	- 0 - 0
Stage 1	881	-	- - -
Stage 2	214	-	- - -
Critical Hdwy	6.6	6.32	- - -
Critical Hdwy Stg 1	5.4	-	- - -
Critical Hdwy Stg 2	5.8	-	- - -
Follow-up Hdwy	3.5	3.376	- - -
Pot Cap-1 Maneuver	225	334	0 - - 0
Stage 1	408	-	0 - - 0
Stage 2	807	-	0 - - 0
Platoon blocked, %			- -
Mov Cap-1 Maneuver	225	334	- - -
Mov Cap-2 Maneuver	225	-	- - -
Stage 1	408	-	- - -
Stage 2	807	-	- - -

Approach	EB	NB	SB
HCM Control Delay, s	13.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 552	-
HCM Lane V/C Ratio	- 0.236	-
HCM Control Delay (s)	- 13.5	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.9	-

9: Pinehurst Road & Site Access
699 Paris Plains Church Road

Existing Traffic
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	273	0	0	365
Future Vol, veh/h	0	0	273	0	0	365
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	0	0	287	0	0	384
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	671	287	0	0	287	0
Stage 1	287	-	-	-	-	-
Stage 2	384	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	425	757	-	-	1287	-
Stage 1	766	-	-	-	-	-
Stage 2	693	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	425	757	-	-	1287	-
Mov Cap-2 Maneuver	425	-	-	-	-	-
Stage 1	766	-	-	-	-	-
Stage 2	693	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		1287	-	
HCM Lane V/C Ratio	-	-		-	-	
HCM Control Delay (s)	-	0		0	-	
HCM Lane LOS	-	A		A	-	
HCM 95th %tile Q(veh)	-	-		0	-	

1: Pinehurst Road & Paris Plains Church Road
699 Paris Plains Church Road

Existing Traffic
Saturday Peak Hour

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	11	5	0	3	14	198	3	2	213	2
Future Vol, veh/h	0	0	11	5	0	3	14	198	3	2	213	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	0	0	12	5	0	3	15	208	3	2	224	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	470	470	225	475	470	210	226	0	0	211	0	0
Stage 1	229	229	-	240	240	-	-	-	-	-	-	-
Stage 2	241	241	-	235	230	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	507	495	819	503	495	835	1354	-	-	1372	-	-
Stage 1	778	718	-	768	711	-	-	-	-	-	-	-
Stage 2	767	710	-	773	718	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	499	488	819	490	488	835	1354	-	-	1372	-	-
Mov Cap-2 Maneuver	499	488	-	490	488	-	-	-	-	-	-	-
Stage 1	768	717	-	758	702	-	-	-	-	-	-	-
Stage 2	754	701	-	761	717	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	11.3	0.5	0.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1354	-	-	819	580	1372	-
HCM Lane V/C Ratio	0.011	-	-	0.014	0.015	0.002	-
HCM Control Delay (s)	7.7	0	-	9.5	11.3	7.6	0
HCM Lane LOS	A	A	-	A	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-

2: Pinehurst Road & Watts Pond Road
699 Paris Plains Church Road

Existing Traffic
Saturday Peak Hour

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰	↱
Traffic Vol, veh/h	8	1	41	8	0	1	53	220	13	2	209	9
Future Vol, veh/h	8	1	41	8	0	1	53	220	13	2	209	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	550	-	-	-	-	-	-	-	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	12	0	0	0	0	0	2	1	0	0	1	11
Mvmt Flow	8	1	43	8	0	1	56	232	14	2	220	9
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	576	582	220	602	584	239	229	0	0	246	0	0
Stage 1	224	224	-	351	351	-	-	-	-	-	-	-
Stage 2	352	358	-	251	233	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.5	6.2	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4	3.3	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	414	427	825	414	426	805	1339	-	-	1332	-	-
Stage 1	756	722	-	670	636	-	-	-	-	-	-	-
Stage 2	645	631	-	758	716	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	397	405	825	376	404	805	1339	-	-	1332	-	-
Mov Cap-2 Maneuver	397	405	-	376	404	-	-	-	-	-	-	-
Stage 1	719	721	-	637	605	-	-	-	-	-	-	-
Stage 2	613	600	-	716	715	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	10.4			14.2			1.4			0.1		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1339	-	-	398	825	400	1332	-	-			
HCM Lane V/C Ratio	0.042	-	-	0.024	0.052	0.024	0.002	-	-			
HCM Control Delay (s)	7.8	0	-	14.3	9.6	14.2	7.7	0	-			
HCM Lane LOS	A	A	-	B	A	B	A	A	-			
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.2	0.1	0	-	-			

3: Ayr Road & Watts Pond Road/Watts Pond Road
699 Paris Plains Church Road

Existing Traffic
Saturday Peak Hour

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	0	6	0	7	9	38	1	51	5	39	71	2
Future Vol, veh/h	0	6	0	7	9	38	1	51	5	39	71	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	250	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	14	0	0	0	2	20	0	1	50
Mvmt Flow	0	6	0	7	9	40	1	54	5	41	75	2

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	240	218	75	217	215	54	77	0	0	59	0	0
Stage 1	157	157	-	56	56	-	-	-	-	-	-	-
Stage 2	83	61	-	161	159	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.24	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.626	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	718	684	992	714	686	1019	1535	-	-	1558	-	-
Stage 1	850	772	-	927	852	-	-	-	-	-	-	-
Stage 2	930	848	-	814	770	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	668	665	992	694	667	1019	1535	-	-	1558	-	-
Mov Cap-2 Maneuver	668	665	-	694	667	-	-	-	-	-	-	-
Stage 1	849	751	-	926	851	-	-	-	-	-	-	-
Stage 2	883	847	-	785	749	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.5		9.3		0.1		2.6	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1535	-	-	665	887	1558	-	-
HCM Lane V/C Ratio	0.001	-	-	0.009	0.064	0.026	-	-
HCM Control Delay (s)	7.3	0	-	10.5	9.3	7.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.1	-	-

4: Keg Lane & Ayr Road
699 Paris Plains Church Road

Existing Traffic
Saturday Peak Hour

Intersection						
Int Delay, s/veh	2.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	96	82	41	59	19
Future Vol, veh/h	14	96	82	41	59	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	1500	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	14	0	4	0	2	5
Mvmt Flow	15	101	86	43	62	20
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	129	0	-	0	217	86
Stage 1	-	-	-	-	86	-
Stage 2	-	-	-	-	131	-
Critical Hdwy	4.24	-	-	-	6.42	6.25
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.326	-	-	-	3.518	3.345
Pot Cap-1 Maneuver	1386	-	-	-	771	964
Stage 1	-	-	-	-	937	-
Stage 2	-	-	-	-	895	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1386	-	-	-	763	964
Mov Cap-2 Maneuver	-	-	-	-	763	-
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	895	-
Approach	EB	WB		SB		
HCM Control Delay, s	1	0		10		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1386	-	-	-	804	
HCM Lane V/C Ratio	0.011	-	-	-	0.102	
HCM Control Delay (s)	7.6	-	-	-	10	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.3	

5: Brant Oxford Road & Keg Lane
699 Paris Plains Church Road

Existing Traffic
Saturday Peak Hour

Intersection

Int Delay, s/veh 3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	75	28	131	70	35	141
Future Vol, veh/h	75	28	131	70	35	141
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	0	2	3	0	4
Mvmt Flow	79	29	138	74	37	148

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	397	175	0
Stage 1	175	-	-
Stage 2	222	-	-
Critical Hdwy	6.44	6.2	-
Critical Hdwy Stg 1	5.44	-	-
Critical Hdwy Stg 2	5.44	-	-
Follow-up Hdwy	3.536	3.3	-
Pot Cap-1 Maneuver	604	874	-
Stage 1	851	-	-
Stage 2	810	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	586	874	-
Mov Cap-2 Maneuver	586	-	-
Stage 1	851	-	-
Stage 2	787	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.7	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	644	1370
HCM Lane V/C Ratio	-	-	0.168	0.027
HCM Control Delay (s)	-	-	11.7	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1

6: Bishopsgate Road & Powerline Road
699 Paris Plains Church Road

Existing Traffic
Saturday Peak Hour

Intersection						
Int Delay, s/veh	3.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	57	103	16	69	88
Future Vol, veh/h	24	57	103	16	69	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	7	5	0	1	3
Mvmt Flow	25	60	108	17	73	93

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	356	117	0	0	125
Stage 1	117	-	-	-	-
Stage 2	239	-	-	-	-
Critical Hdwy	6.4	6.27	-	-	4.11
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.363	-	-	2.209
Pot Cap-1 Maneuver	646	922	-	-	1468
Stage 1	913	-	-	-	-
Stage 2	805	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	612	922	-	-	1468
Mov Cap-2 Maneuver	612	-	-	-	-
Stage 1	913	-	-	-	-
Stage 2	763	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	3.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	802	1468
HCM Lane V/C Ratio	-	-	0.106	0.049
HCM Control Delay (s)	-	-	10	7.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.2

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Existing Traffic
Saturday Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	320	231	262	58	0	463
Future Volume (vph)	320	231	262	58	0	463
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1789	1570	1902	1498	0	1865
Flt Permitted	0.950					
Satd. Flow (perm)	1789	1570	1902	1498	0	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		243		61		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	4%	1%	9%	0%	3%
Adj. Flow (vph)	337	243	276	61	0	487
Shared Lane Traffic (%)						
Lane Group Flow (vph)	337	243	276	61	0	487
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	50.0	50.0	31.0	31.0		31.0
Total Split (%)	61.7%	61.7%	38.3%	38.3%		38.3%
Maximum Green (s)	42.8	42.8	23.8	23.8		23.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	20.4	20.4	21.2	21.2		21.2
Actuated g/C Ratio	0.36	0.36	0.38	0.38		0.38
v/c Ratio	0.52	0.33	0.38	0.10		0.69
Control Delay	18.1	3.7	14.5	4.2		20.7
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	18.1	3.7	14.5	4.2		20.7
LOS	B	A	B	A		C
Approach Delay	12.1		12.6			20.7

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Existing Traffic
Saturday Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	B		B		C	
Queue Length 50th (m)	27.9	0.0	19.4	0.0	39.5	
Queue Length 95th (m)	49.0	11.6	36.5	5.7	70.6	
Internal Link Dist (m)	208.7		345.9		710.7	
Turn Bay Length (m)	230.0					
Base Capacity (vph)	1369	1258	809	672	793	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.25	0.19	0.34	0.09	0.61	

Intersection Summary

Area Type: Other

Cycle Length: 81

Actuated Cycle Length: 56.1

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 15.2

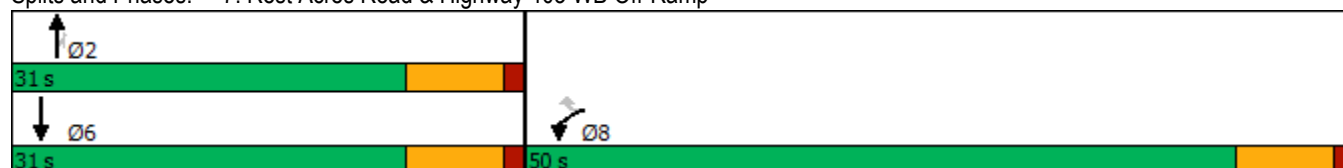
Intersection LOS: B

Intersection Capacity Utilization 54.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



8: Rest Acres Road /Rest Acres Road & Highway 403 EB Off-Ramp
699 Paris Plains Church Road

Existing Traffic
Saturday Peak Hour

Intersection

Int Delay, s/veh 1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	33	56	0	308	498	234
Future Vol, veh/h	33	56	0	308	498	234
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	0	-	-	-	-	2650
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	0	1	0	0
Mvmt Flow	35	59	0	324	524	246

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	686	524	- 0 - 0
Stage 1	524	-	- - -
Stage 2	162	-	- - -
Critical Hdwy	6.6	6.26	- - -
Critical Hdwy Stg 1	5.4	-	- - -
Critical Hdwy Stg 2	5.8	-	- - -
Follow-up Hdwy	3.5	3.338	- - -
Pot Cap-1 Maneuver	401	547	0 - - 0
Stage 1	598	-	0 - - 0
Stage 2	856	-	0 - - 0
Platoon blocked, %			- -
Mov Cap-1 Maneuver	401	547	- - -
Mov Cap-2 Maneuver	401	-	- - -
Stage 1	598	-	- - -
Stage 2	856	-	- - -

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 869	-
HCM Lane V/C Ratio	- 0.108	-
HCM Control Delay (s)	- 9.6	-
HCM Lane LOS	- A	-
HCM 95th %tile Q(veh)	- 0.4	-

9: Pinehurst Road & Site Access
699 Paris Plains Church Road

Existing Traffic
Saturday Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	201	0	0	217
Future Vol, veh/h	0	0	201	0	0	217
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	0	0	212	0	0	228
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	440	212	0	0	212	0
Stage 1	212	-	-	-	-	-
Stage 2	228	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	578	833	-	-	1370	-
Stage 1	828	-	-	-	-	-
Stage 2	815	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	578	833	-	-	1370	-
Mov Cap-2 Maneuver	578	-	-	-	-	-
Stage 1	828	-	-	-	-	-
Stage 2	815	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	-	1370	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	-	-	0	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

Future (2027) Background Traffic

1: Pinehurst Road & Paris Plains Church Road
699 Paris Plains Church Road

Future (2027) Background
Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	0	10	0	3	0	7	438	2	0	227	1
Future Vol, veh/h	6	0	10	0	3	0	7	438	2	0	227	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	33	0	0	8	50	0	12	0
Mvmt Flow	6	0	11	0	3	0	7	461	2	0	239	1
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	718	717	240	721	716	462	240	0	0	463	0	0
Stage 1	240	240	-	476	476	-	-	-	-	-	-	-
Stage 2	478	477	-	245	240	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.83	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4.297	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	347	358	804	345	320	604	1339	-	-	1109	-	-
Stage 1	768	711	-	574	508	-	-	-	-	-	-	-
Stage 2	572	559	-	763	653	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	342	355	804	339	318	604	1339	-	-	1109	-	-
Mov Cap-2 Maneuver	342	355	-	339	318	-	-	-	-	-	-	-
Stage 1	763	711	-	570	504	-	-	-	-	-	-	-
Stage 2	564	555	-	753	653	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	12		16.4			0.1			0			
HCM LOS	B		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1339	-	-	534	318	1109	-	-				
HCM Lane V/C Ratio	0.006	-	-	0.032	0.01	-	-	-				
HCM Control Delay (s)	7.7	0	-	12	16.4	0	-	-				
HCM Lane LOS	A	A	-	B	C	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

2: Pinehurst Road & Watts Pond Road
699 Paris Plains Church Road

Future (2027) Background
Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	6	42	6	18	24	37	419	8	8	204	13
Future Vol, veh/h	28	6	42	6	18	24	37	419	8	8	204	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	550	-	-	-	-	-	-	-	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	100	3	17	91	67	12	3	12	100	14	15
Mvmt Flow	29	6	44	6	19	25	39	441	8	8	215	14
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	776	758	215	786	768	445	229	0	0	449	0	0
Stage 1	231	231	-	523	523	-	-	-	-	-	-	-
Stage 2	545	527	-	263	245	-	-	-	-	-	-	-
Critical Hdwy	7.14	7.5	6.23	7.27	7.41	6.87	4.22	-	-	5.1	-	-
Critical Hdwy Stg 1	6.14	6.5	-	6.27	6.41	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	6.5	-	6.27	6.41	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.9	3.327	3.653	4.819	3.903	2.308	-	-	3.1	-	-
Pot Cap-1 Maneuver	312	243	822	292	246	497	1282	-	-	741	-	-
Stage 1	767	564	-	511	409	-	-	-	-	-	-	-
Stage 2	519	398	-	710	566	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	267	230	822	260	233	497	1282	-	-	741	-	-
Mov Cap-2 Maneuver	267	230	-	260	233	-	-	-	-	-	-	-
Stage 1	736	557	-	490	392	-	-	-	-	-	-	-
Stage 2	450	382	-	656	559	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	14.7		18.2		0.6		0.4					
HCM LOS	B		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1282	-	-	260	822	323	741	-	-			
HCM Lane V/C Ratio	0.03	-	-	0.138	0.054	0.156	0.011	-	-			
HCM Control Delay (s)	7.9	0	-	21	9.6	18.2	9.9	0	-			
HCM Lane LOS	A	A	-	C	A	C	A	A	-			
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.2	0.5	0	-	-			

3: Ayr Road & Watts Pond Road/Watts Pond Road
699 Paris Plains Church Road

Future (2027) Background
Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	5	2	19	3	35	1	70	13	39	64	1
Future Vol, veh/h	2	5	2	19	3	35	1	70	13	39	64	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	250	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	50	25	100	58	50	0	0	2	91	0	2	0
Mvmt Flow	2	5	2	20	3	37	1	74	14	41	67	1
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	252	239	67	229	226	74	68	0	0	88	0	0
Stage 1	149	149	-	76	76	-	-	-	-	-	-	-
Stage 2	103	90	-	153	150	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.75	7.2	7.68	7	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.6	5.75	-	6.68	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	5.75	-	6.68	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4.225	4.2	4.022	4.45	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	613	624	779	622	598	993	1546	-	-	1520	-	-
Stage 1	752	732	-	811	747	-	-	-	-	-	-	-
Stage 2	798	778	-	733	690	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	575	606	779	603	581	993	1546	-	-	1520	-	-
Mov Cap-2 Maneuver	575	606	-	603	581	-	-	-	-	-	-	-
Stage 1	751	712	-	810	746	-	-	-	-	-	-	-
Stage 2	764	777	-	705	671	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.8		9.9		0.1		2.8					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1546	-	-	630	793	1520	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.015	0.076	0.027	-	-				
HCM Control Delay (s)	7.3	0	-	10.8	9.9	7.4	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.1	-	-				

4: Keg Lane & Ayr Road
699 Paris Plains Church Road

Future (2027) Background
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	3.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	28	109	85	59	63	29
Future Vol, veh/h	28	109	85	59	63	29
Conflicting Peds, #/hr	1	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	1500	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	42	13	9	2	5	35
Mvmt Flow	29	115	89	62	66	31
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	152	0	-	0	263	91
Stage 1	-	-	-	-	90	-
Stage 2	-	-	-	-	173	-
Critical Hdwy	4.52	-	-	-	6.45	6.55
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.578	-	-	-	3.545	3.615
Pot Cap-1 Maneuver	1218	-	-	-	720	883
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	850	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1217	-	-	-	701	881
Mov Cap-2 Maneuver	-	-	-	-	701	-
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	849	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.6	0		10.5		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1217	-	-	-	749	
HCM Lane V/C Ratio	0.024	-	-	-	0.129	
HCM Control Delay (s)	8	-	-	-	10.5	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4	

5: Brant Oxford Road & Keg Lane
699 Paris Plains Church Road

Future (2027) Background
Weekday AM Peak Hour

Intersection

Int Delay, s/veh 2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	29	231	100	35	163
Future Vol, veh/h	80	29	231	100	35	163
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	16	0	7	20	13	16
Mvmt Flow	84	31	243	105	37	172

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	542	296	0
Stage 1	296	-	-
Stage 2	246	-	-
Critical Hdwy	6.56	6.2	-
Critical Hdwy Stg 1	5.56	-	-
Critical Hdwy Stg 2	5.56	-	-
Follow-up Hdwy	3.644	3.3	-
Pot Cap-1 Maneuver	478	748	-
Stage 1	724	-	-
Stage 2	763	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	461	748	-
Mov Cap-2 Maneuver	461	-	-
Stage 1	724	-	-
Stage 2	736	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	513	1152
HCM Lane V/C Ratio	-	-	0.224	0.032
HCM Control Delay (s)	-	-	14	8.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.8	0.1

6: Bishopsgate Road & Powerline Road
699 Paris Plains Church Road

Future (2027) Background
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	3.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	81	133	16	88	93
Future Vol, veh/h	11	81	133	16	88	93
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	10	8	7	0	10	13
Mvmt Flow	12	85	140	17	93	98
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	433	149	0	0	157	0
Stage 1	149	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Critical Hdwy	6.5	6.28	-	-	4.2	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.372	-	-	2.29	-
Pot Cap-1 Maneuver	565	882	-	-	1375	-
Stage 1	859	-	-	-	-	-
Stage 2	746	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	524	882	-	-	1375	-
Mov Cap-2 Maneuver	524	-	-	-	-	-
Stage 1	859	-	-	-	-	-
Stage 2	692	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10	0		3.8		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	815	1375	-	
HCM Lane V/C Ratio	-	-	0.119	0.067	-	
HCM Control Delay (s)	-	-	10	7.8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-	

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2027) Background
Weekday AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	363	245	332	84	0	529
Future Volume (vph)	363	245	332	84	0	529
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1615	1458	1847	1512	0	1830
Flt Permitted	0.950					
Satd. Flow (perm)	1615	1458	1847	1512	0	1830
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		231		88		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	13%	12%	4%	8%	0%	5%
Adj. Flow (vph)	382	258	349	88	0	557
Shared Lane Traffic (%)						
Lane Group Flow (vph)	382	258	349	88	0	557
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	50.0	50.0	31.0	31.0		31.0
Total Split (%)	61.7%	61.7%	38.3%	38.3%		38.3%
Maximum Green (s)	42.8	42.8	23.8	23.8		23.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	22.0	22.0	23.9	23.9		23.9
Actuated g/C Ratio	0.36	0.36	0.40	0.40		0.40
v/c Ratio	0.65	0.38	0.48	0.14		0.77
Control Delay	21.7	4.6	17.0	4.4		26.2
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	21.7	4.6	17.0	4.4		26.2
LOS	C	A	B	A		C
Approach Delay	14.8		14.5			26.2

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2027) Background
Weekday AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	B		B		C	
Queue Length 50th (m)	34.1	1.9	25.8	0.0	48.0	
Queue Length 95th (m)	57.7	13.6	55.9	7.7	#114.0	
Internal Link Dist (m)	208.7		345.9		710.7	
Turn Bay Length (m)	230.0					
Base Capacity (vph)	1148	1104	730	651	724	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.33	0.23	0.48	0.14	0.77	

Intersection Summary

Area Type: Other

Cycle Length: 81

Actuated Cycle Length: 60.3

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 18.6

Intersection LOS: B

Intersection Capacity Utilization 60.0%

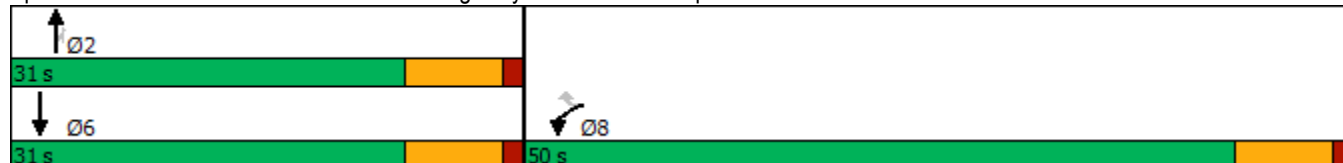
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



8: Rest Acres Road /Rest Acres Road & Highway 403 EB Off-Ramp Future (2027) Background
699 Paris Plains Church Road

Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	27	79	0	307	595	353
Future Vol, veh/h	27	79	0	307	595	353
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	0	-	-	-	-	2650
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	20	0	6	14	6
Mvmt Flow	28	83	0	323	626	372
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	788	626	-	0	-	0
Stage 1	626	-	-	-	-	-
Stage 2	162	-	-	-	-	-
Critical Hdwy	6.66	6.5	-	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.538	3.49	-	-	-	-
Pot Cap-1 Maneuver	340	444	0	-	-	0
Stage 1	527	-	0	-	-	0
Stage 2	846	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	340	444	-	-	-	-
Mov Cap-2 Maneuver	340	-	-	-	-	-
Stage 1	527	-	-	-	-	-
Stage 2	846	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	12.4	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT EBLn1		SBT			
Capacity (veh/h)	- 596		-			
HCM Lane V/C Ratio	- 0.187		-			
HCM Control Delay (s)	- 12.4		-			
HCM Lane LOS	- B		-			
HCM 95th %tile Q(veh)	- 0.7		-			

9: Pinehurst Road & Site Access
699 Paris Plains Church Road

Future (2027) Background
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	444	0	0	228
Future Vol, veh/h	0	0	444	0	0	228
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	7	0	0	12
Mvmt Flow	0	0	467	0	0	240
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	707	467	0	0	467	0
Stage 1	467	-	-	-	-	-
Stage 2	240	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	405	600	-	-	1105	-
Stage 1	635	-	-	-	-	-
Stage 2	805	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	405	600	-	-	1105	-
Mov Cap-2 Maneuver	405	-	-	-	-	-
Stage 1	635	-	-	-	-	-
Stage 2	805	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		1105	-	
HCM Lane V/C Ratio	-	-		-	-	
HCM Control Delay (s)	-	0		0	-	
HCM Lane LOS	-	A		A	-	
HCM 95th %tile Q(veh)	-	-		0	-	

1: Pinehurst Road & Paris Plains Church Road
699 Paris Plains Church Road

Future (2027) Background
Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	1	9	1	3	0	16	338	2	2	463	4
Future Vol, veh/h	6	1	9	1	3	0	16	338	2	2	463	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	33	0	0	1	0	0	2	0
Mvmt Flow	6	1	9	1	3	0	17	356	2	2	487	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	886	885	489	889	886	357	491	0	0	358	0	0
Stage 1	493	493	-	391	391	-	-	-	-	-	-	-
Stage 2	393	392	-	498	495	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.83	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4.297	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	267	286	583	266	253	692	1083	-	-	1212	-	-
Stage 1	562	550	-	637	557	-	-	-	-	-	-	-
Stage 2	636	610	-	558	498	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	260	280	583	257	247	692	1083	-	-	1212	-	-
Mov Cap-2 Maneuver	260	280	-	257	247	-	-	-	-	-	-	-
Stage 1	551	549	-	624	546	-	-	-	-	-	-	-
Stage 2	620	598	-	547	497	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	14.9		19.7		0.4		0	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1083	-	-	380	249	1212	-	-
HCM Lane V/C Ratio	0.016	-	-	0.044	0.017	0.002	-	-
HCM Control Delay (s)	8.4	0	-	14.9	19.7	8	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

2: Pinehurst Road & Watts Pond Road
699 Paris Plains Church Road

Future (2027) Background
Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰↱			↰↱			↰	↱
Traffic Vol, veh/h	15	11	45	8	12	17	74	340	11	22	436	22
Future Vol, veh/h	15	11	45	8	12	17	74	340	11	22	436	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	550	-	-	-	-	-	-	-	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	0	3	0	0	25	5	4	0	0	2	5
Mvmt Flow	16	12	47	8	13	18	78	358	12	23	459	23
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1041	1031	459	1066	1048	364	482	0	0	370	0	0
Stage 1	505	505	-	520	520	-	-	-	-	-	-	-
Stage 2	536	526	-	546	528	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.5	6.23	7.1	6.5	6.45	4.15	-	-	4.1	-	-
Critical Hdwy Stg 1	6.17	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4	3.327	3.5	4	3.525	2.245	-	-	2.2	-	-
Pot Cap-1 Maneuver	204	235	600	202	230	632	1065	-	-	1200	-	-
Stage 1	540	544	-	543	535	-	-	-	-	-	-	-
Stage 2	520	532	-	526	531	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	172	208	600	162	203	632	1065	-	-	1200	-	-
Mov Cap-2 Maneuver	172	208	-	162	203	-	-	-	-	-	-	-
Stage 1	490	530	-	493	486	-	-	-	-	-	-	-
Stage 2	447	483	-	462	517	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	17.4			20.4			1.5			0.4		
HCM LOS	C			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1065	-	-	186	600	273	1200	-	-			
HCM Lane V/C Ratio	0.073	-	-	0.147	0.079	0.143	0.019	-	-			
HCM Control Delay (s)	8.6	0	-	27.7	11.5	20.4	8.1	0	-			
HCM Lane LOS	A	A	-	D	B	C	A	A	-			
HCM 95th %tile Q(veh)	0.2	-	-	0.5	0.3	0.5	0.1	-	-			

3: Ayr Road & Watts Pond Road/Watts Pond Road
699 Paris Plains Church Road

Future (2027) Background
Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	3	7	2	14	10	59	1	75	12	58	124	0
Future Vol, veh/h	3	7	2	14	10	59	1	75	12	58	124	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	250	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	33	0	0	0	1	22	2	2	0
Mvmt Flow	3	7	2	15	11	62	1	79	13	61	131	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	377	347	131	339	334	79	131	0	0	92	0	0
Stage 1	253	253	-	81	81	-	-	-	-	-	-	-
Stage 2	124	94	-	258	253	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.43	6.5	6.2	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.43	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.43	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.797	4	3.3	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	584	580	924	560	589	987	1467	-	-	1503	-	-
Stage 1	756	701	-	856	832	-	-	-	-	-	-	-
Stage 2	885	821	-	683	701	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	521	554	924	534	562	987	1467	-	-	1503	-	-
Mov Cap-2 Maneuver	521	554	-	534	562	-	-	-	-	-	-	-
Stage 1	755	670	-	855	831	-	-	-	-	-	-	-
Stage 2	818	820	-	644	670	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.3		10.1		0.1		2.4					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1467	-	-	584	800	1503	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.022	0.109	0.041	-	-				
HCM Control Delay (s)	7.5	0	-	11.3	10.1	7.5	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	-	-				

4: Keg Lane & Ayr Road
699 Paris Plains Church Road

Future (2027) Background
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	3.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	128	152	59	88	48
Future Vol, veh/h	27	128	152	59	88	48
Conflicting Peds, #/hr	1	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	1500	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	19	2	2	2	4	29
Mvmt Flow	28	135	160	62	93	51
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	223	0	-	0	352	162
Stage 1	-	-	-	-	161	-
Stage 2	-	-	-	-	191	-
Critical Hdwy	4.29	-	-	-	6.44	6.49
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.371	-	-	-	3.536	3.561
Pot Cap-1 Maneuver	1252	-	-	-	642	817
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	837	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1251	-	-	-	627	815
Mov Cap-2 Maneuver	-	-	-	-	627	-
Stage 1	-	-	-	-	843	-
Stage 2	-	-	-	-	836	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.4	0		11.7		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1251	-	-	-	683	
HCM Lane V/C Ratio	0.023	-	-	-	0.21	
HCM Control Delay (s)	7.9	-	-	-	11.7	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8	

5: Brant Oxford Road & Keg Lane
699 Paris Plains Church Road

Future (2027) Background
Weekday PM Peak Hour

Intersection

Int Delay, s/veh 5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	151	34	251	125	43	311
Future Vol, veh/h	151	34	251	125	43	311
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	3	7	4	3	7
Mvmt Flow	159	36	264	132	45	327

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	747	330	0
Stage 1	330	-	-
Stage 2	417	-	-
Critical Hdwy	6.44	6.23	-
Critical Hdwy Stg 1	5.44	-	-
Critical Hdwy Stg 2	5.44	-	-
Follow-up Hdwy	3.536	3.327	-
Pot Cap-1 Maneuver	378	709	-
Stage 1	724	-	-
Stage 2	661	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	360	709	-
Mov Cap-2 Maneuver	360	-	-
Stage 1	724	-	-
Stage 2	629	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.6	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	396	1157
HCM Lane V/C Ratio	-	-	0.492	0.039
HCM Control Delay (s)	-	-	22.6	8.2
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	2.6	0.1

6: Bishopsgate Road & Powerline Road
699 Paris Plains Church Road

Future (2027) Background
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	4.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	141	150	27	123	208
Future Vol, veh/h	30	141	150	27	123	208
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	6	0	5	8
Mvmt Flow	32	148	158	28	129	219
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	649	172	0	0	186	0
Stage 1	172	-	-	-	-	-
Stage 2	477	-	-	-	-	-
Critical Hdwy	6.4	6.26	-	-	4.15	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.354	-	-	2.245	-
Pot Cap-1 Maneuver	438	861	-	-	1371	-
Stage 1	863	-	-	-	-	-
Stage 2	629	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	391	861	-	-	1371	-
Mov Cap-2 Maneuver	391	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	562	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	11.8	0	2.9			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	711	1371	-	
HCM Lane V/C Ratio	-	-	0.253	0.094	-	
HCM Control Delay (s)	-	-	11.8	7.9	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	1	0.3	-	

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2027) Background
Weekday PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	596	434	383	123	0	612
Future Volume (vph)	596	434	383	123	0	612
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1738	1601	1883	1484	0	1865
Flt Permitted	0.950					
Satd. Flow (perm)	1738	1601	1883	1484	0	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		180		129		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	2%	2%	10%	0%	3%
Adj. Flow (vph)	627	457	403	129	0	644
Shared Lane Traffic (%)						
Lane Group Flow (vph)	627	457	403	129	0	644
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	50.0	50.0	31.0	31.0		31.0
Total Split (%)	61.7%	61.7%	38.3%	38.3%		38.3%
Maximum Green (s)	42.8	42.8	23.8	23.8		23.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	30.4	30.4	24.2	24.2		24.2
Actuated g/C Ratio	0.44	0.44	0.35	0.35		0.35
v/c Ratio	0.82	0.57	0.61	0.21		0.99
Control Delay	26.4	10.8	25.9	5.4		60.4
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	26.4	10.8	25.9	5.4		60.4
LOS	C	B	C	A		E
Approach Delay	19.8		20.9			60.4

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2027) Background
Weekday PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	B		C		E	
Queue Length 50th (m)	66.8	23.2	42.0	0.0		80.7
Queue Length 95th (m)	103.6	45.4	#88.2	11.6		#180.9
Internal Link Dist (m)	208.7		345.9			710.7
Turn Bay Length (m)		230.0				
Base Capacity (vph)	1090	1071	657	602		650
Starvation Cap Reductn	0	0	0	0		0
Spillback Cap Reductn	0	0	0	0		0
Storage Cap Reductn	0	0	0	0		0
Reduced v/c Ratio	0.58	0.43	0.61	0.21		0.99

Intersection Summary

Area Type: Other

Cycle Length: 81

Actuated Cycle Length: 69.2

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 31.6

Intersection LOS: C

Intersection Capacity Utilization 77.2%

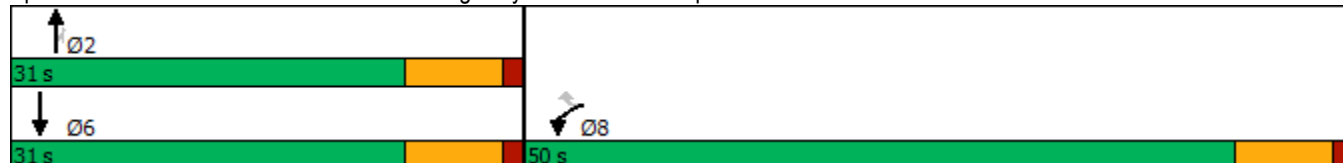
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



7: Rest Acres Road & Highway 403 WB Off-Ramp Future (2027) Background Traffic Optimize
699 Paris Plains Church Road

Weekday PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	596	434	383	123	0	612
Future Volume (vph)	596	434	383	123	0	612
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1738	1601	1883	1484	0	1865
Flt Permitted	0.950					
Satd. Flow (perm)	1738	1601	1883	1484	0	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		325		129		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	2%	2%	10%	0%	3%
Adj. Flow (vph)	627	457	403	129	0	644
Shared Lane Traffic (%)						
Lane Group Flow (vph)	627	457	403	129	0	644
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	61.0	61.0	59.0	59.0		59.0
Total Split (%)	50.8%	50.8%	49.2%	49.2%		49.2%
Maximum Green (s)	53.8	53.8	51.8	51.8		51.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	41.4	41.4	40.2	40.2		40.2
Actuated g/C Ratio	0.43	0.43	0.41	0.41		0.41
v/c Ratio	0.85	0.53	0.52	0.19		0.83
Control Delay	37.9	8.6	25.0	4.4		37.3
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	37.9	8.6	25.0	4.4		37.3
LOS	D	A	C	A		D
Approach Delay	25.5		20.0			37.3

7: Rest Acres Road & Highway 403 WB Off-Ramp Future (2027) Background Traffic Optimize
699 Paris Plains Church Road

Weekday PM Peak Hour



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	C		B		D	
Queue Length 50th (m)	105.6	15.5	56.5	0.0		108.3
Queue Length 95th (m)	175.0	45.7	95.9	11.0		178.5
Internal Link Dist (m)	208.7		345.9			710.7
Turn Bay Length (m)		230.0				
Base Capacity (vph)	1027	1079	1071	900		1061
Starvation Cap Reductn	0	0	0	0		0
Spillback Cap Reductn	0	0	0	0		0
Storage Cap Reductn	0	0	0	0		0
Reduced v/c Ratio	0.61	0.42	0.38	0.14		0.61

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 96.9

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 27.6

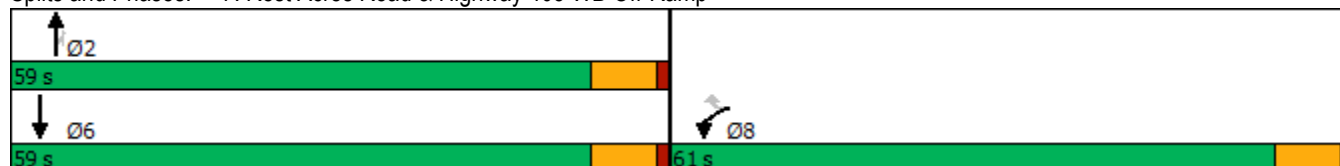
Intersection LOS: C

Intersection Capacity Utilization 77.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



8: Rest Acres Road /Rest Acres Road & Highway 403 EB Off-Ramp Future (2027) Background
699 Paris Plains Church Road

Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	54	83	0	451	929	276
Future Vol, veh/h	54	83	0	451	929	276
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	0	-	-	-	-	2650
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	8	0	4	4	5
Mvmt Flow	57	87	0	475	978	291
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1216	978	-	0	-	0
Stage 1	978	-	-	-	-	-
Stage 2	238	-	-	-	-	-
Critical Hdwy	6.6	6.32	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.376	-	-	-	-
Pot Cap-1 Maneuver	189	293	0	-	-	0
Stage 1	368	-	0	-	-	0
Stage 2	785	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	189	293	-	-	-	-
Mov Cap-2 Maneuver	189	-	-	-	-	-
Stage 1	368	-	-	-	-	-
Stage 2	785	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	15.7	0		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT EBLn1		SBT			
Capacity (veh/h)	- 479		-			
HCM Lane V/C Ratio	- 0.301		-			
HCM Control Delay (s)	- 15.7		-			
HCM Lane LOS	- C		-			
HCM 95th %tile Q(veh)	- 1.3		-			

9: Pinehurst Road & Site Access
699 Paris Plains Church Road

Future (2027) Background
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	345	0	0	470
Future Vol, veh/h	0	0	345	0	0	470
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	0	0	363	0	0	495
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	858	363	0	0	363	0
Stage 1	363	-	-	-	-	-
Stage 2	495	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	330	686	-	-	1207	-
Stage 1	708	-	-	-	-	-
Stage 2	617	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	330	686	-	-	1207	-
Mov Cap-2 Maneuver	330	-	-	-	-	-
Stage 1	708	-	-	-	-	-
Stage 2	617	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		1207	-	
HCM Lane V/C Ratio	-	-		-	-	
HCM Control Delay (s)	-	0		0	-	
HCM Lane LOS	-	A		A	-	
HCM 95th %tile Q(veh)	-	-		0	-	

1: Pinehurst Road & Paris Plains Church Road
699 Paris Plains Church Road

Future (2027) Background
Saturday Peak Hour

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	11	5	0	3	14	262	3	2	301	2
Future Vol, veh/h	0	0	11	5	0	3	14	262	3	2	301	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	0	0	12	5	0	3	15	276	3	2	317	2
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	631	631	318	636	631	278	319	0	0	279	0	0
Stage 1	322	322	-	308	308	-	-	-	-	-	-	-
Stage 2	309	309	-	328	323	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	396	401	727	393	401	766	1252	-	-	1295	-	-
Stage 1	694	655	-	706	664	-	-	-	-	-	-	-
Stage 2	705	663	-	689	654	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	390	395	727	382	395	766	1252	-	-	1295	-	-
Mov Cap-2 Maneuver	390	395	-	382	395	-	-	-	-	-	-	-
Stage 1	684	654	-	696	655	-	-	-	-	-	-	-
Stage 2	692	654	-	677	653	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10		12.8		0.4		0.1					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1252	-	-	727	470	1295	-	-				
HCM Lane V/C Ratio	0.012	-	-	0.016	0.018	0.002	-	-				
HCM Control Delay (s)	7.9	0	-	10	12.8	7.8	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-				

2: Pinehurst Road & Watts Pond Road
699 Paris Plains Church Road

Future (2027) Background
Saturday Peak Hour

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰	↱
Traffic Vol, veh/h	8	8	55	8	4	14	62	273	13	23	276	9
Future Vol, veh/h	8	8	55	8	4	14	62	273	13	23	276	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	550	-	-	-	-	-	-	-	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	12	0	0	0	0	0	2	1	0	0	1	11
Mvmt Flow	8	8	58	8	4	15	65	287	14	24	291	9

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	773	770	291	801	772	294	300	0	0	301	0	0
Stage 1	339	339	-	424	424	-	-	-	-	-	-	-
Stage 2	434	431	-	377	348	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.5	6.2	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4	3.3	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	304	333	753	305	333	750	1261	-	-	1272	-	-
Stage 1	655	643	-	612	590	-	-	-	-	-	-	-
Stage 2	581	586	-	649	638	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	276	305	753	258	305	750	1261	-	-	1272	-	-
Mov Cap-2 Maneuver	276	305	-	258	305	-	-	-	-	-	-	-
Stage 1	614	628	-	574	553	-	-	-	-	-	-	-
Stage 2	530	550	-	577	623	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12	14.3	1.4	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1261	-	-	290	753	414	1272	-	-
HCM Lane V/C Ratio	0.052	-	-	0.058	0.077	0.066	0.019	-	-
HCM Control Delay (s)	8	0	-	18.2	10.2	14.3	7.9	0	-
HCM Lane LOS	A	A	-	C	B	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	0.2	0.2	0.1	-	-

3: Ayr Road & Watts Pond Road/Watts Pond Road
699 Paris Plains Church Road

Future (2027) Background
Saturday Peak Hour

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	0	9	0	9	11	47	1	57	7	56	79	2
Future Vol, veh/h	0	9	0	9	11	47	1	57	7	56	79	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	250	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	14	0	0	0	2	20	0	1	50
Mvmt Flow	0	9	0	9	12	49	1	60	7	59	83	2
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	297	270	83	269	265	60	85	0	0	67	0	0
Stage 1	201	201	-	62	62	-	-	-	-	-	-	-
Stage 2	96	69	-	207	203	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.24	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.626	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	659	640	982	660	644	1011	1524	-	-	1547	-	-
Stage 1	805	739	-	920	847	-	-	-	-	-	-	-
Stage 2	916	841	-	768	737	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	598	614	982	632	618	1011	1524	-	-	1547	-	-
Mov Cap-2 Maneuver	598	614	-	632	618	-	-	-	-	-	-	-
Stage 1	804	709	-	919	846	-	-	-	-	-	-	-
Stage 2	858	840	-	727	708	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11		9.6		0.1		3					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1524	-	-	614	853	1547	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.015	0.083	0.038	-	-				
HCM Control Delay (s)	7.4	0	-	11	9.6	7.4	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0.1	-	-				

4: Keg Lane & Ayr Road
699 Paris Plains Church Road

Future (2027) Background
Saturday Peak Hour

Intersection						
Int Delay, s/veh	3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	107	91	46	65	23
Future Vol, veh/h	18	107	91	46	65	23
Conflicting Peds, #/hr	1	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	1500	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	14	0	4	0	2	5
Mvmt Flow	19	113	96	48	68	24
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	145	0	-	0	248	98
Stage 1	-	-	-	-	97	-
Stage 2	-	-	-	-	151	-
Critical Hdwy	4.24	-	-	-	6.42	6.25
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.326	-	-	-	3.518	3.345
Pot Cap-1 Maneuver	1367	-	-	-	740	950
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	877	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1366	-	-	-	728	948
Mov Cap-2 Maneuver	-	-	-	-	728	-
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	876	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.1	0		10.3		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1366	-	-	-	775	
HCM Lane V/C Ratio	0.014	-	-	-	0.12	
HCM Control Delay (s)	7.7	-	-	-	10.3	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.4	

Intersection

Int Delay, s/veh 3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	84	32	145	79	40	157
Future Vol, veh/h	84	32	145	79	40	157
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	0	2	3	0	4
Mvmt Flow	88	34	153	83	42	165

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	444	195	0
Stage 1	195	-	-
Stage 2	249	-	-
Critical Hdwy	6.44	6.2	-
Critical Hdwy Stg 1	5.44	-	-
Critical Hdwy Stg 2	5.44	-	-
Follow-up Hdwy	3.536	3.3	-
Pot Cap-1 Maneuver	568	851	-
Stage 1	833	-	-
Stage 2	788	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	549	851	-
Mov Cap-2 Maneuver	549	-	-
Stage 1	833	-	-
Stage 2	761	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	1.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	609	1343
HCM Lane V/C Ratio	-	-	0.201	0.031
HCM Control Delay (s)	-	-	12.4	7.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.7	0.1

6: Bishopsgate Road & Powerline Road
699 Paris Plains Church Road

Future (2027) Background
Saturday Peak Hour

Intersection						
Int Delay, s/veh	3.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	63	114	18	77	98
Future Vol, veh/h	27	63	114	18	77	98
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	7	5	0	1	3
Mvmt Flow	28	66	120	19	81	103
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	395	130	0	0	139	0
Stage 1	130	-	-	-	-	-
Stage 2	265	-	-	-	-	-
Critical Hdwy	6.4	6.27	-	-	4.11	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.363	-	-	2.209	-
Pot Cap-1 Maneuver	614	906	-	-	1451	-
Stage 1	901	-	-	-	-	-
Stage 2	784	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	578	906	-	-	1451	-
Mov Cap-2 Maneuver	578	-	-	-	-	-
Stage 1	901	-	-	-	-	-
Stage 2	738	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.3	0		3.4		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	774	1451	-	
HCM Lane V/C Ratio	-	-	0.122	0.056	-	
HCM Control Delay (s)	-	-	10.3	7.6	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-	

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2027) Background
Saturday Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	355	256	291	64	0	514
Future Volume (vph)	355	256	291	64	0	514
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1789	1570	1902	1498	0	1865
Flt Permitted	0.950					
Satd. Flow (perm)	1789	1570	1902	1498	0	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		269		67		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	4%	1%	9%	0%	3%
Adj. Flow (vph)	374	269	306	67	0	541
Shared Lane Traffic (%)						
Lane Group Flow (vph)	374	269	306	67	0	541
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	50.0	50.0	31.0	31.0		31.0
Total Split (%)	61.7%	61.7%	38.3%	38.3%		38.3%
Maximum Green (s)	42.8	42.8	23.8	23.8		23.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	21.0	21.0	23.8	23.8		23.8
Actuated g/C Ratio	0.35	0.35	0.40	0.40		0.40
v/c Ratio	0.59	0.37	0.40	0.10		0.72
Control Delay	20.1	3.7	15.0	4.3		22.6
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	20.1	3.7	15.0	4.3		22.6
LOS	C	A	B	A		C
Approach Delay	13.2		13.0			22.6

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2027) Background
Saturday Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	B		B		C	
Queue Length 50th (m)	32.1	0.0	21.9	0.0	45.8	
Queue Length 95th (m)	54.5	11.9	44.2	6.4	#99.0	
Internal Link Dist (m)	208.7		345.9		710.7	
Turn Bay Length (m)	230.0					
Base Capacity (vph)	1294	1210	765	643	750	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.29	0.22	0.40	0.10	0.72	

Intersection Summary

Area Type: Other

Cycle Length: 81

Actuated Cycle Length: 59.2

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 16.4

Intersection LOS: B

Intersection Capacity Utilization 58.7%

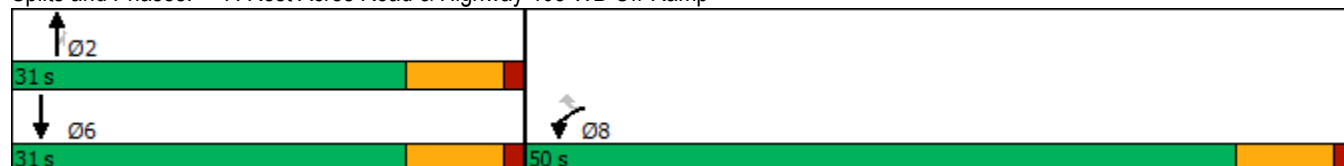
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



8: Rest Acres Road /Rest Acres Road & Highway 403 EB Off-Ramp Future (2027) Background
699 Paris Plains Church Road

Saturday Peak Hour

Intersection

Int Delay, s/veh 1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	62	0	342	553	260
Future Vol, veh/h	37	62	0	342	553	260
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	0	-	-	-	-	2650
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	0	1	0	0
Mvmt Flow	39	65	0	360	582	274

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	762	582	- 0 - 0
Stage 1	582	-	- - -
Stage 2	180	-	- - -
Critical Hdwy	6.6	6.26	- - -
Critical Hdwy Stg 1	5.4	-	- - -
Critical Hdwy Stg 2	5.8	-	- - -
Follow-up Hdwy	3.5	3.338	- - -
Pot Cap-1 Maneuver	360	507	0 - - 0
Stage 1	563	-	0 - - 0
Stage 2	839	-	0 - - 0
Platoon blocked, %			- -
Mov Cap-1 Maneuver	360	507	- - -
Mov Cap-2 Maneuver	360	-	- - -
Stage 1	563	-	- - -
Stage 2	839	-	- - -

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 810	-
HCM Lane V/C Ratio	- 0.129	-
HCM Control Delay (s)	- 10.1	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.4	-

9: Pinehurst Road & Site Access
699 Paris Plains Church Road

Future (2027) Background
Saturday Peak Hour

Intersection

Int Delay, s/veh 0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	265	0	0	306
Future Vol, veh/h	0	0	265	0	0	306
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	0	0	279	0	0	322

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	601	279	0
Stage 1	279	-	-
Stage 2	322	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	467	765	-
Stage 1	773	-	-
Stage 2	739	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	467	765	-
Mov Cap-2 Maneuver	467	-	-
Stage 1	773	-	-
Stage 2	739	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1295
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0

Future (2032) Background Traffic

1: Pinehurst Road & Paris Plains Church Road
699 Paris Plains Church Road

Future (2032) Background
Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	0	10	0	3	0	7	475	2	0	247	1
Future Vol, veh/h	6	0	10	0	3	0	7	475	2	0	247	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	33	0	0	8	50	0	12	0
Mvmt Flow	6	0	11	0	3	0	7	500	2	0	260	1
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	778	777	261	781	776	501	261	0	0	502	0	0
Stage 1	261	261	-	515	515	-	-	-	-	-	-	-
Stage 2	517	516	-	266	261	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.83	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4.297	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	316	330	783	315	295	574	1315	-	-	1073	-	-
Stage 1	748	696	-	546	487	-	-	-	-	-	-	-
Stage 2	545	538	-	744	639	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	312	328	783	309	293	574	1315	-	-	1073	-	-
Mov Cap-2 Maneuver	312	328	-	309	293	-	-	-	-	-	-	-
Stage 1	743	696	-	542	484	-	-	-	-	-	-	-
Stage 2	538	534	-	734	639	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	12.5		17.4			0.1			0			
HCM LOS	B		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1315	-	-	500	293	1073	-	-				
HCM Lane V/C Ratio	0.006	-	-	0.034	0.011	-	-	-				
HCM Control Delay (s)	7.8	0	-	12.5	17.4	0	-	-				
HCM Lane LOS	A	A	-	B	C	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

2: Pinehurst Road & Watts Pond Road
699 Paris Plains Church Road

Future (2032) Background
Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰	↱
Traffic Vol, veh/h	28	6	42	6	18	24	37	457	8	8	222	13
Future Vol, veh/h	28	6	42	6	18	24	37	457	8	8	222	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	550	-	-	-	-	-	-	-	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	100	3	17	91	67	12	3	12	100	14	15
Mvmt Flow	29	6	44	6	19	25	39	481	8	8	234	14
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	835	817	234	845	827	485	248	0	0	489	0	0
Stage 1	250	250	-	563	563	-	-	-	-	-	-	-
Stage 2	585	567	-	282	264	-	-	-	-	-	-	-
Critical Hdwy	7.14	7.5	6.23	7.27	7.41	6.87	4.22	-	-	5.1	-	-
Critical Hdwy Stg 1	6.14	6.5	-	6.27	6.41	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	6.5	-	6.27	6.41	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.9	3.327	3.653	4.819	3.903	2.308	-	-	3.1	-	-
Pot Cap-1 Maneuver	285	222	803	266	225	470	1261	-	-	712	-	-
Stage 1	750	552	-	485	390	-	-	-	-	-	-	-
Stage 2	494	379	-	693	554	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	241	210	803	235	213	470	1261	-	-	712	-	-
Mov Cap-2 Maneuver	241	210	-	235	213	-	-	-	-	-	-	-
Stage 1	718	545	-	464	373	-	-	-	-	-	-	-
Stage 2	425	363	-	639	547	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	15.7			19.5			0.6			0.3		
HCM LOS	C			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1261	-	-	235	803	298	712	-	-			
HCM Lane V/C Ratio	0.031	-	-	0.152	0.055	0.17	0.012	-	-			
HCM Control Delay (s)	7.9	0	-	23.1	9.7	19.5	10.1	0	-			
HCM Lane LOS	A	A	-	C	A	C	B	A	-			
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.2	0.6	0	-	-			

3: Ayr Road & Watts Pond Road/Watts Pond Road
699 Paris Plains Church Road

Future (2032) Background
Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	2	5	2	19	3	35	1	77	13	39	71	1
Future Vol, veh/h	2	5	2	19	3	35	1	77	13	39	71	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	250	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	50	25	100	58	50	0	0	2	91	0	2	0
Mvmt Flow	2	5	2	20	3	37	1	81	14	41	75	1
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	267	254	75	244	241	81	76	0	0	95	0	0
Stage 1	157	157	-	83	83	-	-	-	-	-	-	-
Stage 2	110	97	-	161	158	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.75	7.2	7.68	7	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.6	5.75	-	6.68	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	5.75	-	6.68	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4.225	4.2	4.022	4.45	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	598	612	770	608	585	985	1536	-	-	1512	-	-
Stage 1	744	726	-	803	741	-	-	-	-	-	-	-
Stage 2	791	772	-	725	684	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	560	594	770	589	568	985	1536	-	-	1512	-	-
Mov Cap-2 Maneuver	560	594	-	589	568	-	-	-	-	-	-	-
Stage 1	743	706	-	802	740	-	-	-	-	-	-	-
Stage 2	757	771	-	698	665	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.9		10		0.1		2.6					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1536	-	-	617	780	1512	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.015	0.077	0.027	-	-				
HCM Control Delay (s)	7.3	0	-	10.9	10	7.4	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.1	-	-				

4: Keg Lane & Ayr Road
699 Paris Plains Church Road

Future (2032) Background
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	3.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	31	120	94	65	70	31
Future Vol, veh/h	31	120	94	65	70	31
Conflicting Peds, #/hr	1	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	1500	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	42	13	9	2	5	35
Mvmt Flow	33	126	99	68	74	33
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	168	0	-	0	292	101
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	192	-
Critical Hdwy	4.52	-	-	-	6.45	6.55
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.578	-	-	-	3.545	3.615
Pot Cap-1 Maneuver	1200	-	-	-	693	871
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	833	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1199	-	-	-	672	869
Mov Cap-2 Maneuver	-	-	-	-	672	-
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	832	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.7	0		10.8		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1199	-	-	-	722	
HCM Lane V/C Ratio	0.027	-	-	-	0.147	
HCM Control Delay (s)	8.1	-	-	-	10.8	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5	

5: Brant Oxford Road & Keg Lane
699 Paris Plains Church Road

Future (2032) Background
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	88	31	254	110	38	179
Future Vol, veh/h	88	31	254	110	38	179
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	16	0	7	20	13	16
Mvmt Flow	93	33	267	116	40	188
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	593	325	0	0	383	0
Stage 1	325	-	-	-	-	-
Stage 2	268	-	-	-	-	-
Critical Hdwy	6.56	6.2	-	-	4.23	-
Critical Hdwy Stg 1	5.56	-	-	-	-	-
Critical Hdwy Stg 2	5.56	-	-	-	-	-
Follow-up Hdwy	3.644	3.3	-	-	2.317	-
Pot Cap-1 Maneuver	446	721	-	-	1118	-
Stage 1	702	-	-	-	-	-
Stage 2	746	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	428	721	-	-	1118	-
Mov Cap-2 Maneuver	428	-	-	-	-	-
Stage 1	702	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	15.2	0		1.5		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	479	1118	-	
HCM Lane V/C Ratio	-	-	0.262	0.036	-	
HCM Control Delay (s)	-	-	15.2	8.3	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q(veh)	-	-	1	0.1	-	

6: Bishopsgate Road & Powerline Road
699 Paris Plains Church Road

Future (2032) Background
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	3.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	89	146	17	96	102
Future Vol, veh/h	12	89	146	17	96	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	10	8	7	0	10	13
Mvmt Flow	13	94	154	18	101	107
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	472	163	0	0	172	0
Stage 1	163	-	-	-	-	-
Stage 2	309	-	-	-	-	-
Critical Hdwy	6.5	6.28	-	-	4.2	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.372	-	-	2.29	-
Pot Cap-1 Maneuver	536	866	-	-	1358	-
Stage 1	847	-	-	-	-	-
Stage 2	727	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	494	866	-	-	1358	-
Mov Cap-2 Maneuver	494	-	-	-	-	-
Stage 1	847	-	-	-	-	-
Stage 2	670	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.2	0		3.8		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		795	1358	
HCM Lane V/C Ratio	-	-		0.134	0.074	
HCM Control Delay (s)	-	-		10.2	7.9	
HCM Lane LOS	-	-		B	A	
HCM 95th %tile Q(veh)	-	-		0.5	0.2	

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Background
Weekday AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	399	270	365	93	0	582
Future Volume (vph)	399	270	365	93	0	582
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1615	1458	1847	1512	0	1830
Flt Permitted	0.950					
Satd. Flow (perm)	1615	1458	1847	1512	0	1830
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		197		98		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	13%	12%	4%	8%	0%	5%
Adj. Flow (vph)	420	284	384	98	0	613
Shared Lane Traffic (%)						
Lane Group Flow (vph)	420	284	384	98	0	613
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	50.0	50.0	31.0	31.0		31.0
Total Split (%)	61.7%	61.7%	38.3%	38.3%		38.3%
Maximum Green (s)	42.8	42.8	23.8	23.8		23.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	23.1	23.1	23.9	23.9		23.9
Actuated g/C Ratio	0.38	0.38	0.39	0.39		0.39
v/c Ratio	0.69	0.42	0.53	0.15		0.86
Control Delay	22.8	6.7	18.9	4.5		33.8
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	22.8	6.7	18.9	4.5		33.8
LOS	C	A	B	A		C
Approach Delay	16.3		15.9			33.8

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Background
Weekday AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	B		B		C	
Queue Length 50th (m)	38.6	6.3	30.0	0.0	56.9	
Queue Length 95th (m)	64.5	19.7	66.3	8.6	#138.5	
Internal Link Dist (m)	208.7		345.9		710.7	
Turn Bay Length (m)	230.0					
Base Capacity (vph)	1129	1079	718	648	711	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.37	0.26	0.53	0.15	0.86	

Intersection Summary

Area Type: Other

Cycle Length: 81

Actuated Cycle Length: 61.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 22.2

Intersection LOS: C

Intersection Capacity Utilization 64.7%

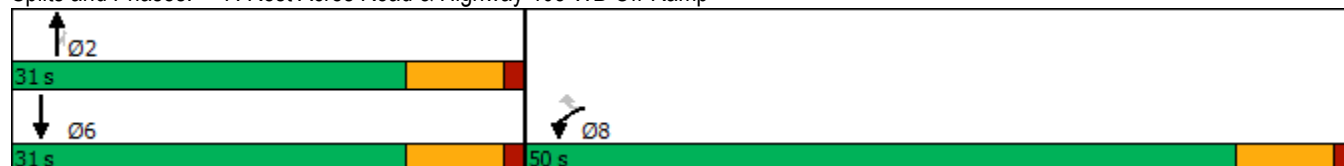
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Background Optimize
Weekday AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	399	270	365	93	0	582
Future Volume (vph)	399	270	365	93	0	582
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1615	1458	1847	1512	0	1830
Flt Permitted	0.950					
Satd. Flow (perm)	1615	1458	1847	1512	0	1830
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		284		98		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	13%	12%	4%	8%	0%	5%
Adj. Flow (vph)	420	284	384	98	0	613
Shared Lane Traffic (%)						
Lane Group Flow (vph)	420	284	384	98	0	613
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	61.0	61.0	59.0	59.0		59.0
Total Split (%)	50.8%	50.8%	49.2%	49.2%		49.2%
Maximum Green (s)	53.8	53.8	51.8	51.8		51.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	29.3	29.3	33.0	33.0		33.0
Actuated g/C Ratio	0.38	0.38	0.42	0.42		0.42
v/c Ratio	0.69	0.39	0.49	0.14		0.79
Control Delay	28.7	4.3	19.2	4.0		28.4
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	28.7	4.3	19.2	4.0		28.4
LOS	C	A	B	A		C
Approach Delay	18.9		16.1			28.4

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Background Optimize
Weekday AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	B		B			C
Queue Length 50th (m)	48.9	0.0	37.2	0.0		70.7
Queue Length 95th (m)	106.3	15.7	78.6	8.7		144.8
Internal Link Dist (m)	208.7		345.9			710.7
Turn Bay Length (m)		230.0				
Base Capacity (vph)	1195	1152	1317	1106		1305
Starvation Cap Reductn	0	0	0	0		0
Spillback Cap Reductn	0	0	0	0		0
Storage Cap Reductn	0	0	0	0		0
Reduced v/c Ratio	0.35	0.25	0.29	0.09		0.47

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 77.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 21.4

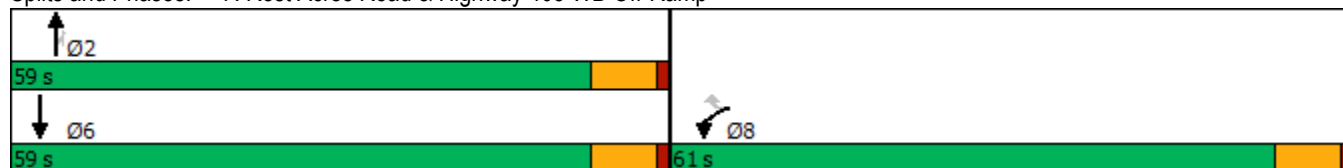
Intersection LOS: C

Intersection Capacity Utilization 64.7%

ICU Level of Service C

Analysis Period (min) 15

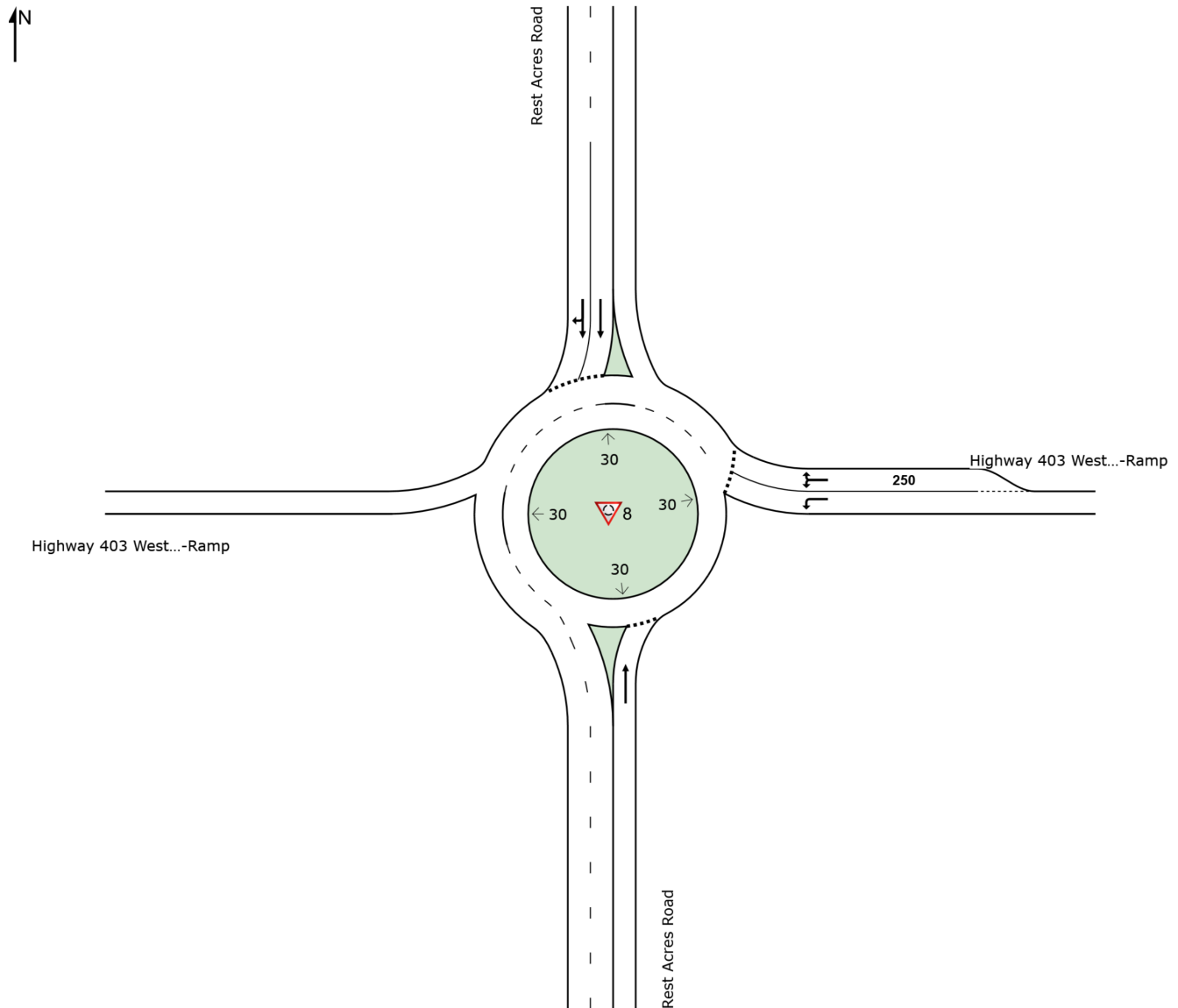
Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



SITE LAYOUT

Site: 8 Highway 403 WB Ramp

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT SUMMARY

Site: 8 [Highway 403 WB Ramp (Site Folder: BG 2032 AM)]

699 Paris Church Plains Road
 Future (2032) Background Traffic
 AM Peak Hour
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Rest Acres Road														
8	T1	365	6.0	384	6.0	0.295	5.4	LOS A	0.0	0.0	0.00	0.00	0.00	61.9
Approach		365	6.0	384	6.0	0.295	5.4	LOS A	0.0	0.0	0.00	0.00	0.00	61.9
East: Highway 403 Westbound Off-Ramp														
1	L2	399	13.0	420	13.0	0.404	9.0	LOS A	1.8	14.8	0.56	0.50	0.56	50.3
16	R2	270	12.0	284	12.0	0.404	8.9	LOS A	1.8	14.8	0.56	0.51	0.56	51.2
Approach		669	12.6	704	12.6	0.404	8.9	LOS A	1.8	14.8	0.56	0.50	0.56	50.6
North: Rest Acres Road														
4	T1	582	5.0	613	5.0	0.390	8.8	LOS A	1.8	14.3	0.58	0.57	0.61	54.1
14	R2	60	4.0	63	4.0	0.390	8.4	LOS A	1.8	13.9	0.57	0.55	0.59	52.7
Approach		642	4.9	676	4.9	0.390	8.7	LOS A	1.8	14.3	0.58	0.56	0.61	54.0
All Vehicles		1676	8.2	1764	8.2	0.404	8.1	LOS A	1.8	14.8	0.44	0.42	0.45	54.1

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

Roundabout LOS Method: Same as Sign Control.

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

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

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

Roundabout Capacity Model: US HCM 6.

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

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: Traditional M1.

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

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8: Rest Acres Road /Rest Acres Road & Highway 403 EB Off-Ramp Future (2032) Background
699 Paris Plains Church Road

Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	29	87	0	338	654	388
Future Vol, veh/h	29	87	0	338	654	388
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	0	-	-	-	-	2650
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	20	0	6	14	6
Mvmt Flow	31	92	0	356	688	408
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	866	688	-	0	-	0
Stage 1	688	-	-	-	-	-
Stage 2	178	-	-	-	-	-
Critical Hdwy	6.66	6.5	-	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.538	3.49	-	-	-	-
Pot Cap-1 Maneuver	304	408	0	-	-	0
Stage 1	493	-	0	-	-	0
Stage 2	830	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	304	408	-	-	-	-
Mov Cap-2 Maneuver	304	-	-	-	-	-
Stage 1	493	-	-	-	-	-
Stage 2	830	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	13.5	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT EBLn1		SBT			
Capacity (veh/h)	- 544		-			
HCM Lane V/C Ratio	- 0.224		-			
HCM Control Delay (s)	- 13.5		-			
HCM Lane LOS	- B		-			
HCM 95th %tile Q(veh)	- 0.9		-			

MOVEMENT SUMMARY

 **Site: 7 [Highway 403 EB Ramp (Site Folder: BG 2032 AM)]**

699 Paris Church Plains Road
 Future (2032) Background Traffic
 AM Peak Hour
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Rest Acres Road														
8	T1	338	6.0	356	6.0	0.137	3.9	LOS A	0.6	4.5	0.12	0.04	0.12	58.2
Approach		338	6.0	356	6.0	0.137	3.9	LOS A	0.6	4.5	0.12	0.04	0.12	58.2
North: Rest Acres Road														
4	T1	654	14.0	688	14.0	0.429	7.2	LOS A	0.0	0.0	0.00	0.00	0.00	61.6
14	R2	388	6.0	408	6.0	0.429	6.9	LOS A	0.0	0.0	0.00	0.00	0.00	59.6
Approach		1042	11.0	1097	11.0	0.429	7.1	LOS A	0.0	0.0	0.00	0.00	0.00	60.9
West: Highway 403 Eastbound On/Off-Ramp														
5	L2	29	4.0	31	4.0	0.102	6.9	LOS A	0.3	2.7	0.58	0.57	0.58	52.9
12	R2	87	20.0	92	20.0	0.102	7.3	LOS A	0.3	2.7	0.56	0.55	0.56	52.2
Approach		116	16.0	122	16.0	0.102	7.2	LOS A	0.3	2.7	0.57	0.56	0.57	52.4
All Vehicles		1496	10.3	1575	10.3	0.429	6.4	LOS A	0.6	4.5	0.07	0.05	0.07	59.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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9: Pinehurst Road & Site Access
699 Paris Plains Church Road

Future (2032) Background
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	483	0	0	249
Future Vol, veh/h	0	0	483	0	0	249
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	7	0	0	12
Mvmt Flow	0	0	508	0	0	262
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	770	508	0	0	508	0
Stage 1	508	-	-	-	-	-
Stage 2	262	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	372	569	-	-	1067	-
Stage 1	608	-	-	-	-	-
Stage 2	786	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	372	569	-	-	1067	-
Mov Cap-2 Maneuver	372	-	-	-	-	-
Stage 1	608	-	-	-	-	-
Stage 2	786	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		1067	-	
HCM Lane V/C Ratio	-	-		-	-	
HCM Control Delay (s)	-	0		0	-	
HCM Lane LOS	-	A		A	-	
HCM 95th %tile Q(veh)	-	-		0	-	

1: Pinehurst Road & Paris Plains Church Road
699 Paris Plains Church Road

Future (2032) Background
Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	1	9	1	3	0	16	368	2	2	503	4
Future Vol, veh/h	6	1	9	1	3	0	16	368	2	2	503	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	33	0	0	1	0	0	2	0
Mvmt Flow	6	1	9	1	3	0	17	387	2	2	529	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	959	958	531	962	959	388	533	0	0	389	0	0
Stage 1	535	535	-	422	422	-	-	-	-	-	-	-
Stage 2	424	423	-	540	537	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.83	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4.297	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	239	259	552	237	228	665	1045	-	-	1181	-	-
Stage 1	533	527	-	613	538	-	-	-	-	-	-	-
Stage 2	612	591	-	530	476	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	232	253	552	228	223	665	1045	-	-	1181	-	-
Mov Cap-2 Maneuver	232	253	-	228	223	-	-	-	-	-	-	-
Stage 1	522	526	-	600	527	-	-	-	-	-	-	-
Stage 2	596	579	-	519	475	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	15.9		21.4		0.4		0	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1045	-	-	347	224	1181	-	-
HCM Lane V/C Ratio	0.016	-	-	0.049	0.019	0.002	-	-
HCM Control Delay (s)	8.5	0	-	15.9	21.4	8.1	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

2: Pinehurst Road & Watts Pond Road
699 Paris Plains Church Road

Future (2032) Background
Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰	↱
Traffic Vol, veh/h	15	11	45	8	12	17	74	371	11	22	475	22
Future Vol, veh/h	15	11	45	8	12	17	74	371	11	22	475	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	550	-	-	-	-	-	-	-	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	0	3	0	0	25	5	4	0	0	2	5
Mvmt Flow	16	12	47	8	13	18	78	391	12	23	500	23

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1115	1105	500	1140	1122	397	523	0	0	403	0	0
Stage 1	546	546	-	553	553	-	-	-	-	-	-	-
Stage 2	569	559	-	587	569	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.5	6.23	7.1	6.5	6.45	4.15	-	-	4.1	-	-
Critical Hdwy Stg 1	6.17	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4	3.327	3.5	4	3.525	2.245	-	-	2.2	-	-
Pot Cap-1 Maneuver	181	213	569	180	208	605	1028	-	-	1167	-	-
Stage 1	513	521	-	521	518	-	-	-	-	-	-	-
Stage 2	498	514	-	499	509	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	151	187	569	143	182	605	1028	-	-	1167	-	-
Mov Cap-2 Maneuver	151	187	-	143	182	-	-	-	-	-	-	-
Stage 1	463	506	-	470	467	-	-	-	-	-	-	-
Stage 2	424	464	-	434	495	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19	22.3	1.4	0.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1028	-	-	164	569	247	1167	-	-
HCM Lane V/C Ratio	0.076	-	-	0.167	0.083	0.158	0.02	-	-
HCM Control Delay (s)	8.8	0	-	31.3	11.9	22.3	8.1	0	-
HCM Lane LOS	A	A	-	D	B	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.6	0.3	0.6	0.1	-	-

3: Ayr Road & Watts Pond Road/Watts Pond Road
699 Paris Plains Church Road

Future (2032) Background
Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	7	2	14	10	59	1	83	12	58	137	0
Future Vol, veh/h	3	7	2	14	10	59	1	83	12	58	137	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	250	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	33	0	0	0	1	22	2	2	0
Mvmt Flow	3	7	2	15	11	62	1	87	13	61	144	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	398	368	144	360	355	87	144	0	0	100	0	0
Stage 1	266	266	-	89	89	-	-	-	-	-	-	-
Stage 2	132	102	-	271	266	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.43	6.5	6.2	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.43	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.43	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.797	4	3.3	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	566	564	909	542	574	977	1451	-	-	1493	-	-
Stage 1	744	692	-	847	825	-	-	-	-	-	-	-
Stage 2	876	815	-	672	692	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	504	539	909	517	548	977	1451	-	-	1493	-	-
Mov Cap-2 Maneuver	504	539	-	517	548	-	-	-	-	-	-	-
Stage 1	743	662	-	846	824	-	-	-	-	-	-	-
Stage 2	809	814	-	634	662	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.5		10.2		0.1		2.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1451	-	-	568	785	1493	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.022	0.111	0.041	-	-				
HCM Control Delay (s)	7.5	0	-	11.5	10.2	7.5	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	-	-				

4: Keg Lane & Ayr Road
699 Paris Plains Church Road

Future (2032) Background
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	140	167	65	96	52
Future Vol, veh/h	29	140	167	65	96	52
Conflicting Peds, #/hr	1	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	1500	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	19	2	2	2	4	29
Mvmt Flow	31	147	176	68	101	55
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	245	0	-	0	386	178
Stage 1	-	-	-	-	177	-
Stage 2	-	-	-	-	209	-
Critical Hdwy	4.29	-	-	-	6.44	6.49
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.371	-	-	-	3.536	3.561
Pot Cap-1 Maneuver	1228	-	-	-	613	800
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	821	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1227	-	-	-	596	799
Mov Cap-2 Maneuver	-	-	-	-	596	-
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	820	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.4	0		12.2		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1227	-	-	-	654	
HCM Lane V/C Ratio	0.025	-	-	-	0.238	
HCM Control Delay (s)	8	-	-	-	12.2	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.9	

5: Brant Oxford Road & Keg Lane
699 Paris Plains Church Road

Future (2032) Background
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	6.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	165	37	276	137	47	342
Future Vol, veh/h	165	37	276	137	47	342
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	3	7	4	3	7
Mvmt Flow	174	39	291	144	49	360
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	821	363	0	0	435	0
Stage 1	363	-	-	-	-	-
Stage 2	458	-	-	-	-	-
Critical Hdwy	6.44	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	341	680	-	-	1119	-
Stage 1	699	-	-	-	-	-
Stage 2	633	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	322	680	-	-	1119	-
Mov Cap-2 Maneuver	322	-	-	-	-	-
Stage 1	699	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	29	0		1		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		356	1119	
HCM Lane V/C Ratio	-	-		0.597	0.044	
HCM Control Delay (s)	-	-		29	8.4	
HCM Lane LOS	-	-		D	A	
HCM 95th %tile Q(veh)	-	-		3.7	0.1	

6: Bishopsgate Road & Powerline Road
699 Paris Plains Church Road

Future (2032) Background
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	4.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	155	165	29	135	228
Future Vol, veh/h	33	155	165	29	135	228
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	6	0	5	8
Mvmt Flow	35	163	174	31	142	240
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	714	190	0	0	205	0
Stage 1	190	-	-	-	-	-
Stage 2	524	-	-	-	-	-
Critical Hdwy	6.4	6.26	-	-	4.15	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.354	-	-	2.245	-
Pot Cap-1 Maneuver	401	842	-	-	1349	-
Stage 1	847	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	352	842	-	-	1349	-
Mov Cap-2 Maneuver	352	-	-	-	-	-
Stage 1	847	-	-	-	-	-
Stage 2	526	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	12.5	0	3			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	677	1349	-	
HCM Lane V/C Ratio	-	-	0.292	0.105	-	
HCM Control Delay (s)	-	-	12.5	8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	1.2	0.4	-	

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Background
Weekday PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	655	477	421	135	0	672
Future Volume (vph)	655	477	421	135	0	672
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1738	1601	1883	1484	0	1865
Flt Permitted	0.950					
Satd. Flow (perm)	1738	1601	1883	1484	0	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		150		142		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	2%	2%	10%	0%	3%
Adj. Flow (vph)	689	502	443	142	0	707
Shared Lane Traffic (%)						
Lane Group Flow (vph)	689	502	443	142	0	707
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	50.0	50.0	31.0	31.0		31.0
Total Split (%)	61.7%	61.7%	38.3%	38.3%		38.3%
Maximum Green (s)	42.8	42.8	23.8	23.8		23.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	33.6	33.6	24.1	24.1		24.1
Actuated g/C Ratio	0.46	0.46	0.33	0.33		0.33
v/c Ratio	0.85	0.61	0.71	0.24		1.14
Control Delay	28.2	12.7	30.9	5.5		107.8
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	28.2	12.7	30.9	5.5		107.8
LOS	C	B	C	A		F
Approach Delay	21.7		24.8			107.8

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Background
Weekday PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	C		C			F
Queue Length 50th (m)	77.6	32.2	53.4	0.0		~118.7
Queue Length 95th (m)	120.9	58.2	#107.5	12.1		#203.3
Internal Link Dist (m)	208.7		345.9			710.7
Turn Bay Length (m)		230.0				
Base Capacity (vph)	1042	1020	628	589		622
Starvation Cap Reductn	0	0	0	0		0
Spillback Cap Reductn	0	0	0	0		0
Storage Cap Reductn	0	0	0	0		0
Reduced v/c Ratio	0.66	0.49	0.71	0.24		1.14

Intersection Summary

Area Type: Other

Cycle Length: 81

Actuated Cycle Length: 72.3

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 46.9

Intersection LOS: D

Intersection Capacity Utilization 83.7%

ICU Level of Service E

Analysis Period (min) 15

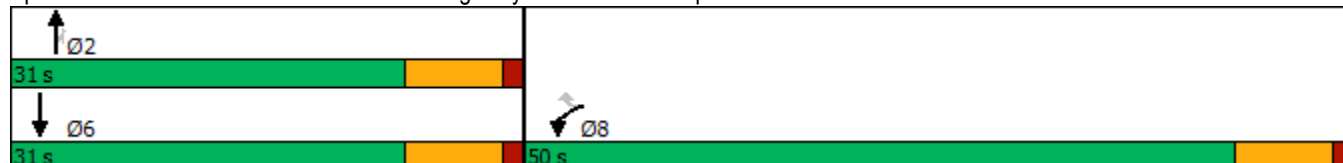
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



7: Rest Acres Road & Highway 403 WB Off-Ramp Future (2032) Background Traffic Optimize
699 Paris Plains Church Road

Weekday PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	655	477	421	135	0	672
Future Volume (vph)	655	477	421	135	0	672
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1738	1601	1883	1484	0	1865
Flt Permitted	0.950					
Satd. Flow (perm)	1738	1601	1883	1484	0	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		272		142		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	2%	2%	10%	0%	3%
Adj. Flow (vph)	689	502	443	142	0	707
Shared Lane Traffic (%)						
Lane Group Flow (vph)	689	502	443	142	0	707
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	63.0	63.0	57.0	57.0		57.0
Total Split (%)	52.5%	52.5%	47.5%	47.5%		47.5%
Maximum Green (s)	55.8	55.8	49.8	49.8		49.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	48.1	48.1	45.1	45.1		45.1
Actuated g/C Ratio	0.45	0.45	0.42	0.42		0.42
v/c Ratio	0.89	0.58	0.56	0.20		0.91
Control Delay	43.3	12.7	28.4	4.4		47.9
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	43.3	12.7	28.4	4.4		47.9
LOS	D	B	C	A		D
Approach Delay	30.4		22.6			47.9

7: Rest Acres Road & Highway 403 WB Off-Ramp Future (2032) Background Traffic Optimize
699 Paris Plains Church Road

Weekday PM Peak Hour

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	C		C			D
Queue Length 50th (m)	140.3	36.2	76.5	0.0		150.4
Queue Length 95th (m)	#210.2	68.0	110.8	11.8		#227.9
Internal Link Dist (m)	208.7		345.9			710.7
Turn Bay Length (m)		230.0				
Base Capacity (vph)	924	978	893	778		885
Starvation Cap Reductn	0	0	0	0		0
Spillback Cap Reductn	0	0	0	0		0
Storage Cap Reductn	0	0	0	0		0
Reduced v/c Ratio	0.75	0.51	0.50	0.18		0.80

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 108

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 33.5

Intersection LOS: C

Intersection Capacity Utilization 83.7%

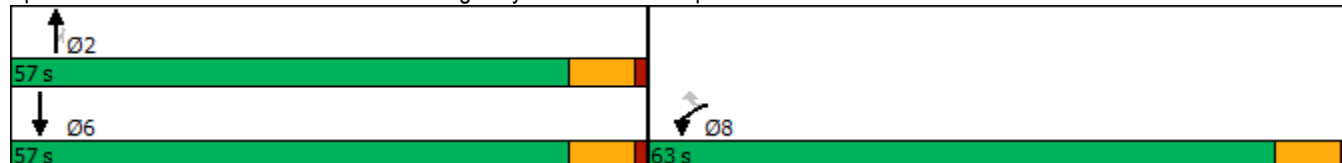
ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

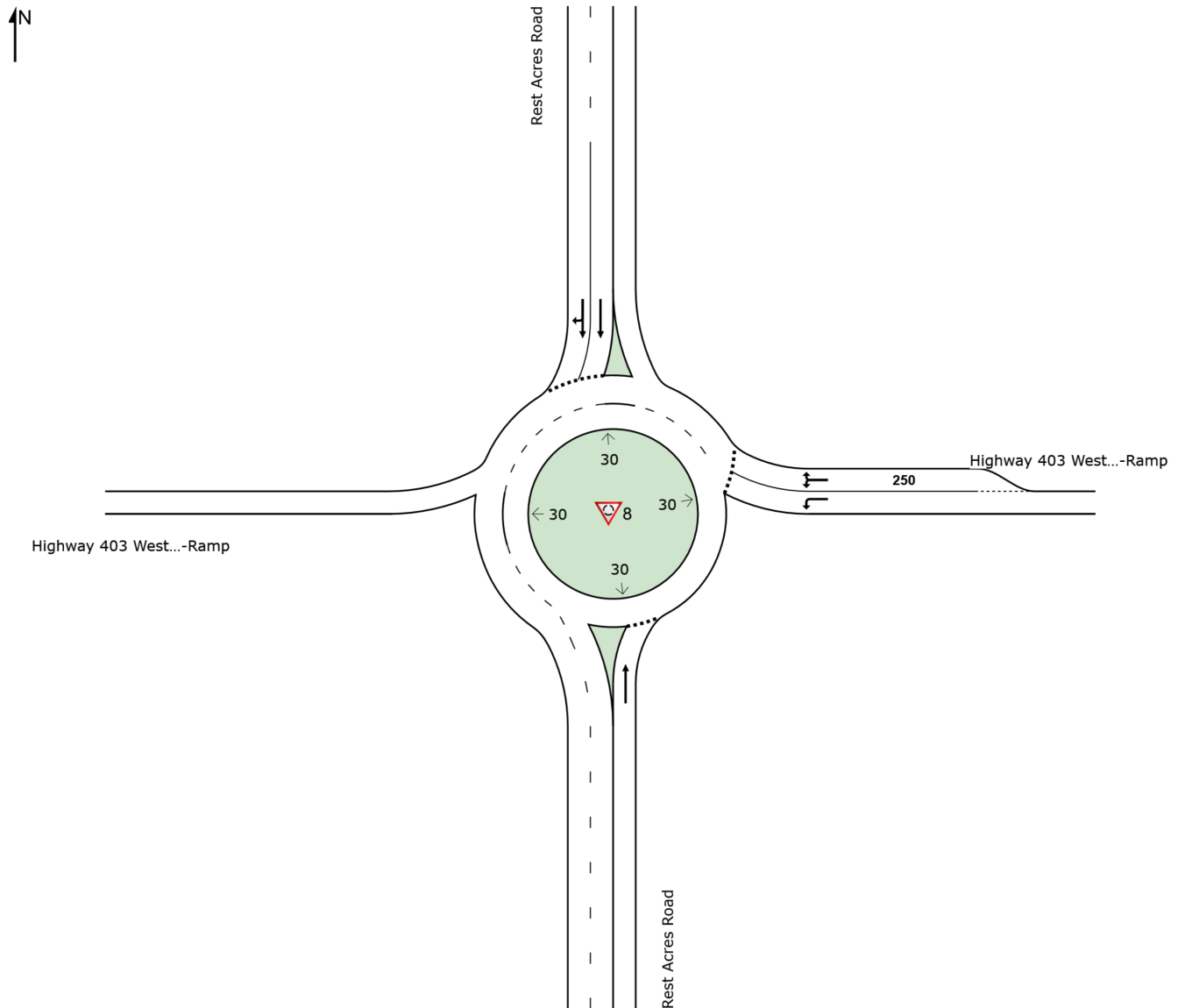
Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



SITE LAYOUT

Site: 8 Highway 403 WB Ramp

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MOVEMENT SUMMARY

Site: 8 [Highway 403 WB Ramp (Site Folder: BG 2032 PM)]

699 Paris Church Plains Road
 Future (2032) Background Traffic
 PM Peak Hour
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Rest Acres Road														
8	T1	421	2.0	443	2.0	0.328	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	62.0
Approach		421	2.0	443	2.0	0.328	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	62.0
East: Highway 403 Westbound Off-Ramp														
1	L2	655	5.0	689	5.0	0.657	14.6	LOS B	7.3	56.7	0.76	0.97	1.33	47.1
16	R2	477	2.0	502	2.0	0.657	14.4	LOS B	7.3	56.7	0.77	0.98	1.33	48.0
Approach		1132	3.7	1192	3.7	0.657	14.5	LOS B	7.3	56.7	0.76	0.97	1.33	47.5
North: Rest Acres Road														
4	T1	672	3.0	707	3.0	0.535	13.5	LOS B	3.5	26.9	0.72	0.86	1.15	50.7
14	R2	50	0.0	53	0.0	0.535	12.8	LOS B	3.5	26.9	0.72	0.85	1.14	49.8
Approach		722	2.8	760	2.8	0.535	13.4	LOS B	3.5	26.9	0.72	0.86	1.15	50.7
All Vehicles		2275	3.1	2395	3.1	0.657	12.5	LOS B	7.3	56.7	0.61	0.76	1.03	50.7

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

Roundabout LOS Method: Same as Sign Control.

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

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

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

Roundabout Capacity Model: US HCM 6.

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

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: Traditional M1.

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

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 \699ParisPlainsChurchRd_2023-06-09.sip9

8: Rest Acres Road /Rest Acres Road & Highway 403 EB Off-Ramp Future (2032) Background
699 Paris Plains Church Road

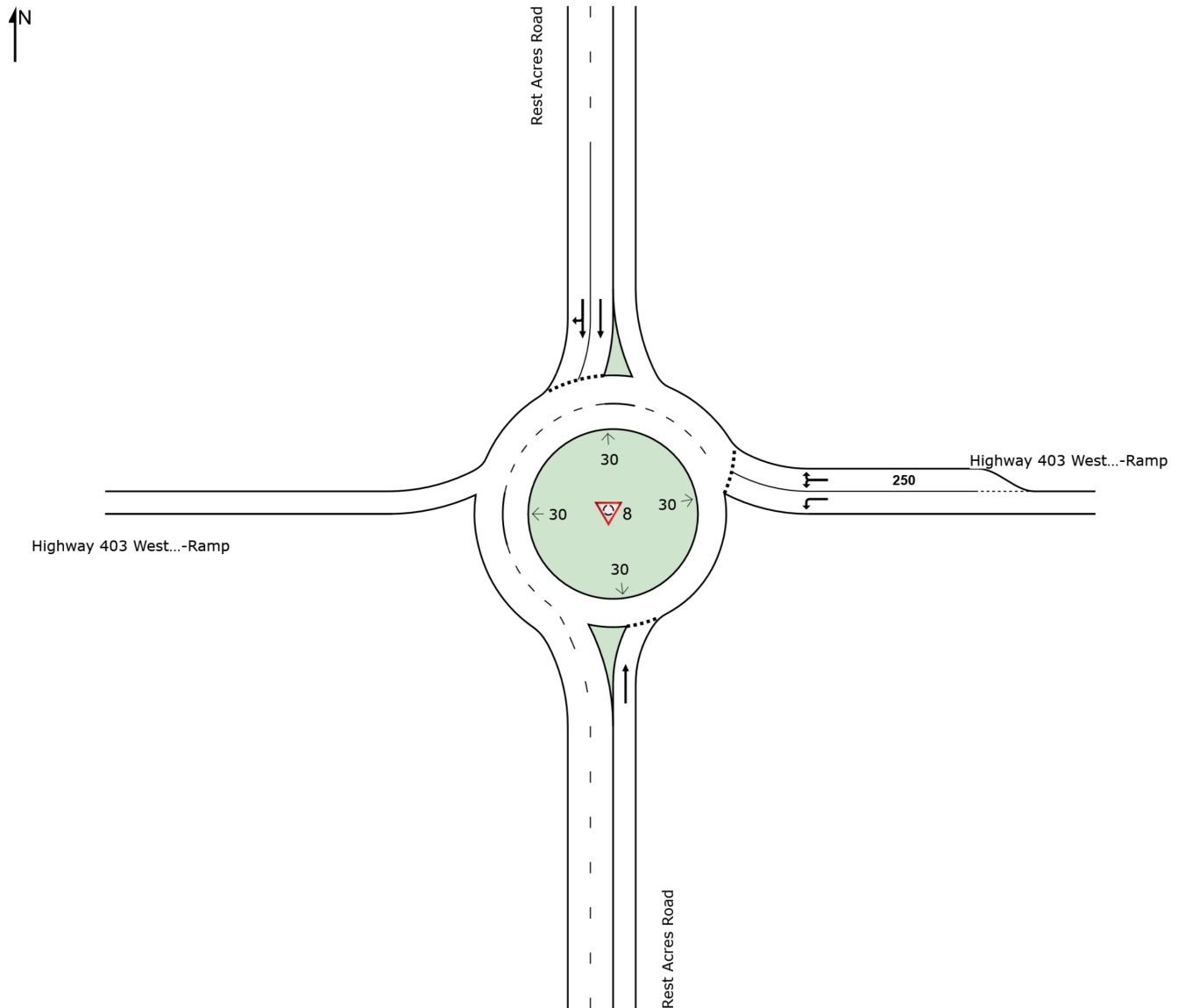
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	60	92	0	495	1021	304
Future Vol, veh/h	60	92	0	495	1021	304
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	0	-	-	-	-	2650
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	8	0	4	4	5
Mvmt Flow	63	97	0	521	1075	320
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1336	1075	-	0	-	0
Stage 1	1075	-	-	-	-	-
Stage 2	261	-	-	-	-	-
Critical Hdwy	6.6	6.32	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.376	-	-	-	-
Pot Cap-1 Maneuver	159	256	0	-	-	0
Stage 1	331	-	0	-	-	0
Stage 2	765	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	159	256	-	-	-	-
Mov Cap-2 Maneuver	159	-	-	-	-	-
Stage 1	331	-	-	-	-	-
Stage 2	765	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	19.7	0	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT			
Capacity (veh/h)	-	403	-			
HCM Lane V/C Ratio	-	0.397	-			
HCM Control Delay (s)	-	19.7	-			
HCM Lane LOS	-	C	-			
HCM 95th %tile Q(veh)	-	1.9	-			

SITE LAYOUT

Site: 8 Highway 403 WB Ramp

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MOVEMENT SUMMARY

 **Site: 7 [Highway 403 EB Ramp (Site Folder: BG 2032 PM)]**

699 Paris Church Plains Road
 Future (2032) Background Traffic
 PM Peak Hour
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Rest Acres Road														
8	T1	495	4.0	521	4.0	0.202	4.5	LOS A	0.9	7.2	0.19	0.08	0.19	57.7
Approach		495	4.0	521	4.0	0.202	4.5	LOS A	0.9	7.2	0.19	0.08	0.19	57.7
North: Rest Acres Road														
4	T1	1021	4.0	1075	4.0	0.512	7.9	LOS A	0.0	0.0	0.00	0.00	0.00	61.9
14	R2	304	5.0	320	5.0	0.512	8.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach		1325	4.2	1395	4.2	0.512	7.9	LOS A	0.0	0.0	0.00	0.00	0.00	61.4
West: Highway 403 Eastbound On/Off-Ramp														
5	L2	60	0.0	63	0.0	0.163	9.7	LOS A	0.6	4.3	0.68	0.68	0.68	50.4
12	R2	92	8.0	97	8.0	0.163	9.4	LOS A	0.6	4.3	0.66	0.66	0.66	51.3
Approach		152	4.8	160	4.8	0.163	9.5	LOS A	0.6	4.3	0.67	0.67	0.67	50.9
All Vehicles		1972	4.2	2076	4.2	0.512	7.2	LOS A	0.9	7.2	0.10	0.07	0.10	59.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: C:\Users\eric.mclaren\IBI Group\139382 699 Paris Church Plains TIS - Internal Documents\6.0_Technical\6.23_Traffic\05_Analytic Models
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9: Pinehurst Road & Site Access
699 Paris Plains Church Road

Future (2032) Background
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	375	0	0	510
Future Vol, veh/h	0	0	375	0	0	510
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	0	0	395	0	0	537

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	932	395	0	0	395
Stage 1	395	-	-	-	-
Stage 2	537	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	298	659	-	-	1175
Stage 1	685	-	-	-	-
Stage 2	590	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	298	659	-	-	1175
Mov Cap-2 Maneuver	298	-	-	-	-
Stage 1	685	-	-	-	-
Stage 2	590	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1175
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0

1: Pinehurst Road & Paris Plains Church Road
699 Paris Plains Church Road

Future (2032) Background
Saturday Peak Hour

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	11	5	0	3	14	284	3	2	325	2
Future Vol, veh/h	0	0	11	5	0	3	14	284	3	2	325	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	0	0	12	5	0	3	15	299	3	2	342	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	679	679	343	684	679	301	344	0	0	302	0	0
Stage 1	347	347	-	331	331	-	-	-	-	-	-	-
Stage 2	332	332	-	353	348	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	368	376	704	365	376	743	1226	-	-	1270	-	-
Stage 1	673	638	-	687	649	-	-	-	-	-	-	-
Stage 2	686	648	-	668	638	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	362	370	704	354	370	743	1226	-	-	1270	-	-
Mov Cap-2 Maneuver	362	370	-	354	370	-	-	-	-	-	-	-
Stage 1	663	637	-	677	639	-	-	-	-	-	-	-
Stage 2	673	638	-	656	637	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	13.3	0.4	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1226	-	-	704	440	1270	-
HCM Lane V/C Ratio	0.012	-	-	0.016	0.019	0.002	-
HCM Control Delay (s)	8	0	-	10.2	13.3	7.8	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-

2: Pinehurst Road & Watts Pond Road
699 Paris Plains Church Road

Future (2032) Background
Saturday Peak Hour

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰	↱
Traffic Vol, veh/h	8	8	55	8	4	14	62	297	13	23	299	9
Future Vol, veh/h	8	8	55	8	4	14	62	297	13	23	299	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	550	-	-	-	-	-	-	-	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	12	0	0	0	0	0	2	1	0	0	1	11
Mvmt Flow	8	8	58	8	4	15	65	313	14	24	315	9

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	823	820	315	851	822	320	324	0	0	327	0	0
Stage 1	363	363	-	450	450	-	-	-	-	-	-	-
Stage 2	460	457	-	401	372	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.5	6.2	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4	3.3	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	281	312	730	282	311	725	1236	-	-	1244	-	-
Stage 1	636	628	-	592	575	-	-	-	-	-	-	-
Stage 2	563	571	-	630	622	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	254	285	730	237	284	725	1236	-	-	1244	-	-
Mov Cap-2 Maneuver	254	285	-	237	284	-	-	-	-	-	-	-
Stage 1	595	613	-	554	538	-	-	-	-	-	-	-
Stage 2	512	534	-	558	607	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	12.4		15		1.3		0.6	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1236	-	-	269	730	387	1244	-	-
HCM Lane V/C Ratio	0.053	-	-	0.063	0.079	0.071	0.019	-	-
HCM Control Delay (s)	8.1	0	-	19.3	10.4	15	8	0	-
HCM Lane LOS	A	A	-	C	B	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	0.3	0.2	0.1	-	-

3: Ayr Road & Watts Pond Road/Watts Pond Road
699 Paris Plains Church Road

Future (2032) Background
Saturday Peak Hour

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	9	0	9	11	47	1	62	7	56	87	2
Future Vol, veh/h	0	9	0	9	11	47	1	62	7	56	87	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	250	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	14	0	0	0	2	20	0	1	50
Mvmt Flow	0	9	0	9	12	49	1	65	7	59	92	2
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	311	284	92	283	279	65	94	0	0	72	0	0
Stage 1	210	210	-	67	67	-	-	-	-	-	-	-
Stage 2	101	74	-	216	212	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.24	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.626	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	645	628	971	646	632	1005	1513	-	-	1541	-	-
Stage 1	797	732	-	914	843	-	-	-	-	-	-	-
Stage 2	910	837	-	760	731	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	586	602	971	618	606	1005	1513	-	-	1541	-	-
Mov Cap-2 Maneuver	586	602	-	618	606	-	-	-	-	-	-	-
Stage 1	796	703	-	913	842	-	-	-	-	-	-	-
Stage 2	852	836	-	720	702	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.1		9.7		0.1		2.9					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1513	-	-	602	843	1541	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.016	0.084	0.038	-	-				
HCM Control Delay (s)	7.4	0	-	11.1	9.7	7.4	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0.1	-	-				

4: Keg Lane & Ayr Road
699 Paris Plains Church Road

Future (2032) Background
Saturday Peak Hour

Intersection						
Int Delay, s/veh	3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	117	100	50	72	25
Future Vol, veh/h	19	117	100	50	72	25
Conflicting Peds, #/hr	1	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	1500	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	14	0	4	0	2	5
Mvmt Flow	20	123	105	53	76	26
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	159	0	-	0	269	107
Stage 1	-	-	-	-	106	-
Stage 2	-	-	-	-	163	-
Critical Hdwy	4.24	-	-	-	6.42	6.25
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.326	-	-	-	3.518	3.345
Pot Cap-1 Maneuver	1350	-	-	-	720	939
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	866	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1349	-	-	-	708	937
Mov Cap-2 Maneuver	-	-	-	-	708	-
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	865	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.1	0		10.5		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1349	-	-	-	756	
HCM Lane V/C Ratio	0.015	-	-	-	0.135	
HCM Control Delay (s)	7.7	-	-	-	10.5	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.5	

Intersection

Int Delay, s/veh 3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	93	35	160	87	43	172
Future Vol, veh/h	93	35	160	87	43	172
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	0	2	3	0	4
Mvmt Flow	98	37	168	92	45	181

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	485	214	0
Stage 1	214	-	-
Stage 2	271	-	-
Critical Hdwy	6.44	6.2	-
Critical Hdwy Stg 1	5.44	-	-
Critical Hdwy Stg 2	5.44	-	-
Follow-up Hdwy	3.536	3.3	-
Pot Cap-1 Maneuver	537	831	-
Stage 1	817	-	-
Stage 2	770	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	517	831	-
Mov Cap-2 Maneuver	517	-	-
Stage 1	817	-	-
Stage 2	741	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	1.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	577	1316
HCM Lane V/C Ratio	-	-	0.234	0.034
HCM Control Delay (s)	-	-	13.1	7.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.9	0.1

6: Bishopsgate Road & Powerline Road
699 Paris Plains Church Road

Future (2032) Background
Saturday Peak Hour

Intersection						
Int Delay, s/veh	3.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	70	126	20	84	107
Future Vol, veh/h	29	70	126	20	84	107
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	7	5	0	1	3
Mvmt Flow	31	74	133	21	88	113
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	433	144	0	0	154	0
Stage 1	144	-	-	-	-	-
Stage 2	289	-	-	-	-	-
Critical Hdwy	6.4	6.27	-	-	4.11	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.363	-	-	2.209	-
Pot Cap-1 Maneuver	584	890	-	-	1433	-
Stage 1	888	-	-	-	-	-
Stage 2	765	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	545	890	-	-	1433	-
Mov Cap-2 Maneuver	545	-	-	-	-	-
Stage 1	888	-	-	-	-	-
Stage 2	715	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.6	0		3.4		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		751	1433	
HCM Lane V/C Ratio	-	-		0.139	0.062	
HCM Control Delay (s)	-	-		10.6	7.7	
HCM Lane LOS	-	-		B	A	
HCM 95th %tile Q(veh)	-	-		0.5	0.2	

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Background
Saturday Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	390	282	320	71	0	565
Future Volume (vph)	390	282	320	71	0	565
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1789	1570	1902	1498	0	1865
Flt Permitted	0.950					
Satd. Flow (perm)	1789	1570	1902	1498	0	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		244		75		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	4%	1%	9%	0%	3%
Adj. Flow (vph)	411	297	337	75	0	595
Shared Lane Traffic (%)						
Lane Group Flow (vph)	411	297	337	75	0	595
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	50.0	50.0	31.0	31.0		31.0
Total Split (%)	61.7%	61.7%	38.3%	38.3%		38.3%
Maximum Green (s)	42.8	42.8	23.8	23.8		23.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	21.6	21.6	23.8	23.8		23.8
Actuated g/C Ratio	0.36	0.36	0.40	0.40		0.40
v/c Ratio	0.64	0.41	0.45	0.12		0.80
Control Delay	20.9	5.3	16.1	4.4		27.5
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	20.9	5.3	16.1	4.4		27.5
LOS	C	A	B	A		C
Approach Delay	14.4		14.0			27.5

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Background
Saturday Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	B		B		C	
Queue Length 50th (m)	36.3	3.7	24.6	0.0	52.5	
Queue Length 95th (m)	60.2	16.7	51.7	7.1	#120.6	
Internal Link Dist (m)	208.7		345.9		710.7	
Turn Bay Length (m)	230.0					
Base Capacity (vph)	1279	1192	756	640	741	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.32	0.25	0.45	0.12	0.80	

Intersection Summary

Area Type: Other

Cycle Length: 81

Actuated Cycle Length: 59.9

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 18.9

Intersection LOS: B

Intersection Capacity Utilization 63.3%

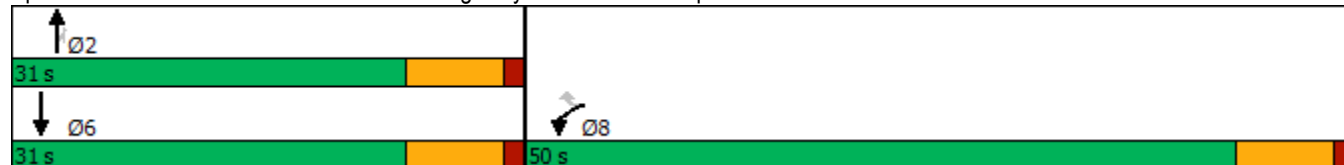
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

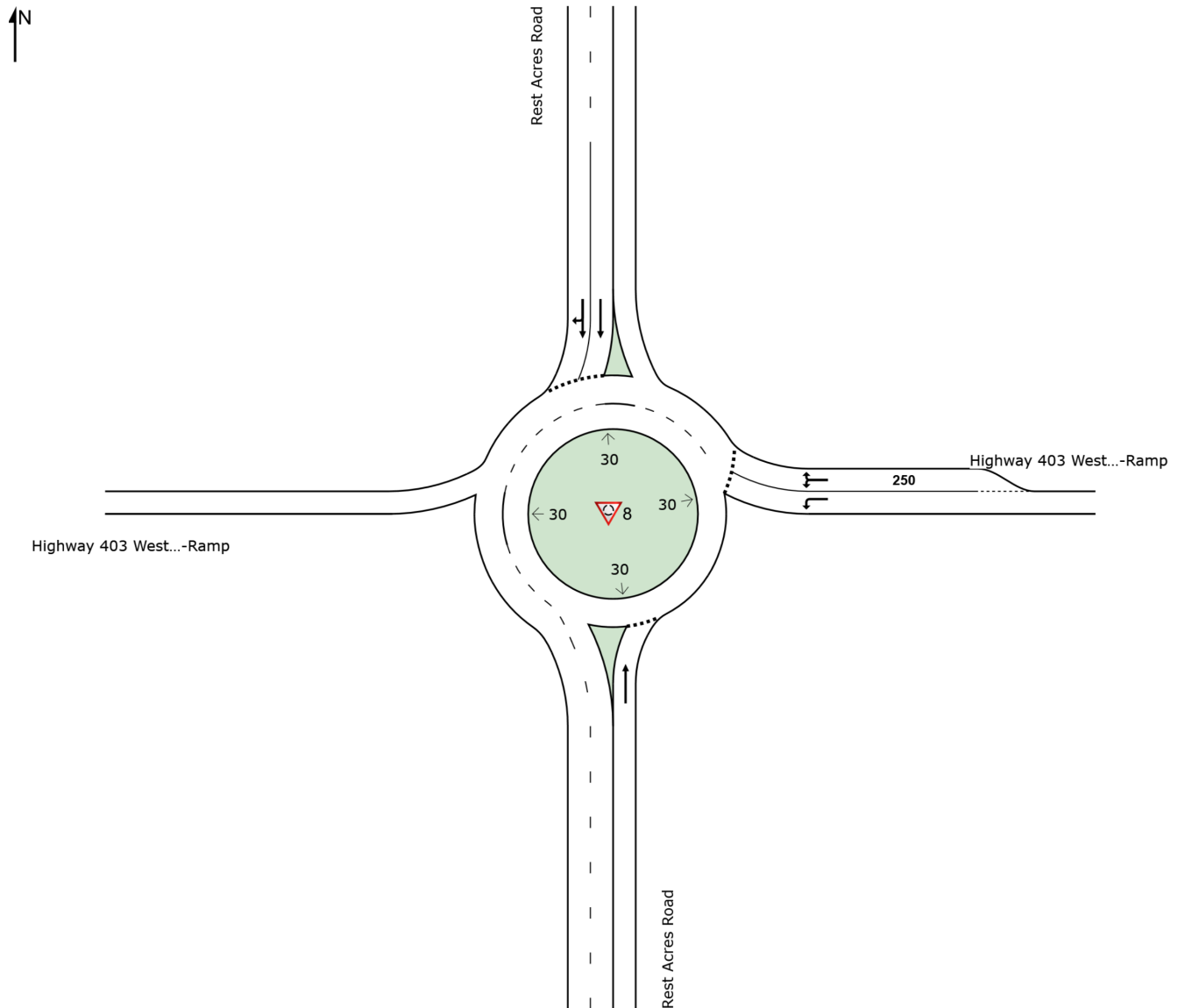
Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



SITE LAYOUT

Site: 8 Highway 403 WB Ramp

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MOVEMENT SUMMARY

 **Site: 8 [Highway 403 WB Ramp (Site Folder: BG 2032 SAT)]**

699 Paris Church Plains Road
 Future (2032) Background Traffic
 SAT Peak Hour
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Rest Acres Road														
8	T1	320	1.0	337	1.0	0.247	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	62.1
Approach		320	1.0	337	1.0	0.247	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	62.1
East: Highway 403 Westbound Off-Ramp														
1	L2	390	2.0	411	2.0	0.349	7.2	LOS A	1.7	13.1	0.51	0.43	0.51	52.0
16	R2	282	4.0	297	4.0	0.349	7.2	LOS A	1.7	13.0	0.51	0.43	0.51	52.8
Approach		672	2.8	707	2.8	0.349	7.2	LOS A	1.7	13.1	0.51	0.43	0.51	52.3
North: Rest Acres Road														
4	T1	565	3.0	595	3.0	0.348	7.7	LOS A	1.6	12.1	0.54	0.49	0.54	55.0
14	R2	50	0.0	53	0.0	0.348	7.3	LOS A	1.5	12.0	0.53	0.47	0.53	53.6
Approach		615	2.8	647	2.8	0.348	7.7	LOS A	1.6	12.1	0.54	0.49	0.54	54.9
All Vehicles		1607	2.4	1692	2.4	0.349	6.9	LOS A	1.7	13.1	0.42	0.37	0.42	55.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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8: Rest Acres Road /Rest Acres Road & Highway 403 EB Off-Ramp Future (2032) Background
699 Paris Plains Church Road

Saturday Peak Hour

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	68	0	376	608	285
Future Vol, veh/h	40	68	0	376	608	285
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	0	-	-	-	-	2650
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	0	1	0	0
Mvmt Flow	42	72	0	396	640	300
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	838	640	-	0	-	0
Stage 1	640	-	-	-	-	-
Stage 2	198	-	-	-	-	-
Critical Hdwy	6.6	6.26	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.338	-	-	-	-
Pot Cap-1 Maneuver	324	470	0	-	-	0
Stage 1	529	-	0	-	-	0
Stage 2	822	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	324	470	-	-	-	-
Mov Cap-2 Maneuver	324	-	-	-	-	-
Stage 1	529	-	-	-	-	-
Stage 2	822	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.7	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT EBLn1		SBT			
Capacity (veh/h)	- 746		-			
HCM Lane V/C Ratio	- 0.152		-			
HCM Control Delay (s)	- 10.7		-			
HCM Lane LOS	- B		-			
HCM 95th %tile Q(veh)	- 0.5		-			

9: Pinehurst Road & Site Access
699 Paris Plains Church Road

Future (2032) Background
Saturday Peak Hour

Intersection

Int Delay, s/veh 0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	287	0	0	330
Future Vol, veh/h	0	0	287	0	0	330
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	0	0	302	0	0	347

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	649	302	0
Stage 1	302	-	-
Stage 2	347	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	438	742	-
Stage 1	755	-	-
Stage 2	720	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	438	742	-
Mov Cap-2 Maneuver	438	-	-
Stage 1	755	-	-
Stage 2	720	-	-

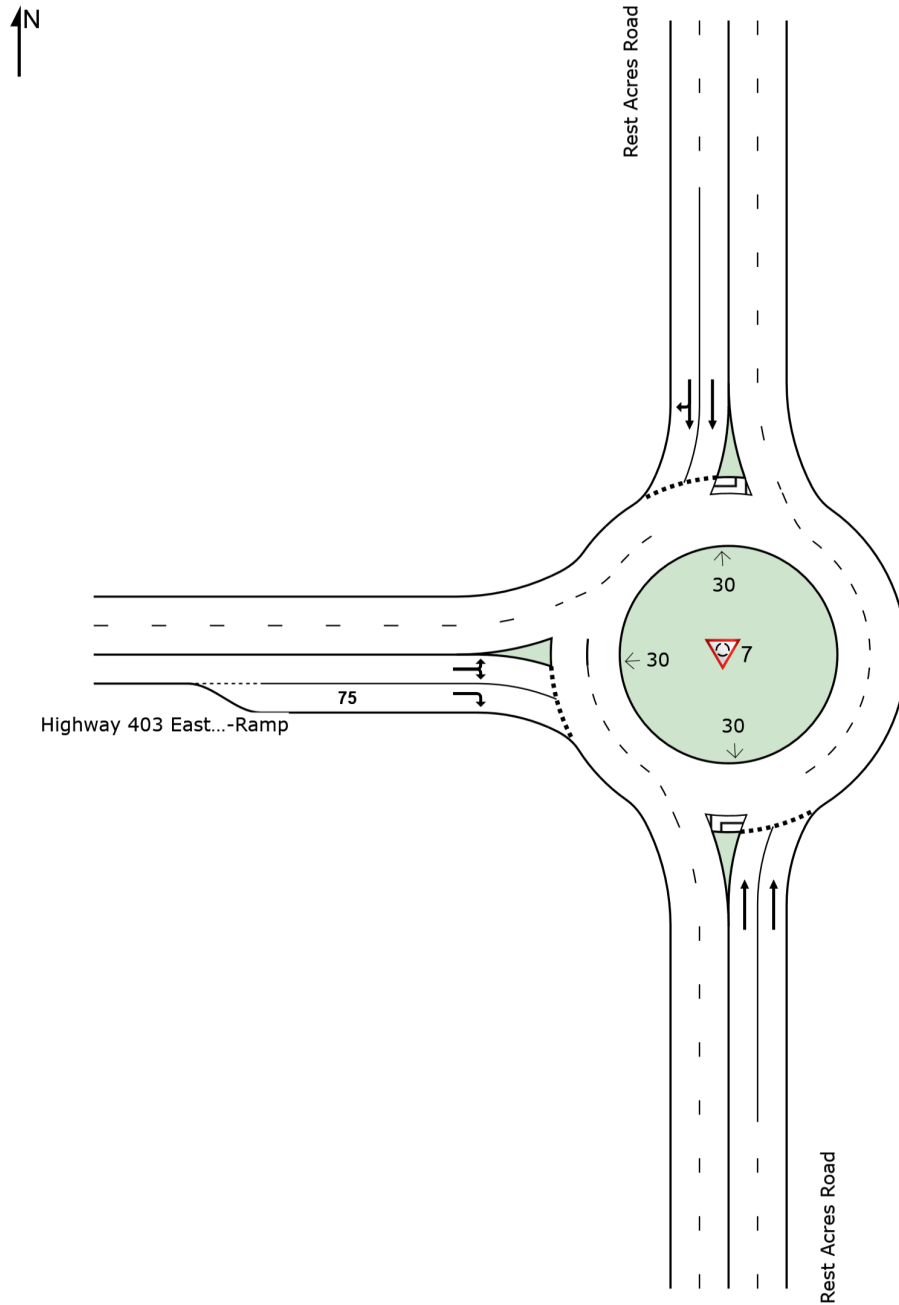
Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1270
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0

SITE LAYOUT

 Site: 7 Highway 403 EB Ramp

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 7 [Highway 403 EB Ramp (Site Folder: BG 2032 SAT)]

699 Paris Church Plains Road
 Future (2032) Background Traffic
 SAT Peak Hour
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Rest Acres Road														
8	T1	376	1.0	396	1.0	0.146	3.8	LOS A	0.6	4.9	0.14	0.05	0.14	58.4
Approach		376	1.0	396	1.0	0.146	3.8	LOS A	0.6	4.9	0.14	0.05	0.14	58.4
North: Rest Acres Road														
4	T1	608	0.0	640	0.0	0.331	5.4	LOS A	0.0	0.0	0.00	0.00	0.00	62.1
14	R2	285	0.0	300	0.0	0.331	5.4	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		893	0.0	940	0.0	0.331	5.4	LOS A	0.0	0.0	0.00	0.00	0.00	61.4
West: Highway 403 Eastbound On/Off-Ramp														
5	L2	40	0.0	42	0.0	0.074	5.6	LOS A	0.3	2.0	0.53	0.48	0.53	53.6
12	R2	68	4.0	72	4.0	0.074	5.4	LOS A	0.3	2.0	0.51	0.46	0.51	54.4
Approach		108	2.5	114	2.5	0.074	5.4	LOS A	0.3	2.0	0.52	0.47	0.52	54.1
All Vehicles		1377	0.5	1449	0.5	0.331	5.0	LOS A	0.6	4.9	0.08	0.05	0.08	59.9

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

Roundabout LOS Method: Same as Sign Control.

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

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

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

Roundabout Capacity Model: US HCM 6.

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

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: Traditional M1.

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

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Future (2027) Total Traffic

1: Pinehurst Road & Paris Plains Church Road
699 Paris Plains Church Road

Future (2027) Total
Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	0	10	0	3	0	7	453	2	0	242	1
Future Vol, veh/h	6	0	10	0	3	0	7	453	2	0	242	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	33	0	0	8	50	0	12	0
Mvmt Flow	6	0	11	0	3	0	7	477	2	0	255	1
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	750	749	256	753	748	478	256	0	0	479	0	0
Stage 1	256	256	-	492	492	-	-	-	-	-	-	-
Stage 2	494	493	-	261	256	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.83	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4.297	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	330	343	788	329	306	591	1321	-	-	1094	-	-
Stage 1	753	699	-	562	499	-	-	-	-	-	-	-
Stage 2	561	550	-	748	642	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	326	341	788	323	304	591	1321	-	-	1094	-	-
Mov Cap-2 Maneuver	326	341	-	323	304	-	-	-	-	-	-	-
Stage 1	748	699	-	558	496	-	-	-	-	-	-	-
Stage 2	554	546	-	738	642	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	12.2		17		0.1		0					
HCM LOS	B		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1321	-	-	515	304	1094	-	-				
HCM Lane V/C Ratio	0.006	-	-	0.033	0.01	-	-	-				
HCM Control Delay (s)	7.7	0	-	12.2	17	0	-	-				
HCM Lane LOS	A	A	-	B	C	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

2: Pinehurst Road & Watts Pond Road
699 Paris Plains Church Road

Future (2027) Total
Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰	↱
Traffic Vol, veh/h	43	6	42	6	18	24	37	419	8	8	204	28
Future Vol, veh/h	43	6	42	6	18	24	37	419	8	8	204	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	550	-	-	-	-	-	-	-	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	100	3	17	91	67	12	3	12	100	14	15
Mvmt Flow	45	6	44	6	19	25	39	441	8	8	215	29

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	776	758	215	794	783	445	244	0	0	449	0	0
Stage 1	231	231	-	523	523	-	-	-	-	-	-	-
Stage 2	545	527	-	271	260	-	-	-	-	-	-	-
Critical Hdwy	7.14	7.5	6.23	7.27	7.41	6.87	4.22	-	-	5.1	-	-
Critical Hdwy Stg 1	6.14	6.5	-	6.27	6.41	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	6.5	-	6.27	6.41	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.9	3.327	3.653	4.819	3.903	2.308	-	-	3.1	-	-
Pot Cap-1 Maneuver	312	243	822	289	241	497	1266	-	-	741	-	-
Stage 1	767	564	-	511	409	-	-	-	-	-	-	-
Stage 2	519	398	-	703	557	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	266	230	822	257	228	497	1266	-	-	741	-	-
Mov Cap-2 Maneuver	266	230	-	257	228	-	-	-	-	-	-	-
Stage 1	736	557	-	490	392	-	-	-	-	-	-	-
Stage 2	450	382	-	649	550	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	16.4		18.4		0.6		0.3	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1266	-	-	261	822	319	741	-	-
HCM Lane V/C Ratio	0.031	-	-	0.198	0.054	0.158	0.011	-	-
HCM Control Delay (s)	7.9	0	-	22.2	9.6	18.4	9.9	0	-
HCM Lane LOS	A	A	-	C	A	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0.2	0.6	0	-	-

3: Ayr Road & Watts Pond Road/Watts Pond Road
699 Paris Plains Church Road

Future (2027) Total
Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	5	2	34	3	35	1	70	28	39	64	1
Future Vol, veh/h	2	5	2	34	3	35	1	70	28	39	64	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	250	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	50	25	100	58	50	0	0	2	91	0	2	0
Mvmt Flow	2	5	2	36	3	37	1	74	29	41	67	1
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	260	254	67	229	226	74	68	0	0	103	0	0
Stage 1	149	149	-	76	76	-	-	-	-	-	-	-
Stage 2	111	105	-	153	150	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.75	7.2	7.68	7	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.6	5.75	-	6.68	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	5.75	-	6.68	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4.225	4.2	4.022	4.45	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	605	612	779	622	598	993	1546	-	-	1502	-	-
Stage 1	752	732	-	811	747	-	-	-	-	-	-	-
Stage 2	790	766	-	733	690	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	567	594	779	603	581	993	1546	-	-	1502	-	-
Mov Cap-2 Maneuver	567	594	-	603	581	-	-	-	-	-	-	-
Stage 1	751	712	-	810	746	-	-	-	-	-	-	-
Stage 2	757	765	-	705	671	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.9		10.4		0.1		2.8					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1546	-	-	620	744	1502	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.015	0.102	0.027	-	-				
HCM Control Delay (s)	7.3	0	-	10.9	10.4	7.5	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0.1	-	-				

4: Keg Lane & Ayr Road
699 Paris Plains Church Road

Future (2027) Total
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	43	109	85	59	63	44
Future Vol, veh/h	43	109	85	59	63	44
Conflicting Peds, #/hr	1	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	1500	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	42	13	9	2	5	35
Mvmt Flow	45	115	89	62	66	46
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	152	0	-	0	295	91
Stage 1	-	-	-	-	90	-
Stage 2	-	-	-	-	205	-
Critical Hdwy	4.52	-	-	-	6.45	6.55
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.578	-	-	-	3.545	3.615
Pot Cap-1 Maneuver	1218	-	-	-	690	883
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	822	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1217	-	-	-	663	881
Mov Cap-2 Maneuver	-	-	-	-	663	-
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	821	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.3	0		10.8		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1217	-	-	-	738	
HCM Lane V/C Ratio	0.037	-	-	-	0.153	
HCM Control Delay (s)	8.1	-	-	-	10.8	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5	

5: Brant Oxford Road & Keg Lane
699 Paris Plains Church Road

Future (2027) Total
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	3.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	95	29	231	115	35	163
Future Vol, veh/h	95	29	231	115	35	163
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	16	0	7	20	13	16
Mvmt Flow	100	31	243	121	37	172
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	550	304	0	0	364	0
Stage 1	304	-	-	-	-	-
Stage 2	246	-	-	-	-	-
Critical Hdwy	6.56	6.2	-	-	4.23	-
Critical Hdwy Stg 1	5.56	-	-	-	-	-
Critical Hdwy Stg 2	5.56	-	-	-	-	-
Follow-up Hdwy	3.644	3.3	-	-	2.317	-
Pot Cap-1 Maneuver	473	740	-	-	1136	-
Stage 1	718	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	456	740	-	-	1136	-
Mov Cap-2 Maneuver	456	-	-	-	-	-
Stage 1	718	-	-	-	-	-
Stage 2	736	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	14.7	0		1.5		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		501	1136	
HCM Lane V/C Ratio	-	-		0.261	0.032	
HCM Control Delay (s)	-	-		14.7	8.3	
HCM Lane LOS	-	-		B	A	
HCM 95th %tile Q(veh)	-	-		1	0.1	

6: Bishopsgate Road & Powerline Road
699 Paris Plains Church Road

Future (2027) Total
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	96	133	16	103	93
Future Vol, veh/h	11	96	133	16	103	93
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	10	8	7	0	10	13
Mvmt Flow	12	101	140	17	108	98
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	463	149	0	0	157	0
Stage 1	149	-	-	-	-	-
Stage 2	314	-	-	-	-	-
Critical Hdwy	6.5	6.28	-	-	4.2	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.372	-	-	2.29	-
Pot Cap-1 Maneuver	543	882	-	-	1375	-
Stage 1	859	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	498	882	-	-	1375	-
Mov Cap-2 Maneuver	498	-	-	-	-	-
Stage 1	859	-	-	-	-	-
Stage 2	663	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.1	0	4.1			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	817	1375	-	
HCM Lane V/C Ratio	-	-	0.138	0.079	-	
HCM Control Delay (s)	-	-	10.1	7.8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.5	0.3	-	

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2027) Total
Weekday AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	363	257	335	84	0	541
Future Volume (vph)	363	257	335	84	0	541
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1615	1458	1847	1512	0	1830
Flt Permitted	0.950					
Satd. Flow (perm)	1615	1458	1847	1512	0	1830
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		227		88		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	13%	12%	4%	8%	0%	5%
Adj. Flow (vph)	382	271	353	88	0	569
Shared Lane Traffic (%)						
Lane Group Flow (vph)	382	271	353	88	0	569
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	50.0	50.0	31.0	31.0		31.0
Total Split (%)	61.7%	61.7%	38.3%	38.3%		38.3%
Maximum Green (s)	42.8	42.8	23.8	23.8		23.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	22.0	22.0	23.9	23.9		23.9
Actuated g/C Ratio	0.36	0.36	0.40	0.40		0.40
v/c Ratio	0.65	0.40	0.48	0.14		0.79
Control Delay	21.7	5.2	17.1	4.4		27.1
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	21.7	5.2	17.1	4.4		27.1
LOS	C	A	B	A		C
Approach Delay	14.9		14.6			27.1

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2027) Total
Weekday AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	B		B		C	
Queue Length 50th (m)	34.1	3.1	26.2	0.0	49.6	
Queue Length 95th (m)	57.7	15.4	56.6	7.7	#117.5	
Internal Link Dist (m)	208.7		345.9		710.7	
Turn Bay Length (m)	230.0					
Base Capacity (vph)	1148	1103	730	651	724	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.33	0.25	0.48	0.14	0.79	

Intersection Summary

Area Type: Other

Cycle Length: 81

Actuated Cycle Length: 60.3

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 19.0

Intersection LOS: B

Intersection Capacity Utilization 60.6%

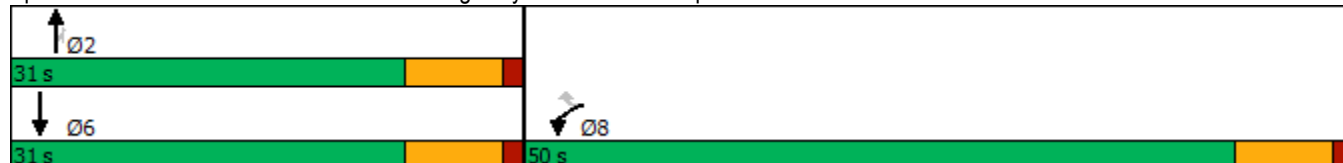
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



8: Rest Acres Road /Rest Acres Road & Highway 403 EB Off-Ramp
699 Paris Plains Church Road

Future (2027) Total
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	79	0	307	595	365
Future Vol, veh/h	30	79	0	307	595	365
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	0	-	-	-	-	2650
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	20	0	6	14	6
Mvmt Flow	32	83	0	323	626	384
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	788	626	-	0	-	0
Stage 1	626	-	-	-	-	-
Stage 2	162	-	-	-	-	-
Critical Hdwy	6.66	6.5	-	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.538	3.49	-	-	-	-
Pot Cap-1 Maneuver	340	444	0	-	-	0
Stage 1	527	-	0	-	-	0
Stage 2	846	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	340	444	-	-	-	-
Mov Cap-2 Maneuver	340	-	-	-	-	-
Stage 1	527	-	-	-	-	-
Stage 2	846	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	12.2	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT EBLn1		SBT			
Capacity (veh/h)	- 613		-			
HCM Lane V/C Ratio	- 0.187		-			
HCM Control Delay (s)	- 12.2		-			
HCM Lane LOS	- B		-			
HCM 95th %tile Q(veh)	- 0.7		-			

9: Pinehurst Road & Site Access
699 Paris Plains Church Road

Future (2027) Total
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	45	444	15	45	228
Future Vol, veh/h	15	45	444	15	45	228
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	7	0	0	12
Mvmt Flow	16	47	467	16	47	240
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	809	475	0	0	483	0
Stage 1	475	-	-	-	-	-
Stage 2	334	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	353	594	-	-	1090	-
Stage 1	630	-	-	-	-	-
Stage 2	730	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	335	594	-	-	1090	-
Mov Cap-2 Maneuver	335	-	-	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	694	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	13.3	0		1.4		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	498	1090	-	
HCM Lane V/C Ratio	-	-	0.127	0.043	-	
HCM Control Delay (s)	-	-	13.3	8.5	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-	

1: Pinehurst Road & Paris Plains Church Road
699 Paris Plains Church Road

Future (2027) Total
Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	1	9	1	3	0	16	353	2	2	478	4
Future Vol, veh/h	6	1	9	1	3	0	16	353	2	2	478	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	33	0	0	1	0	0	2	0
Mvmt Flow	6	1	9	1	3	0	17	372	2	2	503	4
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	918	917	505	921	918	373	507	0	0	374	0	0
Stage 1	509	509	-	407	407	-	-	-	-	-	-	-
Stage 2	409	408	-	514	511	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.83	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4.297	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	254	274	571	253	242	678	1068	-	-	1196	-	-
Stage 1	550	541	-	625	547	-	-	-	-	-	-	-
Stage 2	623	600	-	547	489	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	247	268	571	244	237	678	1068	-	-	1196	-	-
Mov Cap-2 Maneuver	247	268	-	244	237	-	-	-	-	-	-	-
Stage 1	539	540	-	613	536	-	-	-	-	-	-	-
Stage 2	607	588	-	536	488	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	15.3		20.3			0.4			0			
HCM LOS	C		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1068	-	-	365	239	1196	-	-				
HCM Lane V/C Ratio	0.016	-	-	0.046	0.018	0.002	-	-				
HCM Control Delay (s)	8.4	0	-	15.3	20.3	8	0	-				
HCM Lane LOS	A	A	-	C	C	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-				

2: Pinehurst Road & Watts Pond Road
699 Paris Plains Church Road

Future (2027) Total
Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰	↱
Traffic Vol, veh/h	30	11	45	8	12	17	74	340	11	22	436	37
Future Vol, veh/h	30	11	45	8	12	17	74	340	11	22	436	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	550	-	-	-	-	-	-	-	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	0	3	0	0	25	5	4	0	0	2	5
Mvmt Flow	32	12	47	8	13	18	78	358	12	23	459	39

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1041	1031	459	1074	1064	364	498	0	0	370	0	0
Stage 1	505	505	-	520	520	-	-	-	-	-	-	-
Stage 2	536	526	-	554	544	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.5	6.23	7.1	6.5	6.45	4.15	-	-	4.1	-	-
Critical Hdwy Stg 1	6.17	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4	3.327	3.5	4	3.525	2.245	-	-	2.2	-	-
Pot Cap-1 Maneuver	204	235	600	199	225	632	1051	-	-	1200	-	-
Stage 1	540	544	-	543	535	-	-	-	-	-	-	-
Stage 2	520	532	-	520	522	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	172	207	600	160	198	632	1051	-	-	1200	-	-
Mov Cap-2 Maneuver	172	207	-	160	198	-	-	-	-	-	-	-
Stage 1	489	529	-	492	485	-	-	-	-	-	-	-
Stage 2	446	482	-	456	508	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	20.9		20.6		1.5		0.4	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1051	-	-	180	600	269	1200	-	-
HCM Lane V/C Ratio	0.074	-	-	0.24	0.079	0.145	0.019	-	-
HCM Control Delay (s)	8.7	0	-	31.2	11.5	20.6	8.1	0	-
HCM Lane LOS	A	A	-	D	B	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.9	0.3	0.5	0.1	-	-

3: Ayr Road & Watts Pond Road/Watts Pond Road
699 Paris Plains Church Road

Future (2027) Total
Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	3	7	2	29	10	59	1	75	27	58	124	0
Future Vol, veh/h	3	7	2	29	10	59	1	75	27	58	124	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	250	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	33	0	0	0	1	22	2	2	0
Mvmt Flow	3	7	2	31	11	62	1	79	28	61	131	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	385	362	131	339	334	79	131	0	0	107	0	0
Stage 1	253	253	-	81	81	-	-	-	-	-	-	-
Stage 2	132	109	-	258	253	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.43	6.5	6.2	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.43	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.43	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.797	4	3.3	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	577	569	924	560	589	987	1467	-	-	1484	-	-
Stage 1	756	701	-	856	832	-	-	-	-	-	-	-
Stage 2	876	809	-	683	701	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	515	543	924	534	562	987	1467	-	-	1484	-	-
Mov Cap-2 Maneuver	515	543	-	534	562	-	-	-	-	-	-	-
Stage 1	755	670	-	855	831	-	-	-	-	-	-	-
Stage 2	810	808	-	644	670	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.4		10.6		0.1		2.4					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1467	-	-	575	743	1484	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.022	0.139	0.041	-	-				
HCM Control Delay (s)	7.5	0	-	11.4	10.6	7.5	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0.1	-	-				

4: Keg Lane & Ayr Road
699 Paris Plains Church Road

Future (2027) Total
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	4.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	42	128	152	59	88	63
Future Vol, veh/h	42	128	152	59	88	63
Conflicting Peds, #/hr	1	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	1500	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	19	2	2	2	4	29
Mvmt Flow	44	135	160	62	93	66
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	223	0	-	0	384	162
Stage 1	-	-	-	-	161	-
Stage 2	-	-	-	-	223	-
Critical Hdwy	4.29	-	-	-	6.44	6.49
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.371	-	-	-	3.536	3.561
Pot Cap-1 Maneuver	1252	-	-	-	615	817
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	809	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1251	-	-	-	592	815
Mov Cap-2 Maneuver	-	-	-	-	592	-
Stage 1	-	-	-	-	832	-
Stage 2	-	-	-	-	808	-
Approach	EB	WB		SB		
HCM Control Delay, s	2	0		12.1		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1251	-	-	-	668	
HCM Lane V/C Ratio	0.035	-	-	-	0.238	
HCM Control Delay (s)	8	-	-	-	12.1	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.9	

5: Brant Oxford Road & Keg Lane
699 Paris Plains Church Road

Future (2027) Total
Weekday PM Peak Hour

Intersection

Int Delay, s/veh 5.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	166	34	251	140	43	311
Future Vol, veh/h	166	34	251	140	43	311
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	3	7	4	3	7
Mvmt Flow	175	36	264	147	45	327

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	755	338	0
Stage 1	338	-	-
Stage 2	417	-	-
Critical Hdwy	6.44	6.23	-
Critical Hdwy Stg 1	5.44	-	-
Critical Hdwy Stg 2	5.44	-	-
Follow-up Hdwy	3.536	3.327	-
Pot Cap-1 Maneuver	374	702	-
Stage 1	718	-	-
Stage 2	661	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	356	702	-
Mov Cap-2 Maneuver	356	-	-
Stage 1	718	-	-
Stage 2	629	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.6	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	389	1142
HCM Lane V/C Ratio	-	-	0.541	0.04
HCM Control Delay (s)	-	-	24.6	8.3
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	3.1	0.1

6: Bishopsgate Road & Powerline Road
699 Paris Plains Church Road

Future (2027) Total
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	4.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	156	150	27	138	208
Future Vol, veh/h	30	156	150	27	138	208
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	6	0	5	8
Mvmt Flow	32	164	158	28	145	219
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	681	172	0	0	186	0
Stage 1	172	-	-	-	-	-
Stage 2	509	-	-	-	-	-
Critical Hdwy	6.4	6.26	-	-	4.15	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.354	-	-	2.245	-
Pot Cap-1 Maneuver	419	861	-	-	1371	-
Stage 1	863	-	-	-	-	-
Stage 2	608	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	369	861	-	-	1371	-
Mov Cap-2 Maneuver	369	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	535	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	12	0		3.2		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		709	1371	
HCM Lane V/C Ratio	-	-		0.276	0.106	
HCM Control Delay (s)	-	-		12	7.9	
HCM Lane LOS	-	-		B	A	
HCM 95th %tile Q(veh)	-	-		1.1	0.4	

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2027) Total
Weekday PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	596	446	386	123	0	624
Future Volume (vph)	596	446	386	123	0	624
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1738	1601	1883	1484	0	1865
Flt Permitted	0.950					
Satd. Flow (perm)	1738	1601	1883	1484	0	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		178		129		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	2%	2%	10%	0%	3%
Adj. Flow (vph)	627	469	406	129	0	657
Shared Lane Traffic (%)						
Lane Group Flow (vph)	627	469	406	129	0	657
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	50.0	50.0	31.0	31.0		31.0
Total Split (%)	61.7%	61.7%	38.3%	38.3%		38.3%
Maximum Green (s)	42.8	42.8	23.8	23.8		23.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	30.7	30.7	24.1	24.1		24.1
Actuated g/C Ratio	0.44	0.44	0.35	0.35		0.35
v/c Ratio	0.82	0.58	0.62	0.21		1.01
Control Delay	26.1	11.3	26.2	5.4		66.3
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	26.1	11.3	26.2	5.4		66.3
LOS	C	B	C	A		E
Approach Delay	19.8		21.2			66.3

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2027) Total
Weekday PM Peak Hour

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	B		C			E
Queue Length 50th (m)	66.8	24.8	42.5	0.0		~85.1
Queue Length 95th (m)	103.6	47.8	#89.5	11.6		#185.4
Internal Link Dist (m)	208.7		345.9			710.7
Turn Bay Length (m)		230.0				
Base Capacity (vph)	1087	1067	655	600		648
Starvation Cap Reductn	0	0	0	0		0
Spillback Cap Reductn	0	0	0	0		0
Storage Cap Reductn	0	0	0	0		0
Reduced v/c Ratio	0.58	0.44	0.62	0.21		1.01

Intersection Summary

Area Type: Other

Cycle Length: 81

Actuated Cycle Length: 69.4

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 33.4

Intersection LOS: C

Intersection Capacity Utilization 77.9%

ICU Level of Service D

Analysis Period (min) 15

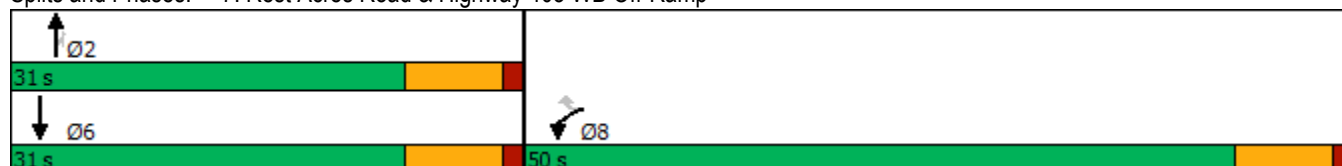
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



8: Rest Acres Road /Rest Acres Road & Highway 403 EB Off-Ramp
699 Paris Plains Church Road

Future (2027) Total
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	57	83	0	451	929	288
Future Vol, veh/h	57	83	0	451	929	288
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	0	-	-	-	-	2650
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	8	0	4	4	5
Mvmt Flow	60	87	0	475	978	303
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1216	978	-	0	-	0
Stage 1	978	-	-	-	-	-
Stage 2	238	-	-	-	-	-
Critical Hdwy	6.6	6.32	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.376	-	-	-	-
Pot Cap-1 Maneuver	189	293	0	-	-	0
Stage 1	368	-	0	-	-	0
Stage 2	785	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	189	293	-	-	-	-
Mov Cap-2 Maneuver	189	-	-	-	-	-
Stage 1	368	-	-	-	-	-
Stage 2	785	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	16.3	0	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT			
Capacity (veh/h)	-	464	-			
HCM Lane V/C Ratio	-	0.318	-			
HCM Control Delay (s)	-	16.3	-			
HCM Lane LOS	-	C	-			
HCM 95th %tile Q(veh)	-	1.4	-			

9: Pinehurst Road & Site Access
699 Paris Plains Church Road

Future (2027) Total
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	45	345	15	45	470
Future Vol, veh/h	15	45	345	15	45	470
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	16	47	363	16	47	495
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	960	371	0	0	379	0
Stage 1	371	-	-	-	-	-
Stage 2	589	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	287	679	-	-	1191	-
Stage 1	702	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	272	679	-	-	1191	-
Mov Cap-2 Maneuver	272	-	-	-	-	-
Stage 1	702	-	-	-	-	-
Stage 2	528	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	13.4	0		0.7		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		494	1191	
HCM Lane V/C Ratio	-	-		0.128	0.04	
HCM Control Delay (s)	-	-		13.4	8.1	
HCM Lane LOS	-	-		B	A	
HCM 95th %tile Q(veh)	-	-		0.4	0.1	

1: Pinehurst Road & Paris Plains Church Road
699 Paris Plains Church Road

Future (2027) Total
Saturday Peak Hour

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	11	5	0	3	14	277	3	2	316	2
Future Vol, veh/h	0	0	11	5	0	3	14	277	3	2	316	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	0	0	12	5	0	3	15	292	3	2	333	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	663	663	334	668	663	294	335	0	0	295	0	0
Stage 1	338	338	-	324	324	-	-	-	-	-	-	-
Stage 2	325	325	-	344	339	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	377	384	712	375	384	750	1236	-	-	1278	-	-
Stage 1	681	644	-	692	653	-	-	-	-	-	-	-
Stage 2	692	653	-	676	643	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	371	377	712	364	377	750	1236	-	-	1278	-	-
Mov Cap-2 Maneuver	371	377	-	364	377	-	-	-	-	-	-	-
Stage 1	671	643	-	682	643	-	-	-	-	-	-	-
Stage 2	679	643	-	664	642	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	13.1	0.4	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1236	-	-	712	451	1278	-
HCM Lane V/C Ratio	0.012	-	-	0.016	0.019	0.002	-
HCM Control Delay (s)	7.9	0	-	10.1	13.1	7.8	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-

2: Pinehurst Road & Watts Pond Road
699 Paris Plains Church Road

Future (2027) Total
Saturday Peak Hour

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰	↱
Traffic Vol, veh/h	23	8	55	8	4	14	62	273	13	23	276	24
Future Vol, veh/h	23	8	55	8	4	14	62	273	13	23	276	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	550	-	-	-	-	-	-	-	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	12	0	0	0	0	0	2	1	0	0	1	11
Mvmt Flow	24	8	58	8	4	15	65	287	14	24	291	25

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	773	770	291	809	788	294	316	0	0	301	0	0
Stage 1	339	339	-	424	424	-	-	-	-	-	-	-
Stage 2	434	431	-	385	364	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.5	6.2	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4	3.3	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	304	333	753	301	326	750	1244	-	-	1272	-	-
Stage 1	655	643	-	612	590	-	-	-	-	-	-	-
Stage 2	581	586	-	642	627	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	276	305	753	254	298	750	1244	-	-	1272	-	-
Mov Cap-2 Maneuver	276	305	-	254	298	-	-	-	-	-	-	-
Stage 1	614	628	-	573	553	-	-	-	-	-	-	-
Stage 2	530	549	-	571	613	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	13.5		14.4		1.4		0.6	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1244	-	-	283	753	409	1272	-	-
HCM Lane V/C Ratio	0.052	-	-	0.115	0.077	0.067	0.019	-	-
HCM Control Delay (s)	8.1	0	-	19.4	10.2	14.4	7.9	0	-
HCM Lane LOS	A	A	-	C	B	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.4	0.2	0.2	0.1	-	-

3: Ayr Road & Watts Pond Road/Watts Pond Road
699 Paris Plains Church Road

Future (2027) Total
Saturday Peak Hour

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	9	0	24	11	47	1	57	22	56	79	2
Future Vol, veh/h	0	9	0	24	11	47	1	57	22	56	79	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	250	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	14	0	0	0	2	20	0	1	50
Mvmt Flow	0	9	0	25	12	49	1	60	23	59	83	2
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	305	286	83	269	265	60	85	0	0	83	0	0
Stage 1	201	201	-	62	62	-	-	-	-	-	-	-
Stage 2	104	85	-	207	203	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.24	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.626	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	651	627	982	660	644	1011	1524	-	-	1527	-	-
Stage 1	805	739	-	920	847	-	-	-	-	-	-	-
Stage 2	907	828	-	768	737	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	590	601	982	631	617	1011	1524	-	-	1527	-	-
Mov Cap-2 Maneuver	590	601	-	631	617	-	-	-	-	-	-	-
Stage 1	804	709	-	919	846	-	-	-	-	-	-	-
Stage 2	850	827	-	727	707	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.1		10		0.1		3					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1524	-	-	601	801	1527	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.016	0.108	0.039	-	-				
HCM Control Delay (s)	7.4	0	-	11.1	10	7.5	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.4	0.1	-	-				

4: Keg Lane & Ayr Road
699 Paris Plains Church Road

Future (2027) Total
Saturday Peak Hour

Intersection						
Int Delay, s/veh	3.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	107	91	46	65	38
Future Vol, veh/h	33	107	91	46	65	38
Conflicting Peds, #/hr	1	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	1500	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	14	0	4	0	2	5
Mvmt Flow	35	113	96	48	68	40
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	145	0	-	0	280	98
Stage 1	-	-	-	-	97	-
Stage 2	-	-	-	-	183	-
Critical Hdwy	4.24	-	-	-	6.42	6.25
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.326	-	-	-	3.518	3.345
Pot Cap-1 Maneuver	1367	-	-	-	710	950
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	848	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1366	-	-	-	690	948
Mov Cap-2 Maneuver	-	-	-	-	690	-
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	847	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.8	0		10.5		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1366	-	-	-	767	
HCM Lane V/C Ratio	0.025	-	-	-	0.141	
HCM Control Delay (s)	7.7	-	-	-	10.5	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5	

5: Brant Oxford Road & Keg Lane
699 Paris Plains Church Road

Future (2027) Total
Saturday Peak Hour

Intersection

Int Delay, s/veh 3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	99	32	145	94	40	157
Future Vol, veh/h	99	32	145	94	40	157
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	0	2	3	0	4
Mvmt Flow	104	34	153	99	42	165

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	452	203	0
Stage 1	203	-	-
Stage 2	249	-	-
Critical Hdwy	6.44	6.2	-
Critical Hdwy Stg 1	5.44	-	-
Critical Hdwy Stg 2	5.44	-	-
Follow-up Hdwy	3.536	3.3	-
Pot Cap-1 Maneuver	562	843	-
Stage 1	826	-	-
Stage 2	788	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	542	843	-
Mov Cap-2 Maneuver	542	-	-
Stage 1	826	-	-
Stage 2	760	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	1.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	594	1325
HCM Lane V/C Ratio	-	-	0.232	0.032
HCM Control Delay (s)	-	-	12.9	7.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.9	0.1

6: Bishopsgate Road & Powerline Road
699 Paris Plains Church Road

Future (2027) Total
Saturday Peak Hour

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	78	114	18	92	98
Future Vol, veh/h	27	78	114	18	92	98
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	7	5	0	1	3
Mvmt Flow	28	82	120	19	97	103
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	427	130	0	0	139	0
Stage 1	130	-	-	-	-	-
Stage 2	297	-	-	-	-	-
Critical Hdwy	6.4	6.27	-	-	4.11	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.363	-	-	2.209	-
Pot Cap-1 Maneuver	588	906	-	-	1451	-
Stage 1	901	-	-	-	-	-
Stage 2	758	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	546	906	-	-	1451	-
Mov Cap-2 Maneuver	546	-	-	-	-	-
Stage 1	901	-	-	-	-	-
Stage 2	704	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.4	0		3.7		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 775		1451	-	
HCM Lane V/C Ratio	-	- 0.143		0.067	-	
HCM Control Delay (s)	-	- 10.4		7.7	0	
HCM Lane LOS	-	- B		A	A	
HCM 95th %tile Q(veh)	-	- 0.5		0.2	-	

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2027) Total
Saturday Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	355	268	294	64	0	526
Future Volume (vph)	355	268	294	64	0	526
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1789	1570	1902	1498	0	1865
Flt Permitted	0.950					
Satd. Flow (perm)	1789	1570	1902	1498	0	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		277		67		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	4%	1%	9%	0%	3%
Adj. Flow (vph)	374	282	309	67	0	554
Shared Lane Traffic (%)						
Lane Group Flow (vph)	374	282	309	67	0	554
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	50.0	50.0	31.0	31.0		31.0
Total Split (%)	61.7%	61.7%	38.3%	38.3%		38.3%
Maximum Green (s)	42.8	42.8	23.8	23.8		23.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	21.0	21.0	23.8	23.8		23.8
Actuated g/C Ratio	0.35	0.35	0.40	0.40		0.40
v/c Ratio	0.59	0.38	0.40	0.10		0.74
Control Delay	20.1	3.8	15.0	4.3		23.4
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	20.1	3.8	15.0	4.3		23.4
LOS	C	A	B	A		C
Approach Delay	13.1		13.1			23.4

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2027) Total
Saturday Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	B		B		C	
Queue Length 50th (m)	32.1	0.4	22.2	0.0	47.3	
Queue Length 95th (m)	54.5	12.5	44.5	6.4	#102.5	
Internal Link Dist (m)	208.7		345.9		710.7	
Turn Bay Length (m)	230.0					
Base Capacity (vph)	1294	1212	765	643	750	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.29	0.23	0.40	0.10	0.74	

Intersection Summary

Area Type: Other

Cycle Length: 81

Actuated Cycle Length: 59.2

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 16.7

Intersection LOS: B

Intersection Capacity Utilization 59.4%

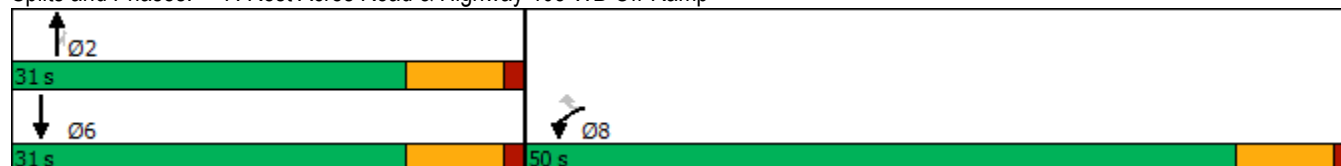
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



8: Rest Acres Road /Rest Acres Road & Highway 403 EB Off-Ramp
699 Paris Plains Church Road

Future (2027) Total
Saturday Peak Hour

Intersection

Int Delay, s/veh 1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	62	0	342	553	272
Future Vol, veh/h	40	62	0	342	553	272
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	0	-	-	-	-	2650
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	0	1	0	0
Mvmt Flow	42	65	0	360	582	286

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	762	582	- 0 - 0
Stage 1	582	-	- - -
Stage 2	180	-	- - -
Critical Hdwy	6.6	6.26	- - -
Critical Hdwy Stg 1	5.4	-	- - -
Critical Hdwy Stg 2	5.8	-	- - -
Follow-up Hdwy	3.5	3.338	- - -
Pot Cap-1 Maneuver	360	507	0 - - 0
Stage 1	563	-	0 - - 0
Stage 2	839	-	0 - - 0
Platoon blocked, %			- -
Mov Cap-1 Maneuver	360	507	- - -
Mov Cap-2 Maneuver	360	-	- - -
Stage 1	563	-	- - -
Stage 2	839	-	- - -

Approach	EB	NB	SB
HCM Control Delay, s	10	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT EBLn1	SBT
Capacity (veh/h)	- 834	-
HCM Lane V/C Ratio	- 0.129	-
HCM Control Delay (s)	- 10	-
HCM Lane LOS	- B	-
HCM 95th %tile Q(veh)	- 0.4	-

9: Pinehurst Road & Site Access
699 Paris Plains Church Road

Future (2027) Total
Saturday Peak Hour

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	45	265	15	45	306
Future Vol, veh/h	15	45	265	15	45	306
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	16	47	279	16	47	322
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	703	287	0	0	295	0
Stage 1	287	-	-	-	-	-
Stage 2	416	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	407	757	-	-	1278	-
Stage 1	766	-	-	-	-	-
Stage 2	670	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	389	757	-	-	1278	-
Mov Cap-2 Maneuver	389	-	-	-	-	-
Stage 1	766	-	-	-	-	-
Stage 2	640	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	11.6	0		1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		612	1278	
HCM Lane V/C Ratio	-	-		0.103	0.037	
HCM Control Delay (s)	-	-		11.6	7.9	
HCM Lane LOS	-	-		B	A	
HCM 95th %tile Q(veh)	-	-		0.3	0.1	

Future (2032) Total Traffic

1: Pinehurst Road & Paris Plains Church Road
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	0	10	0	3	0	7	490	2	0	262	1
Future Vol, veh/h	6	0	10	0	3	0	7	490	2	0	262	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	33	0	0	8	50	0	12	0
Mvmt Flow	6	0	11	0	3	0	7	516	2	0	276	1
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	810	809	277	813	808	517	277	0	0	518	0	0
Stage 1	277	277	-	531	531	-	-	-	-	-	-	-
Stage 2	533	532	-	282	277	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.83	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4.297	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	301	317	767	299	282	562	1298	-	-	1058	-	-
Stage 1	734	685	-	536	479	-	-	-	-	-	-	-
Stage 2	534	529	-	729	628	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	296	314	767	293	280	562	1298	-	-	1058	-	-
Mov Cap-2 Maneuver	296	314	-	293	280	-	-	-	-	-	-	-
Stage 1	728	685	-	532	475	-	-	-	-	-	-	-
Stage 2	526	525	-	719	628	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	12.8		18		0.1		0					
HCM LOS	B		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1298	-	-	480	280	1058	-	-				
HCM Lane V/C Ratio	0.006	-	-	0.035	0.011	-	-	-				
HCM Control Delay (s)	7.8	0	-	12.8	18	0	-	-				
HCM Lane LOS	A	A	-	B	C	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

2: Pinehurst Road & Watts Pond Road
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰	↱
Traffic Vol, veh/h	43	6	42	6	18	24	37	457	8	8	222	28
Future Vol, veh/h	43	6	42	6	18	24	37	457	8	8	222	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	550	-	-	-	-	-	-	-	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	100	3	17	91	67	12	3	12	100	14	15
Mvmt Flow	45	6	44	6	19	25	39	481	8	8	234	29
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	835	817	234	853	842	485	263	0	0	489	0	0
Stage 1	250	250	-	563	563	-	-	-	-	-	-	-
Stage 2	585	567	-	290	279	-	-	-	-	-	-	-
Critical Hdwy	7.14	7.5	6.23	7.27	7.41	6.87	4.22	-	-	5.1	-	-
Critical Hdwy Stg 1	6.14	6.5	-	6.27	6.41	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	6.5	-	6.27	6.41	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.9	3.327	3.653	4.819	3.903	2.308	-	-	3.1	-	-
Pot Cap-1 Maneuver	285	222	803	263	220	470	1245	-	-	712	-	-
Stage 1	750	552	-	485	390	-	-	-	-	-	-	-
Stage 2	494	379	-	686	545	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	241	210	803	232	208	470	1245	-	-	712	-	-
Mov Cap-2 Maneuver	241	210	-	232	208	-	-	-	-	-	-	-
Stage 1	718	545	-	464	373	-	-	-	-	-	-	-
Stage 2	425	363	-	632	538	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	17.6			19.8			0.6			0.3		
HCM LOS	C			C								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	1245	-	-	237	803	294	712	-	-			
HCM Lane V/C Ratio	0.031	-	-	0.218	0.055	0.172	0.012	-	-			
HCM Control Delay (s)	8	0	-	24.4	9.7	19.8	10.1	0	-			
HCM Lane LOS	A	A	-	C	A	C	B	A	-			
HCM 95th %tile Q(veh)	0.1	-	-	0.8	0.2	0.6	0	-	-			

3: Ayr Road & Watts Pond Road/Watts Pond Road
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	2	5	2	34	3	35	1	77	28	39	71	1
Future Vol, veh/h	2	5	2	34	3	35	1	77	28	39	71	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	250	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	50	25	100	58	50	0	0	2	91	0	2	0
Mvmt Flow	2	5	2	36	3	37	1	81	29	41	75	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	275	269	75	244	241	81	76	0	0	110	0	0
Stage 1	157	157	-	83	83	-	-	-	-	-	-	-
Stage 2	118	112	-	161	158	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.75	7.2	7.68	7	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.6	5.75	-	6.68	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.6	5.75	-	6.68	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4.225	4.2	4.022	4.45	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	591	600	770	608	585	985	1536	-	-	1493	-	-
Stage 1	744	726	-	803	741	-	-	-	-	-	-	-
Stage 2	783	760	-	725	684	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	554	582	770	589	567	985	1536	-	-	1493	-	-
Mov Cap-2 Maneuver	554	582	-	589	567	-	-	-	-	-	-	-
Stage 1	743	705	-	802	740	-	-	-	-	-	-	-
Stage 2	750	759	-	697	664	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB				
HCM Control Delay, s	11		10.5		0.1			2.6				
HCM LOS	B		B									

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1536	-	-	608	731	1493	-	-
HCM Lane V/C Ratio	0.001	-	-	0.016	0.104	0.027	-	-
HCM Control Delay (s)	7.3	0	-	11	10.5	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0.1	-	-

4: Keg Lane & Ayr Road
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	3.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	46	120	94	65	70	46
Future Vol, veh/h	46	120	94	65	70	46
Conflicting Peds, #/hr	1	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	1500	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	42	13	9	2	5	35
Mvmt Flow	48	126	99	68	74	48
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	168	0	-	0	322	101
Stage 1	-	-	-	-	100	-
Stage 2	-	-	-	-	222	-
Critical Hdwy	4.52	-	-	-	6.45	6.55
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	2.578	-	-	-	3.545	3.615
Pot Cap-1 Maneuver	1200	-	-	-	666	871
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	808	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1199	-	-	-	638	869
Mov Cap-2 Maneuver	-	-	-	-	638	-
Stage 1	-	-	-	-	879	-
Stage 2	-	-	-	-	807	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.3	0		11.1		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1199	-	-	-	713	
HCM Lane V/C Ratio	0.04	-	-	-	0.171	
HCM Control Delay (s)	8.1	-	-	-	11.1	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6	

5: Brant Oxford Road & Keg Lane
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday AM Peak Hour

Intersection

Int Delay, s/veh 3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	103	31	254	125	38	179
Future Vol, veh/h	103	31	254	125	38	179
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	16	0	7	20	13	16
Mvmt Flow	108	33	267	132	40	188

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	601	333	0
Stage 1	333	-	-
Stage 2	268	-	-
Critical Hdwy	6.56	6.2	-
Critical Hdwy Stg 1	5.56	-	-
Critical Hdwy Stg 2	5.56	-	-
Follow-up Hdwy	3.644	3.3	-
Pot Cap-1 Maneuver	441	713	-
Stage 1	696	-	-
Stage 2	746	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	423	713	-
Mov Cap-2 Maneuver	423	-	-
Stage 1	696	-	-
Stage 2	715	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	467	1102
HCM Lane V/C Ratio	-	-	0.302	0.036
HCM Control Delay (s)	-	-	16	8.4
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.3	0.1

6: Bishopsgate Road & Powerline Road
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	104	146	17	111	102
Future Vol, veh/h	12	104	146	17	111	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	10	8	7	0	10	13
Mvmt Flow	13	109	154	18	117	107
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	504	163	0	0	172	0
Stage 1	163	-	-	-	-	-
Stage 2	341	-	-	-	-	-
Critical Hdwy	6.5	6.28	-	-	4.2	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.372	-	-	2.29	-
Pot Cap-1 Maneuver	514	866	-	-	1358	-
Stage 1	847	-	-	-	-	-
Stage 2	703	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	467	866	-	-	1358	-
Mov Cap-2 Maneuver	467	-	-	-	-	-
Stage 1	847	-	-	-	-	-
Stage 2	638	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.3	0	4.1			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	796	1358	-	
HCM Lane V/C Ratio	-	-	0.153	0.086	-	
HCM Control Delay (s)	-	-	10.3	7.9	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.5	0.3	-	

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	399	282	368	93	0	594
Future Volume (vph)	399	282	368	93	0	594
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1615	1458	1847	1512	0	1830
Flt Permitted	0.950					
Satd. Flow (perm)	1615	1458	1847	1512	0	1830
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		194		98		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	13%	12%	4%	8%	0%	5%
Adj. Flow (vph)	420	297	387	98	0	625
Shared Lane Traffic (%)						
Lane Group Flow (vph)	420	297	387	98	0	625
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	50.0	50.0	31.0	31.0		31.0
Total Split (%)	61.7%	61.7%	38.3%	38.3%		38.3%
Maximum Green (s)	42.8	42.8	23.8	23.8		23.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	23.1	23.1	23.9	23.9		23.9
Actuated g/C Ratio	0.38	0.38	0.39	0.39		0.39
v/c Ratio	0.69	0.44	0.54	0.15		0.88
Control Delay	22.8	7.3	18.9	4.5		35.5
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	22.8	7.3	18.9	4.5		35.5
LOS	C	A	B	A		D
Approach Delay	16.4		16.0			35.5

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	B		B		D	
Queue Length 50th (m)	38.6	7.5	30.2	0.0	58.5	
Queue Length 95th (m)	64.5	21.7	66.9	8.6	#142.4	
Internal Link Dist (m)	208.7		345.9		710.7	
Turn Bay Length (m)	230.0					
Base Capacity (vph)	1129	1078	718	648	711	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.37	0.28	0.54	0.15	0.88	

Intersection Summary

Area Type: Other

Cycle Length: 81

Actuated Cycle Length: 61.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 22.9

Intersection LOS: C

Intersection Capacity Utilization 65.4%

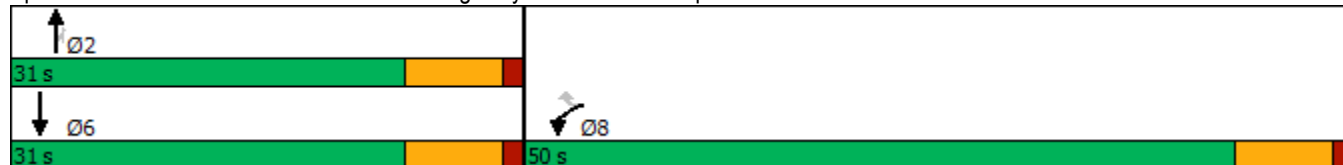
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Total Traffic Optimize
Weekday AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	399	282	368	93	0	594
Future Volume (vph)	399	282	368	93	0	594
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1615	1458	1847	1512	0	1830
Flt Permitted	0.950					
Satd. Flow (perm)	1615	1458	1847	1512	0	1830
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		297		98		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	13%	12%	4%	8%	0%	5%
Adj. Flow (vph)	420	297	387	98	0	625
Shared Lane Traffic (%)						
Lane Group Flow (vph)	420	297	387	98	0	625
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	63.0	63.0	57.0	57.0		57.0
Total Split (%)	52.5%	52.5%	47.5%	47.5%		47.5%
Maximum Green (s)	55.8	55.8	49.8	49.8		49.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	29.4	29.4	33.8	33.8		33.8
Actuated g/C Ratio	0.37	0.37	0.43	0.43		0.43
v/c Ratio	0.69	0.41	0.49	0.14		0.79
Control Delay	29.1	4.3	19.1	4.0		28.5
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	29.1	4.3	19.1	4.0		28.5
LOS	C	A	B	A		C
Approach Delay	18.8		16.0			28.5

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Total Traffic Optimize
Weekday AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	B		B			C
Queue Length 50th (m)	50.6	0.0	38.7	0.0		75.0
Queue Length 95th (m)	103.7	15.8	78.2	8.6		147.2
Internal Link Dist (m)	208.7		345.9			710.7
Turn Bay Length (m)		230.0				
Base Capacity (vph)	1211	1168	1242	1049		1231
Starvation Cap Reductn	0	0	0	0		0
Spillback Cap Reductn	0	0	0	0		0
Storage Cap Reductn	0	0	0	0		0
Reduced v/c Ratio	0.35	0.25	0.31	0.09		0.51

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 78.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 21.4

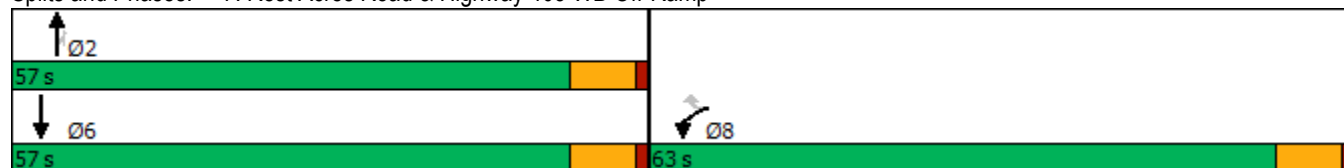
Intersection LOS: C

Intersection Capacity Utilization 65.4%

ICU Level of Service C

Analysis Period (min) 15

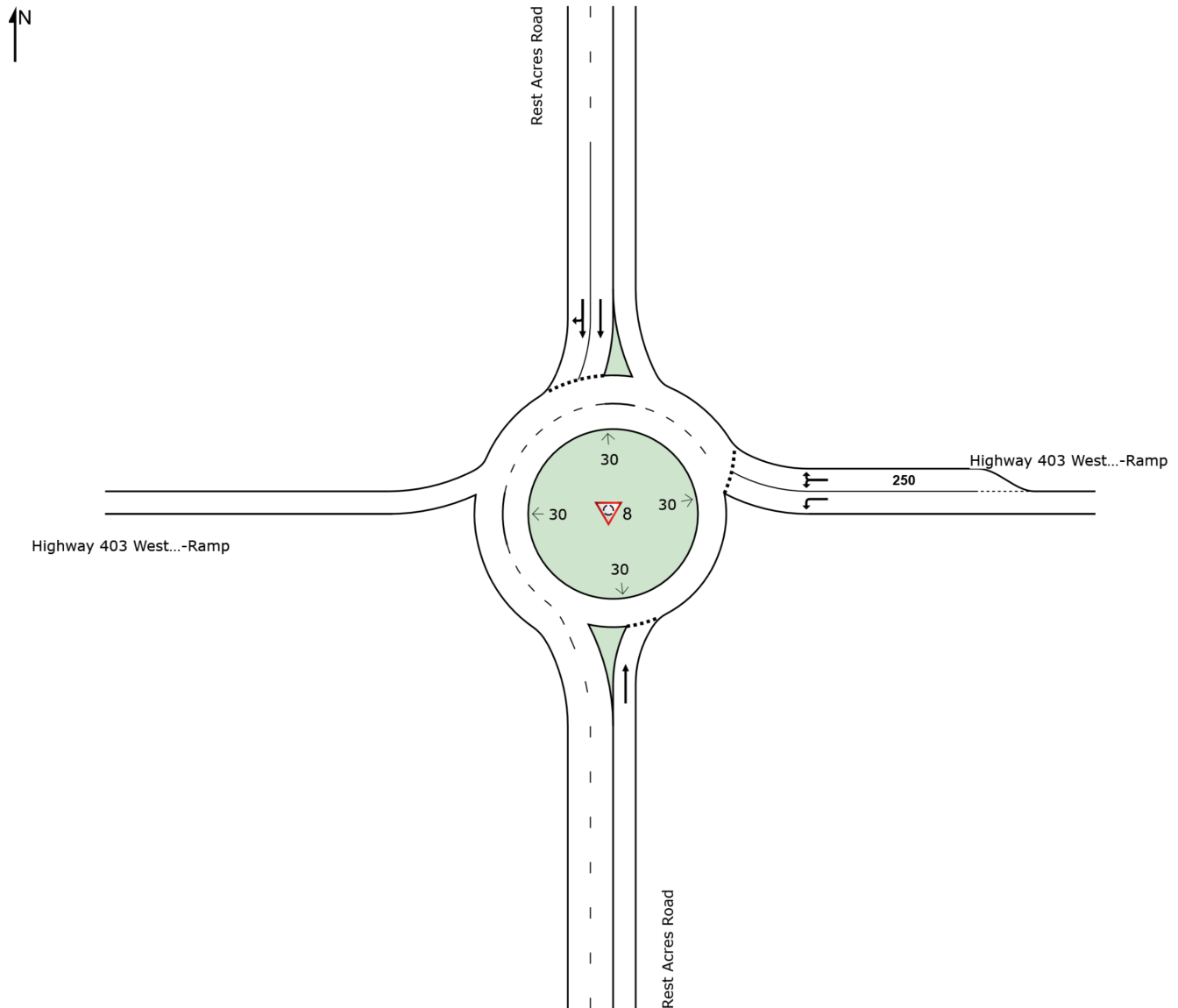
Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



SITE LAYOUT

Site: 8 Highway 403 WB Ramp

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MOVEMENT SUMMARY

 **Site: 8 [Highway 403 WB Ramp (Site Folder: TT 2032 AM)]**

699 Paris Church Plains Road
 Future (2032) Total Traffic
 AM Peak Hour
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Rest Acres Road														
8	T1	368	6.0	387	6.0	0.298	5.4	LOS A	0.0	0.0	0.00	0.00	0.00	61.9
Approach		368	6.0	387	6.0	0.298	5.4	LOS A	0.0	0.0	0.00	0.00	0.00	61.9
East: Highway 403 Westbound Off-Ramp														
1	L2	399	13.0	420	13.0	0.413	9.1	LOS A	1.8	15.3	0.56	0.51	0.57	50.2
16	R2	282	12.0	297	12.0	0.413	9.1	LOS A	1.8	15.3	0.56	0.51	0.57	51.1
Approach		681	12.6	717	12.6	0.413	9.1	LOS A	1.8	15.3	0.56	0.51	0.57	50.6
North: Rest Acres Road														
4	T1	594	5.0	625	5.0	0.399	8.9	LOS A	1.9	15.2	0.58	0.58	0.63	54.0
14	R2	63	4.0	66	4.0	0.399	8.6	LOS A	1.9	14.7	0.57	0.56	0.61	52.6
Approach		657	4.9	692	4.9	0.399	8.9	LOS A	1.9	15.2	0.58	0.58	0.63	53.9
All Vehicles		1706	8.2	1796	8.2	0.413	8.2	LOS A	1.9	15.3	0.45	0.43	0.47	54.0

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

Roundabout LOS Method: Same as Sign Control.

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

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

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

Roundabout Capacity Model: US HCM 6.

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

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: Traditional M1.

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

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8: Rest Acres Road /Rest Acres Road & Highway 403 EB Off-Ramp Future (2032) Total Traffic
699 Paris Plains Church Road

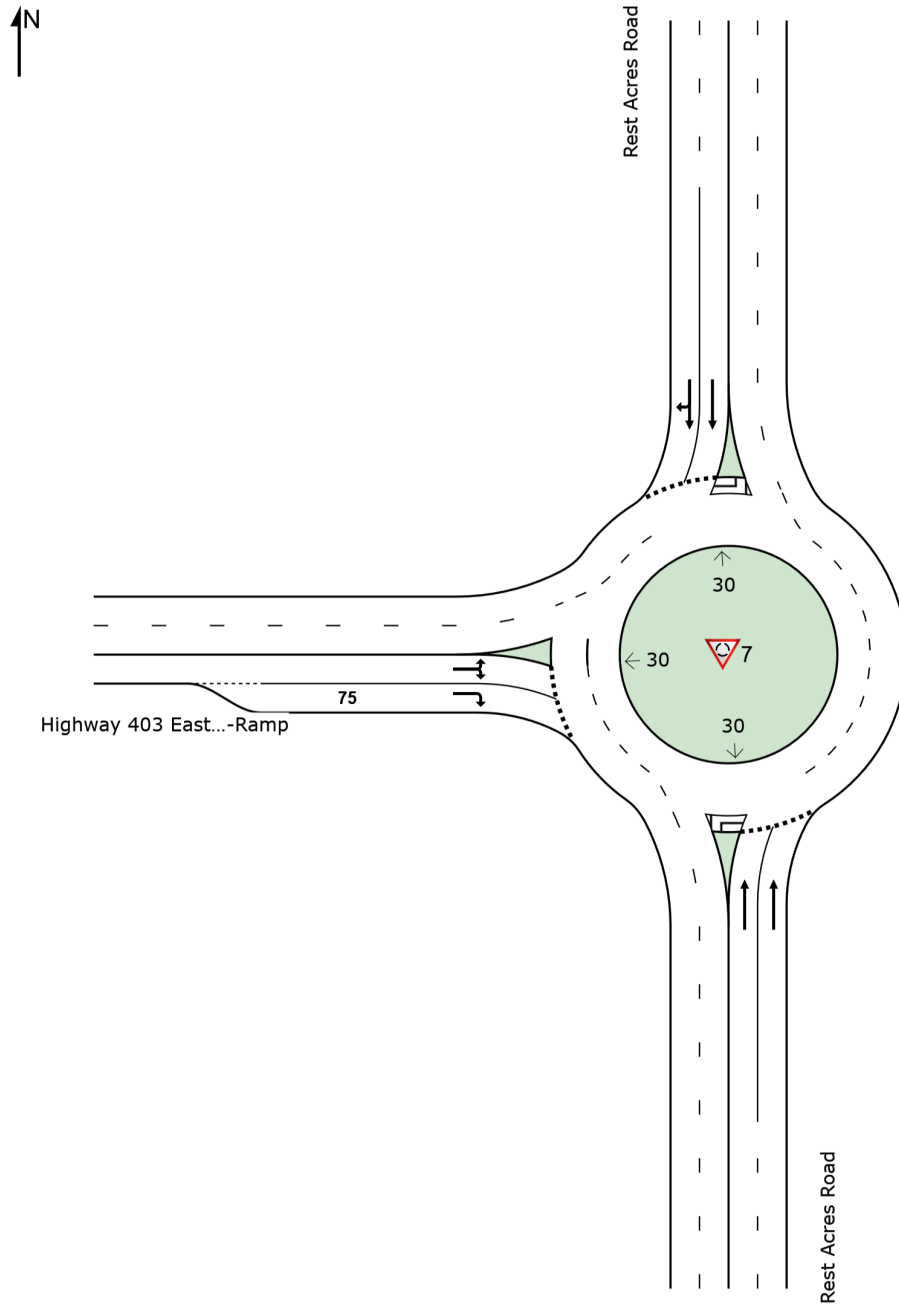
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	32	87	0	338	654	400
Future Vol, veh/h	32	87	0	338	654	400
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	0	-	-	-	-	2650
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	20	0	6	14	6
Mvmt Flow	34	92	0	356	688	421
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	866	688	-	0	-	0
Stage 1	688	-	-	-	-	-
Stage 2	178	-	-	-	-	-
Critical Hdwy	6.66	6.5	-	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.538	3.49	-	-	-	-
Pot Cap-1 Maneuver	304	408	0	-	-	0
Stage 1	493	-	0	-	-	0
Stage 2	830	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	304	408	-	-	-	-
Mov Cap-2 Maneuver	304	-	-	-	-	-
Stage 1	493	-	-	-	-	-
Stage 2	830	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	13.3	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT EBLn1		SBT			
Capacity (veh/h)	-		558			
HCM Lane V/C Ratio	-		0.224			
HCM Control Delay (s)	-		13.3			
HCM Lane LOS	-		B			
HCM 95th %tile Q(veh)	-		0.9			

SITE LAYOUT

 Site: 7 Highway 403 EB Ramp

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 7 [Highway 403 EB Ramp (Site Folder: TT 2032 AM)]

699 Paris Church Plains Road
 Future (2032) Total Traffic
 AM Peak Hour
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Rest Acres Road														
8	T1	338	6.0	356	6.0	0.137	3.9	LOS A	0.6	4.5	0.12	0.04	0.12	58.1
Approach		338	6.0	356	6.0	0.137	3.9	LOS A	0.6	4.5	0.12	0.04	0.12	58.1
North: Rest Acres Road														
4	T1	654	14.0	688	14.0	0.433	7.2	LOS A	0.0	0.0	0.00	0.00	0.00	61.6
14	R2	400	6.0	421	6.0	0.433	6.9	LOS A	0.0	0.0	0.00	0.00	0.00	59.6
Approach		1054	11.0	1109	11.0	0.433	7.1	LOS A	0.0	0.0	0.00	0.00	0.00	60.8
West: Highway 403 Eastbound On/Off-Ramp														
5	L2	32	4.0	34	4.0	0.105	6.9	LOS A	0.3	2.8	0.58	0.58	0.58	52.8
12	R2	87	20.0	92	20.0	0.105	7.4	LOS A	0.3	2.8	0.56	0.56	0.56	52.1
Approach		119	15.7	125	15.7	0.105	7.2	LOS A	0.3	2.8	0.57	0.56	0.57	52.3
All Vehicles		1511	10.2	1591	10.2	0.433	6.4	LOS A	0.6	4.5	0.07	0.05	0.07	59.5

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

Roundabout LOS Method: Same as Sign Control.

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

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

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

Roundabout Capacity Model: US HCM 6.

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

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: Traditional M1.

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

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9: Pinehurst Road & Site Access
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	45	483	15	45	249
Future Vol, veh/h	15	45	483	15	45	249
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	7	0	0	12
Mvmt Flow	16	47	508	16	47	262
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	872	516	0	0	524	0
Stage 1	516	-	-	-	-	-
Stage 2	356	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	324	563	-	-	1053	-
Stage 1	603	-	-	-	-	-
Stage 2	713	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	307	563	-	-	1053	-
Mov Cap-2 Maneuver	307	-	-	-	-	-
Stage 1	603	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	13.9	0	1.3			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	466	1053	-	
HCM Lane V/C Ratio	-	-	0.136	0.045	-	
HCM Control Delay (s)	-	-	13.9	8.6	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-	

1: Pinehurst Road & Paris Plains Church Road
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	1	9	1	3	0	16	383	2	2	518	4
Future Vol, veh/h	6	1	9	1	3	0	16	383	2	2	518	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	33	0	0	1	0	0	2	0
Mvmt Flow	6	1	9	1	3	0	17	403	2	2	545	4
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	991	990	547	994	991	404	549	0	0	405	0	0
Stage 1	551	551	-	438	438	-	-	-	-	-	-	-
Stage 2	440	439	-	556	553	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.83	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.83	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4.297	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	227	248	541	226	218	651	1031	-	-	1165	-	-
Stage 1	522	519	-	601	529	-	-	-	-	-	-	-
Stage 2	600	582	-	519	467	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	220	242	541	217	213	651	1031	-	-	1165	-	-
Mov Cap-2 Maneuver	220	242	-	217	213	-	-	-	-	-	-	-
Stage 1	511	518	-	588	518	-	-	-	-	-	-	-
Stage 2	584	570	-	508	466	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	16.4		22.2		0.3		0					
HCM LOS	C		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1031	-	-	333	214	1165	-	-				
HCM Lane V/C Ratio	0.016	-	-	0.051	0.02	0.002	-	-				
HCM Control Delay (s)	8.6	0	-	16.4	22.2	8.1	0	-				
HCM Lane LOS	A	A	-	C	C	A	A	-				
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0	-	-				

2: Pinehurst Road & Watts Pond Road
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱		↰	↱		↰	↱
Traffic Vol, veh/h	30	11	45	8	12	17	74	371	11	22	475	37
Future Vol, veh/h	30	11	45	8	12	17	74	371	11	22	475	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	550	-	-	-	-	-	-	-	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	7	0	3	0	0	25	5	4	0	0	2	5
Mvmt Flow	32	12	47	8	13	18	78	391	12	23	500	39

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1115	1105	500	1148	1138	397	539	0	0	403	0	0
Stage 1	546	546	-	553	553	-	-	-	-	-	-	-
Stage 2	569	559	-	595	585	-	-	-	-	-	-	-
Critical Hdwy	7.17	6.5	6.23	7.1	6.5	6.45	4.15	-	-	4.1	-	-
Critical Hdwy Stg 1	6.17	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.17	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.563	4	3.327	3.5	4	3.525	2.245	-	-	2.2	-	-
Pot Cap-1 Maneuver	181	213	569	177	203	605	1014	-	-	1167	-	-
Stage 1	513	521	-	521	518	-	-	-	-	-	-	-
Stage 2	498	514	-	494	501	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	150	187	569	140	178	605	1014	-	-	1167	-	-
Mov Cap-2 Maneuver	150	187	-	140	178	-	-	-	-	-	-	-
Stage 1	462	506	-	469	467	-	-	-	-	-	-	-
Stage 2	424	463	-	430	487	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	23.4		22.7		1.4		0.3	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1014	-	-	158	569	242	1167	-	-
HCM Lane V/C Ratio	0.077	-	-	0.273	0.083	0.161	0.02	-	-
HCM Control Delay (s)	8.8	0	-	36.1	11.9	22.7	8.1	0	-
HCM Lane LOS	A	A	-	E	B	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	1.1	0.3	0.6	0.1	-	-

3: Ayr Road & Watts Pond Road/Watts Pond Road
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	7	2	29	10	59	1	83	27	58	137	0
Future Vol, veh/h	3	7	2	29	10	59	1	83	27	58	137	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	250	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	33	0	0	0	1	22	2	2	0
Mvmt Flow	3	7	2	31	11	62	1	87	28	61	144	0
Major/Minor	Minor2		Minor1		Major1				Major2			
Conflicting Flow All	406	383	144	360	355	87	144	0	0	115	0	0
Stage 1	266	266	-	89	89	-	-	-	-	-	-	-
Stage 2	140	117	-	271	266	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.43	6.5	6.2	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.43	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.43	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.797	4	3.3	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	559	553	909	542	574	977	1451	-	-	1474	-	-
Stage 1	744	692	-	847	825	-	-	-	-	-	-	-
Stage 2	868	803	-	672	692	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	498	528	909	516	548	977	1451	-	-	1474	-	-
Mov Cap-2 Maneuver	498	528	-	516	548	-	-	-	-	-	-	-
Stage 1	743	661	-	846	824	-	-	-	-	-	-	-
Stage 2	802	802	-	633	661	-	-	-	-	-	-	-
Approach	EB		WB		NB				SB			
HCM Control Delay, s	11.6		10.8		0.1				2.2			
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1451	-	-	559	727	1474	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.023	0.142	0.041	-	-				
HCM Control Delay (s)	7.5	0	-	11.6	10.8	7.5	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0.1	-	-				

4: Keg Lane & Ayr Road
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	4.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	44	140	167	65	96	67
Future Vol, veh/h	44	140	167	65	96	67
Conflicting Peds, #/hr	1	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	1500	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	19	2	2	2	4	29
Mvmt Flow	46	147	176	68	101	71
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	245	0	-	0	416	178
Stage 1	-	-	-	-	177	-
Stage 2	-	-	-	-	239	-
Critical Hdwy	4.29	-	-	-	6.44	6.49
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	2.371	-	-	-	3.536	3.561
Pot Cap-1 Maneuver	1228	-	-	-	589	800
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	796	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1227	-	-	-	566	799
Mov Cap-2 Maneuver	-	-	-	-	566	-
Stage 1	-	-	-	-	817	-
Stage 2	-	-	-	-	795	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.9	0		12.6		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1227	-	-	-	643	
HCM Lane V/C Ratio	0.038	-	-	-	0.267	
HCM Control Delay (s)	8	-	-	-	12.6	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	1.1	

5: Brant Oxford Road & Keg Lane
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	7.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	180	37	276	152	47	342
Future Vol, veh/h	180	37	276	152	47	342
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	3	7	4	3	7
Mvmt Flow	189	39	291	160	49	360
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	829	371	0	0	451	0
Stage 1	371	-	-	-	-	-
Stage 2	458	-	-	-	-	-
Critical Hdwy	6.44	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	338	673	-	-	1104	-
Stage 1	693	-	-	-	-	-
Stage 2	633	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	319	673	-	-	1104	-
Mov Cap-2 Maneuver	319	-	-	-	-	-
Stage 1	693	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	32.7	0		1		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		350	1104	
HCM Lane V/C Ratio	-	-		0.653	0.045	
HCM Control Delay (s)	-	-		32.7	8.4	
HCM Lane LOS	-	-		D	A	
HCM 95th %tile Q(veh)	-	-		4.4	0.1	

6: Bishopsgate Road & Powerline Road
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	4.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	170	165	29	150	228
Future Vol, veh/h	33	170	165	29	150	228
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	6	6	0	5	8
Mvmt Flow	35	179	174	31	158	240
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	746	190	0	0	205	0
Stage 1	190	-	-	-	-	-
Stage 2	556	-	-	-	-	-
Critical Hdwy	6.4	6.26	-	-	4.15	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.354	-	-	2.245	-
Pot Cap-1 Maneuver	384	842	-	-	1349	-
Stage 1	847	-	-	-	-	-
Stage 2	578	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	332	842	-	-	1349	-
Mov Cap-2 Maneuver	332	-	-	-	-	-
Stage 1	847	-	-	-	-	-
Stage 2	500	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	12.8	0	3.2			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	674	1349	-	
HCM Lane V/C Ratio	-	-	0.317	0.117	-	
HCM Control Delay (s)	-	-	12.8	8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	1.4	0.4	-	

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	655	489	424	135	0	684
Future Volume (vph)	655	489	424	135	0	684
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1738	1601	1883	1484	0	1865
Flt Permitted	0.950					
Satd. Flow (perm)	1738	1601	1883	1484	0	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		292		142		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	2%	2%	10%	0%	3%
Adj. Flow (vph)	689	515	446	142	0	720
Shared Lane Traffic (%)						
Lane Group Flow (vph)	689	515	446	142	0	720
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	60.0	60.0	60.0	60.0		60.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%		50.0%
Maximum Green (s)	52.8	52.8	52.8	52.8		52.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	Min	Min	Min	Min		Min
Act Effect Green (s)	47.2	47.2	46.9	46.9		46.9
Actuated g/C Ratio	0.43	0.43	0.43	0.43		0.43
v/c Ratio	0.92	0.60	0.55	0.20		0.90
Control Delay	48.1	13.1	26.8	4.0		45.0
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	48.1	13.1	26.8	4.0		45.0
LOS	D	B	C	A		D
Approach Delay	33.2		21.3			45.0

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	C		C		D	
Queue Length 50th (m)	147.6	37.0	75.5	0.0	151.5	
Queue Length 95th (m)	#220.8	70.9	106.2	11.2	#223.3	
Internal Link Dist (m)	208.7		345.9		710.7	
Turn Bay Length (m)	230.0					
Base Capacity (vph)	866	944	939	811	930	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.80	0.55	0.47	0.18	0.77	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 108.9

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 33.8

Intersection LOS: C

Intersection Capacity Utilization 84.3%

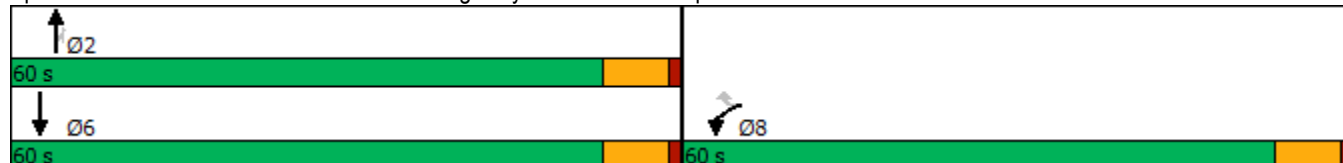
ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Total Traffic Optimize
Weekday PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	655	489	424	135	0	684
Future Volume (vph)	655	489	424	135	0	684
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1738	1601	1883	1484	0	1865
Flt Permitted	0.950					
Satd. Flow (perm)	1738	1601	1883	1484	0	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		292		142		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	2%	2%	10%	0%	3%
Adj. Flow (vph)	689	515	446	142	0	720
Shared Lane Traffic (%)						
Lane Group Flow (vph)	689	515	446	142	0	720
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	60.0	60.0	60.0	60.0		60.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%		50.0%
Maximum Green (s)	52.8	52.8	52.8	52.8		52.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	47.2	47.2	46.9	46.9		46.9
Actuated g/C Ratio	0.43	0.43	0.43	0.43		0.43
v/c Ratio	0.92	0.60	0.55	0.20		0.90
Control Delay	48.1	13.1	26.8	4.0		45.0
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	48.1	13.1	26.8	4.0		45.0
LOS	D	B	C	A		D
Approach Delay	33.2		21.3			45.0

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Total Traffic Optimize
Weekday PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	C		C			D
Queue Length 50th (m)	147.6	37.0	75.5	0.0		151.5
Queue Length 95th (m)	#220.8	70.9	106.2	11.2		#223.3
Internal Link Dist (m)	208.7		345.9			710.7
Turn Bay Length (m)		230.0				
Base Capacity (vph)	866	944	939	811		930
Starvation Cap Reductn	0	0	0	0		0
Spillback Cap Reductn	0	0	0	0		0
Storage Cap Reductn	0	0	0	0		0
Reduced v/c Ratio	0.80	0.55	0.47	0.18		0.77

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 108.9

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 33.8

Intersection LOS: C

Intersection Capacity Utilization 84.3%

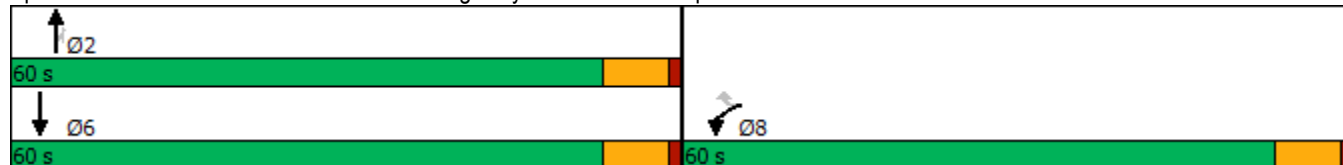
ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

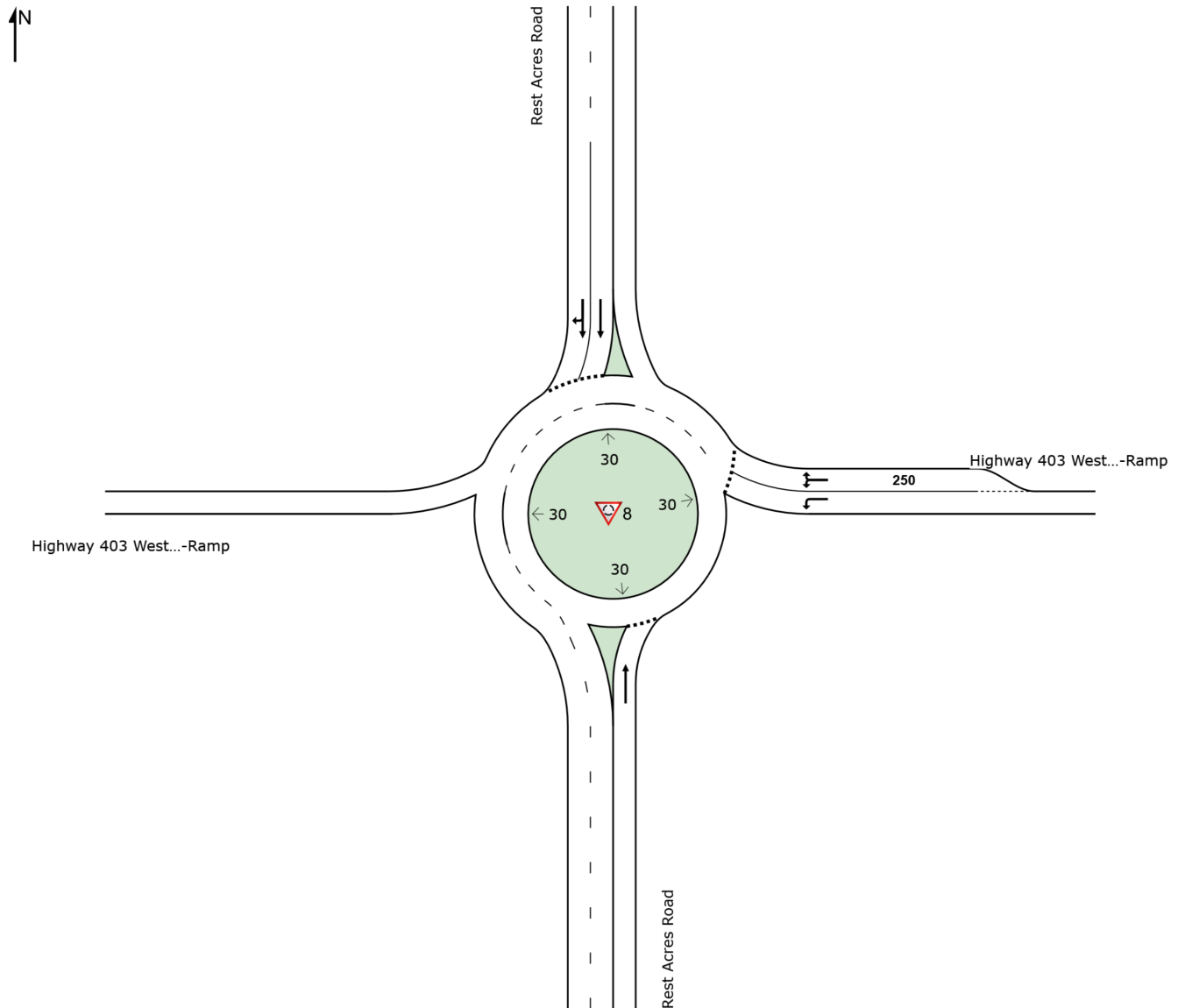
Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



SITE LAYOUT

Site: 8 Highway 403 WB Ramp

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: C:\Users\ben.pascolo-neveu\IBI Group\139382 699 Paris Church Plains TIS - Internal Documents\6.0_Technical\6.23_Traffic\05_Analytic Models\699ParisPlainsChurchRd_2023-06-09.sip9

MOVEMENT SUMMARY

Site: 8 [Highway 403 WB Ramp (Site Folder: TT 2032 PM)]

699 Paris Church Plains Road
 Future (2032) Total Traffic
 PM Peak Hour
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Rest Acres Road														
8	T1	424	2.0	446	2.0	0.330	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	62.0
Approach		424	2.0	446	2.0	0.330	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	62.0
East: Highway 403 Westbound Off-Ramp														
1	L2	655	5.0	689	5.0	0.665	15.0	LOS B	7.6	58.8	0.76	0.99	1.37	46.9
16	R2	489	2.0	515	2.0	0.665	14.7	LOS B	7.6	58.8	0.78	1.00	1.37	47.8
Approach		1144	3.7	1204	3.7	0.665	14.8	LOS B	7.6	58.8	0.77	0.99	1.37	47.3
North: Rest Acres Road														
4	T1	684	3.0	720	3.0	0.546	13.8	LOS B	3.6	28.1	0.73	0.88	1.18	50.5
14	R2	53	0.0	56	0.0	0.546	13.1	LOS B	3.6	28.1	0.72	0.87	1.16	49.6
Approach		737	2.8	776	2.8	0.546	13.7	LOS B	3.6	28.1	0.73	0.87	1.18	50.5
All Vehicles		2305	3.1	2426	3.1	0.665	12.8	LOS B	7.6	58.8	0.61	0.77	1.06	50.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Roundabout LOS Method: Same as Sign Control.
 Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
 LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
 Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
 Roundabout Capacity Model: US HCM 6.
 Delay Model: HCM Delay Formula (Geometric Delay is not included).
 Queue Model: HCM Queue Formula.
 Gap-Acceptance Capacity: Traditional M1.
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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8: Rest Acres Road /Rest Acres Road & Highway 403 EB Off-Ramp Future (2032) Total Traffic
699 Paris Plains Church Road

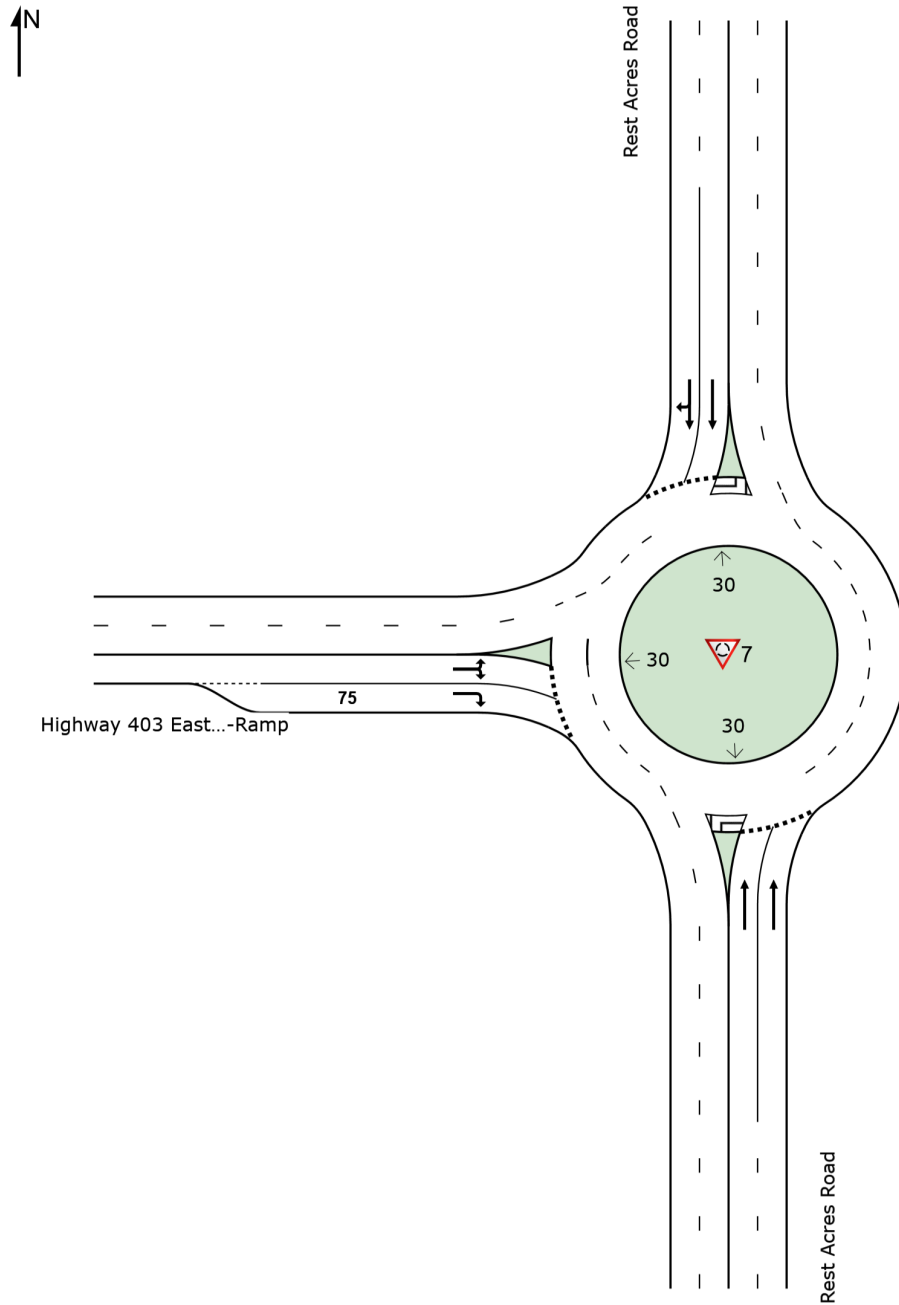
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↑↑	↑	↔
Traffic Vol, veh/h	63	92	0	495	1021	316
Future Vol, veh/h	63	92	0	495	1021	316
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	0	-	-	-	-	2650
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	8	0	4	4	5
Mvmt Flow	66	97	0	521	1075	333
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1336	1075	-	0	-	0
Stage 1	1075	-	-	-	-	-
Stage 2	261	-	-	-	-	-
Critical Hdwy	6.6	6.32	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.376	-	-	-	-
Pot Cap-1 Maneuver	159	256	0	-	-	0
Stage 1	331	-	0	-	-	0
Stage 2	765	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	159	256	-	-	-	-
Mov Cap-2 Maneuver	159	-	-	-	-	-
Stage 1	331	-	-	-	-	-
Stage 2	765	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	20.6	0	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT			
Capacity (veh/h)	-	391	-			
HCM Lane V/C Ratio	-	0.417	-			
HCM Control Delay (s)	-	20.6	-			
HCM Lane LOS	-	C	-			
HCM 95th %tile Q(veh)	-	2	-			

SITE LAYOUT

 Site: 7 Highway 403 EB Ramp

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 **Site: 7 [Highway 403 EB Ramp (Site Folder: TT 2032 PM)]**

699 Paris Church Plains Road
 Future (2032) Total Traffic
 PM Peak Hour
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Rest Acres Road														
8	T1	495	4.0	521	4.0	0.203	4.5	LOS A	0.9	7.2	0.19	0.08	0.19	57.7
Approach		495	4.0	521	4.0	0.203	4.5	LOS A	0.9	7.2	0.19	0.08	0.19	57.7
North: Rest Acres Road														
4	T1	1021	4.0	1075	4.0	0.517	8.0	LOS A	0.0	0.0	0.00	0.00	0.00	61.9
14	R2	316	5.0	333	5.0	0.517	8.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
Approach		1337	4.2	1407	4.2	0.517	8.0	LOS A	0.0	0.0	0.00	0.00	0.00	61.4
West: Highway 403 Eastbound On/Off-Ramp														
5	L2	63	0.0	66	0.0	0.166	9.8	LOS A	0.6	4.4	0.68	0.68	0.68	50.3
12	R2	92	8.0	97	8.0	0.166	9.4	LOS A	0.6	4.4	0.66	0.66	0.66	51.3
Approach		155	4.7	163	4.7	0.166	9.6	LOS A	0.6	4.4	0.67	0.67	0.67	50.9
All Vehicles		1987	4.2	2092	4.2	0.517	7.3	LOS A	0.9	7.2	0.10	0.07	0.10	59.5

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

Roundabout LOS Method: Same as Sign Control.

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

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

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

Roundabout Capacity Model: US HCM 6.

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

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: Traditional M1.

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

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Project: C:\Users\eric.mclaren\IBI Group\139382 699 Paris Church Plains TIS - Internal Documents\6.0_Technical\6.23_Traffic\05_Analytic Models
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9: Pinehurst Road & Site Access
699 Paris Plains Church Road

Future (2032) Total Traffic
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	45	375	15	45	510
Future Vol, veh/h	15	45	375	15	45	510
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	2
Mvmt Flow	16	47	395	16	47	537
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1034	403	0	0	411	0
Stage 1	403	-	-	-	-	-
Stage 2	631	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	259	652	-	-	1159	-
Stage 1	679	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	244	652	-	-	1159	-
Mov Cap-2 Maneuver	244	-	-	-	-	-
Stage 1	679	-	-	-	-	-
Stage 2	503	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	14.1	0		0.7		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	460	1159	-	
HCM Lane V/C Ratio	-	-	0.137	0.041	-	
HCM Control Delay (s)	-	-	14.1	8.2	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-	

1: Pinehurst Road & Paris Plains Church Road
699 Paris Plains Church Road

Future (2032) Total Traffic
Saturday Peak Hour

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	11	5	0	3	14	299	3	2	340	2
Future Vol, veh/h	0	0	11	5	0	3	14	299	3	2	340	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	1	0
Mvmt Flow	0	0	12	5	0	3	15	315	3	2	358	2
Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	711	711	359	716	711	317	360	0	0	318	0	0
Stage 1	363	363	-	347	347	-	-	-	-	-	-	-
Stage 2	348	348	-	369	364	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	351	361	690	348	361	728	1210	-	-	1253	-	-
Stage 1	660	628	-	673	638	-	-	-	-	-	-	-
Stage 2	672	638	-	655	627	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	345	355	690	338	355	728	1210	-	-	1253	-	-
Mov Cap-2 Maneuver	345	355	-	338	355	-	-	-	-	-	-	-
Stage 1	650	627	-	663	628	-	-	-	-	-	-	-
Stage 2	659	628	-	643	626	-	-	-	-	-	-	-
Approach	EB		WB		NB			SB				
HCM Control Delay, s	10.3		13.7		0.4			0				
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1210	-	-	690	423	1253	-	-				
HCM Lane V/C Ratio	0.012	-	-	0.017	0.02	0.002	-	-				
HCM Control Delay (s)	8	0	-	10.3	13.7	7.9	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-				

2: Pinehurst Road & Watts Pond Road
699 Paris Plains Church Road

Future (2032) Total Traffic
Saturday Peak Hour

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱	↱		↱			↱			↱	↱
Traffic Vol, veh/h	23	8	55	8	4	14	62	297	13	23	299	24
Future Vol, veh/h	23	8	55	8	4	14	62	297	13	23	299	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	550	-	-	-	-	-	-	-	-	550
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	12	0	0	0	0	0	2	1	0	0	1	11
Mvmt Flow	24	8	58	8	4	15	65	313	14	24	315	25

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	823	820	315	859	838	320	340	0	0	327	0	0
Stage 1	363	363	-	450	450	-	-	-	-	-	-	-
Stage 2	460	457	-	409	388	-	-	-	-	-	-	-
Critical Hdwy	7.22	6.5	6.2	7.1	6.5	6.2	4.12	-	-	4.1	-	-
Critical Hdwy Stg 1	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.22	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.608	4	3.3	3.5	4	3.3	2.218	-	-	2.2	-	-
Pot Cap-1 Maneuver	281	312	730	279	305	725	1219	-	-	1244	-	-
Stage 1	636	628	-	592	575	-	-	-	-	-	-	-
Stage 2	563	571	-	623	612	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	254	285	730	234	278	725	1219	-	-	1244	-	-
Mov Cap-2 Maneuver	254	285	-	234	278	-	-	-	-	-	-	-
Stage 1	595	613	-	554	538	-	-	-	-	-	-	-
Stage 2	512	534	-	552	597	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	14.1		15.1		1.4		0.5	
HCM LOS	B		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1219	-	-	261	730	383	1244	-	-
HCM Lane V/C Ratio	0.054	-	-	0.125	0.079	0.071	0.019	-	-
HCM Control Delay (s)	8.1	0	-	20.8	10.4	15.1	8	0	-
HCM Lane LOS	A	A	-	C	B	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.4	0.3	0.2	0.1	-	-

3: Ayr Road & Watts Pond Road/Watts Pond Road
699 Paris Plains Church Road

Future (2032) Total Traffic
Saturday Peak Hour

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	9	0	24	11	47	1	62	22	56	87	2
Future Vol, veh/h	0	9	0	24	11	47	1	62	22	56	87	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	250	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	14	0	0	0	2	20	0	1	50
Mvmt Flow	0	9	0	25	12	49	1	65	23	59	92	2
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	319	300	92	283	279	65	94	0	0	88	0	0
Stage 1	210	210	-	67	67	-	-	-	-	-	-	-
Stage 2	109	90	-	216	212	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.24	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.626	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	638	616	971	646	632	1005	1513	-	-	1520	-	-
Stage 1	797	732	-	914	843	-	-	-	-	-	-	-
Stage 2	901	824	-	760	731	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	579	590	971	618	605	1005	1513	-	-	1520	-	-
Mov Cap-2 Maneuver	579	590	-	618	605	-	-	-	-	-	-	-
Stage 1	796	702	-	913	842	-	-	-	-	-	-	-
Stage 2	844	823	-	719	701	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.2		10.1		0.1		2.9					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1513	-	-	590	790	1520	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.016	0.109	0.039	-	-				
HCM Control Delay (s)	7.4	0	-	11.2	10.1	7.5	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0	0.4	0.1	-	-				

4: Keg Lane & Ayr Road
699 Paris Plains Church Road

Future (2032) Total Traffic
Saturday Peak Hour

Intersection						
Int Delay, s/veh	3.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	117	100	50	72	40
Future Vol, veh/h	34	117	100	50	72	40
Conflicting Peds, #/hr	1	0	0	1	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	1500	-	-	150	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	14	0	4	0	2	5
Mvmt Flow	36	123	105	53	76	42
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	159	0	-	0	301	107
Stage 1	-	-	-	-	106	-
Stage 2	-	-	-	-	195	-
Critical Hdwy	4.24	-	-	-	6.42	6.25
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.326	-	-	-	3.518	3.345
Pot Cap-1 Maneuver	1350	-	-	-	691	939
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	838	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1349	-	-	-	671	937
Mov Cap-2 Maneuver	-	-	-	-	671	-
Stage 1	-	-	-	-	892	-
Stage 2	-	-	-	-	837	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.7	0		10.7		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1349	-	-	-	747	
HCM Lane V/C Ratio	0.027	-	-	-	0.158	
HCM Control Delay (s)	7.7	-	-	-	10.7	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6	

5: Brant Oxford Road & Keg Lane
699 Paris Plains Church Road

Future (2032) Total Traffic
Saturday Peak Hour

Intersection						
Int Delay, s/veh	3.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	108	35	160	102	43	172
Future Vol, veh/h	108	35	160	102	43	172
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	4	0	2	3	0	4
Mvmt Flow	114	37	168	107	45	181
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	493	222	0	0	275	0
Stage 1	222	-	-	-	-	-
Stage 2	271	-	-	-	-	-
Critical Hdwy	6.44	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	532	823	-	-	1300	-
Stage 1	810	-	-	-	-	-
Stage 2	770	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	512	823	-	-	1300	-
Mov Cap-2 Maneuver	512	-	-	-	-	-
Stage 1	810	-	-	-	-	-
Stage 2	741	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	13.7	0		1.6		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 564		1300	-	
HCM Lane V/C Ratio	-	- 0.267		0.035	-	
HCM Control Delay (s)	-	- 13.7		7.9	0	
HCM Lane LOS	-	- B		A	A	
HCM 95th %tile Q(veh)	-	- 1.1		0.1	-	

6: Bishopsgate Road & Powerline Road
699 Paris Plains Church Road

Future (2032) Total Traffic
Saturday Peak Hour

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	85	126	20	99	107
Future Vol, veh/h	29	85	126	20	99	107
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	7	5	0	1	3
Mvmt Flow	31	89	133	21	104	113
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	465	144	0	0	154	0
Stage 1	144	-	-	-	-	-
Stage 2	321	-	-	-	-	-
Critical Hdwy	6.4	6.27	-	-	4.11	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.363	-	-	2.209	-
Pot Cap-1 Maneuver	559	890	-	-	1433	-
Stage 1	888	-	-	-	-	-
Stage 2	740	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	516	890	-	-	1433	-
Mov Cap-2 Maneuver	516	-	-	-	-	-
Stage 1	888	-	-	-	-	-
Stage 2	683	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.7	0		3.7		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		751	1433	
HCM Lane V/C Ratio	-	-		0.16	0.073	
HCM Control Delay (s)	-	-		10.7	7.7	
HCM Lane LOS	-	-		B	A	
HCM 95th %tile Q(veh)	-	-		0.6	0.2	

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Total Traffic
Saturday Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	390	294	323	71	0	577
Future Volume (vph)	390	294	323	71	0	577
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1789	1570	1902	1498	0	1865
Flt Permitted	0.950					
Satd. Flow (perm)	1789	1570	1902	1498	0	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		241		75		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	4%	1%	9%	0%	3%
Adj. Flow (vph)	411	309	340	75	0	607
Shared Lane Traffic (%)						
Lane Group Flow (vph)	411	309	340	75	0	607
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	50.0	50.0	31.0	31.0		31.0
Total Split (%)	61.7%	61.7%	38.3%	38.3%		38.3%
Maximum Green (s)	42.8	42.8	23.8	23.8		23.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	21.6	21.6	23.8	23.8		23.8
Actuated g/C Ratio	0.36	0.36	0.40	0.40		0.40
v/c Ratio	0.64	0.43	0.45	0.12		0.82
Control Delay	20.9	5.8	16.2	4.4		28.6
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	20.9	5.8	16.2	4.4		28.6
LOS	C	A	B	A		C
Approach Delay	14.4		14.1			28.6

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Total Traffic
Saturday Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	B		B		C	
Queue Length 50th (m)	36.3	4.8	24.8	0.0	53.9	
Queue Length 95th (m)	60.2	18.4	52.3	7.1	#123.9	
Internal Link Dist (m)	208.7		345.9		710.7	
Turn Bay Length (m)	230.0					
Base Capacity (vph)	1279	1191	756	640	741	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.32	0.26	0.45	0.12	0.82	

Intersection Summary

Area Type: Other

Cycle Length: 81

Actuated Cycle Length: 59.9

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 19.3

Intersection LOS: B

Intersection Capacity Utilization 64.0%

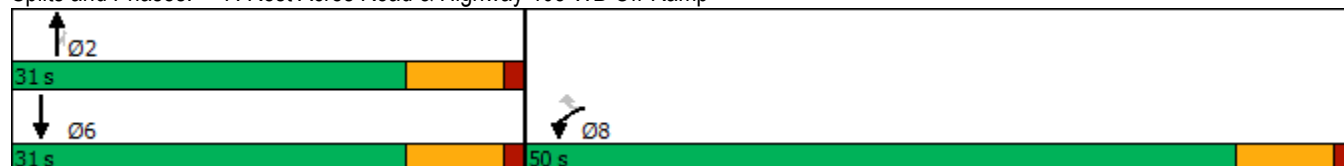
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Total Traffic Optimize
Saturday Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	390	294	323	71	0	577
Future Volume (vph)	390	294	323	71	0	577
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	230.0		0.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950					
Satd. Flow (prot)	1789	1570	1902	1498	0	1865
Flt Permitted	0.950					
Satd. Flow (perm)	1789	1570	1902	1498	0	1865
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		309		75		
Link Speed (k/h)	30		60			60
Link Distance (m)	232.7		369.9			734.7
Travel Time (s)	27.9		22.2			44.1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	4%	1%	9%	0%	3%
Adj. Flow (vph)	411	309	340	75	0	607
Shared Lane Traffic (%)						
Lane Group Flow (vph)	411	309	340	75	0	607
Turn Type	Prot	Perm	NA	Perm		NA
Protected Phases	8		2			6
Permitted Phases		8		2		
Detector Phase	8	8	2	2		6
Switch Phase						
Minimum Initial (s)	20.0	20.0	10.0	10.0		10.0
Minimum Split (s)	27.2	27.2	17.2	17.2		17.2
Total Split (s)	63.0	63.0	57.0	57.0		57.0
Total Split (%)	52.5%	52.5%	47.5%	47.5%		47.5%
Maximum Green (s)	55.8	55.8	49.8	49.8		49.8
Yellow Time (s)	5.9	5.9	5.9	5.9		5.9
All-Red Time (s)	1.3	1.3	1.3	1.3		1.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2		7.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	4.0	4.0		4.0
Recall Mode	None	None	Min	Min		Min
Act Effect Green (s)	26.3	26.3	30.4	30.4		30.4
Actuated g/C Ratio	0.37	0.37	0.42	0.42		0.42
v/c Ratio	0.63	0.40	0.42	0.11		0.77
Control Delay	25.3	4.2	16.6	4.0		25.4
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	25.3	4.2	16.6	4.0		25.4
LOS	C	A	B	A		C
Approach Delay	16.3		14.3			25.4

7: Rest Acres Road & Highway 403 WB Off-Ramp
699 Paris Plains Church Road

Future (2032) Total Traffic Optimize
Saturday Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	B		B		C	
Queue Length 50th (m)	42.7	0.0	28.8	0.0	62.5	
Queue Length 95th (m)	95.2	16.3	60.3	7.0	125.3	
Internal Link Dist (m)	208.7		345.9		710.7	
Turn Bay Length (m)	230.0					
Base Capacity (vph)	1445	1327	1387	1113	1360	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.28	0.23	0.25	0.07	0.45	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 71.9

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 19.0

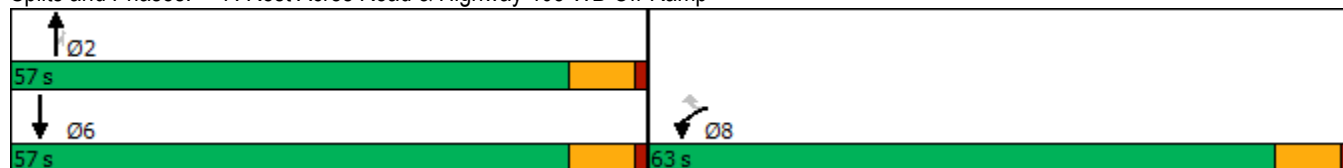
Intersection LOS: B

Intersection Capacity Utilization 64.0%

ICU Level of Service B

Analysis Period (min) 15

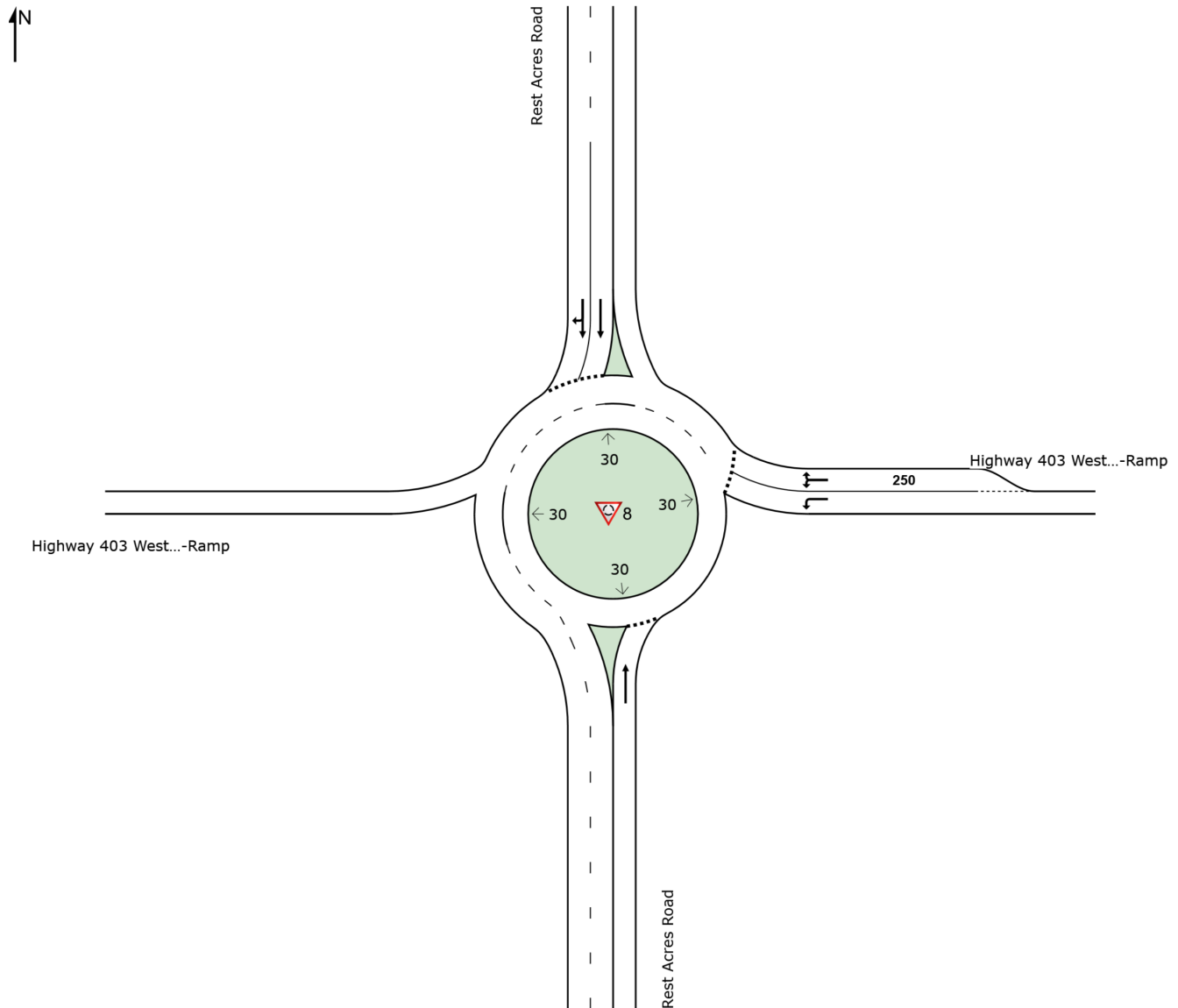
Splits and Phases: 7: Rest Acres Road & Highway 403 WB Off-Ramp



SITE LAYOUT

Site: 8 Highway 403 WB Ramp

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MOVEMENT SUMMARY

 **Site: 8 [Highway 403 WB Ramp (Site Folder: TT 2032 SAT)]**

699 Paris Church Plains Road
Future (2032) Total Traffic
SAT Peak Hour
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Rest Acres Road														
8	T1	323	1.0	340	1.0	0.249	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	62.1
Approach		323	1.0	340	1.0	0.249	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	62.1
East: Highway 403 Westbound Off-Ramp														
1	L2	390	2.0	411	2.0	0.356	7.3	LOS A	1.7	13.5	0.52	0.44	0.52	51.8
16	R2	294	4.0	309	4.0	0.356	7.4	LOS A	1.7	13.3	0.52	0.43	0.52	52.8
Approach		684	2.9	720	2.9	0.356	7.3	LOS A	1.7	13.5	0.52	0.44	0.52	52.2
North: Rest Acres Road														
4	T1	577	3.0	607	3.0	0.356	7.8	LOS A	1.6	12.5	0.54	0.49	0.54	54.9
14	R2	53	0.0	56	0.0	0.356	7.4	LOS A	1.6	12.4	0.53	0.48	0.53	53.5
Approach		630	2.7	663	2.7	0.356	7.8	LOS A	1.6	12.5	0.54	0.49	0.54	54.8
All Vehicles		1637	2.4	1723	2.4	0.356	7.0	LOS A	1.7	13.5	0.42	0.37	0.42	54.9

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

Roundabout LOS Method: Same as Sign Control.

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

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

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

Roundabout Capacity Model: US HCM 6.

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

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: Traditional M1.

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

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8: Rest Acres Road /Rest Acres Road & Highway 403 EB Off-Ramp Future (2032) Total Traffic
699 Paris Plains Church Road

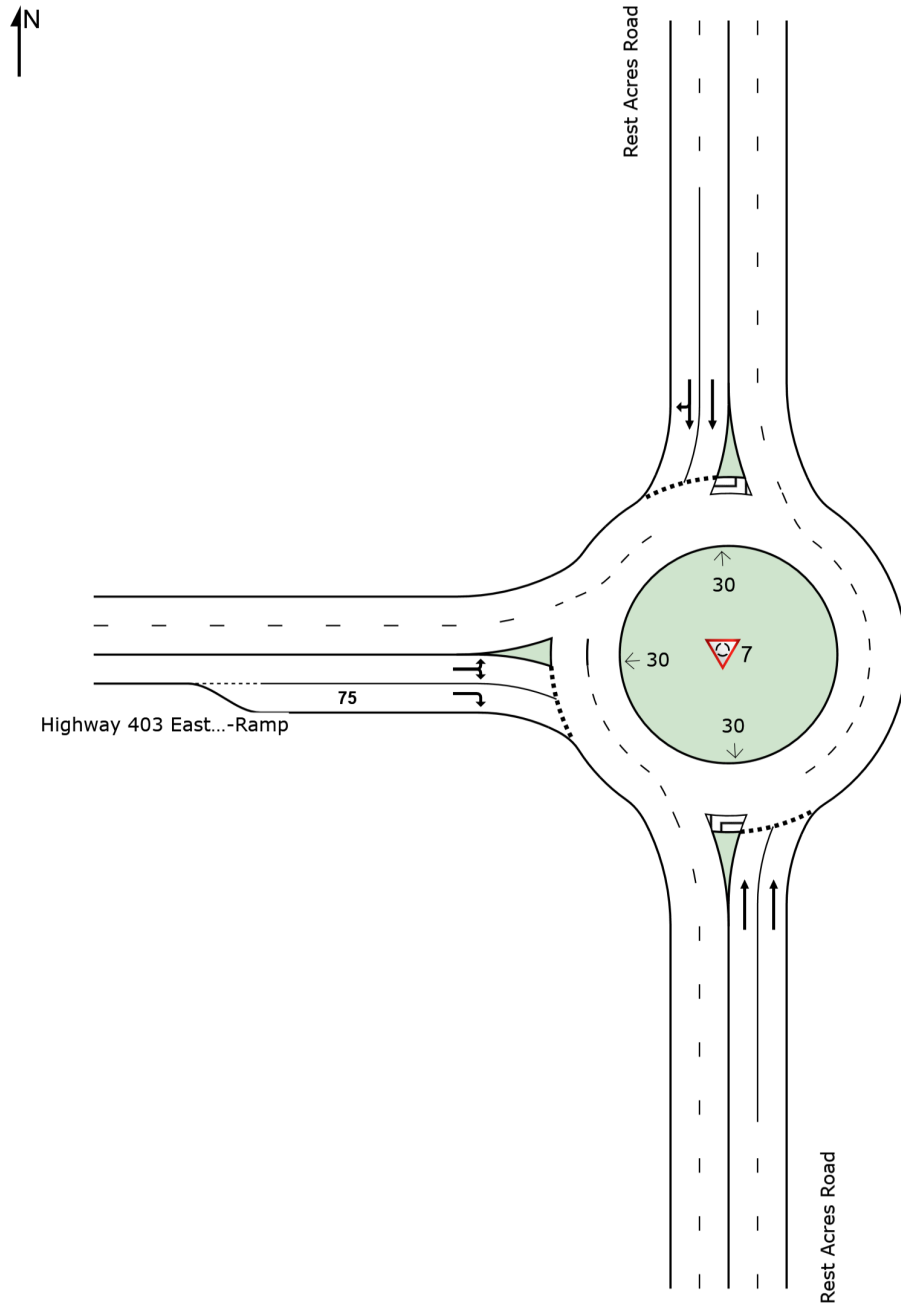
Saturday Peak Hour

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	43	68	0	376	608	297
Future Vol, veh/h	43	68	0	376	608	297
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	Free
Storage Length	0	-	-	-	-	2650
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	0	1	0	0
Mvmt Flow	45	72	0	396	640	313
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	838	640	-	0	-	0
Stage 1	640	-	-	-	-	-
Stage 2	198	-	-	-	-	-
Critical Hdwy	6.6	6.26	-	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.338	-	-	-	-
Pot Cap-1 Maneuver	324	470	0	-	-	0
Stage 1	529	-	0	-	-	0
Stage 2	822	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	324	470	-	-	-	-
Mov Cap-2 Maneuver	324	-	-	-	-	-
Stage 1	529	-	-	-	-	-
Stage 2	822	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.5	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT EBLn1		SBT			
Capacity (veh/h)	- 767		-			
HCM Lane V/C Ratio	- 0.152		-			
HCM Control Delay (s)	- 10.5		-			
HCM Lane LOS	- B		-			
HCM 95th %tile Q(veh)	- 0.5		-			

SITE LAYOUT

 Site: 7 Highway 403 EB Ramp

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 7 [Highway 403 EB Ramp (Site Folder: TT 2032 SAT)]

699 Paris Church Plains Road
 Future (2032) Total Traffic
 SAT Peak Hour
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %]	[Total veh/h	HV %]				[Veh. veh	Dist] m				
South: Rest Acres Road														
8	T1	376	1.0	396	1.0	0.147	3.9	LOS A	0.6	5.0	0.15	0.05	0.15	58.3
Approach		376	1.0	396	1.0	0.147	3.9	LOS A	0.6	5.0	0.15	0.05	0.15	58.3
North: Rest Acres Road														
4	T1	608	0.0	640	0.0	0.335	5.5	LOS A	0.0	0.0	0.00	0.00	0.00	62.1
14	R2	297	0.0	313	0.0	0.335	5.5	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		905	0.0	953	0.0	0.335	5.5	LOS A	0.0	0.0	0.00	0.00	0.00	61.4
West: Highway 403 Eastbound On/Off-Ramp														
5	L2	43	0.0	45	0.0	0.076	5.6	LOS A	0.3	2.1	0.53	0.48	0.53	53.5
12	R2	68	4.0	72	4.0	0.076	5.4	LOS A	0.3	2.1	0.51	0.46	0.51	54.4
Approach		111	2.5	117	2.5	0.076	5.5	LOS A	0.3	2.1	0.52	0.47	0.52	54.0
All Vehicles		1392	0.5	1465	0.5	0.335	5.0	LOS A	0.6	5.0	0.08	0.05	0.08	59.9

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

Roundabout LOS Method: Same as Sign Control.

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

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

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

Roundabout Capacity Model: US HCM 6.

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

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: Traditional M1.

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

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9: Pinehurst Road & Site Access
699 Paris Plains Church Road

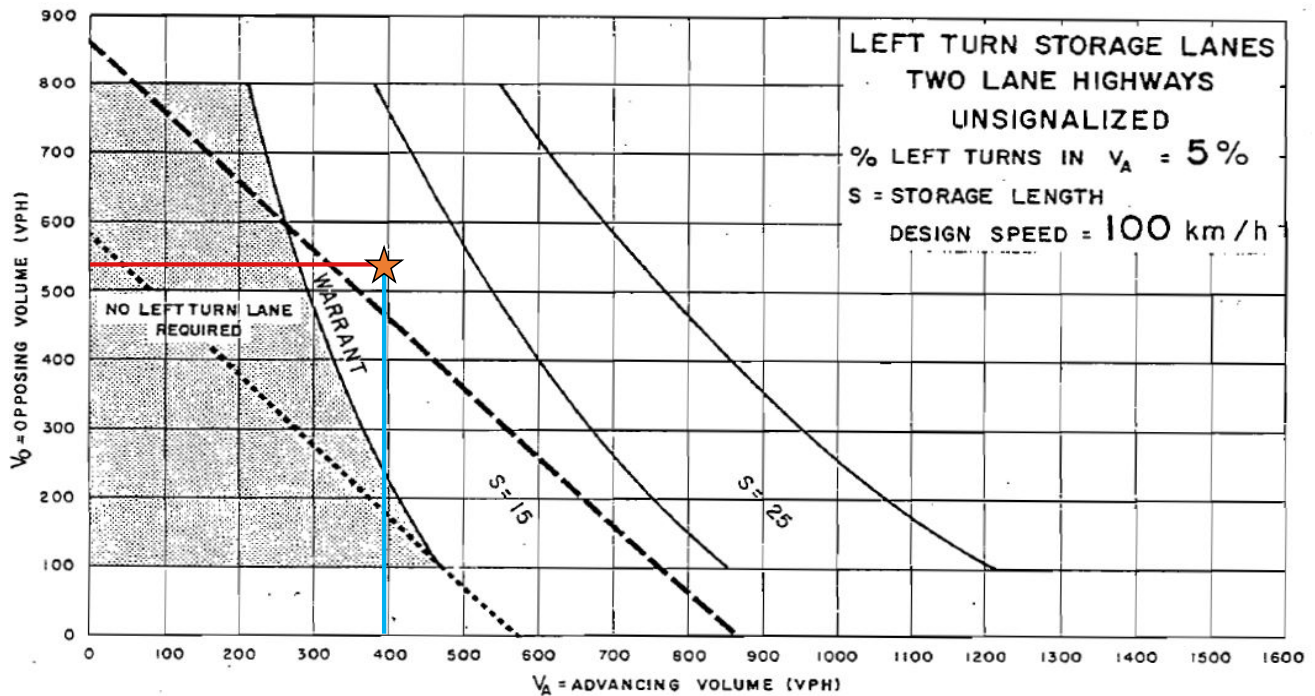
Future (2032) Total Traffic
Saturday Peak Hour

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	45	287	15	45	330
Future Vol, veh/h	15	45	287	15	45	330
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	16	47	302	16	47	347
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	751	310	0	0	318	0
Stage 1	310	-	-	-	-	-
Stage 2	441	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	381	735	-	-	1253	-
Stage 1	748	-	-	-	-	-
Stage 2	653	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	363	735	-	-	1253	-
Mov Cap-2 Maneuver	363	-	-	-	-	-
Stage 1	748	-	-	-	-	-
Stage 2	623	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	11.9	0		1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 585		1253	-	
HCM Lane V/C Ratio	-	- 0.108		0.038	-	
HCM Control Delay (s)	-	- 11.9		8	0	
HCM Lane LOS	-	- B		A	A	
HCM 95th %tile Q(veh)	-	- 0.4		0.1	-	

Appendix D – Auxiliary Lane Analysis

Pinehurst Road & Paris Plains Church Road | Northbound Left-Turn | AM Peak Hour

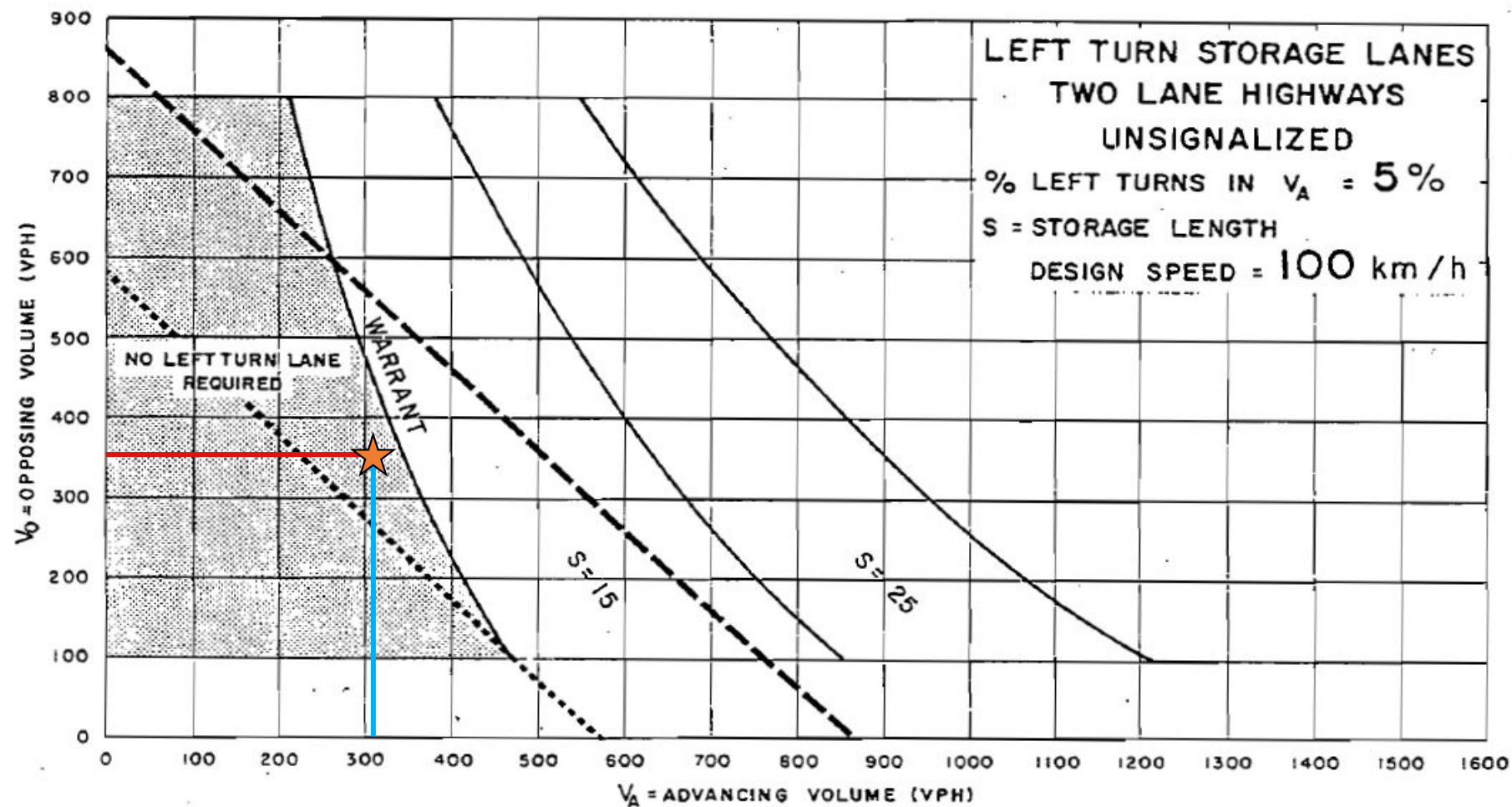
Left-turn volume represents less than 5% of approaching volumes. As such, left-turn warrant analysis can not be completed.



Pinehurst Road & Paris Plains Church Road | Northbound Left-Turn | PM Peak Hour

Based on the table below, a 15m storage length is warranted.

S STORAGE LENGTHS FROM WARRANT GRAPHS; APPENDIX A,B, OR C	PERCENTAGE OF WB-15 TRUCKS IN LEFT TURNING VOLUME, V_L						
	10%	15%	20%	25%	30%	40%	50%
	ADDITIONAL STORAGE LANE LENGTHS IN METRES						
15	10	10	10	10	10	15	15
25	10	10	10	10	10	15	15
30	10	10	10	10	15	15	15
40	10	10	10	15	15	15	25
50	10	10	15	15	15	25	25
55	10	15	15	15	25	25	30
65	10	15	15	15	25	30	30
70	10	15	15	25	25	30	40
80	10	15	15	25	25	30	40
90	15	15	25	25	30	40	50
95	15	15	25	25	30	40	50
105	15	15	25	30	30	50	55
110	15	25	25	30	40	50	55
120	15	25	25	30	40	50	65
130	15	25	30	30	40	55	65



- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

- Opposing Volume
- Advancing Volume

Pinehurst Road & Paris Plains Church Road | Northbound Left-Turn | SAT Peak Hour

Pinehurst Road & Paris Plains Church Road | Southbound Left-Turn | AM Peak Hour

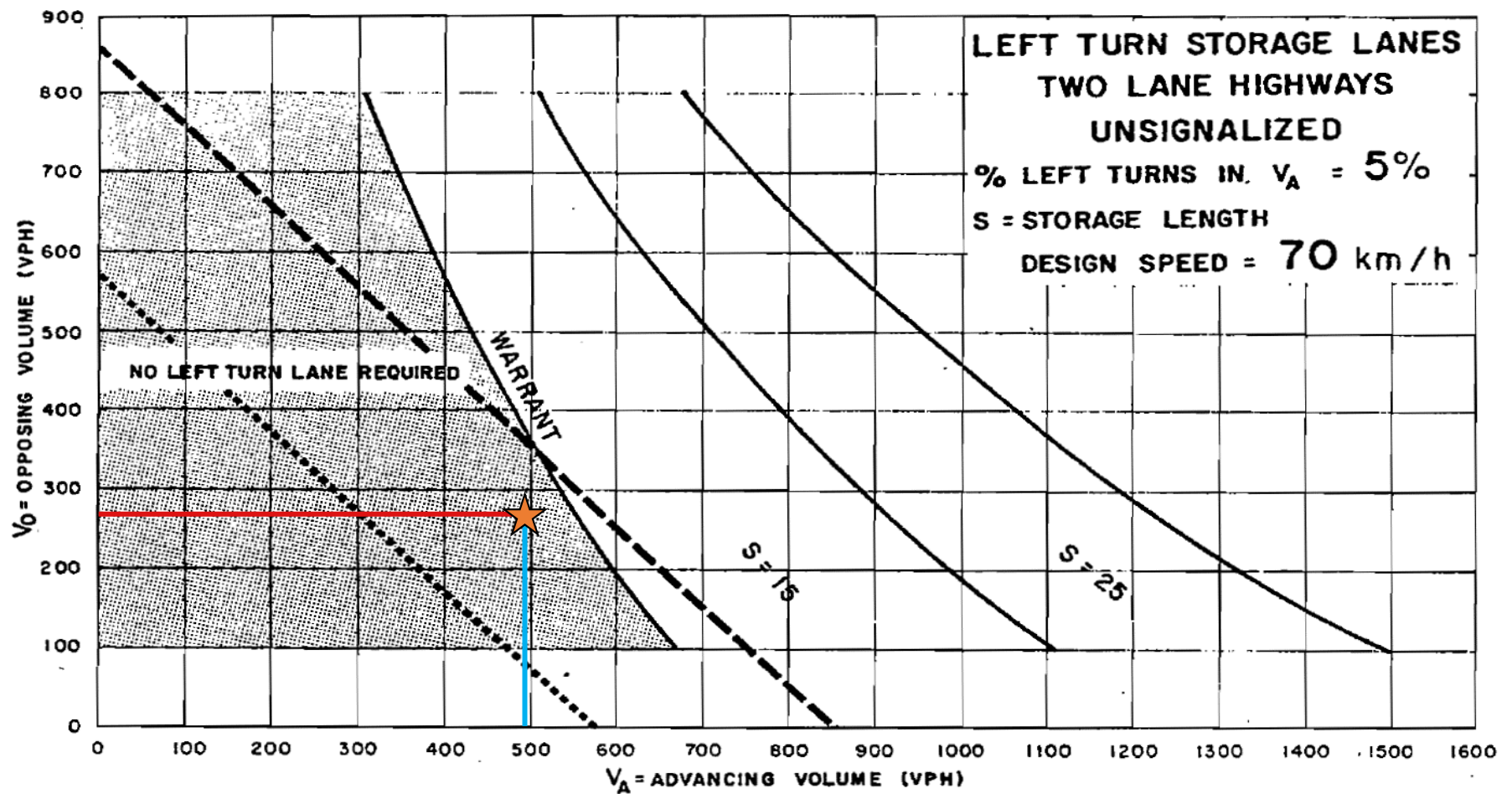
Left-turn volume represents less than 5% of approaching volumes. As such, left-turn warrant analysis can not be completed.

Pinehurst Road & Paris Plains Church Road | Southbound Left-Turn | PM Peak Hour

Left-turn volume represents less than 5% of approaching volumes. As such, left-turn warrant analysis can not be completed.

Pinehurst Road & Paris Plains Church Road | Southbound Left-Turn | SAT Peak Hour

Left-turn volume represents less than 5% of approaching volumes. As such, left-turn warrant analysis can not be completed.

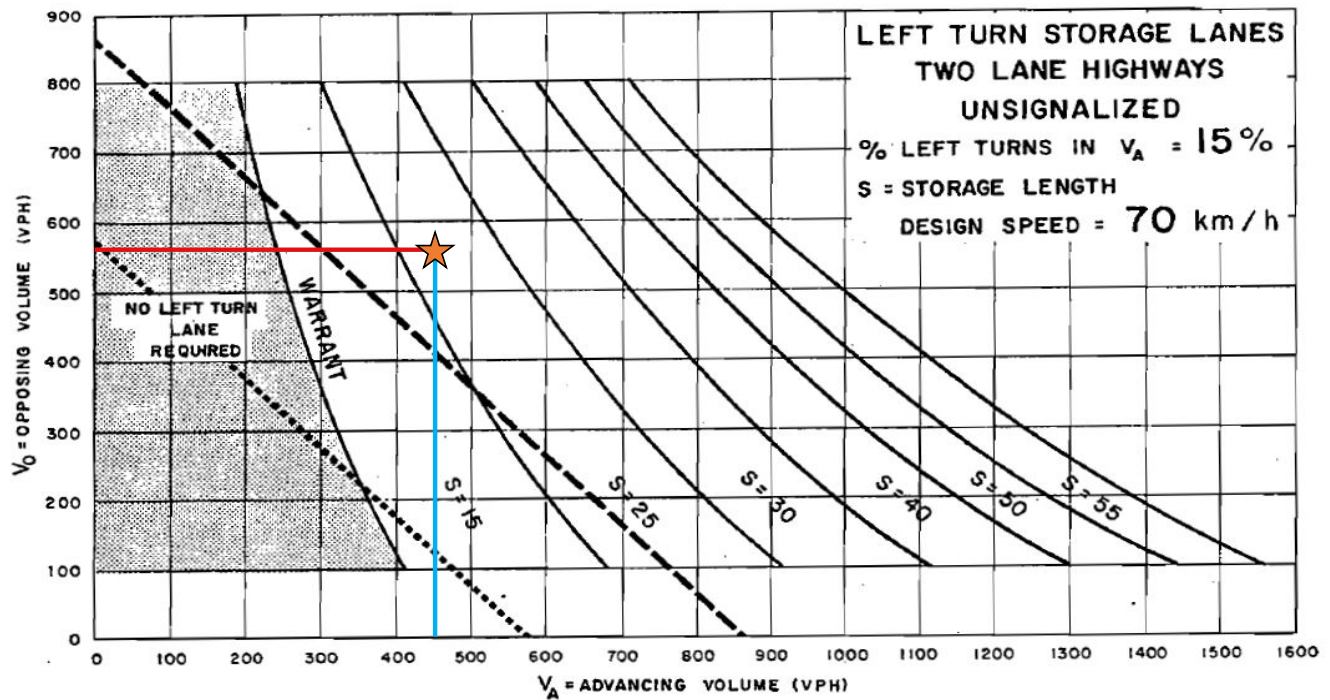


- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

— Opposing Volume

— Advancing Volume

Pinehurst Road & Watts Pond Road | Northbound Left-Turn | AM Peak Hour



--- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

..... TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

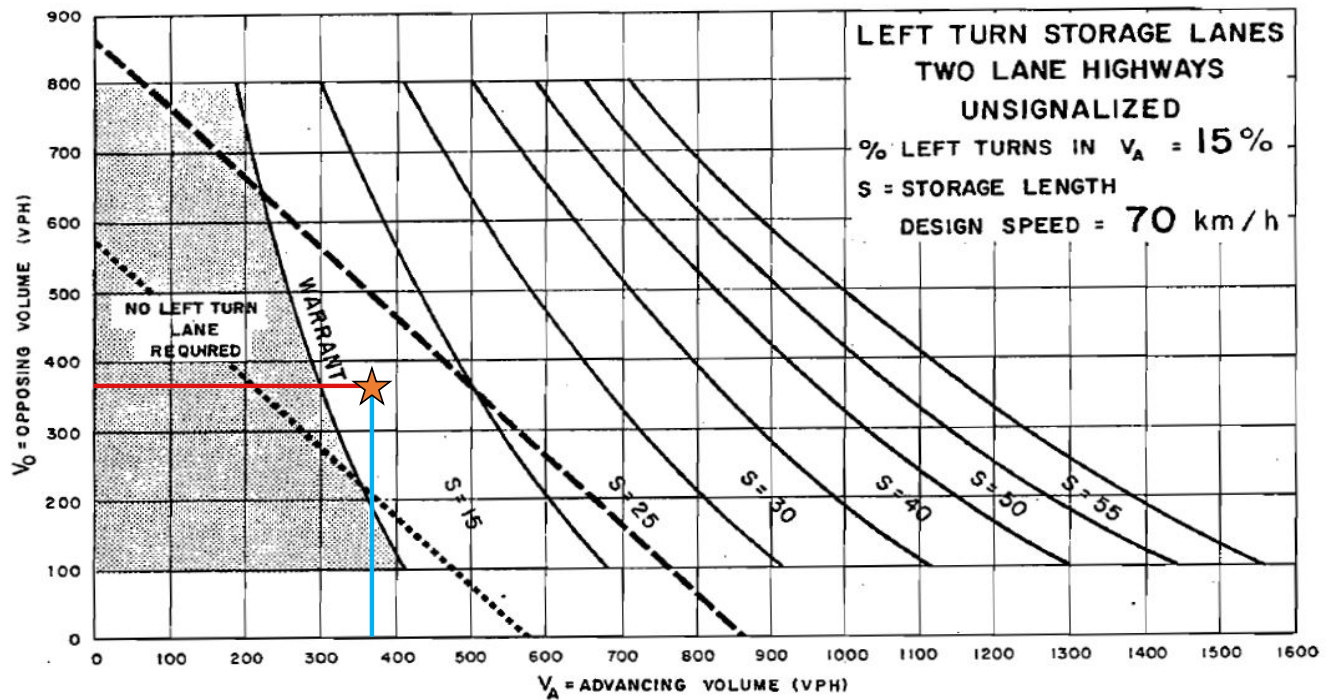
— Opposing Volume

— Advancing Volume

Pinehurst Road & Watts Pond Road | Northbound Left-Turn | PM Peak Hour

Based on the table below, a storage length of 25 metres is warranted.

"S" STORAGE LENGTHS FROM WARRANT GRAPHS; APPENDIX A,B, OR C	PERCENTAGE OF WB-15 TRUCKS IN LEFT TURNING VOLUME, V_L						
	10%	15%	20%	25%	30%	40%	50%
	ADDITIONAL STORAGE LANE LENGTHS IN METRES						
15	10	10	10	10	10	15	15
25	10	10	10	10	10	15	15
30	10	10	10	10	15	15	15
40	10	10	10	15	15	15	25
50	10	10	15	15	15	25	25
55	10	15	15	15	25	25	30
65	10	15	15	15	25	30	30
70	10	15	15	25	25	30	40
80	10	15	15	25	25	30	40
90	15	15	25	25	30	40	50
95	15	15	25	25	30	40	50
105	15	15	25	30	30	50	55
110	15	25	25	30	40	50	55
120	15	25	25	30	40	50	65
130	15	25	30	30	40	55	65



--- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

..... TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

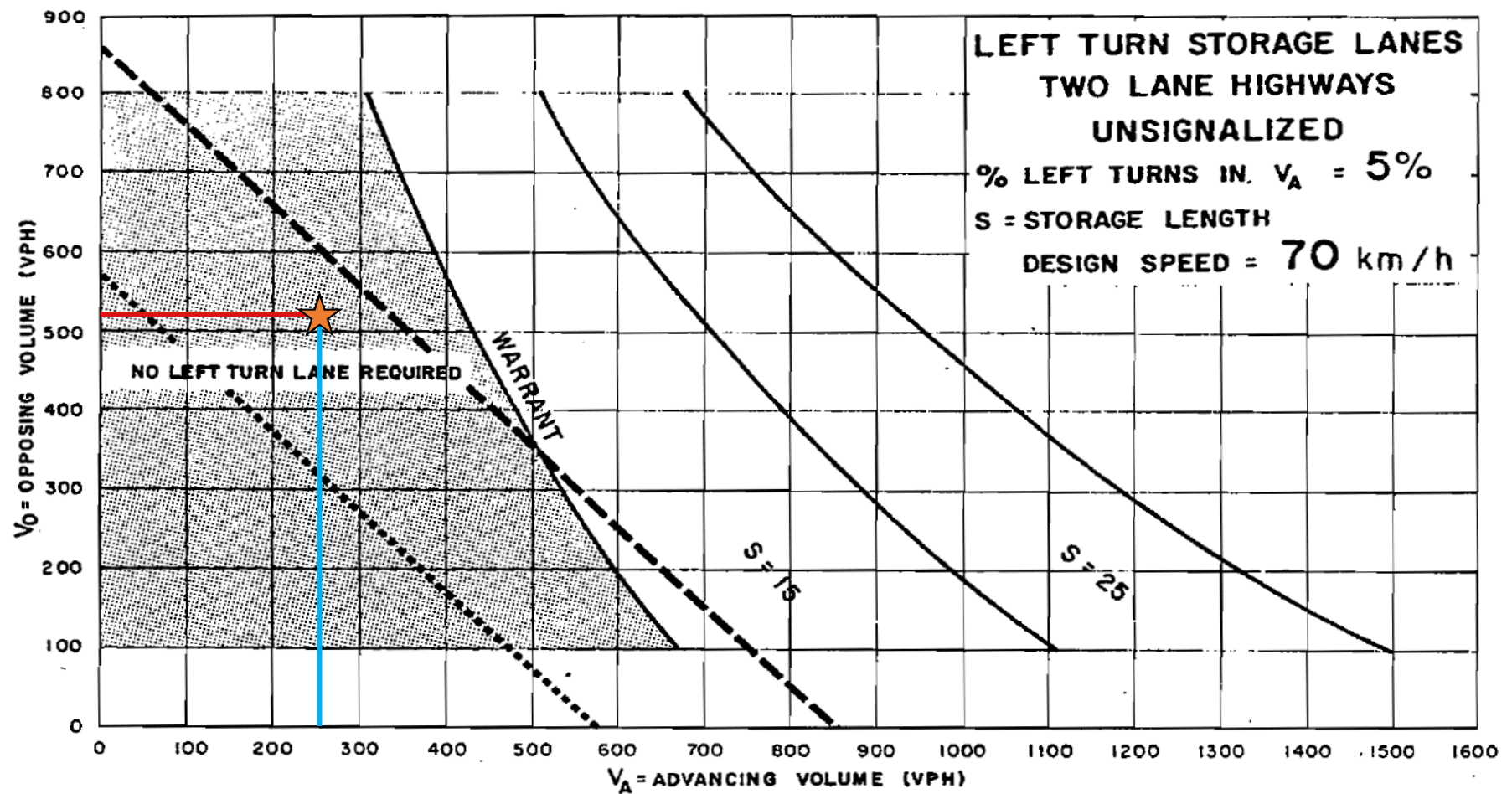
— Opposing Volume

— Advancing Volume

Pinehurst Road & Watts Pond Road | Northbound Left-Turn | SAT Peak Hour

Based on the table below, a storage length of 15 metres is warranted.

"S" STORAGE LENGTHS FROM WARRANT GRAPHS; APPENDIX A,B, OR C	PERCENTAGE OF WB-15 TRUCKS IN LEFT TURNING VOLUME, V_L						
	10%	15%	20%	25%	30%	40%	50%
	ADDITIONAL STORAGE LANE LENGTHS IN METRES						
15	10	10	10	10	10	15	15
25	10	10	10	10	10	15	15
30	10	10	10	10	15	15	15
40	10	10	10	15	15	15	25
50	10	10	15	15	15	25	25
55	10	15	15	15	25	25	30
65	10	15	15	15	25	30	30
70	10	15	15	25	25	30	40
80	10	15	15	25	25	30	40
90	15	15	25	25	30	40	50
95	15	15	25	25	30	40	50
105	15	15	25	30	30	50	55
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120	15	25	25	30	40	50	65
130	15	25	30	30	40	55	65

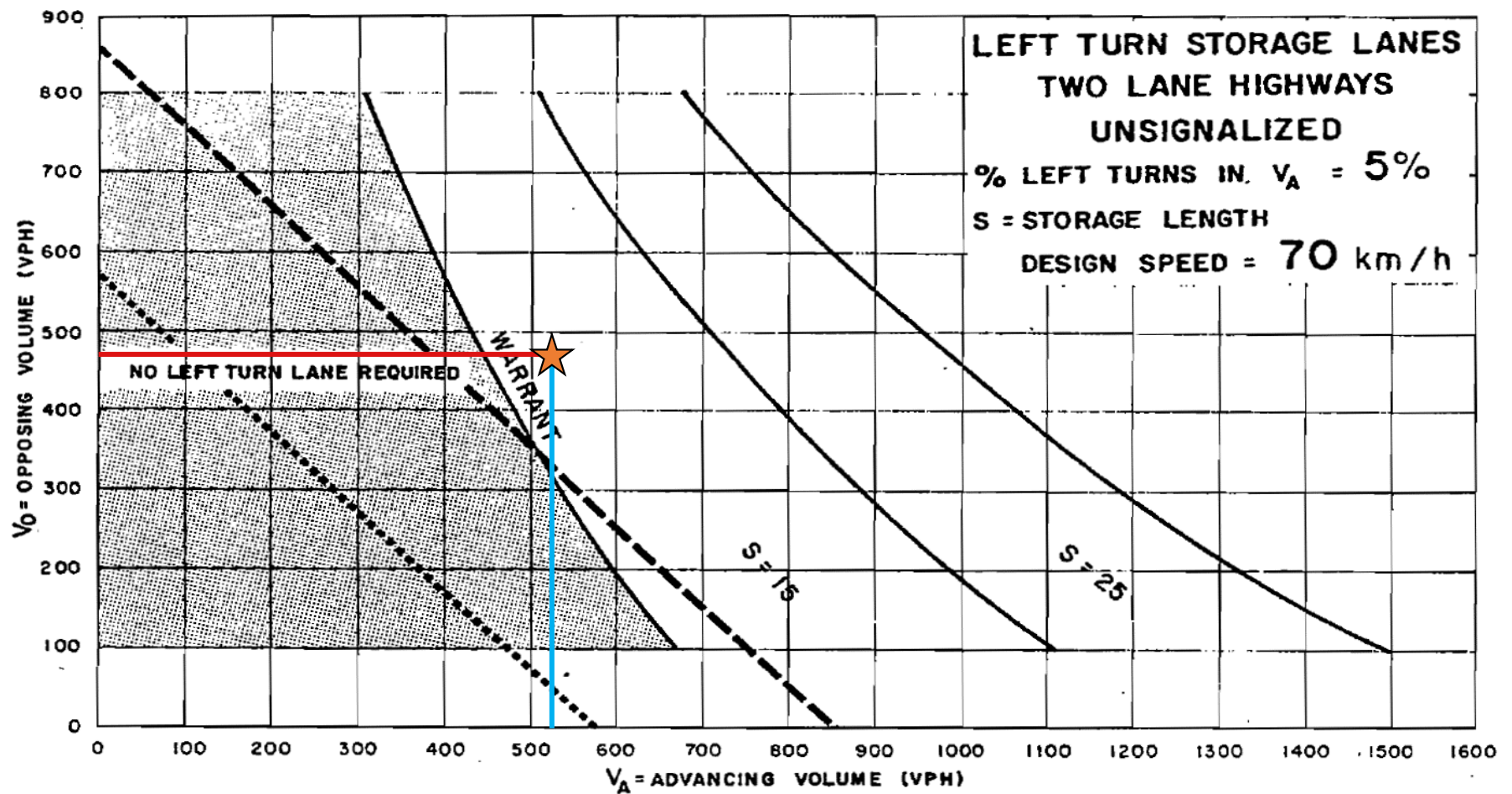


- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

— Opposing Volume

— Advancing Volume

Pinehurst Road & Watts Pond Road | Southbound Left-Turn | AM Peak Hour

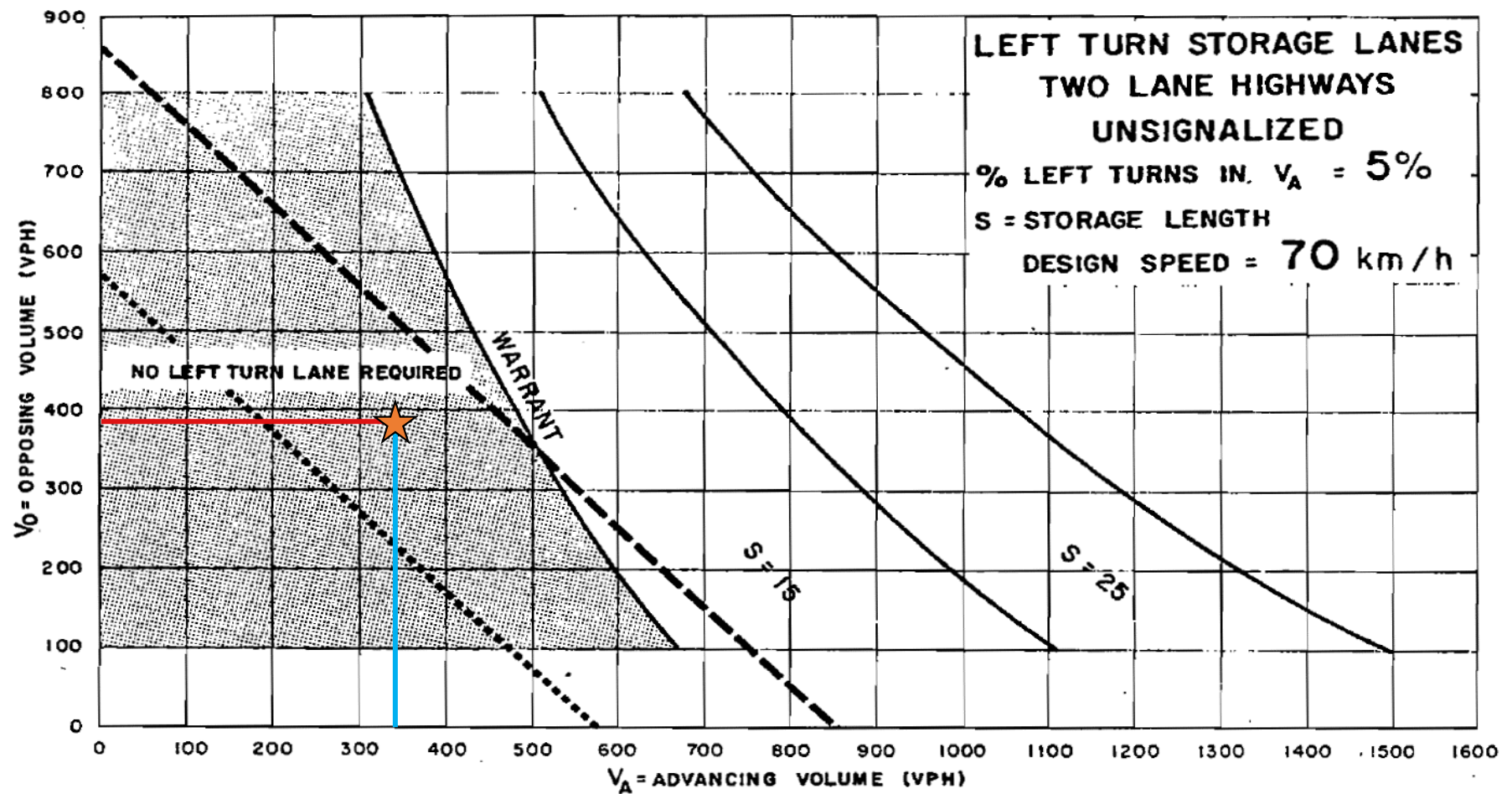


- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

— Opposing Volume

— Advancing Volume

Pinehurst Road & Watts Pond Road | Southbound Left-Turn | PM Peak Hour



--- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

..... TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

— Opposing Volume

— Advancing Volume

Pinehurst Road & Watts Pond Road | Southbound Left-Turn | SAT Peak Hour

Ayr Road & Watts Pond Road | Northbound Left-Turn | AM Peak Hour

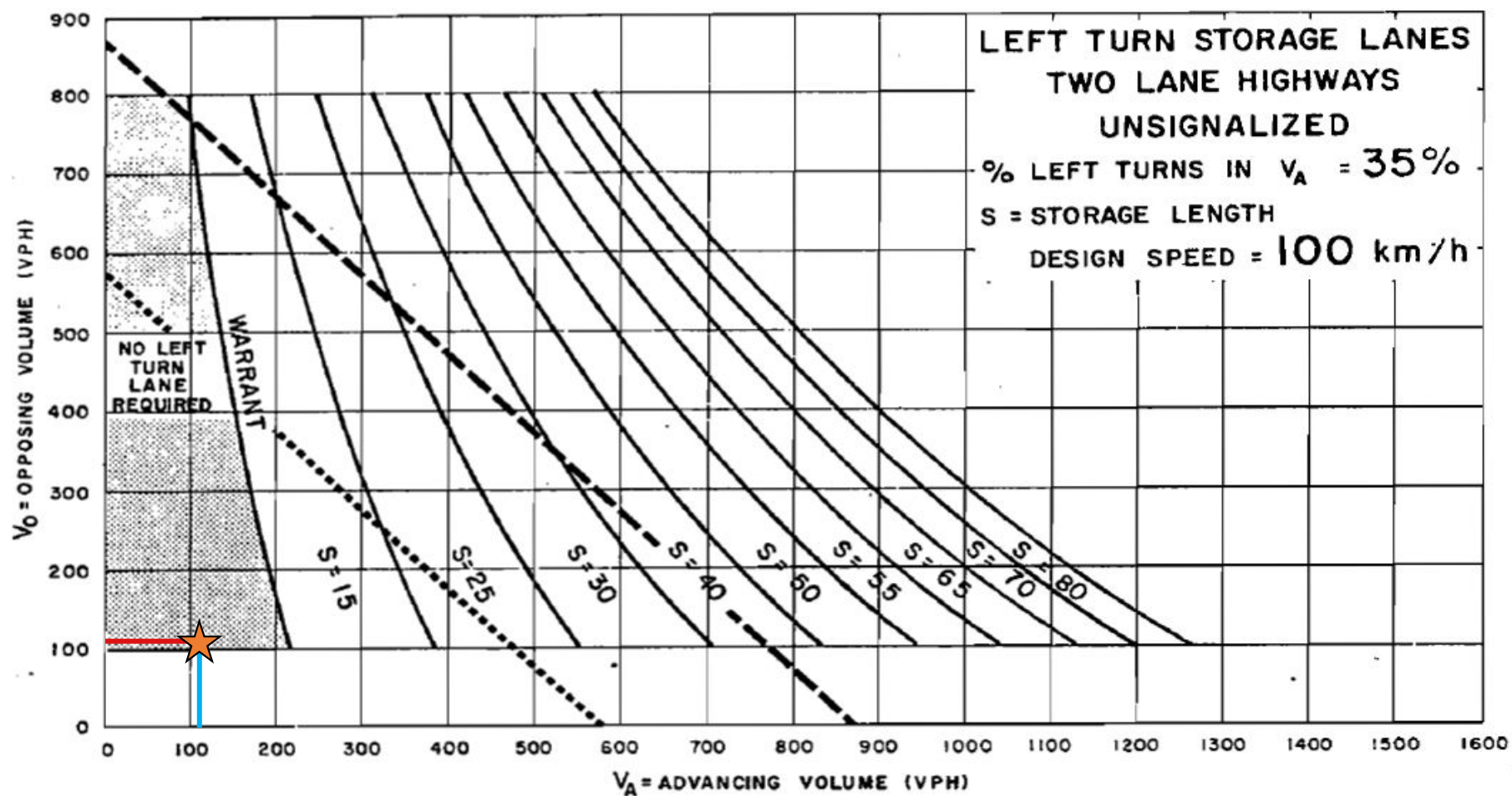
Left-turn volume represents less than 5% of approaching volumes. As such, left-turn warrant analysis can not be completed.

Ayr Road & Watts Pond Road | Northbound Left-Turn | PM Peak Hour

Left-turn volume represents less than 5% of approaching volumes. As such, left-turn warrant analysis can not be completed.

Ayr Road & Watts Pond Road | Northbound Left-Turn | SAT Peak Hour

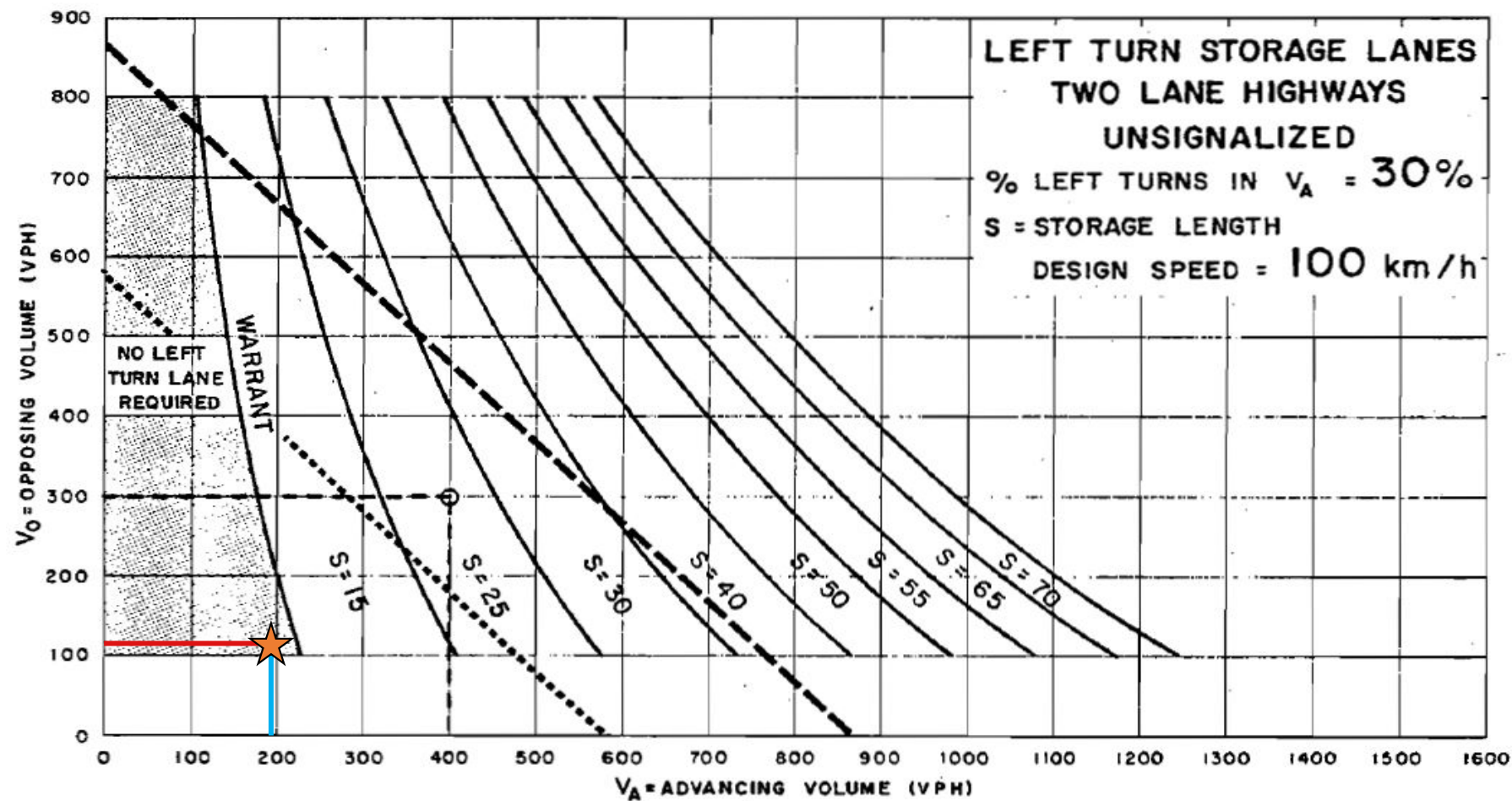
Left-turn volume represents less than 5% of approaching volumes. As such, left-turn warrant analysis can not be completed.



- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

- Opposing Volume
- Advancing Volume

Ayr Road & Watts Pond Road | Southbound Left-Turn | AM Peak Hour

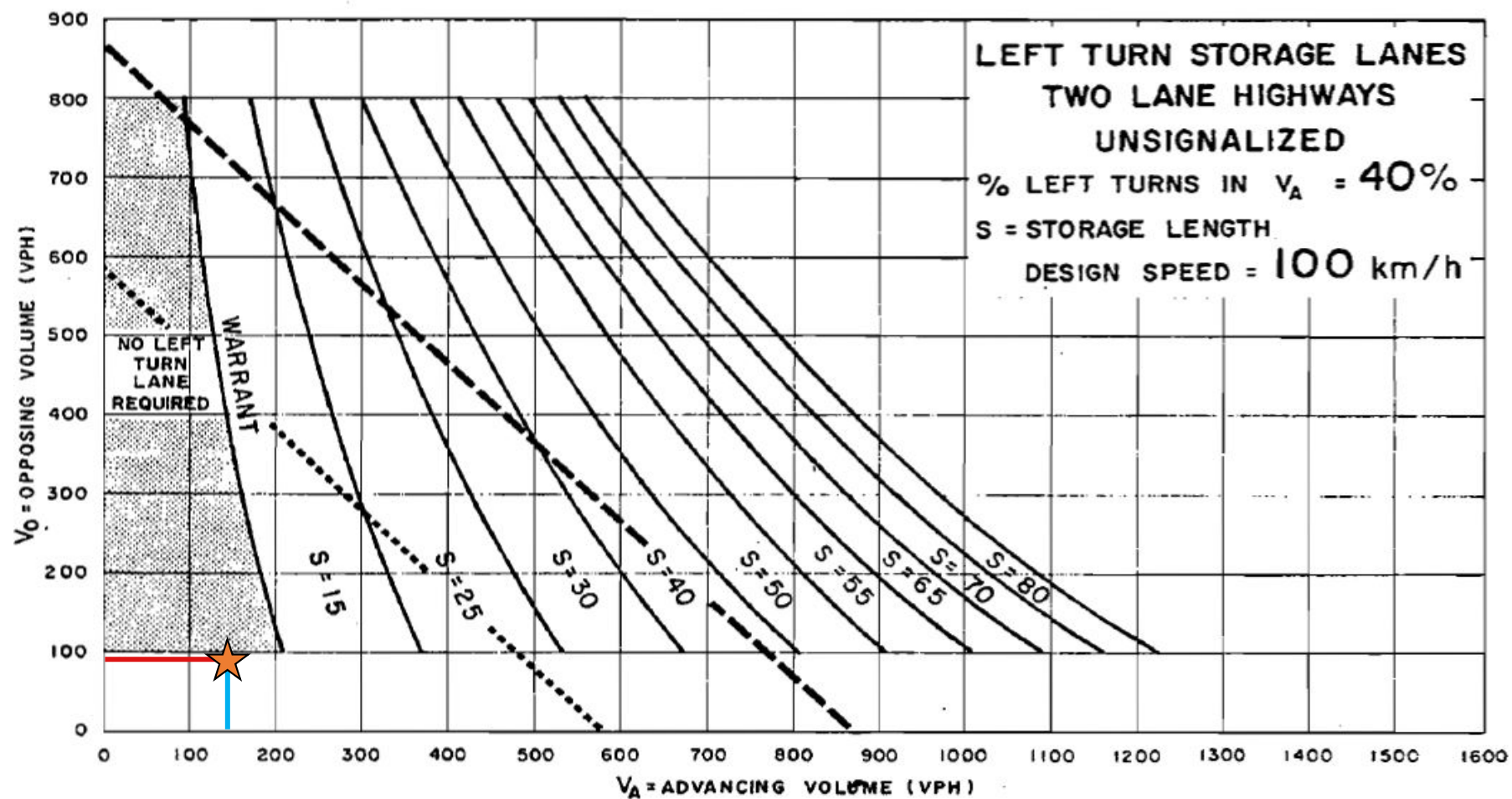


- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

— Opposing Volume

— Advancing Volume

Ayr Road & Watts Pond Road | Southbound Left-Turn | PM Peak Hour

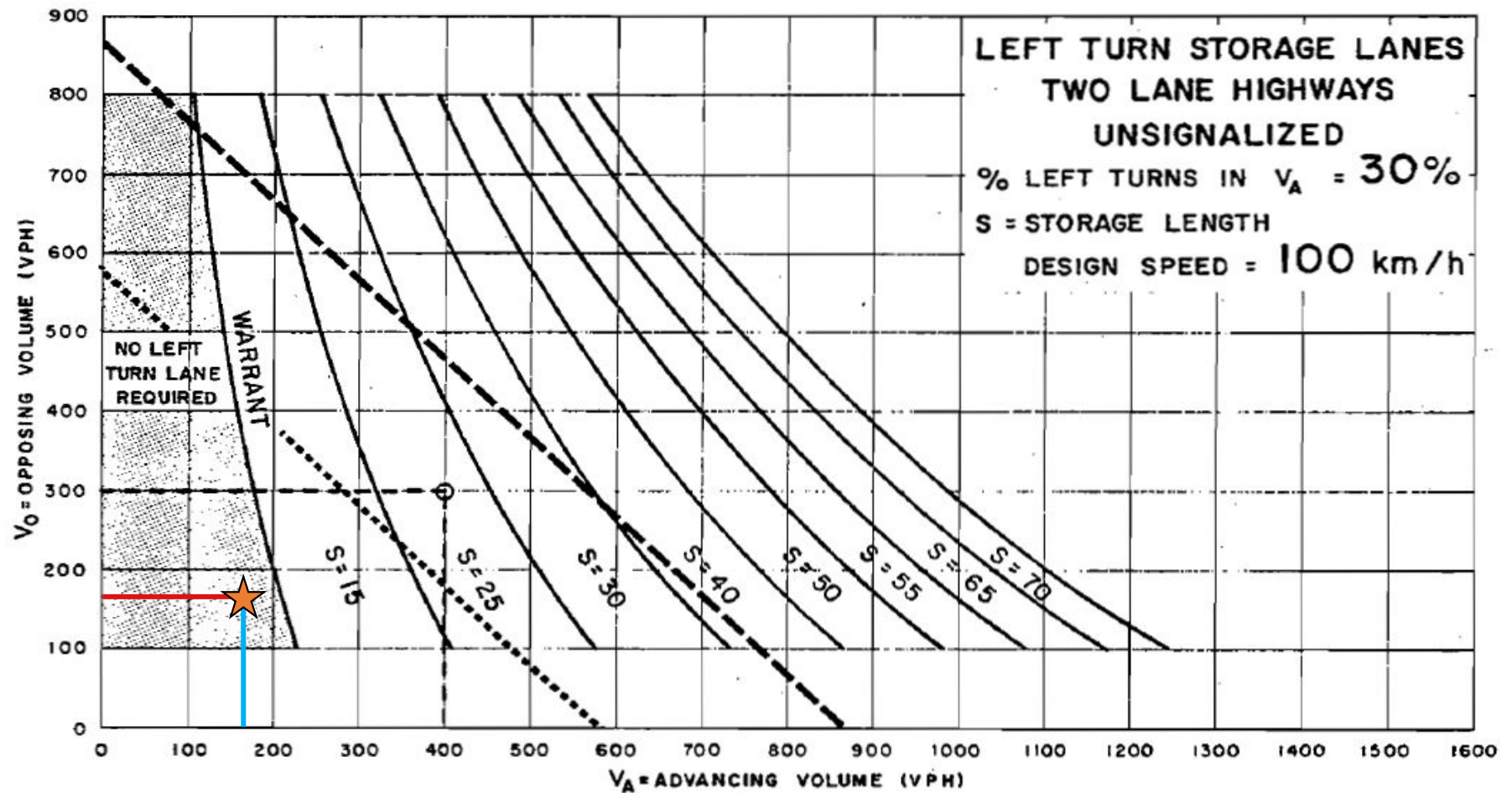


- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

— Opposing Volume

— Advancing Volume

Ayr Road & Watts Pond Road | Southbound Left-Turn | SAT Peak Hour

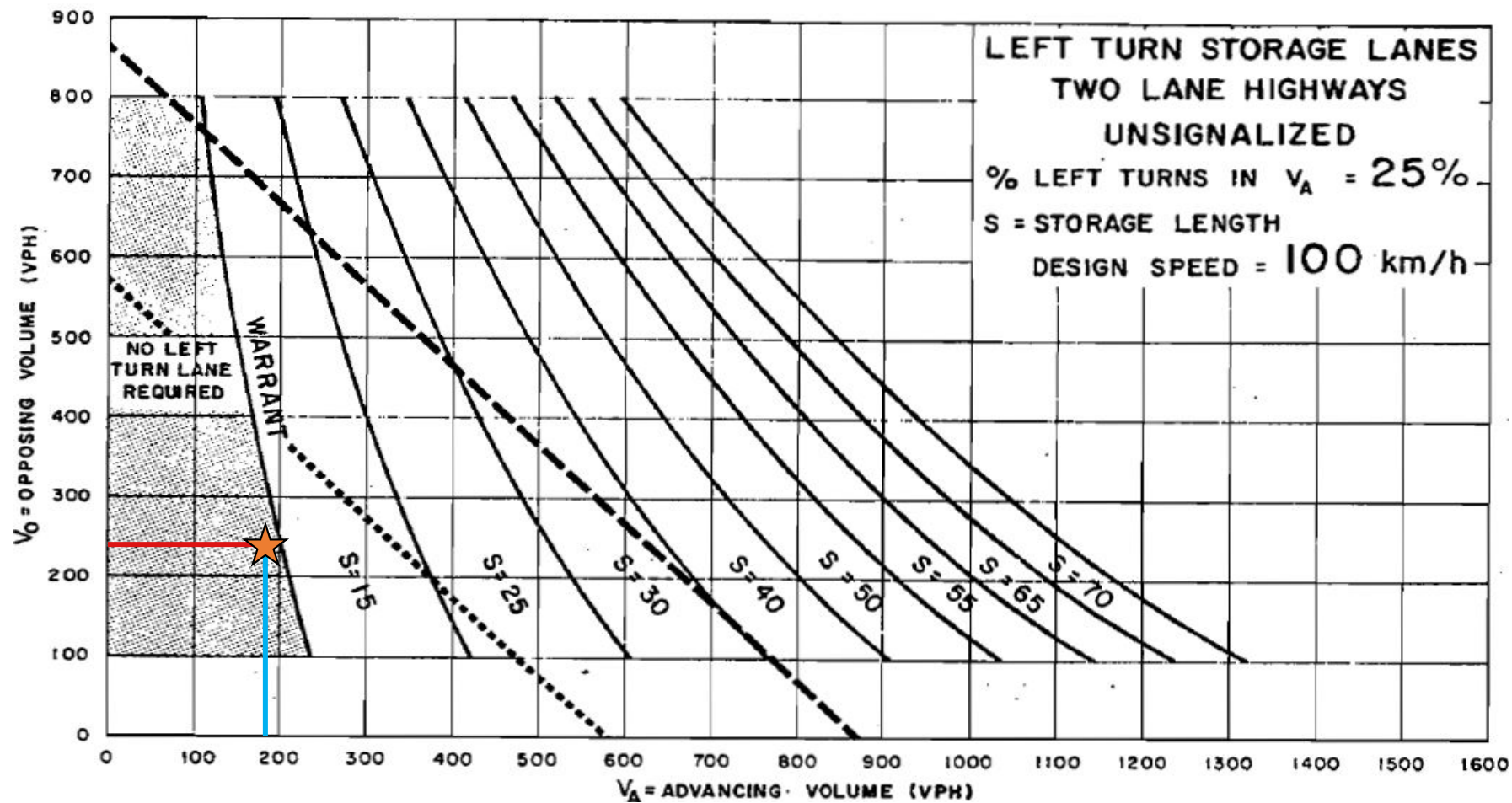


- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

— Opposing Volume

— Advancing Volume

Ayr Road & Keg Lane | Eastbound Left-Turn | AM Peak Hour

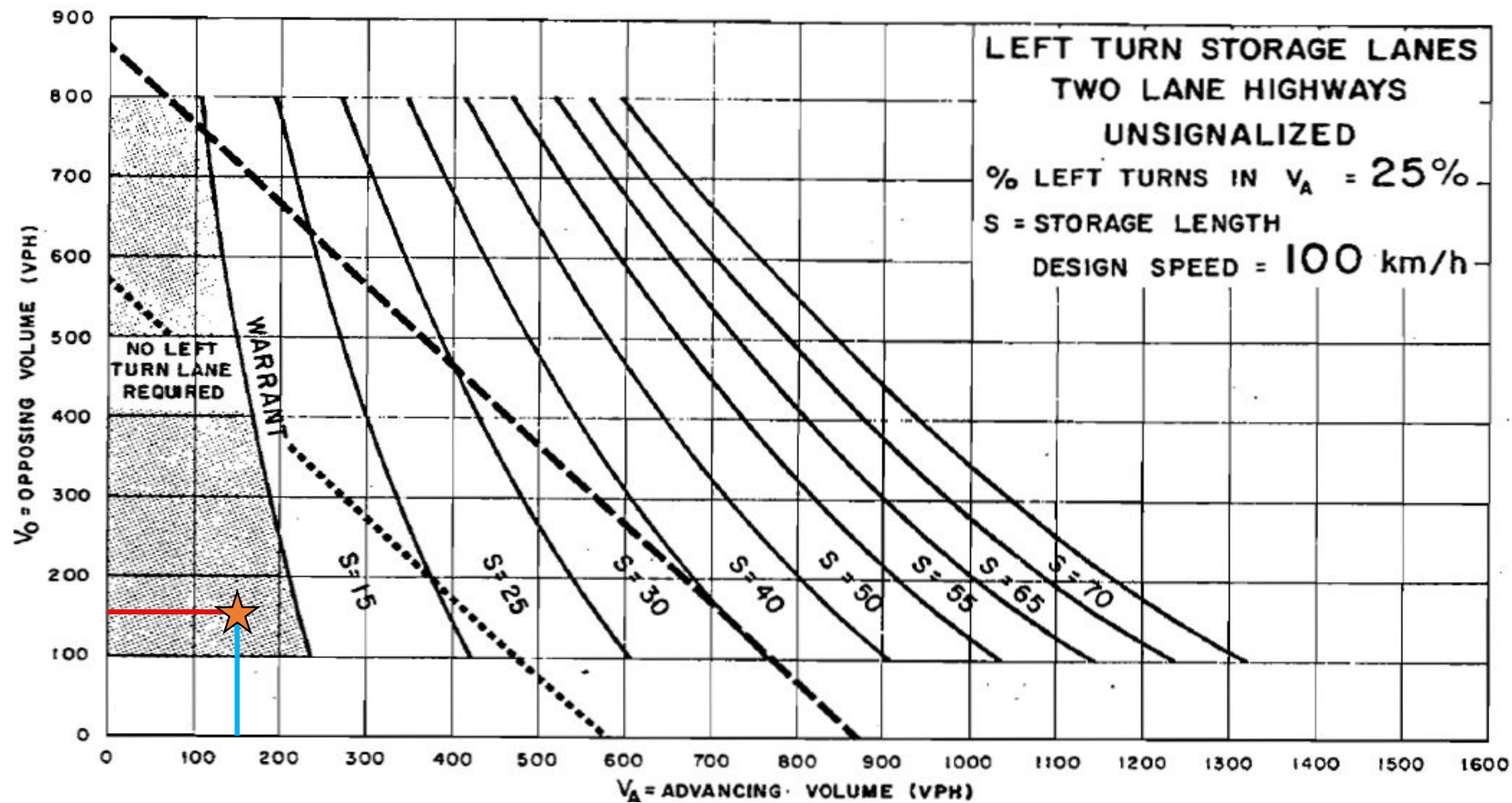


- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

— Opposing Volume

— Advancing Volume

Ayr Road & Keg Lane | Eastbound Left-Turn | PM Peak Hour

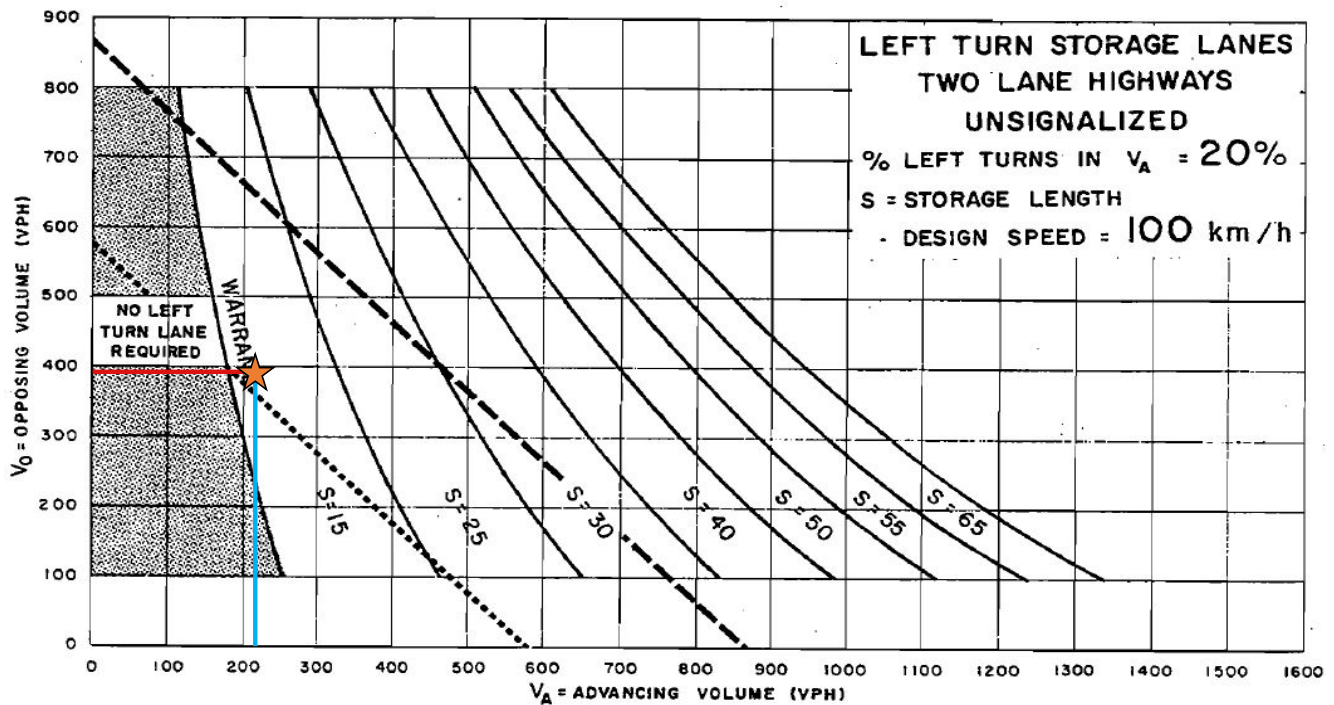


- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

— Opposing Volume

— Advancing Volume

Ayr Road & Keg Lane | Eastbound Left-Turn | SAT Peak Hour



--- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

..... TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

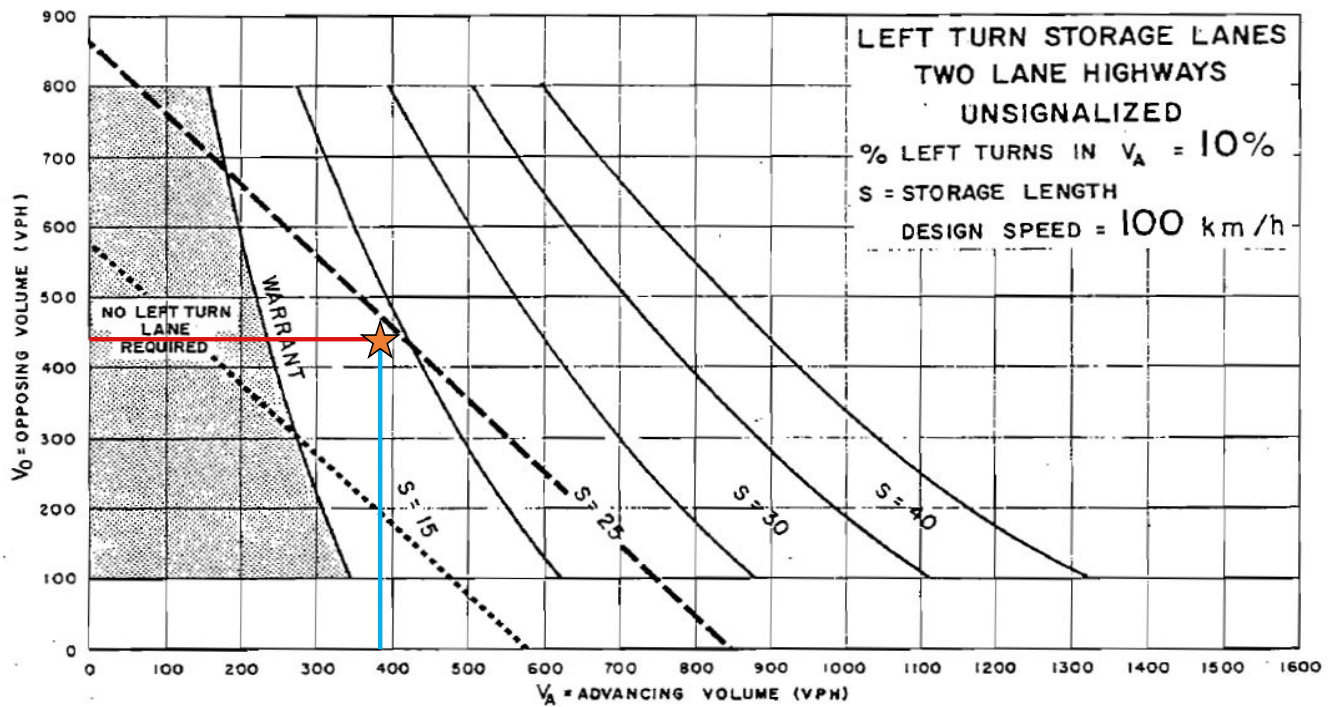
— Opposing Volume

— Advancing Volume

Brant Oxford Road & Keg Lane | Southbound Left-Turn | AM Peak Hour

Based on the table below, a storage length of 25 metres is warranted.

"S" STORAGE LENGTHS FROM WARRANT GRAPHS; APPENDIX A,B, OR C	PERCENTAGE OF WB-15 TRUCKS IN LEFT TURNING VOLUME, V_L						
	10%	15%	20%	25%	30%	40%	50%
	ADDITIONAL STORAGE LANE LENGTHS IN METRES						
15	10	10	10	10	10	15	15
25	10	10	10	10	10	15	15
30	10	10	10	10	15	15	15
40	10	10	10	15	15	15	25
50	10	10	15	15	15	25	25
55	10	15	15	15	25	25	30
65	10	15	15	15	25	30	30
70	10	15	15	25	25	30	40
80	10	15	15	25	25	30	40
90	15	15	25	25	30	40	50
95	15	15	25	25	30	40	50
105	15	15	25	30	30	50	55
110	15	25	25	30	40	50	55
120	15	25	25	30	40	50	65
130	15	25	30	30	40	55	65



--- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

..... TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

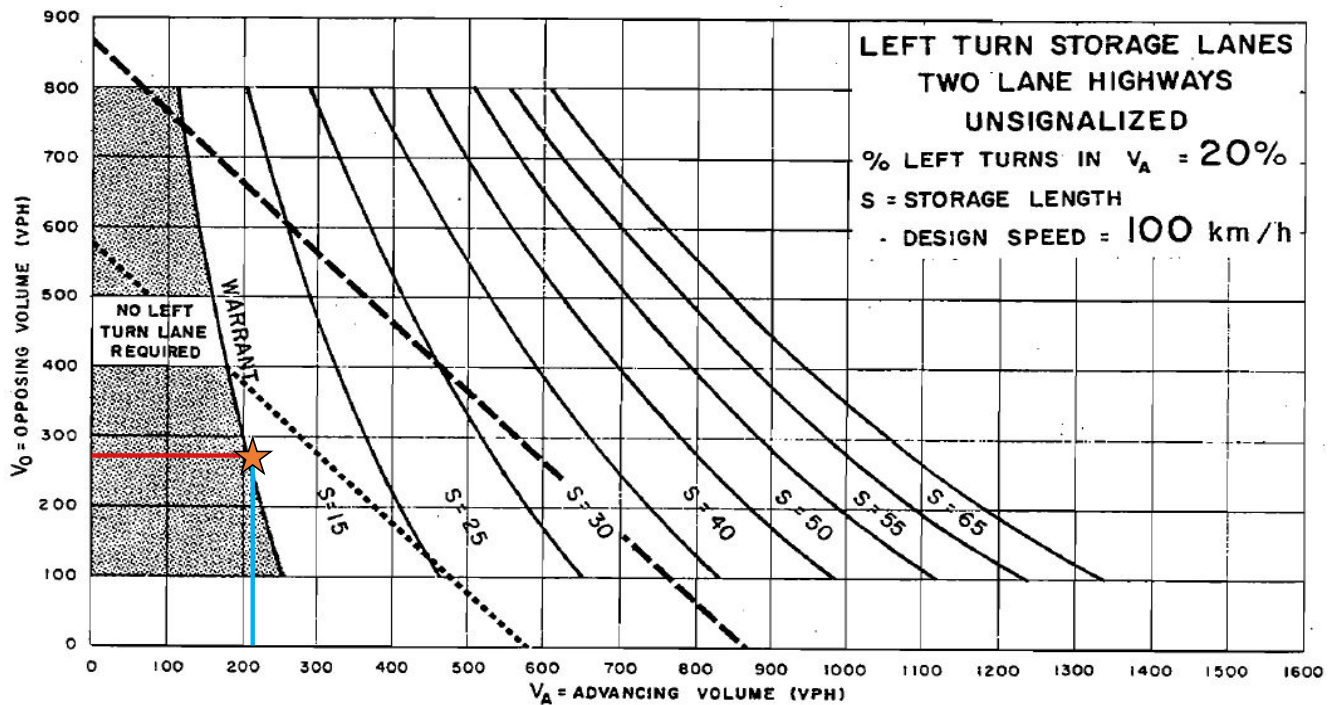
— Opposing Volume

— Advancing Volume

Brant Oxford Road & Keg Lane | Southbound Left-Turn | PM Peak Hour

Based on the table below, a storage length of 15 metres is warranted.

"S" STORAGE LENGTHS FROM WARRANT GRAPHS; APPENDIX A,B, OR C	PERCENTAGE OF WB-15 TRUCKS IN LEFT TURNING VOLUME, V_L						
	10%	15%	20%	25%	30%	40%	50%
	ADDITIONAL STORAGE LANE LENGTHS IN METRES						
15	10	10	10	10	10	15	15
25	10	10	10	10	10	15	15
30	10	10	10	10	15	15	15
40	10	10	10	15	15	15	25
50	10	10	15	15	15	25	25
55	10	15	15	15	25	25	30
65	10	15	15	15	25	30	30
70	10	15	15	25	25	30	40
80	10	15	15	25	25	30	40
90	15	15	25	25	30	40	50
95	15	15	25	25	30	40	50
105	15	15	25	30	30	50	55
110	15	25	25	30	40	50	55
120	15	25	25	30	40	50	65
130	15	25	30	30	40	55	65



--- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

..... TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

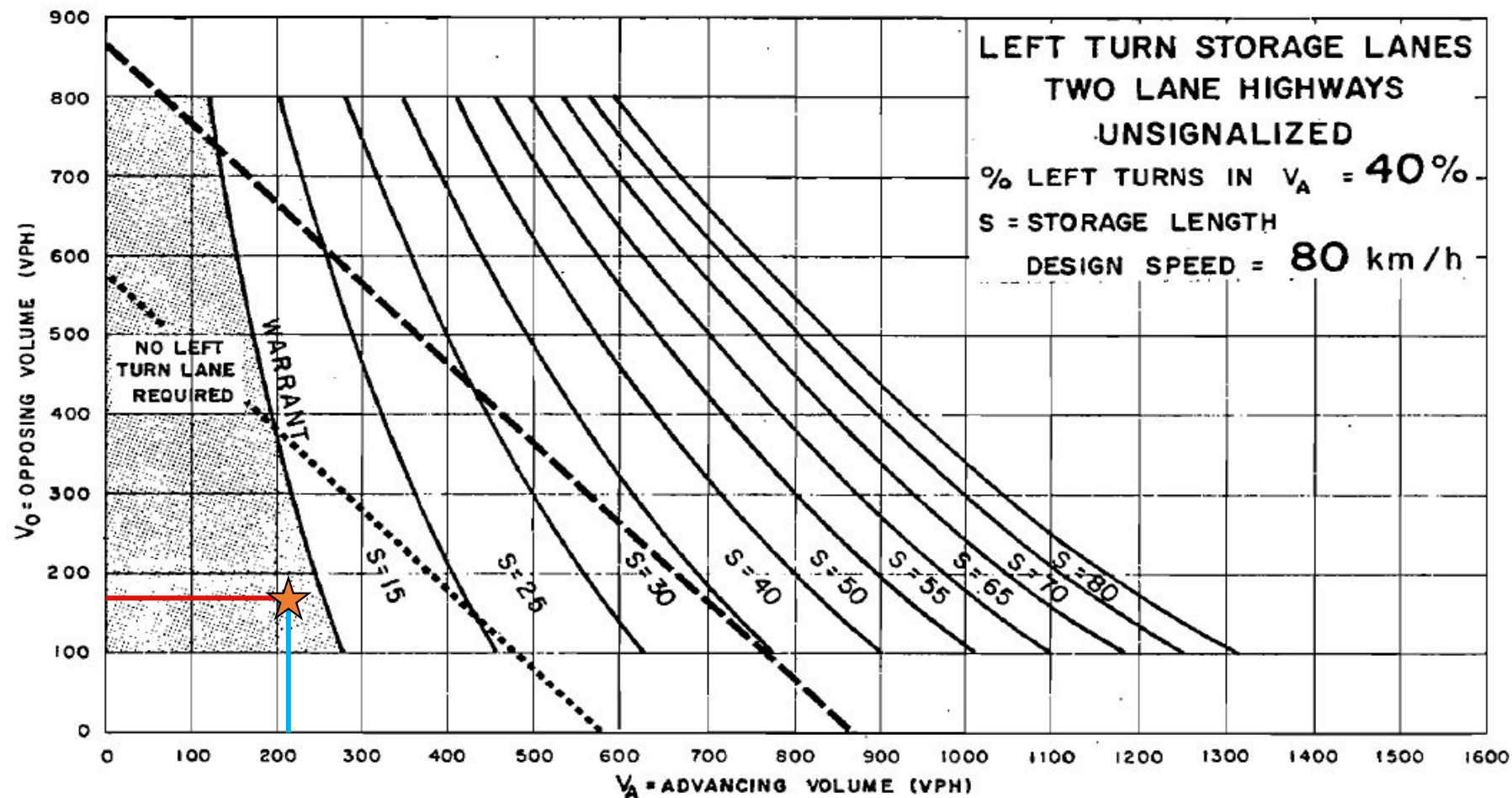
— Opposing Volume

— Advancing Volume

Brant Oxford Road & Keg Lane | Southbound Left-Turn | SAT Peak Hour

Based on the table below, a storage length of 15m is warranted.

"S" STORAGE LENGTHS FROM WARRANT GRAPHS; APPENDIX A, B, OR C	PERCENTAGE OF WB-15 TRUCKS IN LEFT TURNING VOLUME, V_L						
	10%	15%	20%	25%	30%	40%	50%
	ADDITIONAL STORAGE LANE LENGTHS IN METRES						
15	10	10	10	10	10	15	15
25	10	10	10	10	10	15	15
30	10	10	10	10	15	15	15
40	10	10	10	15	15	15	25
50	10	10	15	15	15	25	25
55	10	15	15	15	25	25	30
65	10	15	15	15	25	30	30
70	10	15	15	25	25	30	40
80	10	15	15	25	25	30	40
90	15	15	25	25	30	40	50
95	15	15	25	25	30	40	50
105	15	15	25	30	30	50	55
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120	15	25	25	30	40	50	65
130	15	25	30	30	40	55	65

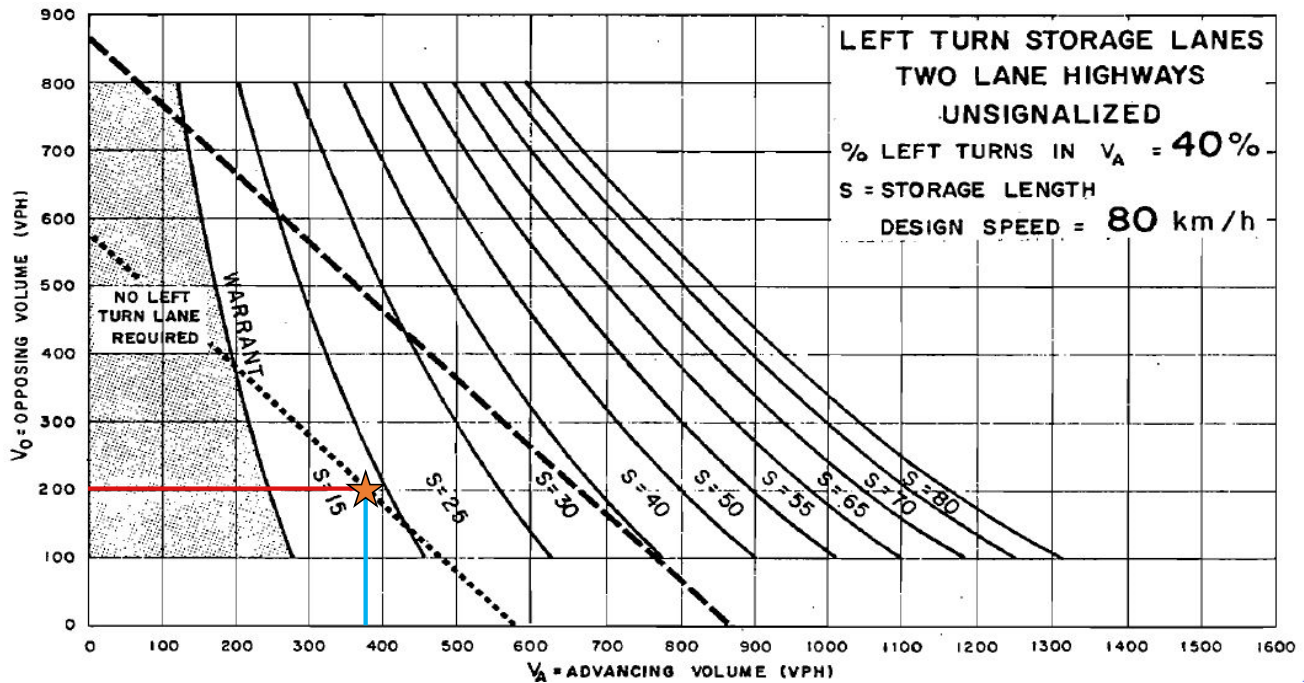


- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

— Opposing Volume

— Advancing Volume

Bishopsgate Road & Powerline Road | Southbound Left-Turn | AM Peak Hour



--- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

..... TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

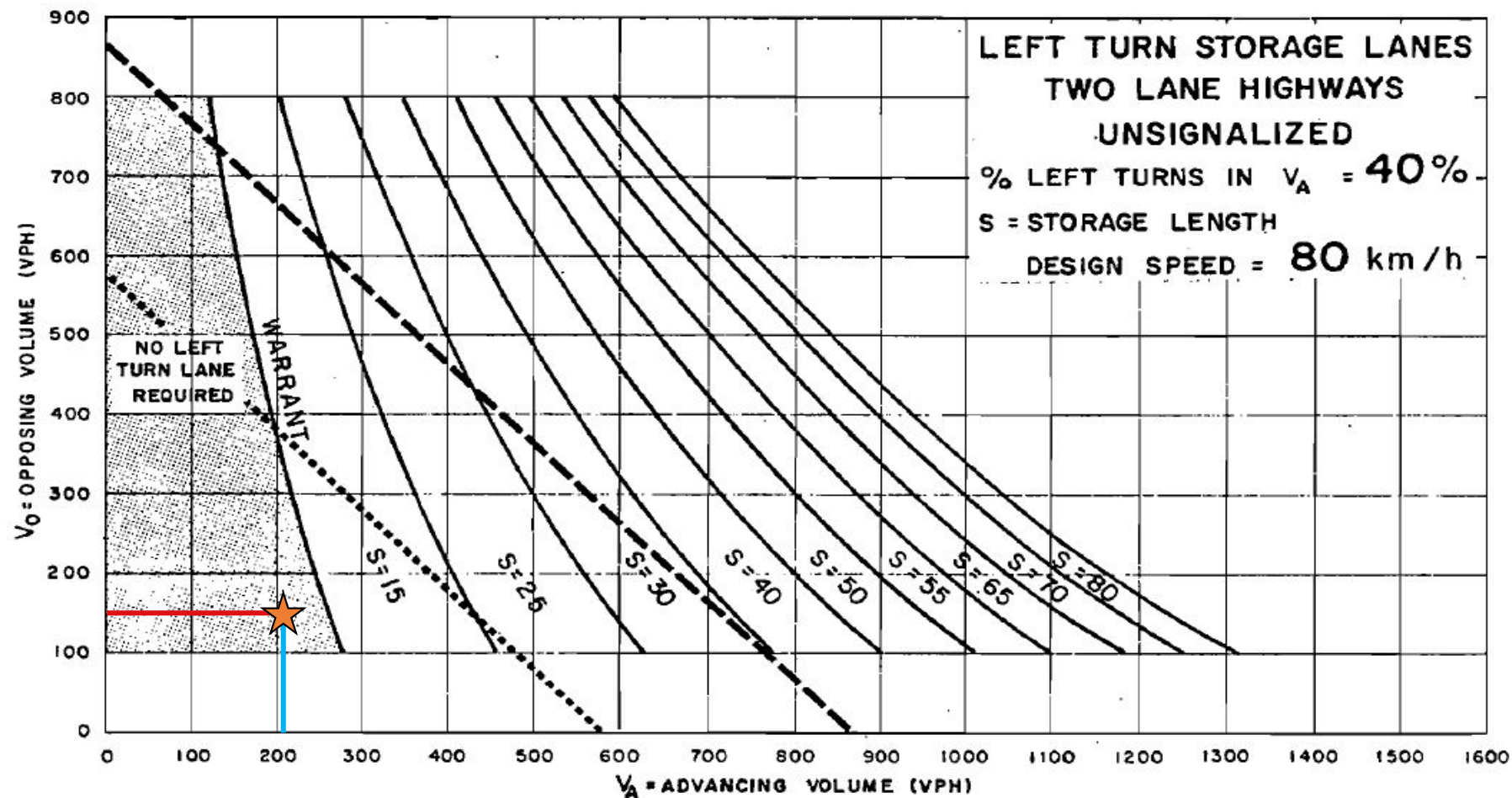
— Opposing Volume

— Advancing Volume

Bishopsgate Road & Powerline Road | Southbound Left-Turn | PM Peak Hour

Based on the table below, a storage length of 25 metres is warranted.

"S" STORAGE LENGTHS FROM WARRANT GRAPHS; APPENDIX A,B, OR C	PERCENTAGE OF WB-15 TRUCKS IN LEFT TURNING VOLUME, V_L						
	10%	15%	20%	25%	30%	40%	50%
	ADDITIONAL STORAGE LANE LENGTHS IN METRES						
15	10	10	10	10	10	15	15
25	10	10	10	10	10	15	15
30	10	10	10	10	15	15	15
40	10	10	10	15	15	15	25
50	10	10	15	15	15	25	25
55	10	15	15	15	25	25	30
65	10	15	15	15	25	30	30
70	10	15	15	25	25	30	40
80	10	15	15	25	25	30	40
90	15	15	25	25	30	40	50
95	15	15	25	25	30	40	50
105	15	15	25	30	30	50	55
110	15	25	25	30	40	50	55
120	15	25	25	30	40	50	65
130	15	25	30	30	40	55	65

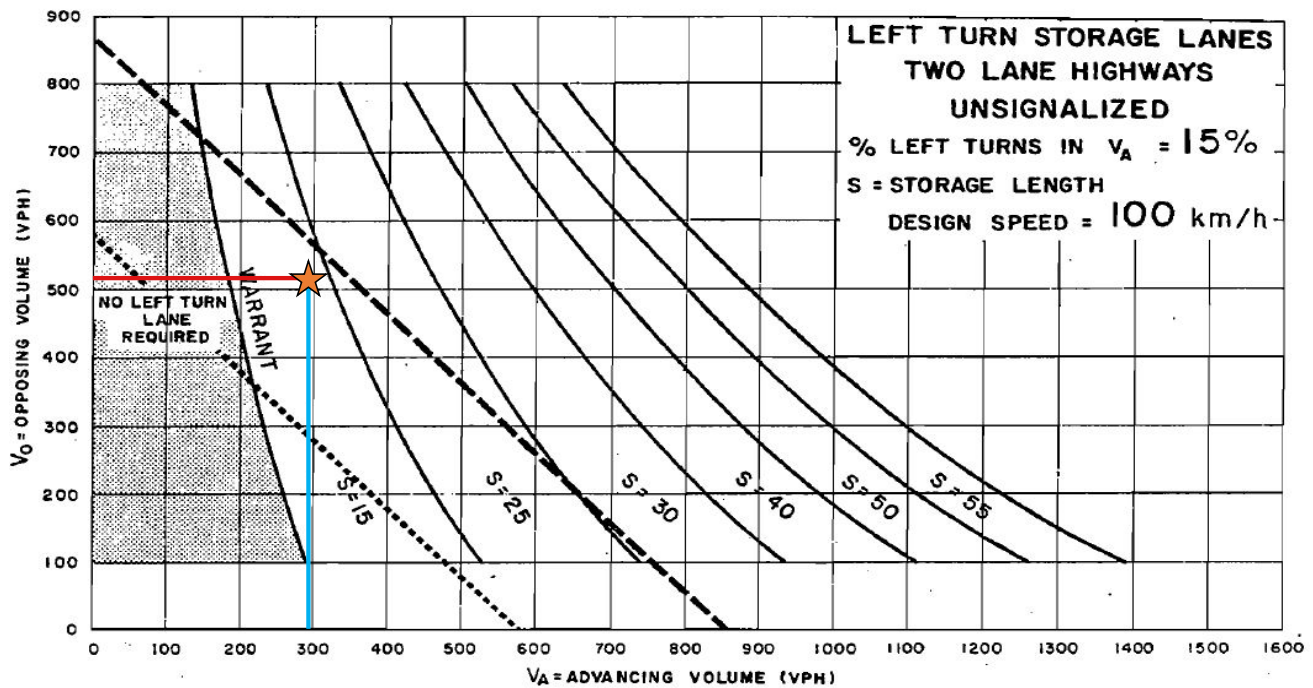


- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

— Opposing Volume

— Advancing Volume

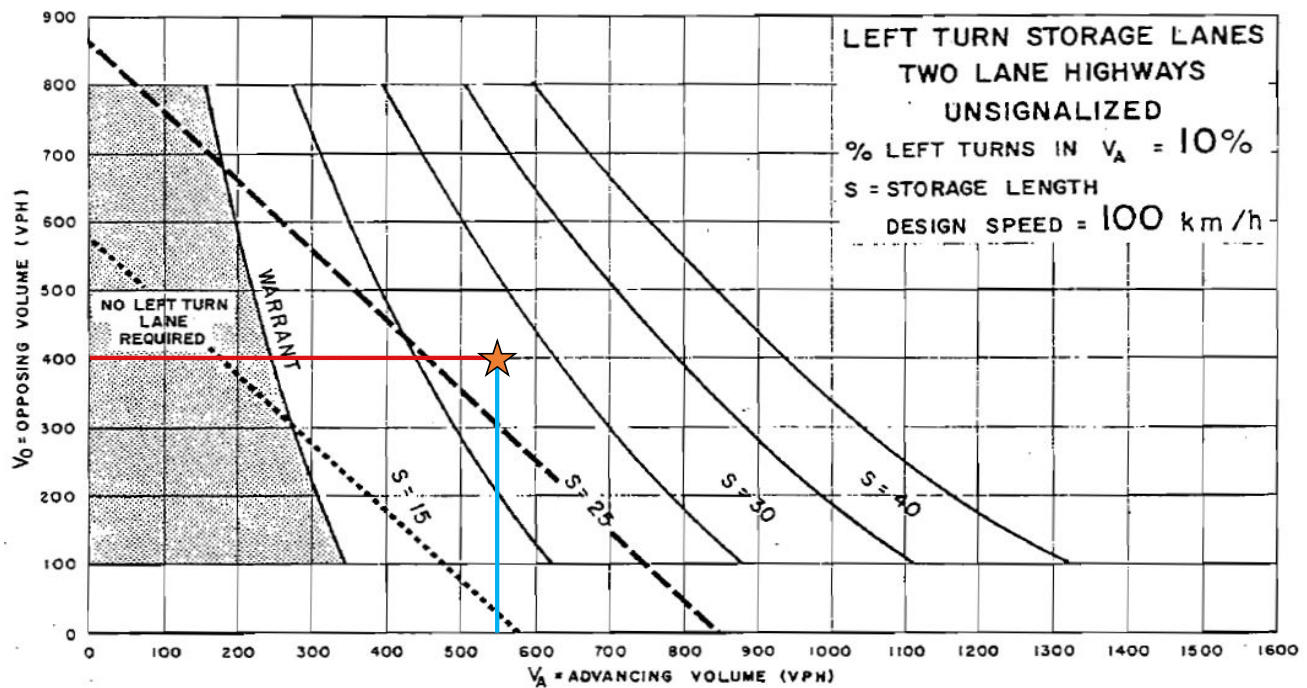
Bishopsgate Road & Powerline Road | Southbound Left-Turn | SAT Peak Hour



Pinehurst Road & Site Access | Southbound Left-Turn | AM Peak Hour

Based on the table below, a 30m storage length is warranted.

S STORAGE LENGTHS FROM WARRANT GRAPHS; APPENDIX A,B, OR C	PERCENTAGE OF WB-15 TRUCKS IN LEFT TURNING VOLUME, V_L						
	10%	15%	20%	25%	30%	40%	50%
	ADDITIONAL STORAGE LANE LENGTHS IN METRES						
15	10	10	10	10	10	15	15
25	10	10	10	10	10	15	15
30	10	10	10	10	15	15	15
40	10	10	10	15	15	15	25
50	10	10	15	15	15	25	25
55	10	15	15	15	25	25	30
65	10	15	15	15	25	30	30
70	10	15	15	25	25	30	40
80	10	15	15	25	25	30	40
90	15	15	25	25	30	40	50
95	15	15	25	25	30	40	50
105	15	15	25	30	30	50	55
110	15	25	25	30	40	50	55
120	15	25	25	30	40	50	65
130	15	25	30	30	40	55	65

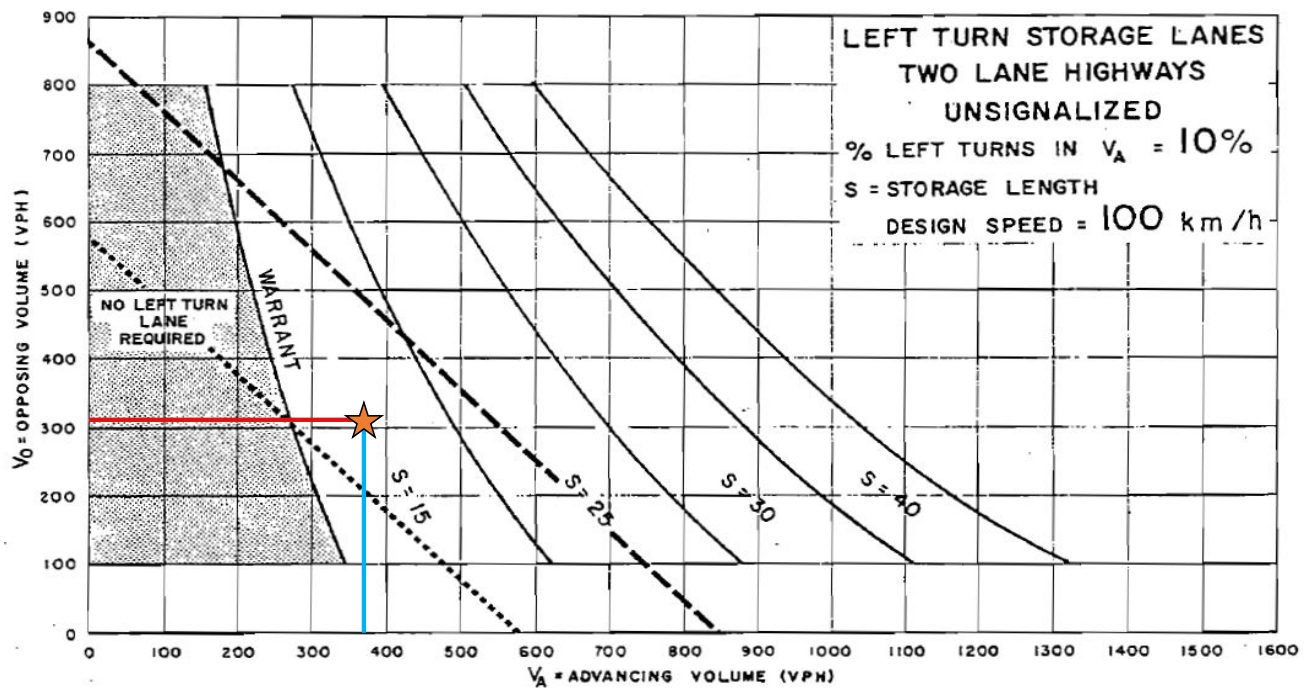


- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS
- Opposing Volume
- Advancing Volume

Pinehurst Road & Site Access | Southbound Left-Turn | PM Peak Hour

Based on the table below, a 40m storage length is warranted.

S STORAGE LENGTHS FROM WARRANT GRAPHS; APPENDIX A,B, OR C	PERCENTAGE OF WB-15 TRUCKS IN LEFT TURNING VOLUME, V_L						
	10%	15%	20%	25%	30%	40%	50%
	ADDITIONAL STORAGE LANE LENGTHS IN METRES						
15	10	10	10	10	10	15	15
25	10	10	10	10	10	15	15
30	10	10	10	10	15	15	15
40	10	10	10	15	15	15	25
50	10	10	15	15	15	25	25
55	10	15	15	15	25	25	30
65	10	15	15	15	25	30	30
70	10	15	15	25	25	30	40
80	10	15	15	25	25	30	40
90	15	15	25	25	30	40	50
95	15	15	25	25	30	40	50
105	15	15	25	30	30	50	55
110	15	25	25	30	40	50	55
120	15	25	25	30	40	50	65
130	15	25	30	30	40	55	65



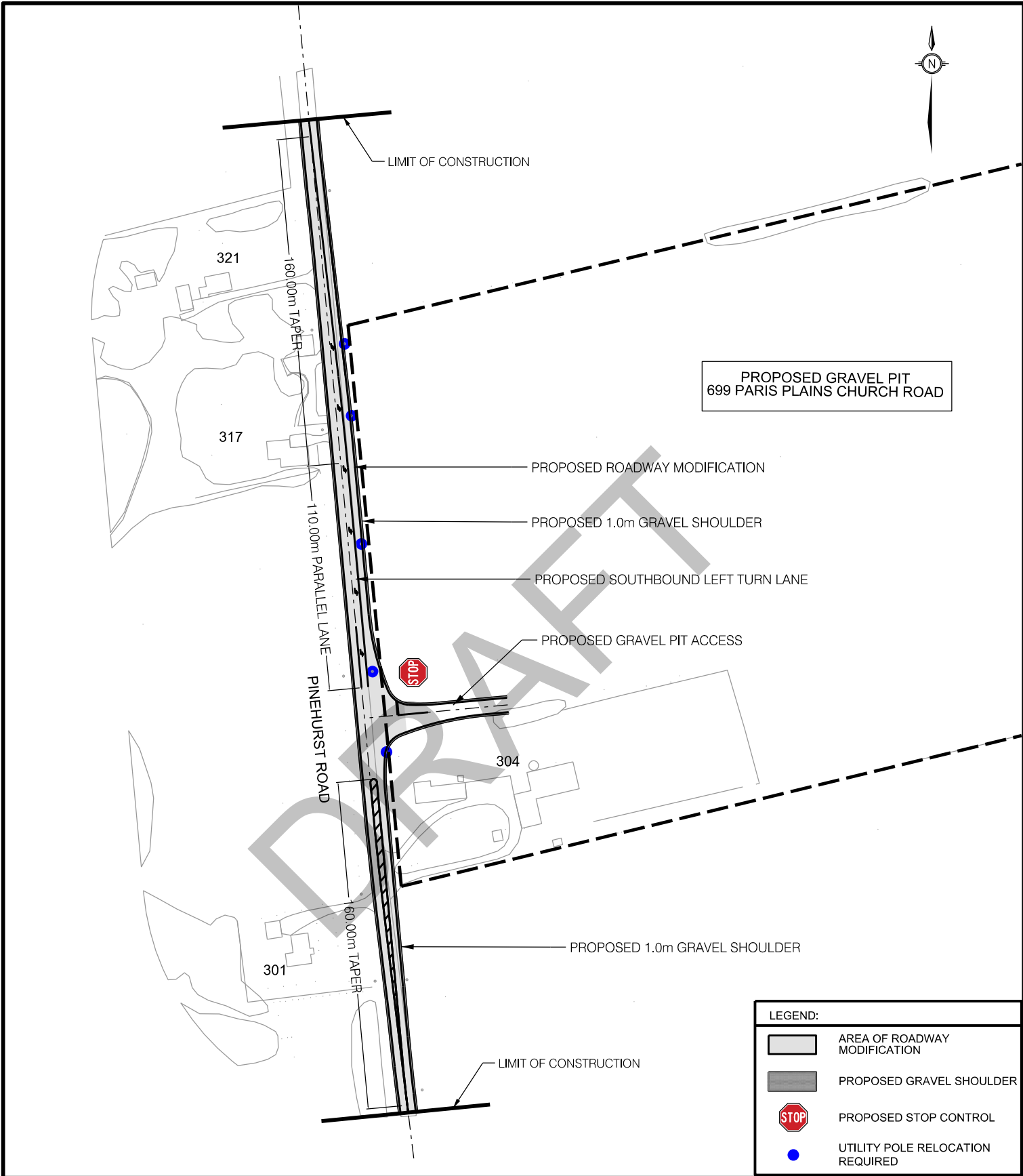
- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS
- Opposing Volume
- Advancing Volume

Pinehurst Road & Site Access | Southbound Left-Turn | SAT Peak Hour

Based on the table below, a 30m storage length is warranted.

"S" STORAGE LENGTHS FROM WARRANT GRAPHS; APPENDIX A,B, OR C	PERCENTAGE OF WB-15 TRUCKS IN LEFT TURNING VOLUME, V_L						
	10%	15%	20%	25%	30%	40%	50%
	ADDITIONAL STORAGE LANE LENGTHS IN METRES						
15	10	10	10	10	10	15	15
25	10	10	10	10	10	15	15
30	10	10	10	10	15	15	15
40	10	10	10	15	15	15	25
50	10	10	15	15	15	25	25
55	10	15	15	15	25	25	30
65	10	15	15	15	25	30	30
70	10	15	15	25	25	30	40
80	10	15	15	25	25	30	40
90	15	15	25	25	30	40	50
95	15	15	25	25	30	40	50
105	15	15	25	30	30	50	55
110	15	25	25	30	40	50	55
120	15	25	25	30	40	50	65
130	15	25	30	30	40	55	65

Appendix E – Conceptual Design



**PROPOSED ROADWAY
MODIFICATIONS**

**PINEHURST ROAD AND
GRAVEL PIT ACCESS
INTERSECTION
MODIFICATIONS**

Approved By:

Drawing No.:

Completed By:

ARCADIS

Scale:

N.T.S.

Date:

DECEMBER
2023

Appendix F – Traffic Signal Warrant Analysis

Input Data Sheet

Analysis Sheet

Results Sheet

Proposed Collision

GO TO Justification:

What are the intersecting roadways?

Pinehurst & Paris Plains Church Road

What is the direction of the Main Road street?

North-South

When was the data collected?

June 1, 2022

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

1

b.- Number of lanes on the Minor Road?

1

c.- How many approaches?

4

d.- What is the operating environment?

Rural

Population < 10,000

 AND

Speed >= 70 km/hr

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

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
8:00	1	175	2	2	3	0	8	326	3	5	0	11	0
9:00	0	177	0	1	3	0	3	286	0	3	0	10	0
10:00	1	172	1	2	0	5	3	189	5	7	0	3	0
11:00	2	167	2	3	0	10	3	92	10	11	0	0	0
15:00	0	153	4	9	0	4	18	199	6	0	0	1	0
16:00	1	256	4	5	1	2	17	233	4	2	0	5	0
17:00	2	359	4	1	3	0	16	267	2	6	1	9	0
18:00	1	315	4	3	0	2	13	201	1	1	1	11	0
Total	8	1,774	21	26	10	23	81	1,793	31	35	2	50	0

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	1
25-36	0

* Include only collisions that are susceptible to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate	100%		50%		0%		0%		
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	0	0	0	0	0	0	0	0	
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	0		0		0		0		
% Assigned to Crossing Rate	100%		50%		0%		0%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									0

Justification 1: Minimum Vehicle Volumes

Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 Lanes		2 or More Lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	8:00	9:00	10:00	11:00	15:00	16:00	17:00	18:00				
	☒	☐	☐	☐												
1A	480	720	600	900	536	483	388	300	394	530	670	553				
	COMPLIANCE %				100	100	81	63	82	100	100	100	725	91		
1B	120	170	120	170	21	17	17	24	14	15	20	18				
	COMPLIANCE %				18	14	14	20	12	13	17	15	122	15		
Free Flow					Both 1A and 1B 100% Fulfilled each of 8 hours								Yes	☐	No	☒
Signal Justification 1:					Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes	☐	No	☒

Justification 2: Delay to Cross Traffic

Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 lanes		2 or More lanes		Hour Ending											
Flow Condition	FREE FLOW ☒	RESTR. FLOW ☐	FREE FLOW ☐	RESTR. FLOW ☐	8:00	9:00	10:00	11:00	15:00	16:00	17:00	18:00				
2A	480	720	600	900	515	466	371	276	380	515	650	535			711	89
	COMPLIANCE %				100	97	77	58	79	100	100	100				
2B	50	75	50	75	10	7	9	14	9	8	10	5				
	COMPLIANCE %				20	14	18	28	18	16	20	10			144	18
Free Flow					Both 2A and 2B 100% fulfilled each of 8 hours Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								Yes	☐	No	☒
Signal Justification 2:													Yes	☐	No	☒

Justification 3: Combination

Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More	
Justification 1	Minimum Vehicle Volume	YE ☐	NO ☒	YES ☐	NO ☒
Justification 2	Delay Cross Traffic	YE ☐	NO ☒		NOT JUSTIFIED

Justification 4: Four Hour Volume

Justification	Time Period	Total Volume of Both Approaches (Main)	Heaviest Minor Approach	Required Value	Average % Compliance	Overall % Compliance
		X	Y (actual)	Y (warrant threshold)		
Justification 4	8:00	515	16	283	6 %	5 %
	16:00	515	8	283	3 %	
	17:00	650	16	226	7 %	
	18:00	535	13	274	5 %	



Intersection: Pinehurst Road & Paris Church Plains Road

Count Date: June 1, 2022

Justification 5: Collision Experience

Justification	Preceding Months	% Fulfillment	Overall % Compliance
Justification 5	1-12	0 %	7 %
	13-24	20 %	
	25-36	0 %	

Justification 6: Pedestrian Volume

Pedestrian Volume Analysis

8 Hour Vehicular Volume V_8		Net 8 Hour Pedestrian Volume				
		< 200	200 - 275	276 - 475	476 - 1000	>1000
Justification 6A	< 1440	Not Justified				
	1440 - 2600					
	2601 - 7000					
	> 7000					

Pedestrian Delay Analysis

Net Total 8 Hour Volume of Total Pedestrians		Net Total 8 Hour Volume of Delayed Pedestrians		
		< 75	75 - 130	> 130
Justification 6B	< 200	Not Justified		
	200 - 300			
	> 300			

Results Sheet

Input Sheet

Analysis Sheet

Proposed Collision

GO TO Justification:

Intersection: Pinehurst Road & Paris Church Plains Road

Count Date: June 1, 2022

Summary Results

Justification			Compliance		Signal Justified?	
					YES	NO
1. Minimum Vehicular Volume	A	Total Volume	91	%	☐	☒
	B	Crossing Volume	15	%		
2. Delay to Cross Traffic	A	Main Road	89	%	☐	☒
	B	Crossing Road	18	%		
3. Combination	A	Justificaton 1	15	%	☐	☒
	B	Justification 2	18	%		
4. 4-Hr Volume			5	%	☐	☒

5. Collision Experience			7	%	☐	☒
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6. Pedestrians	A	Volume	Justification not met		☐	☒
	B	Delay	Justification not met			



OTM BOOK 12* - TRAFFIC SIGNAL WARRANT

Project: 699 Paris Church Plains Road Date: June 27, 2023

Project #: 139382

Location: Pinehurst Road at Paris Plains Church Road

Orientation: (Major Roadway) North/South (Minor Roadway) East/West

Municipality: County of Brant Scenario: Future (2032) Total Traffic

Justification 7 - Projected Volumes

WARRANT	DESCRIPTION	MINIMUM REQUIREMENT				COMPLIANCE		
		FREE FLOW	RESTRICTED FLOW	ADJUSTED FREE FLOW	ADJUSTED RESTRICTED FLOW	SECTIONAL		ENTIRE %
						AHV	%	
1. MINIMUM VEHICULAR VOLUME	A. Vehicle volumes, all approaches (Average Hour)	480	720	576	864	432	75%	7%
	B. Vehicle volume along minor roads (Average Hour)	120	170	144	204	10	7%	
2. DELAY TO CROSS TRAFFIC	A. Vehicle volumes, along artery (Average Hour)	480	720	576	864	422	73%	8%
	B. Combined vehicle and pedestrian volume crossing artery from minor roads (Average Hour)	50	75	60	90	5	8%	

Projected Traffic Volumes:

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

AM Peak Hour Volumes

1	262	0	↖	0
↙	↓	↘	←	3
↙	↓	↘	←	0
6	↗	↖	↑	↗
0	→	7	490	2
10	↘			

PM Peak Hour Volumes

4	518	2	↖	0
↙	↓	↘	←	3
↙	↓	↘	←	1
6	↗	↖	↑	↗
1	→	16	383	2
9	↘			

Average Hourly Volumes (AHV)

1	195	1	↖	0
↙	↓	↘	←	2
↙	↓	↘	←	0
3	↗	↖	↑	↗
0	→	6	218	1
5	↘			

Notes:

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

1 Lane per Direction

Free Flow

4-legged Intersection

Existing Intersection

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

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

From: [Ben Pascolo-Neveu](#)
To: ["Julie Tot"](#)
Subject: RE: Collision Data - County of Brant
Date: Thursday, December 8, 2022 4:35:00 PM
Attachments: [image003.png](#)
[image004.png](#)
[image006.jpg](#)
[image007.png](#)

Thanks, Julie.

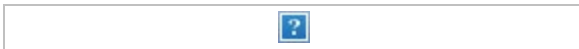
Have a great evening.

Regards,
Ben

Ben Pascolo-Neveu P.ENG.

Transportation Engineer

Suite 500, 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel +1 613 225 1311 ext 64074



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From: Julie Tot <julie.tot@brant.ca>
Sent: Thursday, December 8, 2022 4:31 PM
To: Ben Pascolo-Neveu <Ben.Pascolo-Neveu@ibigroup.com>
Subject: FW: Collision Data - County of Brant

*** Exercise caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. ***

Hi Ben,

As requested, please see the email below from Rick Knap, Roads Technologist, the with the requested collision data.

Should you have any questions, please do not hesitate to contact me.

Regards,

Julie Tot, C.Tech
Development Technologist

Development Services Department
County of Brant
66 Grand River Street North, Paris, ON, N3L 2M2

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From: Rick Knap <rick.knap@brant.ca>

Sent: December 8, 2022 2:27 PM

To: Julie Tot <julie.tot@brant.ca>

Subject: FW: Collision Data - County of Brant

Hello Julie,

We are finally in receipt of Ben's payment.

Our review of our reported collision data for the intersection of Pinehurst Road and Paris Plains Church Road between Jan. 1, 2016 and Dec. 31, 2021 reveals the following information.

1. February 2016 - vehicle 1 eastbound struck deer. Clear/dry
2. September 2016 - vehicle 1 southbound rear ended vehicle 2. Clear/dry
3. November 2021 – vehicle 1 northbound slid into ditch, rain/wet

Thank you,

Rick Knap, C.E.T.
Roads Technologist

Operations Department – Roads Division
County of Brant
26 Park Avenue, P.O. Box 160, Burford, ON N0E 1A0

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Appendix G – Sightline Review

Pinehurst Road - Stopping Sight Distance (SSD)

0.0%

186 m

Watt's
Pond Road

Meets SSD requirement of 105m

263 m

25 m

50 m

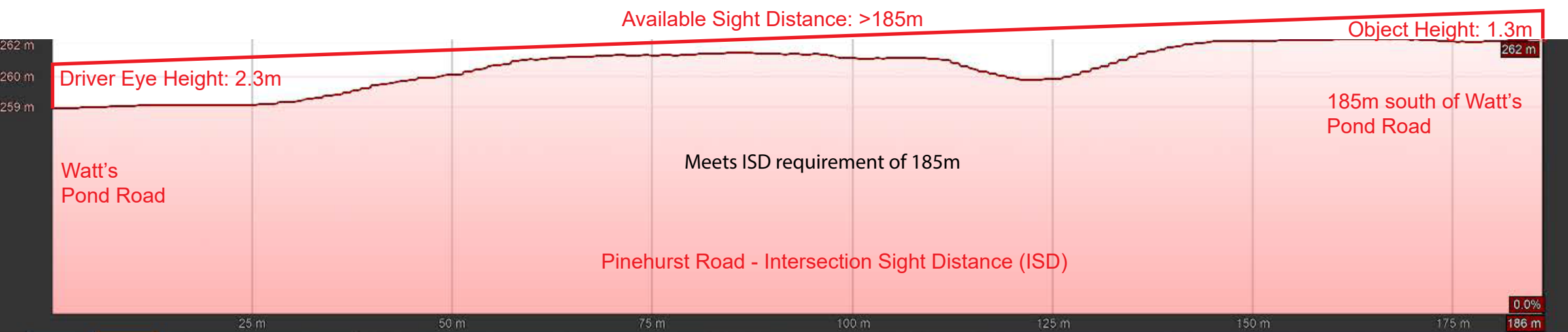
75 m

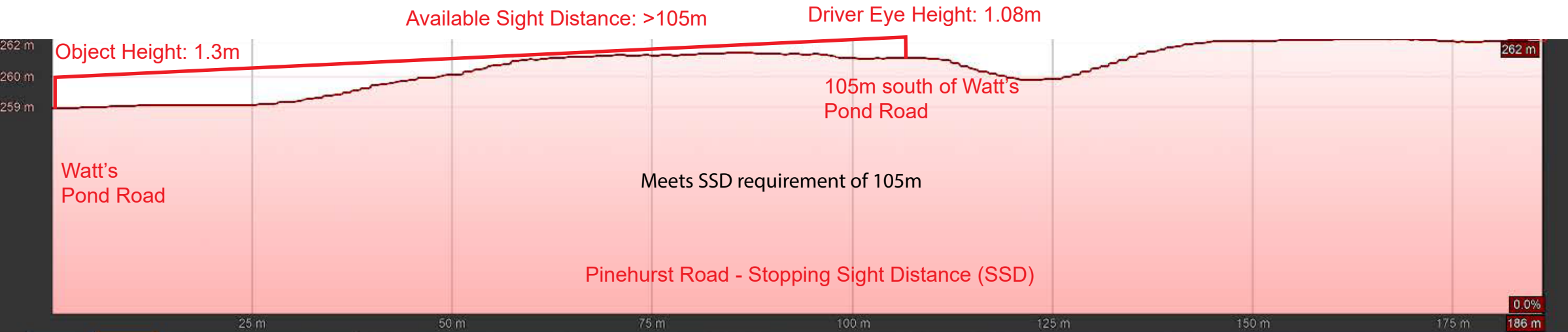
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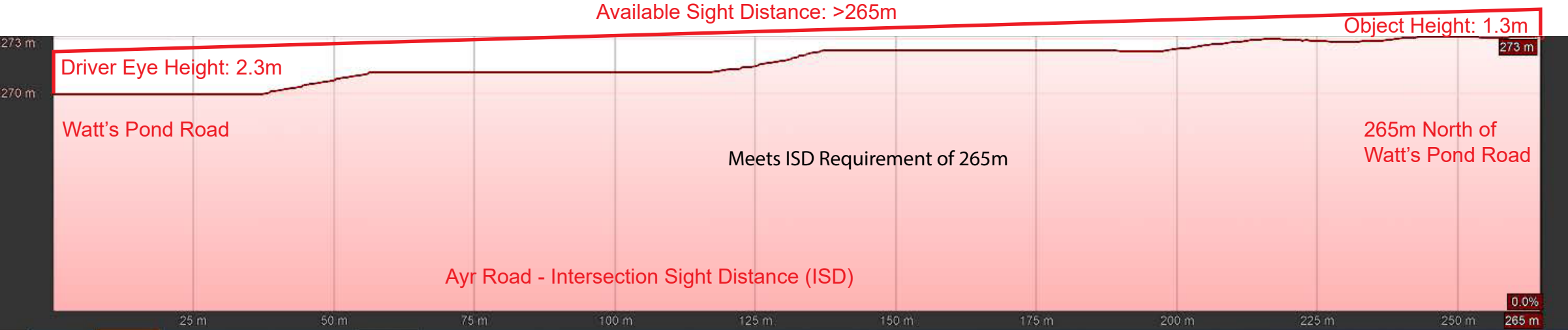
125 m

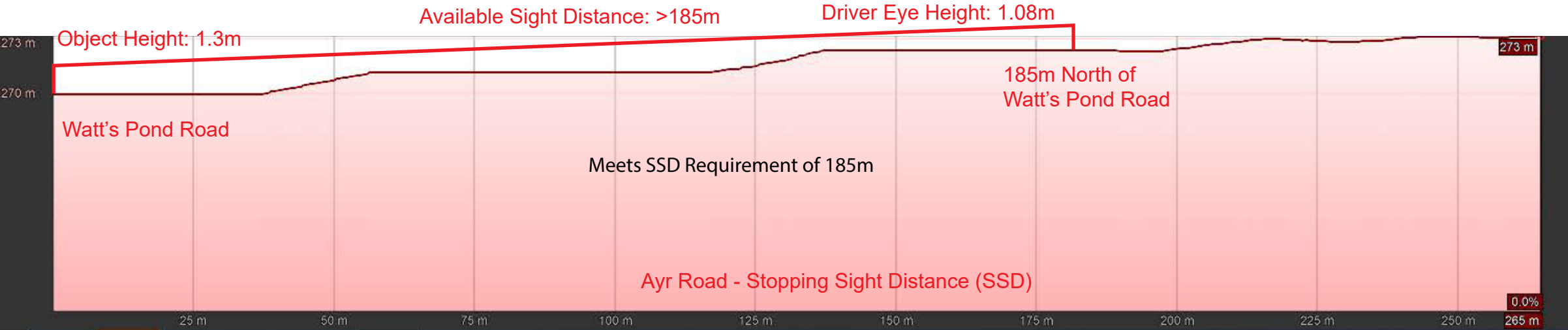
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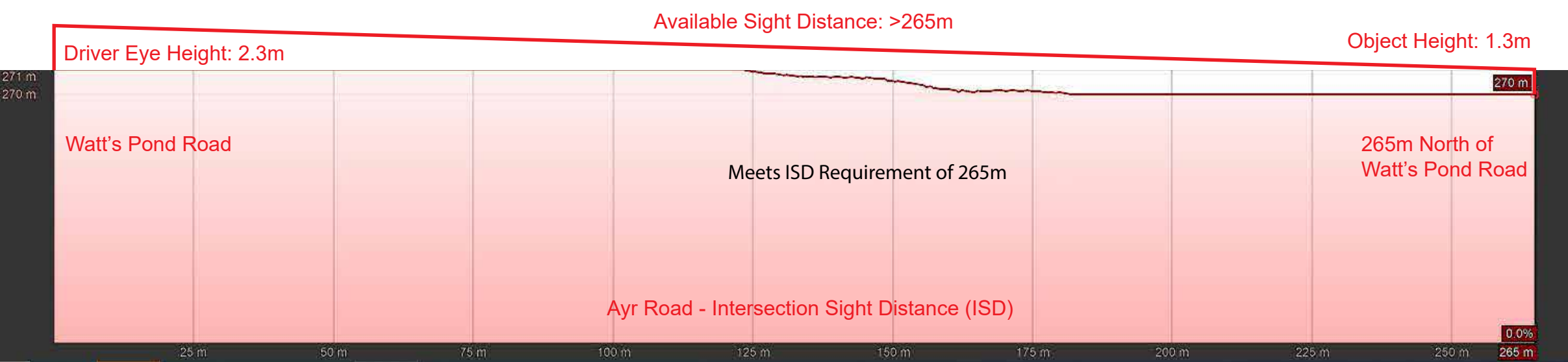
175 m

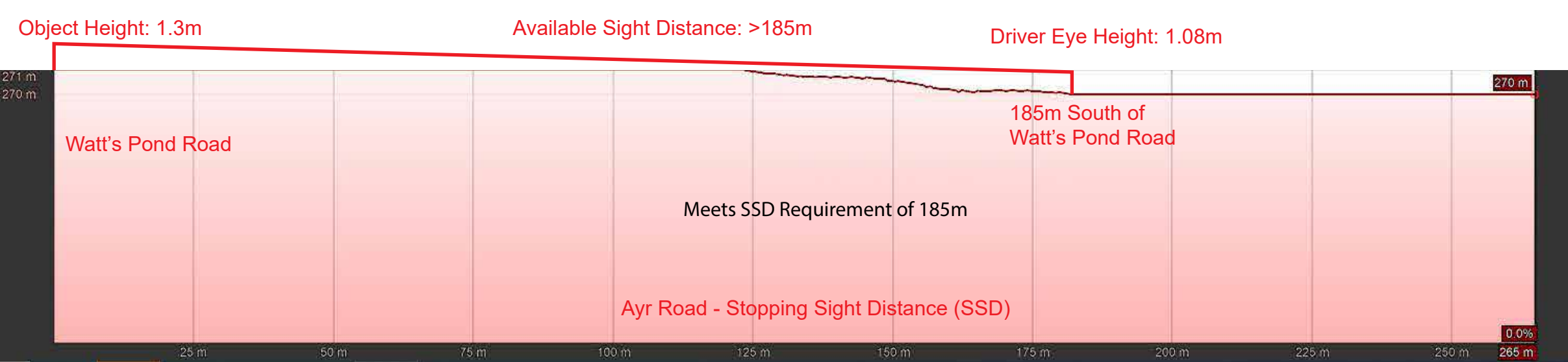


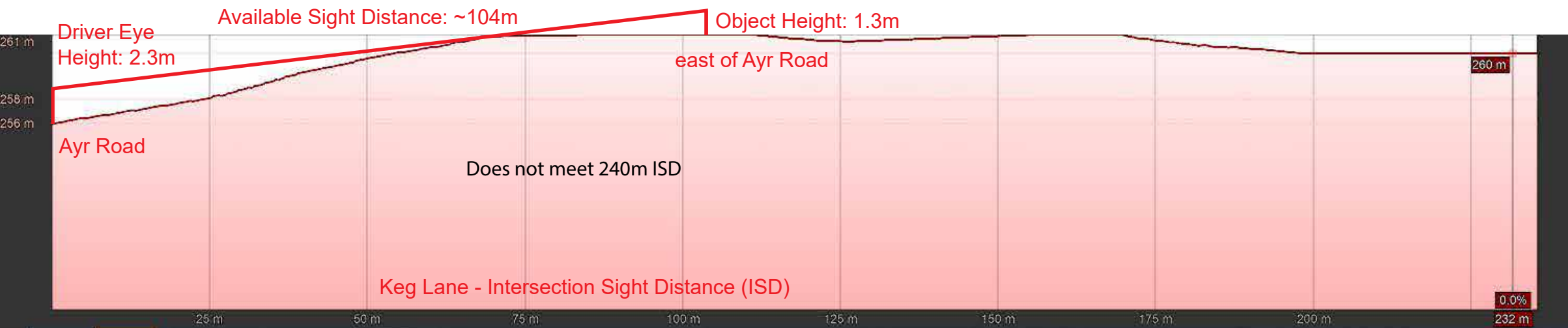


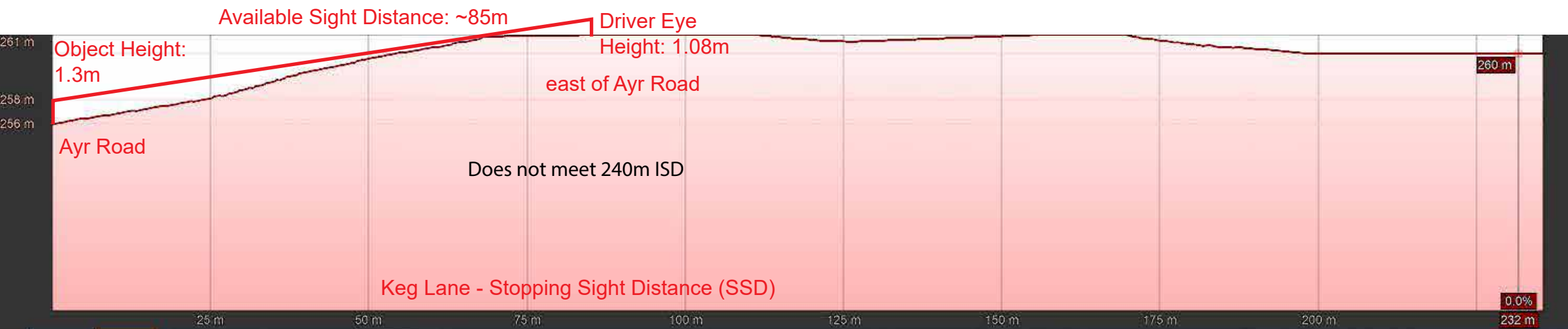


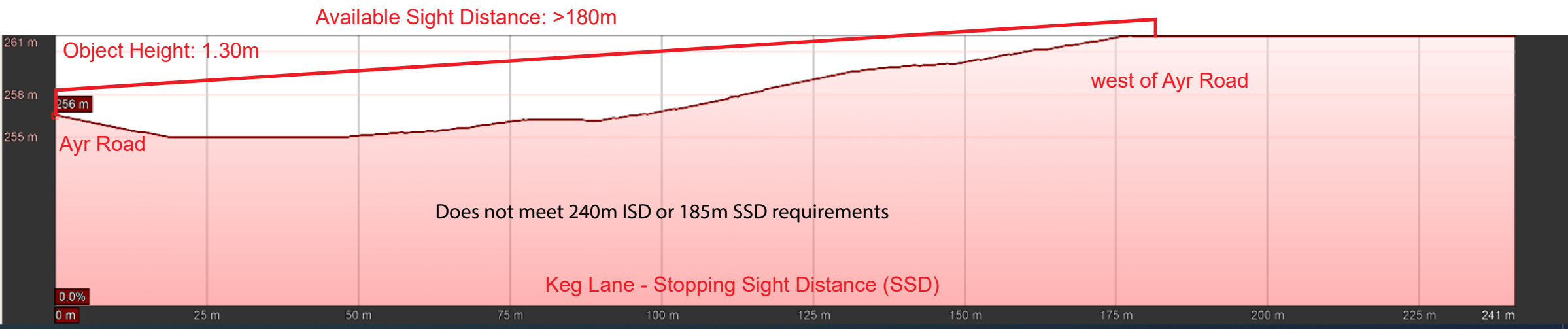












Driver Eye Height: 2.3m

Available Sight Distance: >265m

Object Height: 1.3m

265 m

264 m

Keg Lane

265 m

265m north
of Keg Lane

Meets ISD requirement of 265m

Brant Oxford Road - Intersection Sight Distance (ISD)

-6.9%

266 m

25 m

50 m

75 m

100 m

125 m

150 m

175 m

200 m

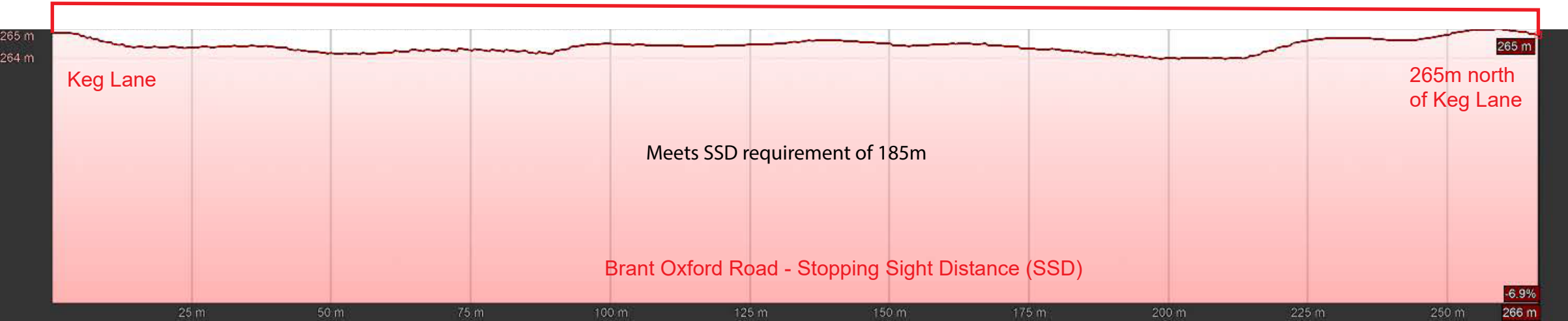
225 m

250 m

Object Height: 1.3m

Available Sight Distance: >185m

Driver Eye Height: 1.08m



Driver Eye Height: 2.3m

Available Sight Distance: >265m

Object Height: 1.3m

266 m

265 m

Keg Lane

265 m

185m south
of Keg Lane

Meets ISD requirement of 265m

Brant Oxford Road - Intersection Sight Distance (ISD)

-0.4%

265 m

25 m

50 m

75 m

100 m

125 m

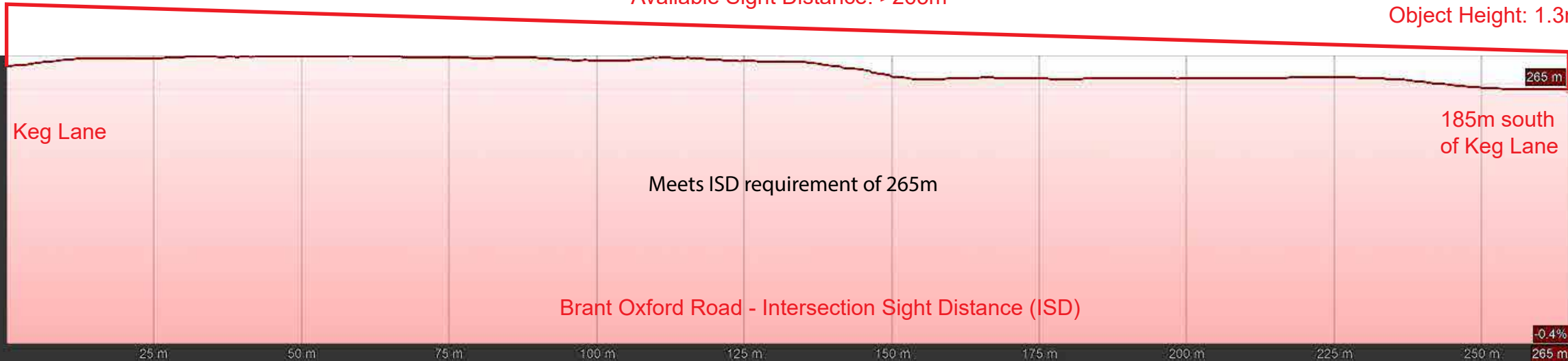
150 m

175 m

200 m

225 m

250 m



Object Height: 1.3m

Available Sight Distance: >185m

Driver Eye Height: 1.08m

266 m

265 m

Keg Lane

185m south
of Keg Lane

Meets SSD requirement of 185m

Brant Oxford Road - Stopping Sight Distance (SSD)

265 m

-0.4%

265 m

25 m

50 m

75 m

100 m

125 m

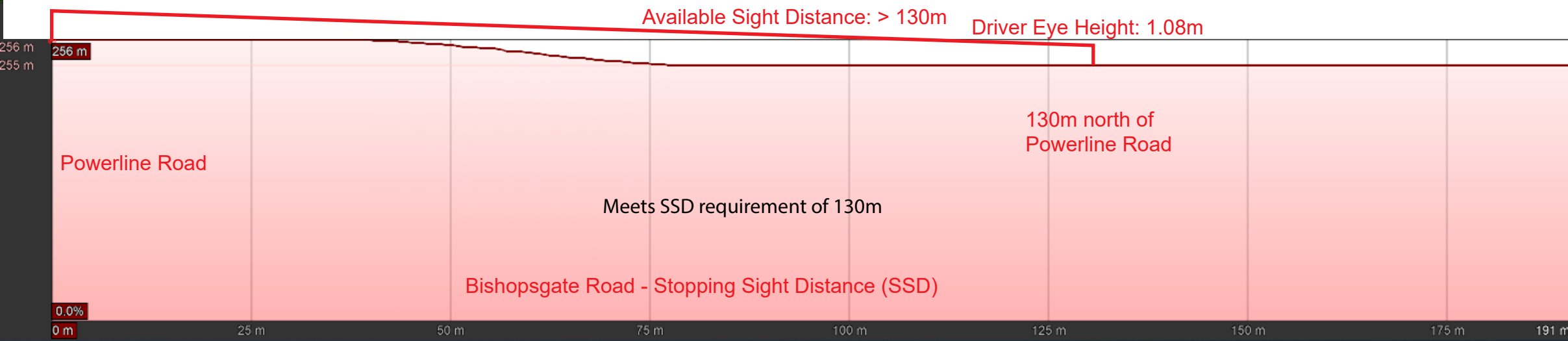
150 m

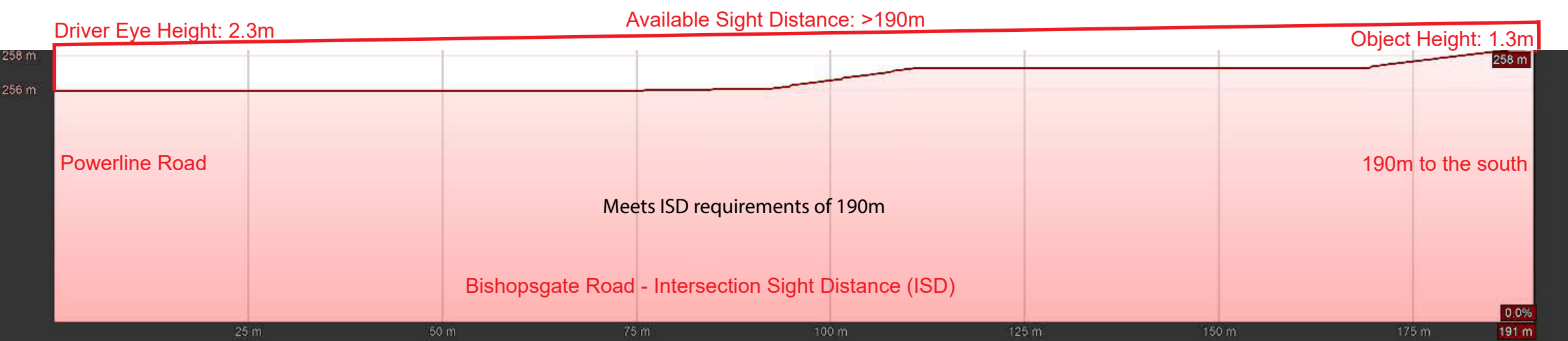
175 m

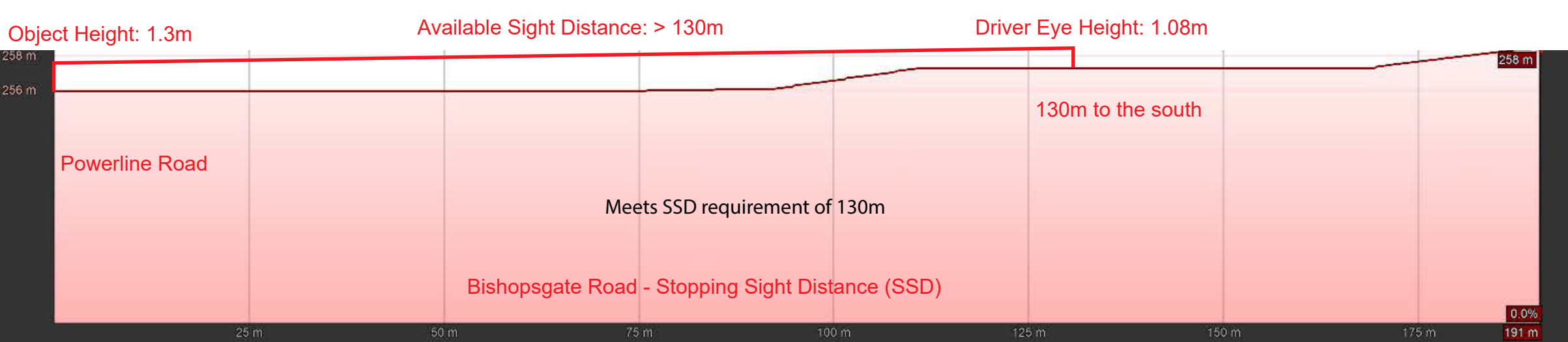
200 m

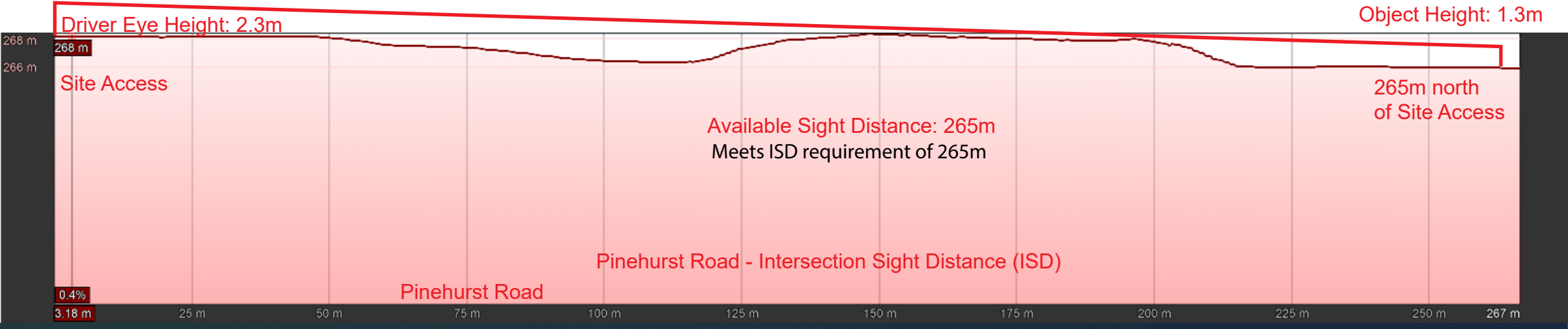
225 m

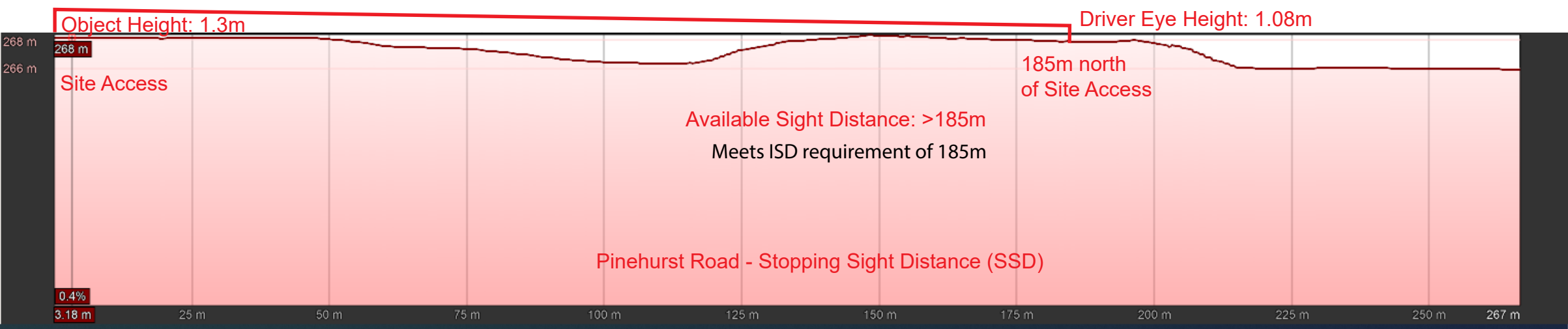
250 m











Driver Eye Height: 2.3m

268 m
267 m

268 m

Site Access

Object Height: 1.3m

240m south
of Site Access

Meets ISD requirement of 240m
Available Sight Distance: >240m

Pinehurst Road - Intersection Sight Distance (ISD)

-0.6%

10.1 m

25 m

50 m

75 m

100 m

125 m

150 m

175 m

200 m

225 m

241 m

