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Riviera
TRAFFIC STUDY
DRAFT – FOR APPROVAL

Riviera Ventures LLC

May 12, 2014

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Traffic Study

For

Riviera Golf Club

Dublin, Ohio
Delaware County
Union County

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May 12, 2014

The traffic engineering data, analysis, findings, and recommendations contained herein and originally produced by EMH&T have been prepared in accordance with accepted Engineering practice and represent anticipated future conditions to the best of our knowledge and belief.

STATE OF OHIO
JASON D. SMALLWOOD #E-66540
REGISTERED PROFESSIONAL ENGINEER

5-12-2014

Jason D. Smallwood, P.E. Date
For EMH&T

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EMH&T

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1.0 INTRODUCTION

This study has been prepared to determine the transportation impacts associated with the development of approximately 168.0 acres of land in the City of Dublin, Ohio. Approximately 95.6 acres of the site lies within Franklin County, 66.5 acres in Union County with the remaining 5.9 acres in Delaware County. The site is located between Hyland-Croy Road and Avery Road, north of Brand Road. The site is planned to develop with 248 single family detached dwelling units. Site access is preliminary planned via one direct access point on Avery Road, three connections to existing adjacent neighborhood stub streets and a potential direct access point on Hyland-Croy Road. A site location map (**Figure 1**) and a preliminary site plan (**Figure 2**) are included for reference.

2.0 STUDY AREA

The following intersections are included in the project study area. Existing conditions of these roadways are summarized in **Figure 3**.

- Hyland-Croy Road/McKitrick Road
- Hyland-Croy Road/Tuscany Drive
- Hyland-Croy Road/Site Drive
- Hyland-Croy Road/Brand Road/Mitchell-Dewitt Road
- Hyland-Croy Road/Post Road
- Brand Road/Abbie Glen Boulevard
- Avery Road/Muirfield Drive
- Brand Road/Avery Road
- Avery Road/Memorial Drive
- Avery Road/Site Drive
- Avery Road/Glick Road/Manley Road
- Jerome Road/McKitrick Road

3.0 ANALYSIS SCENARIOS

Analyses were conducted for the following scenarios:

- Opening Year 2014
  - New Site Drives on both Avery Road and Hyland-Croy Road
  - New Site Drive on Avery Road only
- Horizon Year 2024
  - New Site Drives on both Avery Road and Hyland-Croy Road
  - New Site Drive on Avery Road only

FIGURE 1
Site Location Map

FIGURE 2
Site Plan

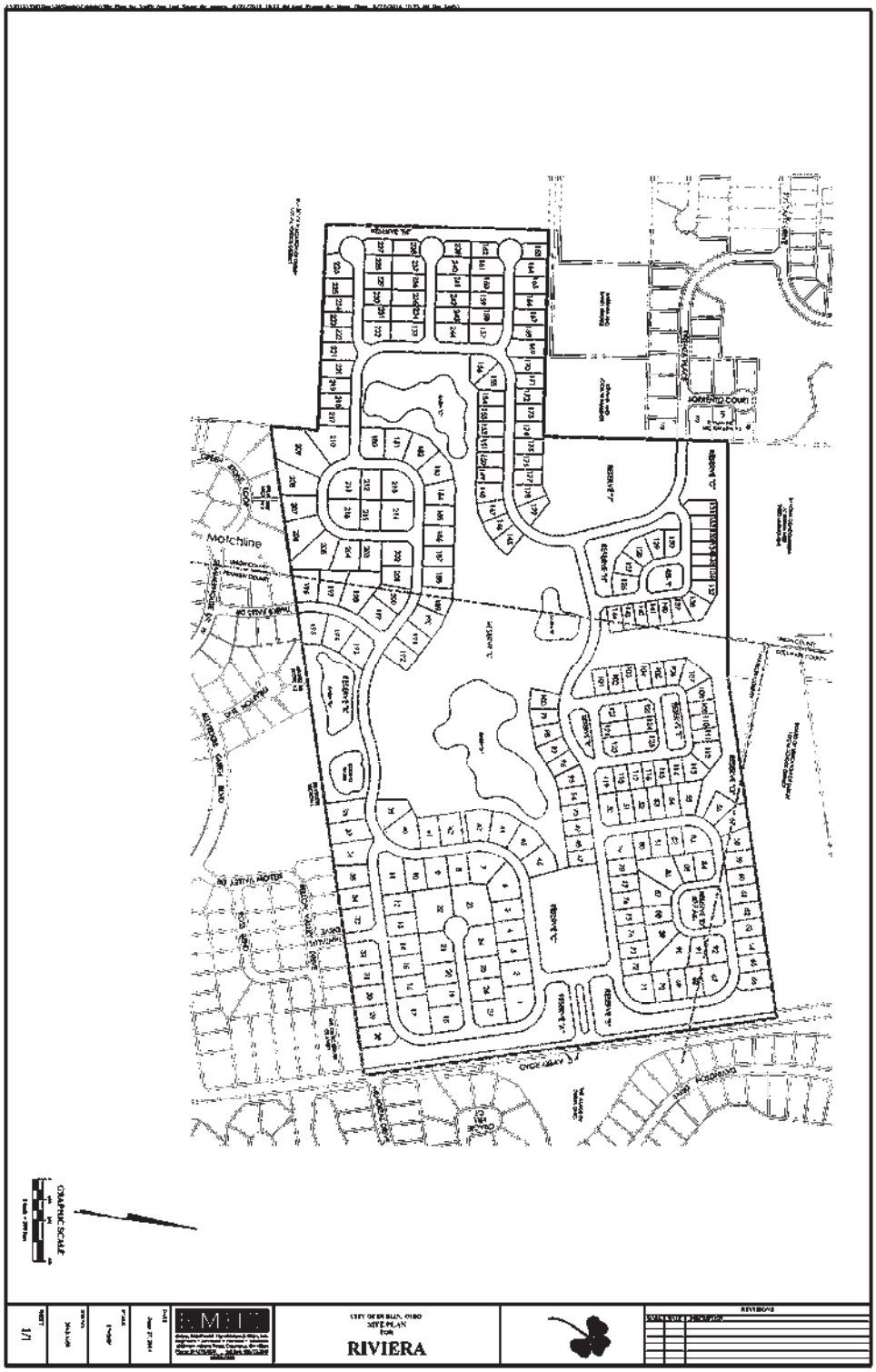
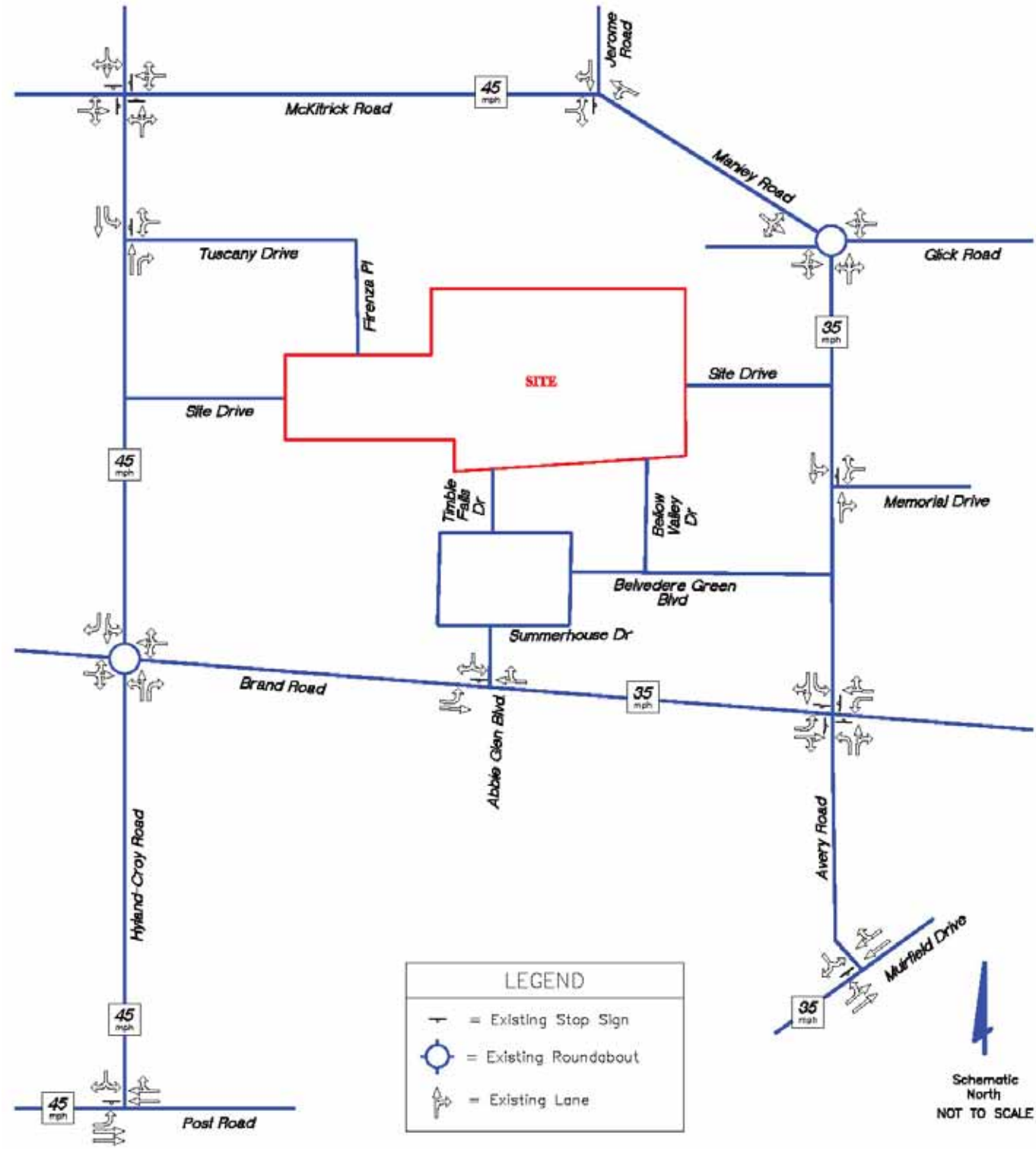


FIGURE 3
Existing Conditions



4.0 DATA COLLECTED

Traffic Counts conducted by EMH&T personnel in October 2013, traffic counts provided by the City of Dublin dated November 2011, the Stavroff Hyland-Croy Road Development TIS, dated August 2013, and the Tartan Ridge TIS, dated December 21, 2006 are the foundation for this study.

Traffic counts were conducted by EMH&T in October 2013 between the hours of 7:00AM – 9:00AM and 4:00PM – 6:00PM at the following intersections:

- Hyland-Croy Road/McKitrick Road (AM only)
- Hyland-Croy Road/Tuscany Drive
- Jerome Road/ McKitrick Road (AM only)
- Avery Road/Glick Road/Manley Road
- Avery Road/Memorial Drive
- Avery Road/Muirfield Drive
- Brand Road/Abbie Glen Boulevard

Traffic Counts were provided by the City of Dublin for the following locations:

- Avery Road/Brand Road
- Hyland-Croy/Brand Road
- Jerome Road/ McKitrick Road (PM only)
- Hyland-Croy Road/McKitrick Road (PM only)
- Hyland-Croy Road north of Post Road (24-hour tube counts)

Traffic counts dated August 28, 2012, conducted by EMH&T were used for the intersection of Hyland-Croy Road and Post Road.

24-hour tube counts were collected on Firenza Place, Bellow Valley Drive, and Summerhouse Drive.

Traffic count data for each intersection is attached for reference in **Appendix B**.

5.0 TRAFFIC VOLUME PROJECTIONS

Detailed traffic volume calculations have been included in **Appendix C** illustrating the development of 2014 and 2024, background and full build traffic volumes.

5.1 Background Traffic Volumes

Background traffic volumes contain two components:

(1) General area growth termed pure background traffic.
Pure background traffic volumes were calculated by applying a 3.5 percent annual growth rate, as published in previous studies in the area, to counted volumes.

(2) Traffic from known adjacent area developments.
Site generated trips from the following undeveloped sites within the study area have been included in horizon year 2024 background traffic volumes:

- Jerome Village: volumes taken from (Plate L, Tartan Ridge TIS)

- Oak Park Site: volumes taken from (Plate I, Tartan Ridge TIS)
  Approximately 30 percent of residential trips from Oak Park were assumed to be existing and included in the traffic counts conducted for this project.

- Tartan Ridge Site: volumes taken from (Plate W, Tartan Ridge TIS)
  Approximately 50 percent of trip from Tartan Ridge were assumed to be existing and included in the traffic counts conducted for this project.

- Hyland-Croy Site: volumes taken from (Plate L, Stavroff Hyland-Croy Road Development TIS).

With a combination of multiple background traffic components the resulting growth rate for the study area is in effect larger than the base 3.5 percent. The resultant average growth rate for study area intersections was calculated from 2003 count volumes to recent volumes counted in 2011-2013. This historical resultant growth rate was found to be 4.7 percent in the study area. The resultant growth rate used in this study by combining the base 3.5 percent with additional background traffic components was calculated from 2011-2013 count volumes to 2024 Full Build traffic volumes. This effective study growth rate was found to be 5.9 percent in the study area. Compared to the historical trend, the effective study growth rate provides a conservative forecast for growth in the study area. With several new developments planned in the study area, it is expected that background traffic will grow at a slightly higher rate than the historical trend. Calculations for study area growth rates have been included in **Appendix C.**

5.2 Site Traffic Volumes

Trip generation characteristics of the proposed site have been based on ITE trip generation data and methodology contained in Trip Generation 9th Edition (Institute of Transportation Engineers, 2012). Trips will be forecast using rates for Land Use Code 210 (Single Family-Detached). Detailed Trip Generation calculations are provided in **Appendix C** and summarized in **Table 1**.

TABLE 1
Site Generated Trips

Peak Hour	Total Trips	Entering	Exiting
AM Total Trips	183	46	137
PM Total Trips	238	150	88

5.3 Site Traffic Distribution

Site traffic distributions published in the Tartan Ridge TIS, dated December 21, 2006 were compared to counted traffic volumes in the project study area. Minor adjustments were made to the Tartan Ridge distribution to reflect a current representation of current traffic patterns. Site traffic volumes have been assigned to the adjacent street network based on the following distributions, also illustrated in **Figure 4,** for conditions with and without the potential Site Drive on Hyland-Croy Road. Detailed trip distribution calculations and percentages are provided in **Appendix C**.

- 15% West on Post Road
- 8% East on Post Road
- 5% West on Mitchell-Dewitt Road
- 3% West on McKitrick Road
- 7% North on Hyland-Croy Road
- 12% North on Jerome Road
- 15% East on Glick Road
- 15% East on Brand Road
- 20% South on Muirfield Drive

5.4 Trip Generation Comparison to Community Plan

Trip generation by a land use consistent with the Community Plan "Preferred Growth Scenario" has been documented for comparison to the proposed plan. As published on the Community Plan, the proposed site's preferred growth scenario is parks/open space. Trip comparisons have been completed assuming the site's existing land use as a golf course. The comparison analysis is illustrated in **Appendix C**.

5.5 Site Traffic as a Percentage of Total Traffic

Per the request of the City of Dublin, site traffic percentages at each intersection have been presented in **Table 2.**

TABLE 2
Site Traffic as Percentage of Total Traffic

Intersection	With Hyland-Croy Site Drive			Without Hyland-Croy Site Drive		
	AM	PM	Average	AM	PM	Average
Hyland-Croy/McKitrick	1.4%	1.5%	1.5%	1.4%	1.6%	1.5%
Hyland-Croy/Tuscany	1.3%	1.5%	1.4%	2.0%	3.0%	2.5%
Hyland-Croy/Brand/Mitchell-Dewitt	2.6%	2.7%	2.7%	2.7%	2.7%	2.7%
Hyland-Croy/Post	1.6%	1.8%	1.7%	1.6%	1.8%	1.7%
Avery/Muirfield	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
Avery/Brand	3.4%	4.7%	4.0%	4.4%	5.5%	4.9%
Avery/Memorial	6.1%	6.0%	6.1%	8.1%	7.0%	7.5%
Jerome/McKitrick	2.1%	2.7%	2.4%	2.8%	3.1%	3.0%

FIGURE 4
Trip Distribution

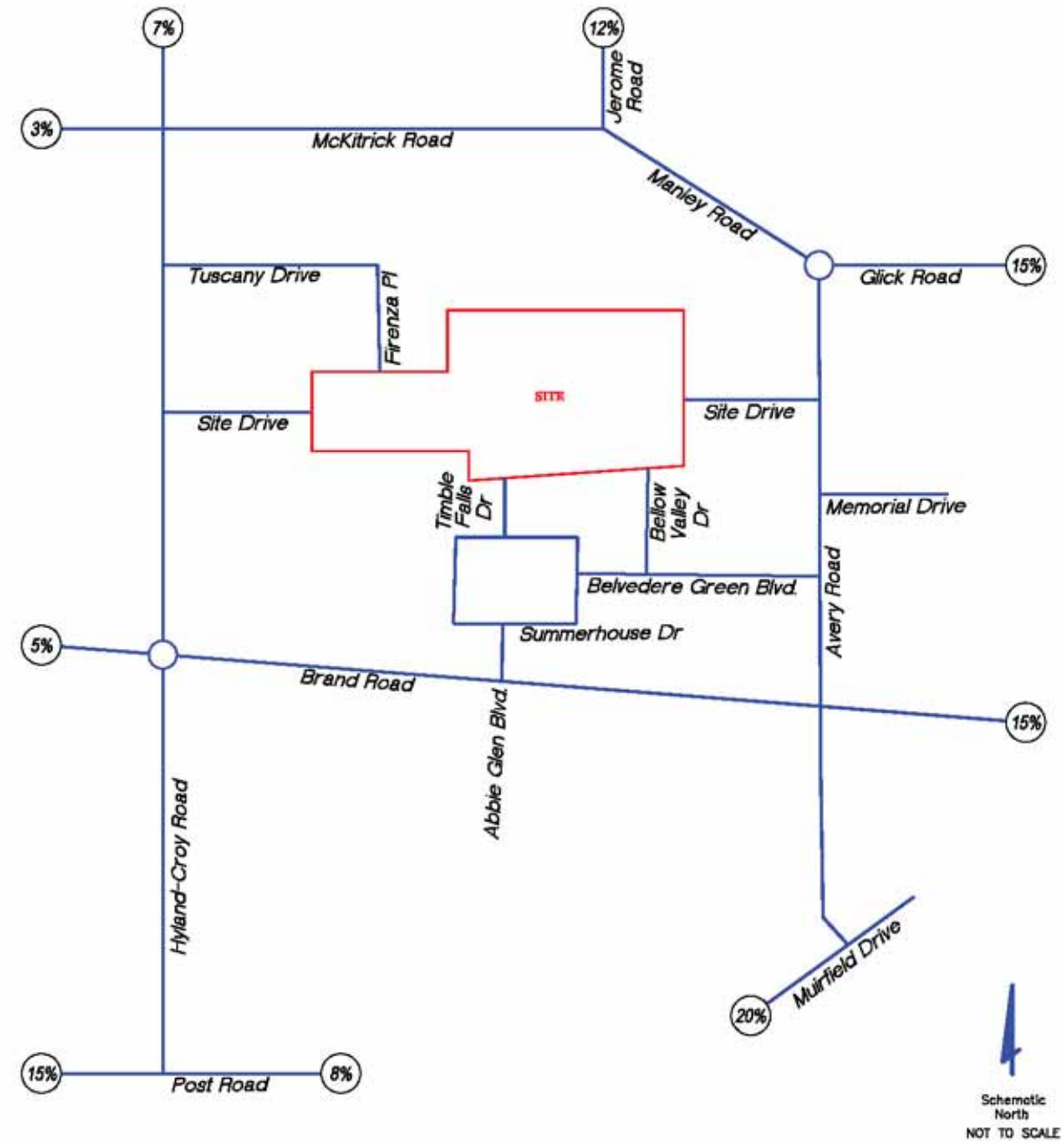


FIGURE 5
2014 Traffic Volumes – AM Peak Hour – Full Build (w/ Hyland-Croy Site Drive)

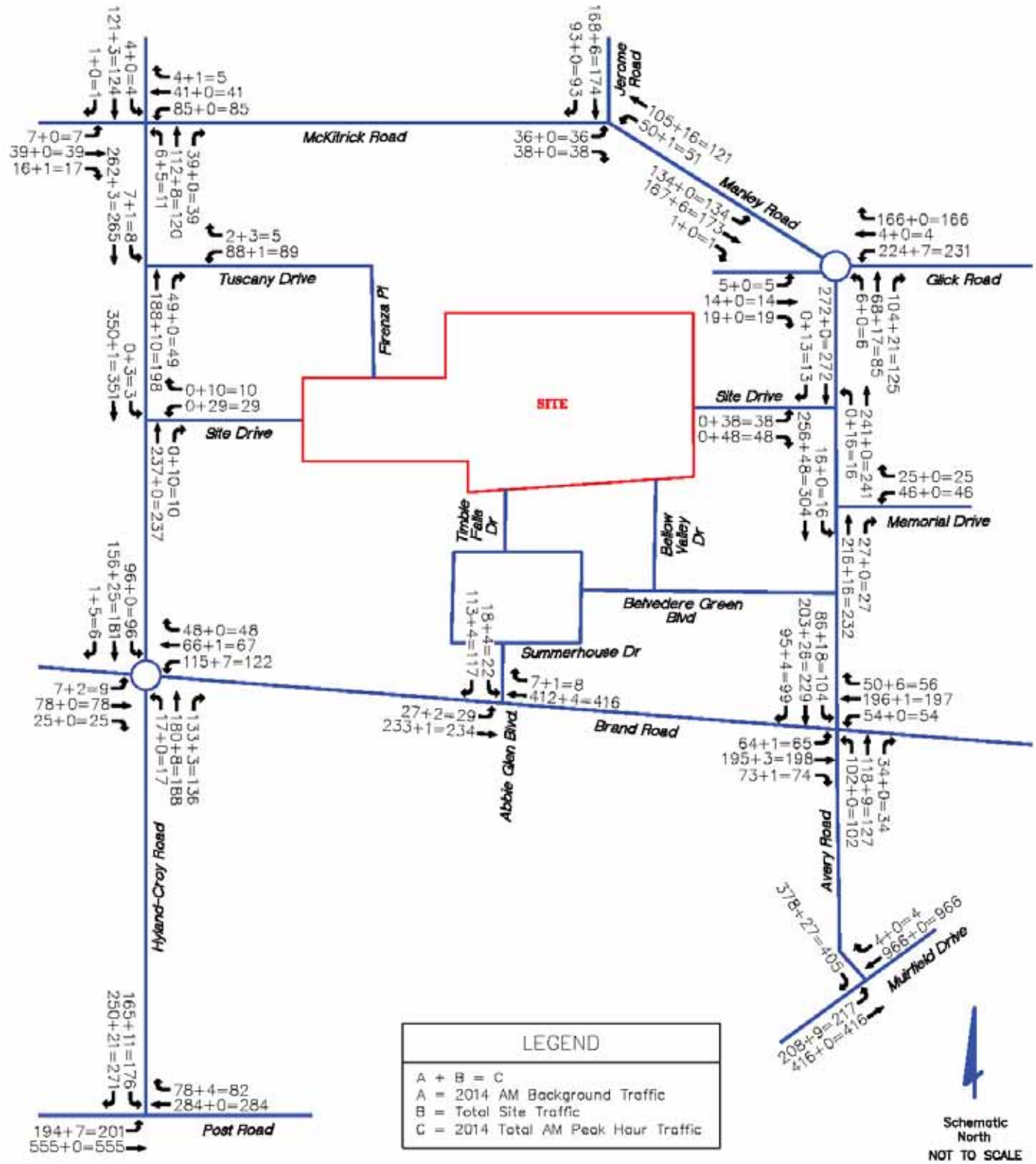


FIGURE 6
2014 Traffic Volumes – PM Peak Hour – Full Build (w/ Hyland-Croy Site Drive)

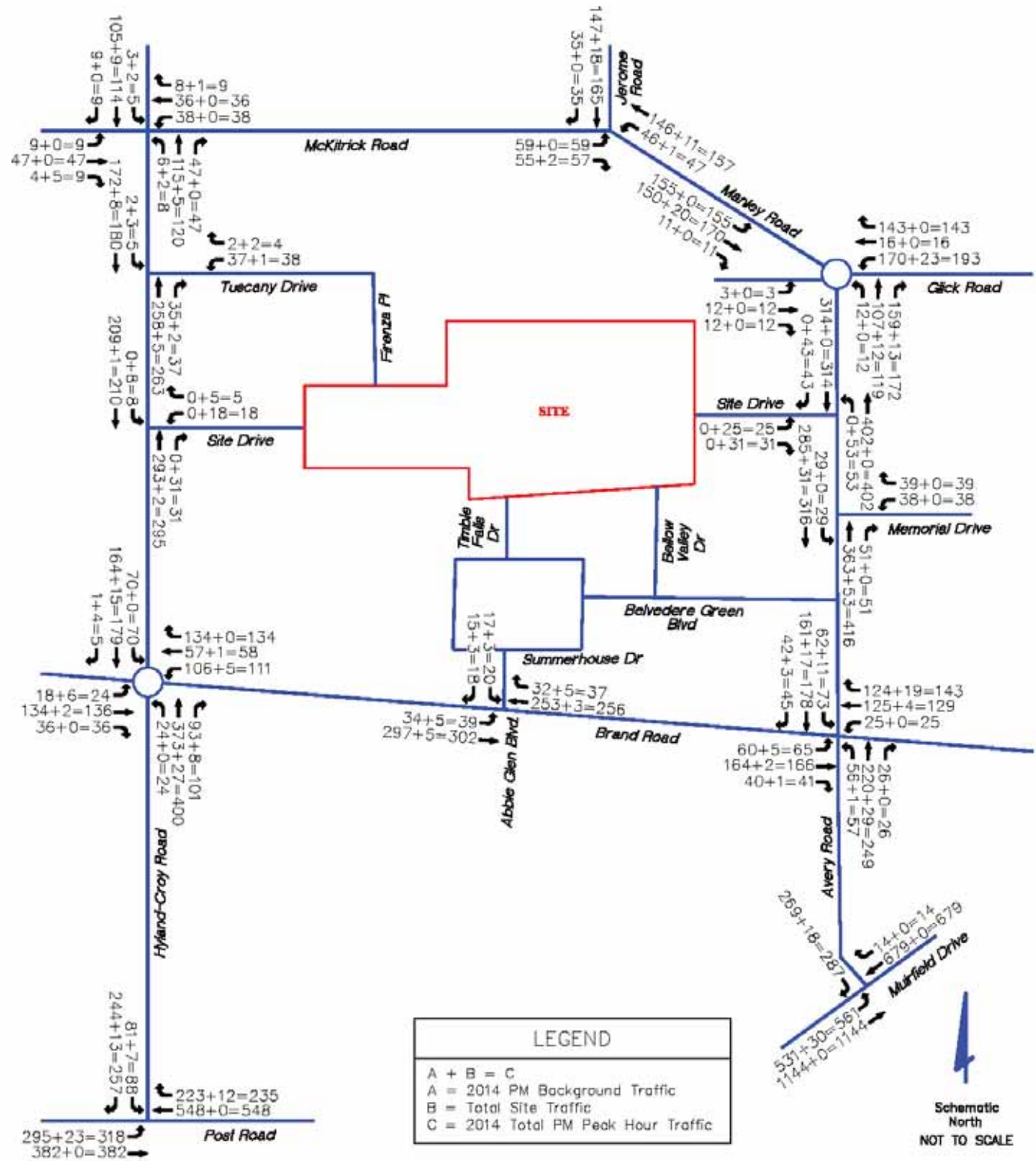


FIGURE 7
2024 Traffic Volumes – AM Peak Hour – Full Build (w/ Hyland-Croy Site Drive)

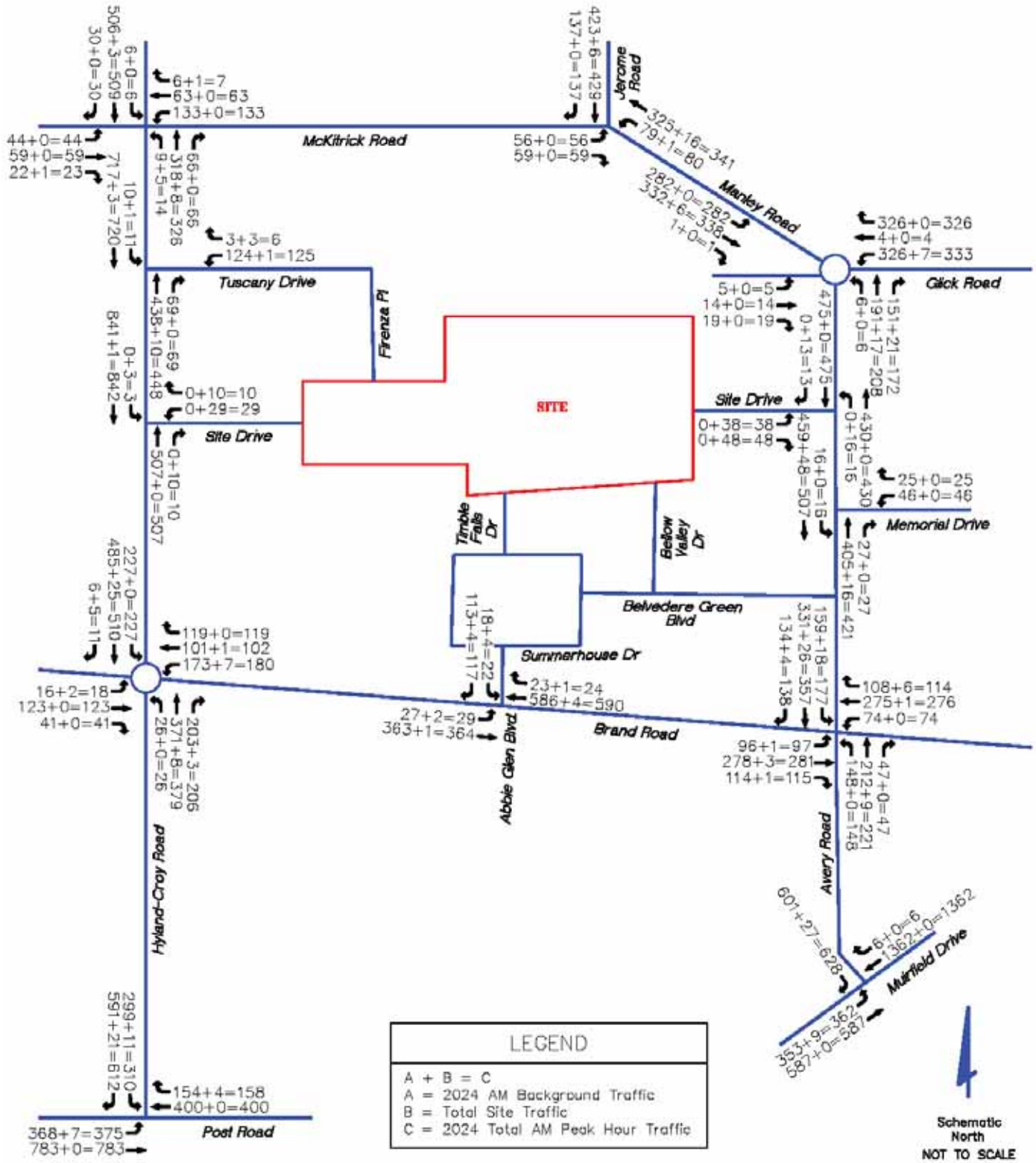


FIGURE 8
2024 Traffic Volumes – PM Peak Hour – Full Build (w/ Hyland-Croy Site Drive)

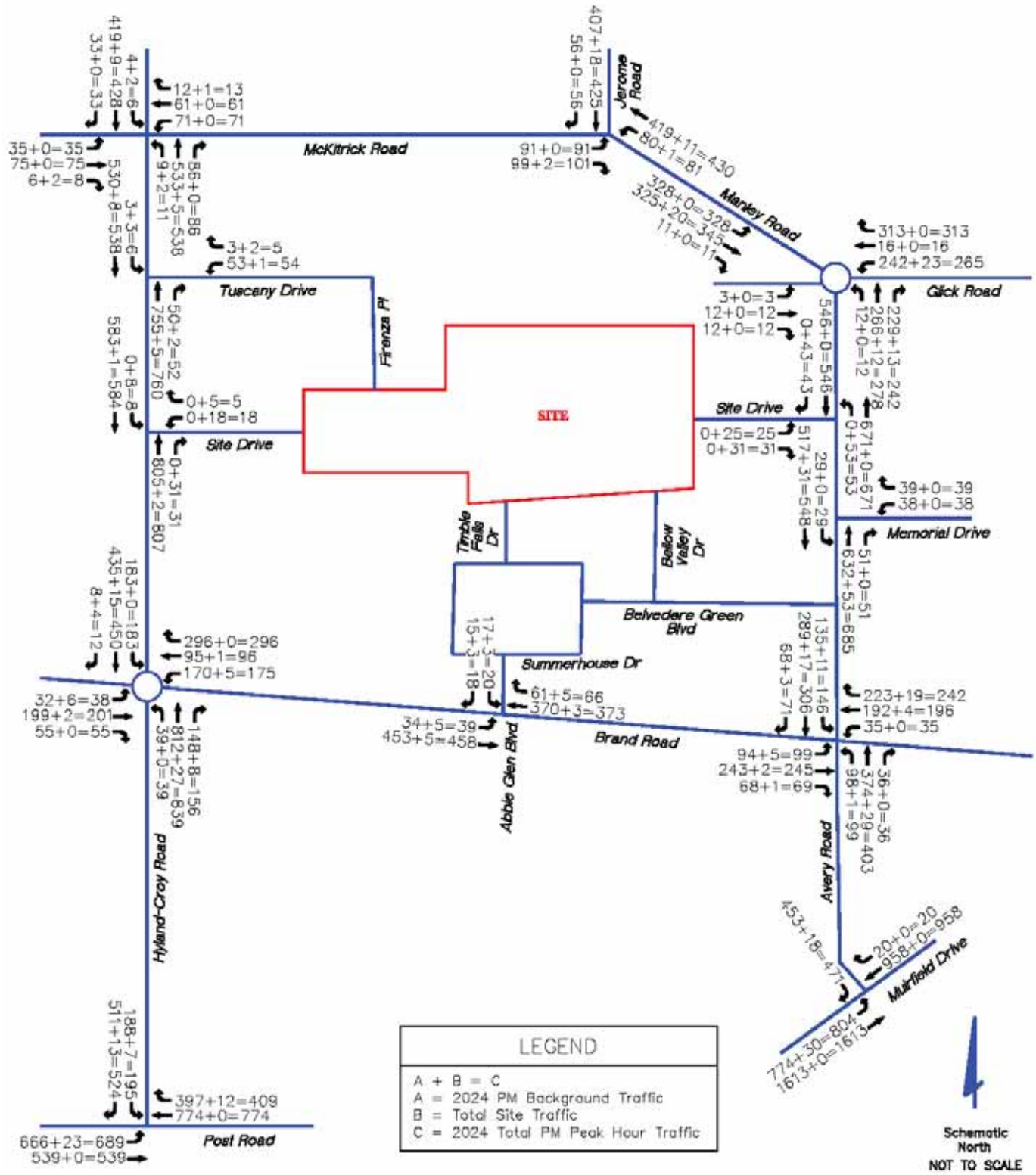


FIGURE 9
2014 Traffic Volumes – AM Peak Hour – Full Build (w/o Hyland-Croy Site Drive)

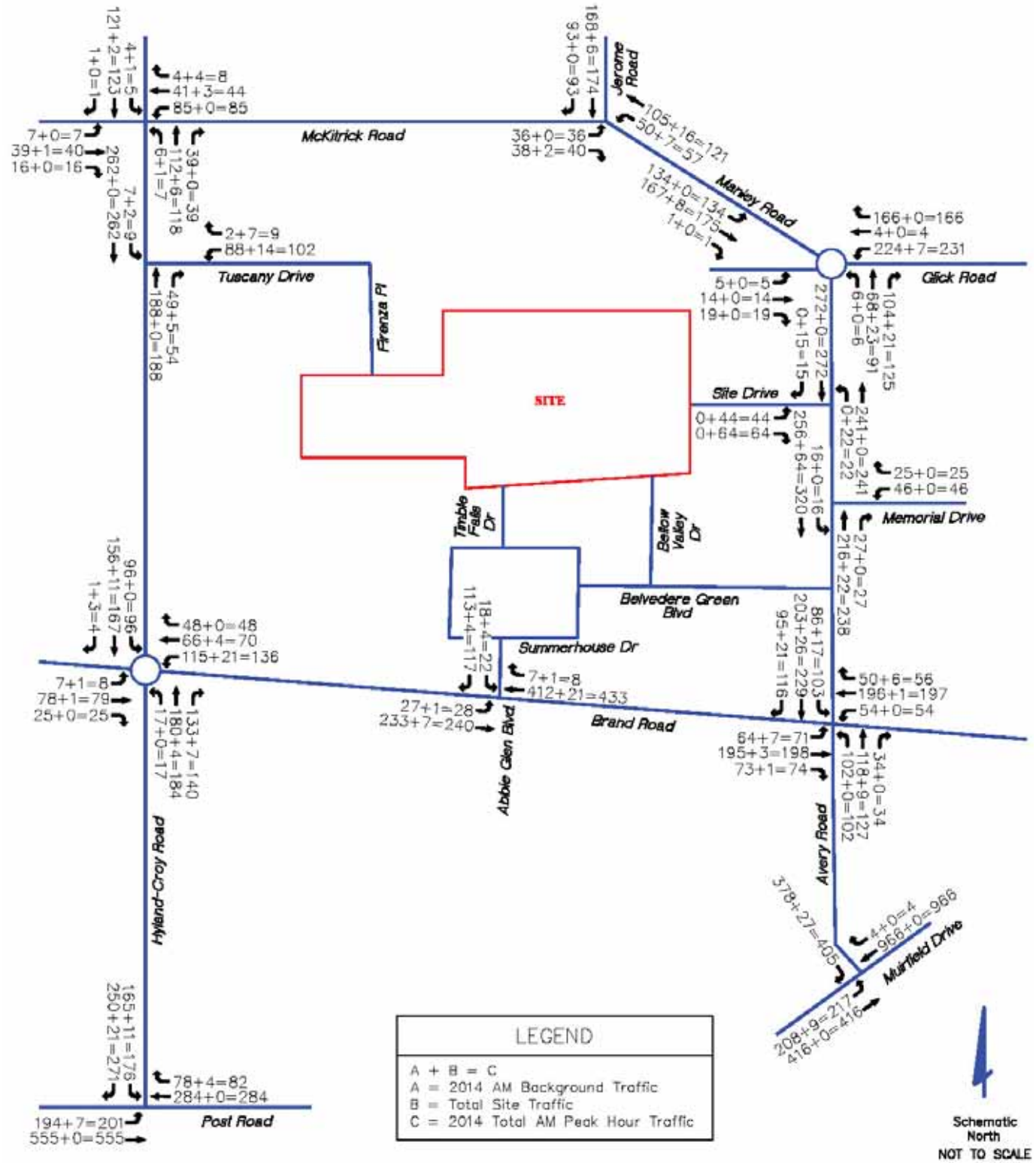


FIGURE 10
2014 Traffic Volumes – PM Peak Hour – Full Build (w/o Hyland-Croy Site Drive)

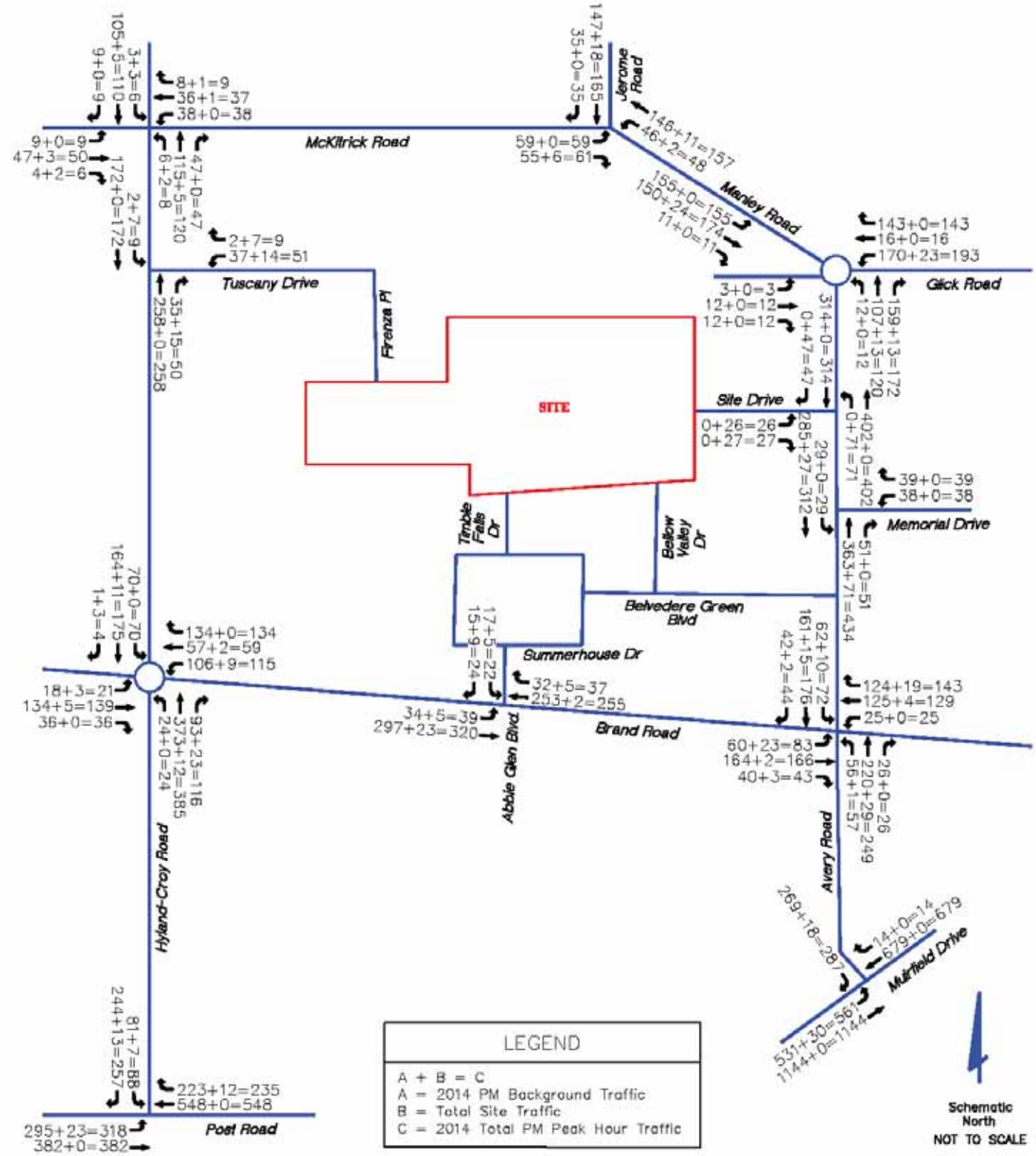


FIGURE 11
2024 Traffic Volumes – AM Peak Hour – Full Build (w/o Hyland-Croy Site Drive)

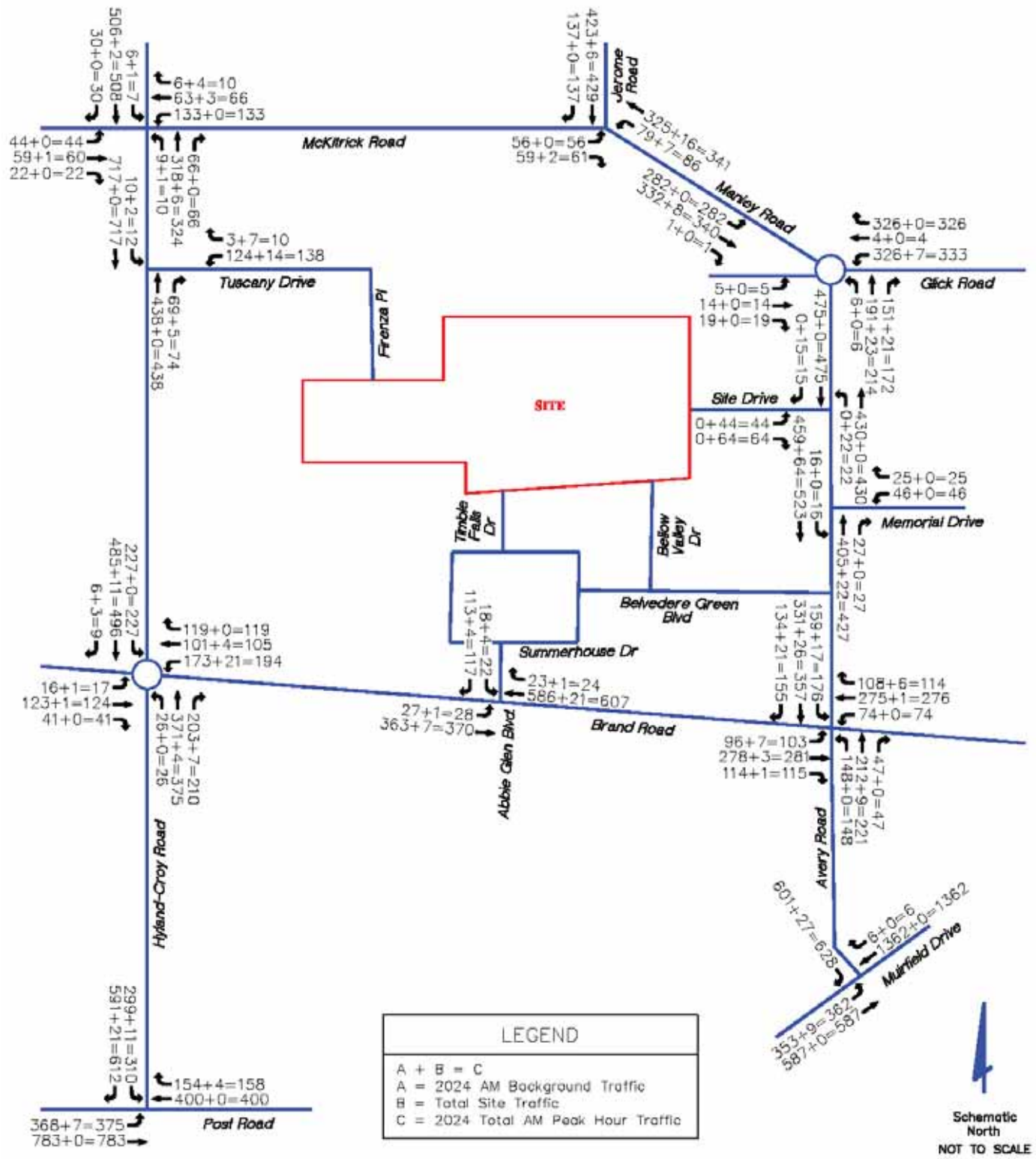
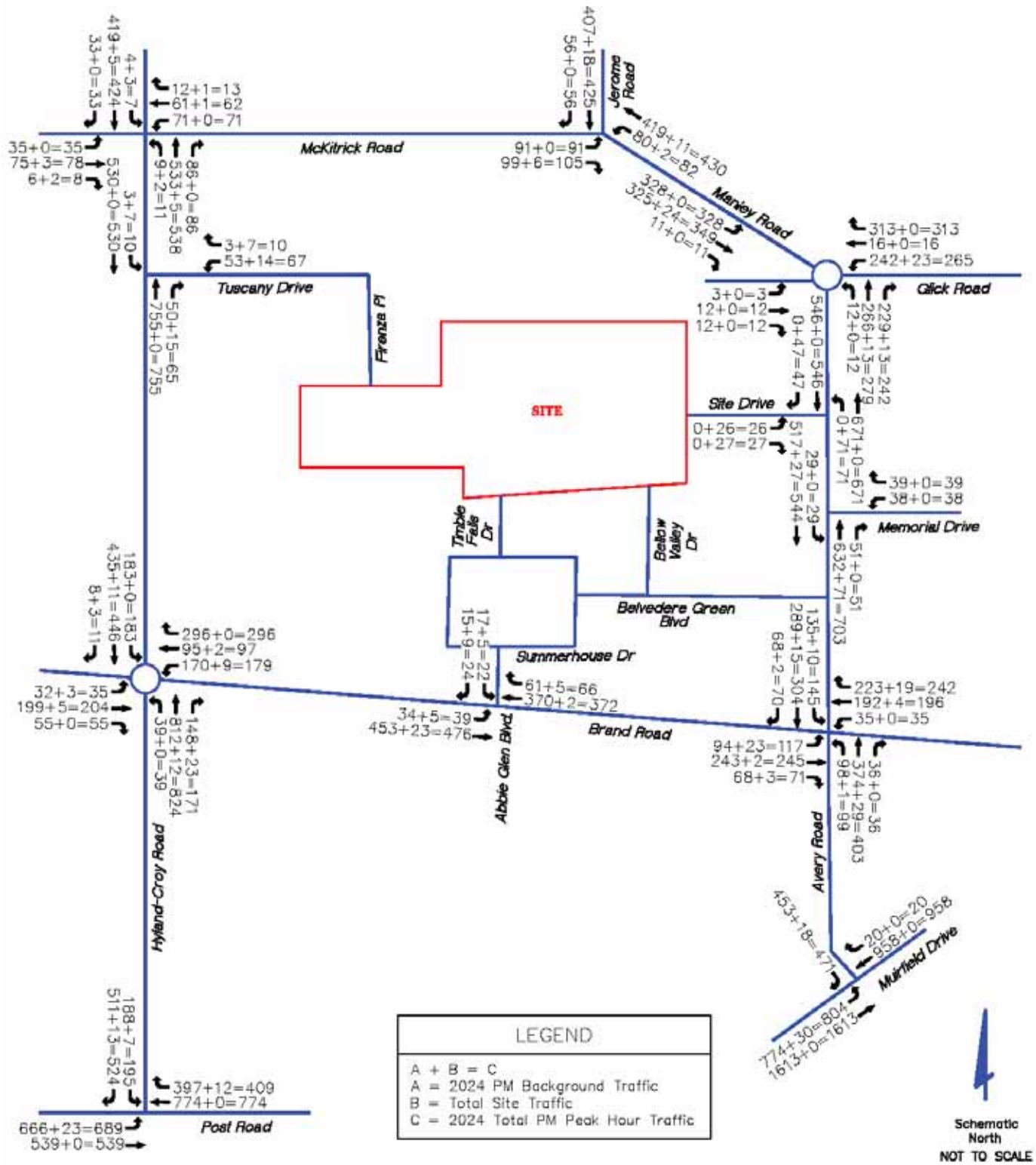


FIGURE 12
2024 Traffic Volumes – PM Peak Hour – Full Build (w/o Hyland-Croy Site Drive)



6.0 TRAFFIC ANALYSES

Impacts of the proposed development on the adjacent street network were determined by combining the estimated site-generated traffic with background traffic and analyzing the street system under background and full build conditions. Analyses were performed at each study area intersection listed above, in Section 2.0 under each of the analysis scenarios listed in Section 3.0.

Opening day (2014) and horizon year (2024) volumes were used to analyze the street system with combinations of background and site generated traffic volumes. Analyses include: traffic signal warrants, turn lane warrants, turn lane storage calculations, intersection capacity and sight distance projections.

6.1 Traffic Signal Warrants

Traffic signal warrants were compared to thresholds established by the Ohio Manual of Uniform Traffic Control Devices § 4C (Ohio Department of Transportation, 2012) (OMUTCD). Twenty-four hour tube counts were used to expand project peak hour traffic volumes over an eight hour period. Signal warrant analysis results are summarized in **Table 3**.

TABLE 3
Signal Warrant Summary

Warrant Type	Conditions	2014	2024
Hyland-Croy Road / Post Road			
8-Hour	1-Lane Minor Approach	YES (B)	YES (B)
	2-Lane Minor Approach	YES (B)	YES (B)
Hyland-Croy Road / Site Drive			
8-Hour	1-Lane Minor Approach	NO	NO
Avery Road / Muirfield Drive			
8-Hour	1-Lane Minor Approach	YES (B)	YES (B)
	2-Lane Minor Approach	NO	YES (B)

(B) = Warranted with background traffic

Warrant analyses were conducted at the Hyland-Croy Road/Post Road intersection, the Hyland-Croy/Site Drive intersection, and the Avery Road/Muirfield Drive intersection. The results of the analyses indicate that an eight hour warrant is satisfied with 2014 background traffic volumes and existing geometry at the Hyland-Croy Road/Post Road intersection. Warrants were also conducted with the addition of a southbound right turn lane. Under these conditions, results indicate that 2014 background traffic volumes satisfy an eight hour warrant. Analyses indicated that 2024 Full Build traffic volumes do not satisfy an eight hour warrant at the Hyland-Croy Road/Site Drive intersection. Under existing intersection conditions, the analyses indicate that the eight hour signal warrant is satisfied with opening year 2014 background traffic volumes at the Avery Road/Muirfield Drive intersection. Signal warrant calculations have been included in **Appendix D**. Installation of traffic signals at the Hyland-Croy Road/Post Road intersection and the Avery Road/Muirfield Drive intersections are not related to the proposed site.

6.2 Turn Lane Warrants

Left and right turn lane warrants were evaluated on the through road at each proposed stop controlled site access driveway, pursuant to the requirements set forth in the Location and Design Manual, Volume 1 (Ohio Department of Transportation, 2014). Results indicate that a northbound left turn lane is expected to be warranted under both 2014 and 2024 conditions on Avery Road at the proposed Site Drive, regardless of whether a Site Drive is built on Hyland-Croy Road. If the Site Drive is built on Hyland-Croy Road, turn lanes are not expected to be warranted in opening year (2014), however, it is expected that a northbound right turn lane and a southbound left turn lane will be warranted under horizon year (2024) conditions. Turn lane warrant charts are provided in **Appendix D**.

6.3 Intersection Capacity Analyses

Highway Capacity Software (HCS 2010) was used to evaluate operational characteristics of traditional study area intersections and SIDRA Intersection software was used to model modern roundabout intersections. Intersections are graded using a level of service designation. Levels of Service (LOS) are expressed in terms of letter grades with LOS A representing the highest quality traffic flow and minimal delay, and LOS F representing poor traffic operations and significant delay. LOS D or better for each approach at an intersection is desirable. Capacity results are summarized and detailed in **Appendix E**.

6.3.1 Hyland-Croy Road/McKitrick Road

Under four-way stop sign control, the Hyland-Croy Road/McKitrick Road intersection is expected to operate at a LOS A with 2014 background and full build traffic volumes. The addition of background traffic growth through the horizon year is expected to degrade the operation for northbound and southbound traffic to LOS F. With the site contributing less than 2 percent of total traffic at this location, the addition of site generated traffic volumes do not significantly alter the level-of-service. The City of Dublin indicated that any future improvements at this intersection would most likely consist of roundabout control. If a roundabout is installed at this location to accommodate background traffic, the intersection is expected to operate at a LOS A with 2024 full build traffic volumes. The installation of a roundabout is not associated with the proposed development. Site improvements are not recommended at this location.

6.3.2 Hyland-Croy Road/Tuscany Drive

Under two-way stop control, all approaches of the Hyland-Croy Road/Tuscany Drive intersection are expected to operate at a LOS B or better with background and full build 2014 traffic volumes. The addition of background traffic through horizon year 2024 is expected to degrade the westbound approach to a LOS F. The addition of site traffic does not significantly alter the westbound approach delay. With the site contributing1.5 percent or less to the total volume, site related improvements at this intersection are not recommended.

6.3.3 Hyland-Croy Road/Site Drive

Under two-way stop control, all approaches of the Hyland-Croy Road/Site Drive intersection are expected to operate at a LOS B or better with opening year 2014 volumes. The addition of background traffic growth through horizon year 2024 is expected to increase delay to 36.0 seconds for the westbound approach. The Highway

Capacity Manual threshold between a LOS D and LOS E is 35 seconds. With delays near the D/E threshold and a 20 year horizon needed to reach this point, improvements beyond a southbound left turn lane and northbound right turn lane are not recommended. Horizon year 2024 Full Build traffic volumes do not satisfy eight-hour traffic signal warrants.

6.3.4 Hyland-Croy Road/Brand Road/Mitchell-Dewitt Road

Highway capacity analyses at the intersection of Hyland-Croy Road/Brand Road/Mitchell-Dewitt Road indicate that the intersection is expected to operate at an acceptable LOS B or better with 2014 full build traffic volumes and existing roundabout geometry. The addition of background traffic growth through year 2024 is expected to trigger the need for intersection improvements. Capacity improvements needed to accommodate forecasted 2024 background traffic volumes include; converting the northbound right turn lane to a northbound through-right lane, converting the southbound right turn lane to through-right lane and the addition of a westbound right turn lane. While SIDRA output lists a LOS F for the westbound approach without a dedicated turn lane, the overall delay is only 43.4 under 2024 background conditions. Actual implementation of a westbound right turn lane should be reevaluated at a later date as traffic volumes mature in this area.

The addition of site traffic has little effect on both the overall intersection delay and the individual approach movements. Site related improvements at this intersection are not recommended. Additionally, the safety of a roundabout controlled intersection is closely tied to intersection geometry. Background intersection improvements listed in this section should not be implemented until justified with actual traffic volumes.

6.3.5 Hyland-Croy Road/Post Road

Under two-way stop sign control and 2014 background traffic conditions, this intersection is expected to operate at a LOS F during the morning and afternoon peak hours. This poor level-of-service is a function of existing/background traffic and is not associated with the development of the proposed site.

Under signal control, all movements are expected to operate at an acceptable LOS D or better with 2014 Full Build traffic volumes. The addition of background growth through the horizon year 2024 is expected to degrade the operation to a LOS F. In order to accommodate 2024 background traffic volumes under signalized control, it is expected that both southbound and westbound right-turn lanes will be needed.

The City of Dublin indicated that future improvements at this location may consist of roundabout control. Under roundabout control and the addition of a southbound right turn lane, the intersection is expected to operate at a LOS C or better under 2024 full build conditions.

The proposed site is expected to contribute less than 2 percent to the total traffic at this location. Additionally, site traffic has little effect on approach/intersection delay. As a result, site related improvements at this intersection are not recommended.

6.3.6 Brand Road/Abbie Glen Boulevard

All approaches of the Brand Road/Abbie Glen Boulevard intersection are expected to operate at a LOS C or better with full build horizon year (2024) traffic volumes. No site related improvements are recommended at this location.

6.3.7 Avery Road/Muirfield Drive

Under two-way stop sign control with restricted southbound left turns, all approaches at the intersection of Avery Road and Muirfield Drive are expected to operate with a LOS D or better with 2014 background traffic volumes. The addition of site traffic at this location slightly increases delay which is already near the LOS D/E threshold for AM peak hour conditions. The addition of background traffic growth through horizon year 2024 yields a LOS F.

Under signal control, with the addition of a second southbound right turn lane, the intersection is expected to operate at an overall LOS D in the morning peak hour. The southbound right turn movement is expected to operate at a level-of-service very close to the LOS D/E threshold under background traffic conditions. The addition of site generated traffic is expected to cause a small increase in delay. The proposed site generated traffic only consists of approximately 1.2 percent of traffic at this location. Subsequently, site traffic has a marginal effect on approach delay and as a result, site related improvements are not recommended.

6.3.8 Avery Road/Brand Road

Highway capacity analyses at the intersection of Avery Road/Brand Road indicate that the intersection is expected to operate at an acceptable LOS D or better with 2014 full build traffic volumes. The addition of background traffic growth through the year 2024 is expected to yield a LOS F. The City of Dublin indicated that any future improvements at this intersection would most likely consist of roundabout control. The intersection is expected to operate at a LOS C or better under roundabout control with two through lanes on Avery Road, and one through lane on Brand Road, with 2024 full build traffic volumes. The installation of a roundabout is not associated with the proposed development and site related improvements are not recommended at this location.

6.3.9 Avery Road/Memorial Drive

All approaches of the Avery Road/Memorial Drive intersection are expected to operate at an acceptable LOS C or better with 2014 Full Build traffic volumes. The addition of background traffic through horizon year 2024 is expected to degrade the operation to a LOS E for the westbound approach. The delay associated with this LOS E is very close to the LOS D/E threshold. The proposed development only contributes a small number of trips to the intersection and zero trips to the westbound movement. As a result, site improvements are not recommended at this location.

6.3.10 Avery Road/Site Drive

The Avery Road/Site Drive intersection is expected to operate at a LOS D or better with full build horizon year (2024) traffic volumes with or without a site drive connection to Hyland-Croy Road. This level of service is based on the addition of a warranted northbound left turn lane.

6.3.11 Avery Road/Glick Road/Manley Road

Under the existing single-lane roundabout control, all approaches at the Avery Road/Glick Road/Manley Road intersection are expected to operate at a LOS C or better with full build horizon year (2024) traffic volumes. No site related improvements are recommended at this location.

6.3.12 Jerome Road/McKitrick Road

All approaches of the Jerome Road/McKitrick Road intersection are expected to operate at a LOS B or better with background and full build 2014 traffic volumes. The addition of background traffic through horizon year 2024 is expected to increase delay yielding a LOS E in the afternoon peak hour eastbound traffic. It is expected that under all-way stop control, all movements will operate at an acceptable LOS D or better in both morning and afternoon peak hours, with both background and full build traffic volumes. With only a small percentage of total traffic at this location generated by the proposed development, the addition of site generated traffic volumes do not significantly alter the level-of-service. No site related improvements are recommended at this location.

6.4 Turn Lane Length Calculations

Turn lane lengths were calculated for recommended turn lanes based on procedures outlined in the Location and Design Manual, Volume 1 (Ohio Department of Transportation, 2014). Calculated lengths for warranted turn lanes are provided below.

- Northbound left turn lane at Avery Road/Site Drive intersection
  = 161' including 50' drop taper
- Southbound left turn lane at Hyland-Croy Road/Site Drive intersection
  = 225' including 50' drop taper
- Northbound right turn lane at Hyland-Croy Road/Site Drive intersection
  = 225' including 50' drop taper

Detailed calculations are provided in **Appendix F**.

6.5 Sight Distance Evaluation

The Location and Design Manual § 201.3 (Ohio Department of Transportation, 2014) provides recommended intersection sight distance requirements for given design speeds. These requirements were compared to available sight distance at both proposed site drive locations for both left turning and right turning movements. A detailed sight distance exhibit has been enclosed for each intersection and shows that the proposed site drive locations are expected to satisfy sight distance requirements. Intersection sight distance results are summarized in **Table 4**.

TABLE 4
Intersection Sight Distance Evaluation

Minor Street	Direction	Major Street	Required ISD	Available ISD
Site Drive (East)	To the Right	on Avery Road	445'	>450'
Site Drive (East)	To the Left	on Avery Road	445'	>450'
Site Drive (West)	To the Right	on Hyland-Croy Road	610'	>615'
Site Drive (West)	To the Left	on Hyland-Croy Road	610'	>615'

ISD = Intersection Sight Distance

The horizontal alignments and vertical profiles for Avery Road and Hyland-Croy Road were created based on information and contours provided by the United States Geological Survey and GIS information. The requirements of the Location and Design Manual § 201.3 have been included on each figure and illustrate that both proposed site drives are expected to meet intersection sight distance requirements. Detailed diagrams are located in **Appendix G**.

6.6 Stub Street Connections

At the request of the City of Dublin, volumes on adjacent residential streets have been listed with and without site traffic in **Table 5**.

TABLE 5
Adjacent Residential Street Volumes

Road Name	Existing	2014		2024	
		w/ HCSD	w/o HCSD	w/ HCSD	w/o HCSD
AM					
Firenza Pl	18	23	46	23	46
Summerhouse Dr	12	18	17	18	17
Bellow Valley Dr	21	26	26	26	26
PM					
Firenza Pl	22	30	65	30	65
Summerhouse Dr	16	24	28	24	28
Bellow Valley Dr	26	34	38	34	38

= Two-direction volume

6.7 Avery Road Pedestrian Crossing

At the request of the City of Dublin, we have reviewed the existing pedestrian facilities in the Avery Road corridor in the context of accommodating a pedestrian crossing near either the proposed Site Drive or the Memorial Drive intersection. Pedestrian facilities on the east side of Avery Road have been designed and installed on private property with a substantial buffer from the roadway as outlined below.

- Towards the south end of the site frontage, the pedestrian path on the east side of Avery Road is located on property owned by the Muirfield Association, Inc.
- Near the Memorial Drive intersection, the pedestrian path shifts on to property owned by two private single family homes.
- Opposite the planned Site Dive on Avery Road, the existing pedestrian path is located east of The Country Club at Muirfield Village maintenance facility and approximately 200 feet from the site drive connection.

With this large offset and the need to access private property, pedestrian accessibility to the existing path system on the east side of Avery Road may not be feasible.

7.0 CONCLUSION AND RECOMMENDATIONS

The analyses have shown that the proposed site is expected to generate a very low number of trips that get distributed to several intersections. The combination of low trip generation and distributional dilution result in insignificant impacts to all existing study area intersections, regardless of whether a site access point is built on Hyland-Croy Road or not. No site related improvements are recommended at these existing study area intersections.

The proposed site drive on Avery Road is expected to operate at acceptable levels-of-service through the horizon year 2024 with the addition of a northbound left turn lane. The potential access point on Hyland-Croy Road does not affect the level-of-service of the Avery Road/Site Drive intersection. If it is constructed, the Hyland-Croy Site Drive is expected to operate at acceptable levels-of-service in opening year 2014 and may be near the D/E threshold under horizon year 2024 conditions. If installed a northbound right turn lane and southbound left turn lane are expected to be warranted at this location in horizon year 2024.

Recommended site related improvements have been graphically summarized in in **Figure 13** through **Figure 16.**

FIGURE 13
2014 Recommended Conditions
(w/ Hyland Croy Site Drive)

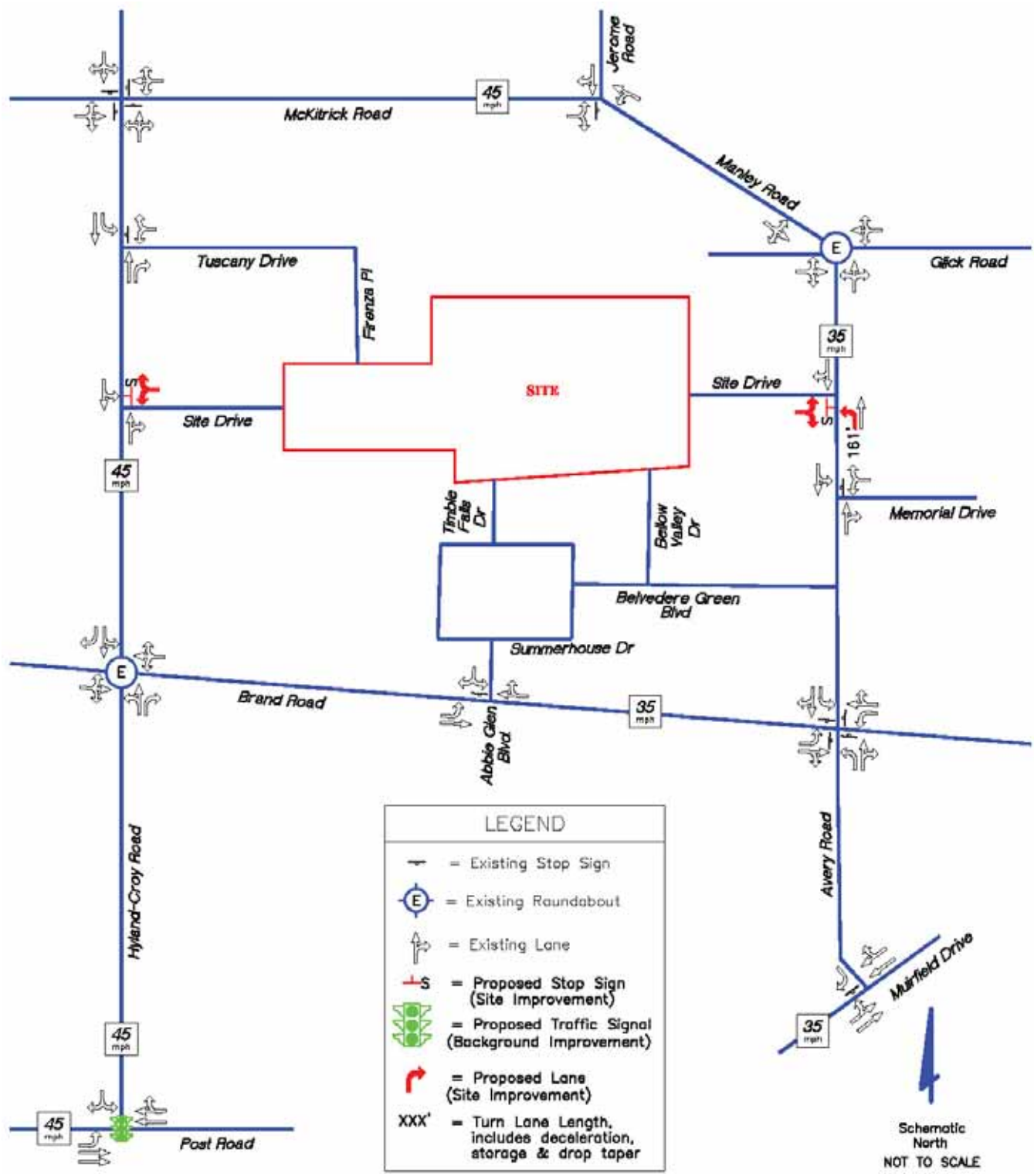


FIGURE 14
2014 Recommended Conditions
(w/o Hyland Croy Site Drive)

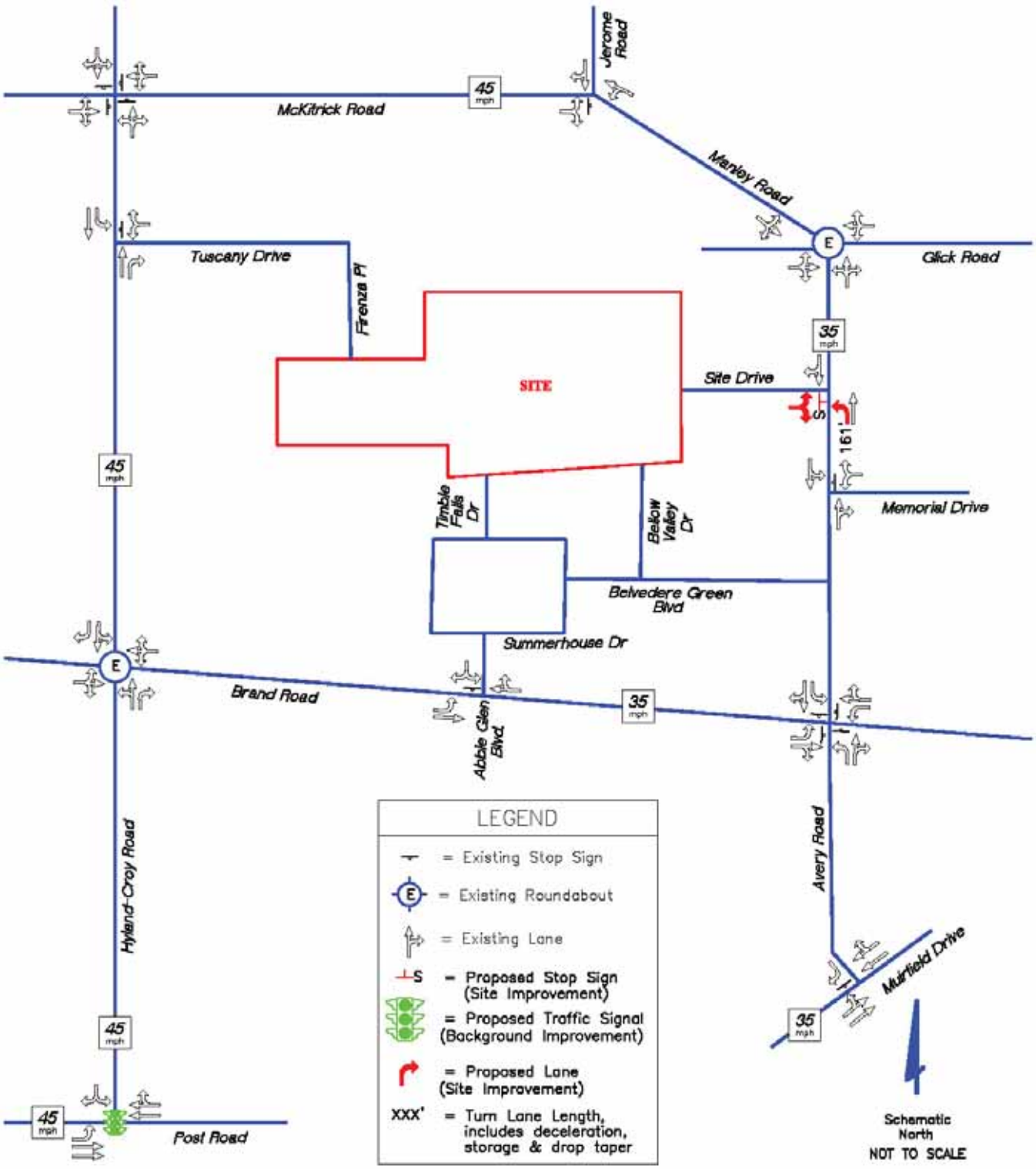


FIGURE 15
2024 Recommended Conditions
(w/ Hyland Croy Site Drive)

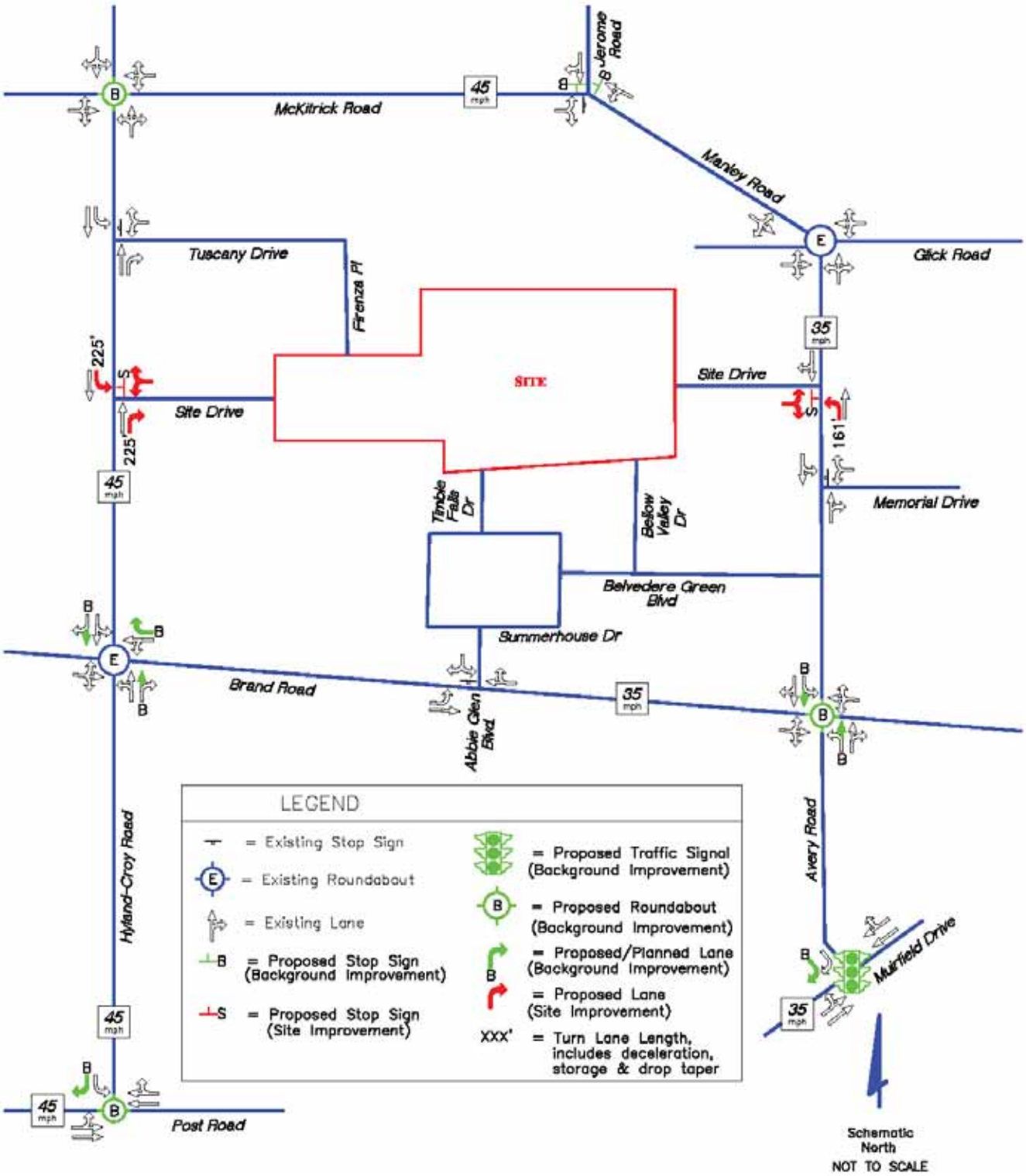
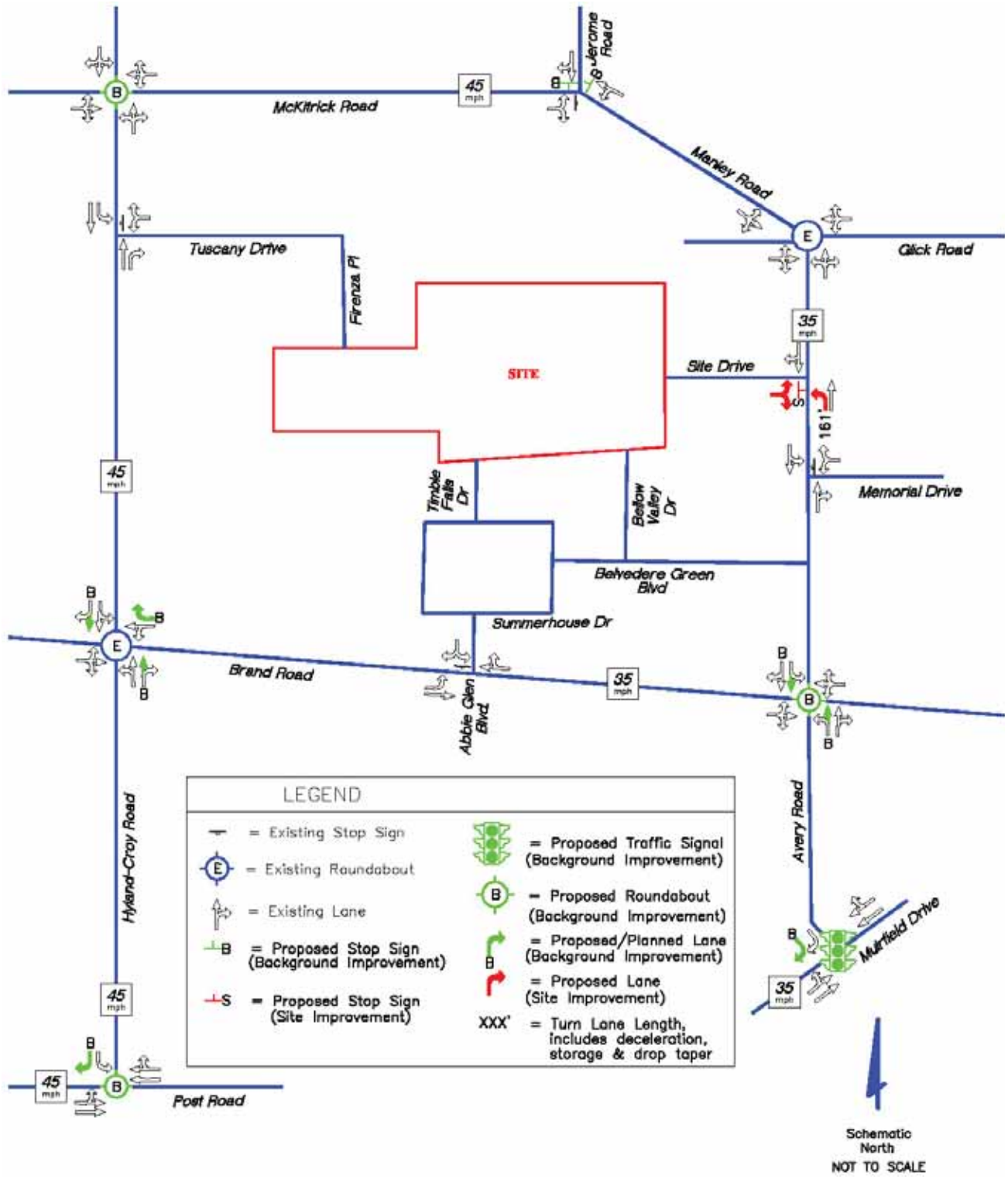


FIGURE 16
2024 Recommended Conditions
(w/o Hyland Croy Site Drive)



APPENDIX A
CORRESPONDENCE

Humenny, Justin

From: Smallwood, Jason
Sent: Monday, January 06, 2014 2:45 PM
To: Humenny, Justin
Subject: FW: Riviera MOU

From: Tina C. Wawszkiewicz [mailto:twawszkiewicz@dublin.oh.us]
Sent: Monday, January 06, 2014 2:35 PM
To: Smallwood, Jason
Cc: jfrancis@MIHOMES.com; Marin, Diane; Aaron Stanford; Jeannie E. Willis; Claudia D. Husak
Subject: RE: Riviera MOU

Hi Jason,

Thanks for getting us the extensive Riviera MOU for review (dated November 8, 2013). Please find our comments below.

1. It appears that a portion of the site is in Delaware County. Please revise the acreages in the paragraph under Proposed Development.
2. If the site drive proposed directly to Hyland-Croy Drive is not a certainty, we need to understand the impacts of the site with and without this connection. It appears templates have been prepared for the volumes, but there is no discussion of analysis in the text.
3. Please investigate pedestrian accommodations for crossing Avery Road at Memorial Drive and at the proposed site drive.
4. Mitigation strategies will be required where any movement is reported below LOS D.
5. Please provide the percentage of site traffic contributions where mitigation is needed.
6. A summary graphic of mitigation strategies is requested with this study. Please indicate where turn lanes and intersection improvements are needed.
7. On plate D2 (AM and PM), please note the reduction applied for the Oak Park units that are currently occupied.
8. There are no site trips proposed from Hyland-Croy Road to the Avery Road site entrance. It seems likely that some drivers will choose to enter the main access on Avery Road via Brand Road or McKitrick Road from the west. It seems even more likely if the direct site access to Hyland-Croy Road is not available. Please assign trips accordingly.

Please let me know if you have any questions.

Thanks and Happy New Year!
Tina

Tina Wawszkiewicz, PE
Civil Engineer

City of Dublin
Engineering
5800 Shier Rings Road
Dublin, Ohio 43016
phone 614.410.4636
cell 614.668.1705

EMH&T
Engineers, Surveyors, Planners, Scientists

November 8, 2013

Tina Wawszkiewicz, P.E.
City of Dublin Engineering
5800 Shier Rings Road
Dublin, OH 43016

Subject: Riviera - Traffic Impact Study
Memorandum of Understanding

Dear Ms. Wawszkiewicz

The following summarizes our understanding of the scope of work for the traffic impact study for the above referenced site.

Proposed Development
The proposed development is located in the City of Dublin between Hyland-Croy Road and Avery Road, north of Brand Road. The site is approximately 164.5 acres with 99.3 acres in Franklin County and 65.2 acres in Union County. The site is expected to develop with 284 single family detached dwelling units. Site access is preliminary planned via one direct access point on Avery Road, three connections to existing adjacent neighborhood stub streets and a potential direct access point on Hyland-Croy Road. A preliminary site plan has been attached for reference.

Study Area Intersections
The following intersections will be included in the project study area and will be analyzed with and without the site drive connection to Hyland-Croy Road.

- Hyland-Croy Road/McKitrick Road
- Hyland-Croy Road/Tuscany Drive
- Hyland-Croy Road/Site Drive
- Hyland-Croy Road/Brand Road/Mitchell-Dewitt Road
- Hyland-Croy Road/Post Road
- Brand Road/Abbie Glen Boulevard
- Avery Road/Muirfield Drive
- Brand Road/Avery Road
- Avery Road/Memorial Drive
- Avery Road/Site Drive
- Avery Road/Glick Road/Manley Road
- Manley Road/Jerome Road/McKitrick Road

Data Collection
Traffic Counts conducted by EMH&T personnel in October 2013, traffic counts provided by the City of Dublin dated November 2011, the Stavroff Hyland-Croy Road Development TIS, dated August 2013, and the Tartan Ridge TIS, dated December 21, 2006 will be used as the foundation for this study.

Traffic counts were conducted by EMH&T in October 2013 between the hours of 7:00AM – 9:00AM and 4:00PM – 6:00PM at the following intersections:

- Hyland-Croy Road/McKitrick Road (AM only)
- Hyland-Croy Road/Tuscany Drive
- Jerome Road/Manley Road/McKitrick Road (AM only)
- Avery Road/Glick Road/Manley Road
- Avery Road/Memorial Drive
- Avery Road/Muirfield Drive
- Brand Road/Abbie Glen Boulevard

Traffic Counts were provided by the City of Dublin for the following intersections:

- Avery Road/Brand Road
- Hyland-Croy/Brand Road
- Jerome Road/Manley Road/McKitrick Road (PM only)
- Hyland-Croy Road/McKitrick Road (PM only)

Traffic counts dated August 28, 2012, conducted by EMH&T were used for the intersection of Hyland-Croy Road and Post Road.

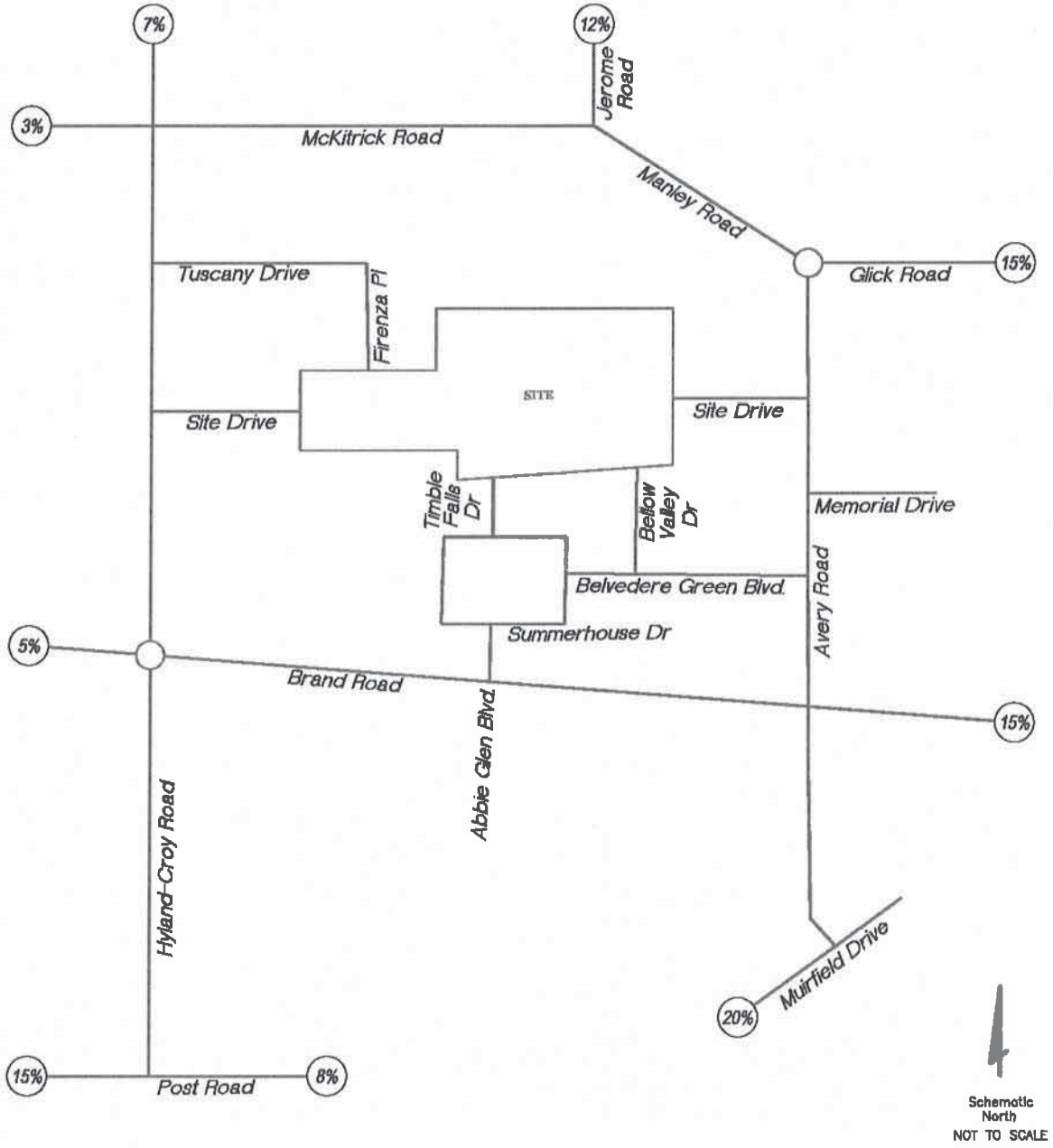
24-hour tube counts were collected on Firenza Place, Bellow Valley Drive, and Summerhouse Drive.

Trip Generation
Trip generation characteristics of the proposed site will be based on ITE trip generation data and methodology contained in Trip Generation 9th Edition (Institute of Transportation Engineers, 2012). Trips will be forecast using rates for Land Use Code 210 (Single Family-Detached). Detailed trip generation calculations are attached.

Site Traffic Distribution
Site traffic distributions published in the Tartan Ridge TIS, dated December 21, 2006 were compared to counted traffic volumes in the project study area. Minor adjustments were made to the Tartan Ridge distribution to reflect a current representation of current traffic patterns. Site traffic volumes have been distributed to the adjacent street network based on the distributions illustrated in Figure 1 and as listed below:

- 15% West on Post Road
- 8% East on Post Road
- 5% West on Mitchell-Dewitt Road
- 3% West on McKitrick Road
- 7% North on Hyland-Croy Road
- 12% North on Jerome Road
- 15% East on Glick Road
- 15% East on Brand Road
- 20% South on Muirfield Drive

FIGURE 1
Trip Distribution



Traffic Volume Projections
Detailed traffic volume calculations are attached illustrating the development of 2014 and 2024, background and full build traffic volumes. Background traffic volumes contain two components:

(1) General area growth termed pure background traffic.
Pure background traffic volumes were calculated by applying a 3.5 percent annual growth rate, as published in previous studies in the area, to counted volumes.

(2) Traffic from known adjacent area developments.
Site generated trips from the following undeveloped sites within the study area have been included in horizon year 2024 background traffic volumes:

- Jerome Village: volumes taken from (Plate L, Tartan Ridge TIS)

- Oak Park Site: volumes taken from (Plate I, Tartan Ridge TIS)
Approximately 30 percent of residential trips from Oak Park were assumed to be existing and included in the traffic counts conducted for this project.

- Tartan Ridge Site: volumes taken from (Plate W, Tartan Ridge TIS)
Approximately 50 percent of trip from Tartan Ridge were assumed to be existing and included in the traffic counts conducted for this project.

- Hyland-Croy Site: volumes taken from (Plate L, Stavroff Hyland-Croy Road Development TIS).

With a combination of multiple background traffic components the resulting growth rate for the study area is in effect larger than the base 3.5 percent. The resultant average growth rate for study area intersections was calculated from 2003 count volumes to recent volumes counted in 2011-2013. This historical resultant growth rate was found to be 4.7 percent in the study area. The resultant growth rate used in this study by combining the base 3.5 percent with additional background traffic components was calculated from 2011-2013 count volumes to 2024 Full Build traffic volumes. This effective study growth rate was found to be 5.9 percent in the study area. Compared to the historical trend, the effective study growth rate provides a conservative forecast for growth in the study area. With several new developments planned in the study area, it is expected that background traffic will grow at a slightly higher rate than the historical trend. Calculations for study area growth rates have been provided for reference.

Traffic Analyses

The following analyses will be conducted as part of this impact analysis.

- Turn lane warrants will be evaluated for through approaches for unsignalized intersections at the proposed site access points based on graphical solutions provided in the Location and Design Manual (Ohio Department of Transportation, 2013).
- Intersection capacity will be evaluated at stop controlled and signalized intersections using the methodologies outlined in the Highway Capacity Manual with the assistance of Highway Capacity Software (HCS). Intersection capacity at roundabout controlled intersections will be evaluated using Rodel (Roundabout software).
- Turn lane storage and deceleration requirements will be recommended for any warranted turn lane improvement based on guidelines published in the Location and Design Manual § 401.6 (Ohio Department of Transportation, 2013).
- Intersection sight distance exhibits will be developed for site drive connections to the Avery Road and Hyland-Croy Road.

A detailed report including applicable figures and tables will be prepared to summarize study methodologies, analysis, findings and recommendations. The report will be submitted to the City of Dublin for review. Please signify your concurrence with the scope of work outlined herein by signing below and returning this Memorandum of Understanding. If you have any questions or comments, please feel free to contact me directly at (614) 775-4645.

Sincerely,
EVANS, MECHWART, HAMBLETON & TILTON, INC.

Jason D. Smallwood, PE
Associate and Senior Traffic Engineer

ACCEPTANCE AND APPROVAL OF MEMORANDUM OF UNDERSTANDING

By: _____

Date: _____

Humenny, Justin

From: Smallwood, Jason
Sent: Friday, September 06, 2013 11:48 AM
To: Humenny, Justin
Subject: FW: RE: Riviera

From: Tina Wawszkiewicz [mailto:TWawszkiewicz@dublin.oh.us]
Sent: Wednesday, July 31, 2013 1:19 PM
To: Smallwood, Jason
Subject: Fwd: RE: Riviera

more correspondence...

>>>

> **From:** Tina Wawszkiewicz
> **To:** Gallagher, John
> **CC:** Stanford, Aaron
> **Date:** 7/25/2013 3:13 PM
> **Subject:** RE: Riviera

Hi John,

Good questions. My responses are below.

Thanks!
Tina

Tina Wawszkiewicz, PE
Civil Engineer II

City of Dublin
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5800 Shier Rings Road
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cell 614.668.1705

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www.facebook.com/dublinohio

>>>

> **From:** John Gallagher <jgallagher@cmtran.com>
> **To:** Tina Wawszkiewicz <TWawszkiewicz@dublin.oh.us>

Date: 7/25/2013 2:54 PM
Subject: RE: Riviera

Tina,

My apologies if we discussed any of this in our meeting. I am not the quickest note taker.

We talked about doing an Opening Day Plus study phase for 2020. With 2030 TDM output, do you want me to take what I count for peaks, compare to TDM output, develop some average growths (road-by-road or area-by-area depending on how they look), then use that to get to 2020? Yes. Or do you want me to go at it a different way?

Also, seems like I remember some talk about a longer left into Avery from Muirfield (side by side with left into Tullymoore). Not sure how it might affect things but wondered when that is expected? And I know you wanted queuing quantified here as well. Correct. We will extend the northbound left turn lane for Avery Road at Muirfield Drive to about 600-ft of storage. Left turns out from Avery Road onto Muirfield Drive will also be restricted by this project. The construction will likely happen in 2014 or 2015.

When do we expect Highland-Croy/Brand to open? Or is it? By school opening? The Hyland-Croy Road and Brand Road roundabout is on schedule to open mid to late September (after the beginning of the school year).

I may try to do traffic distribution and assignment as part of the MOU. Generally I like to see the turn movement data before I take a shot at the assignment so I may just take a shot at the distribution only since that is based more on local knowledge. If I do, I'll probably run the distribution by you after the counts so we don't get off in the wrong direction. Either way works for me.

I think that is it for now.

Thanks!

John

From: Tina Wawszkiewicz [mailto:TWawszkiewicz@dublin.oh.us]
Sent: Monday, July 15, 2013 10:03 AM
To: John Gallagher
Subject: Fwd: Riviera

Hi John,

I found more counts! We have an AM and PM for Post Road at Hyland-Croy Road. I just added them to the other attachments below.

Thanks!
Tina

Tina Wawszkiewicz, PE
Civil Engineer II

City of Dublin

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>>>

From: Tina Wawszkiewicz
To: Gallagher, John
CC: Cox, Barb; Stanford, Aaron; Willis, Jeannie
Date: 7/2/2013 4:37 PM
Subject: Riviera

Hi John,

Thanks for coming in to discuss the TIS requirements for the Riviera redevelopment.

We followed-up with Jeannie and she agrees with the study intersections (see attached map). She expects that we will need to provide some sort of transition between the existing neighborhoods and the proposed neighborhood. This could mean curb bulbs, medians, traffic circles, or a number of other creative treatments to narrow the pavement at or near the connections. We'd like to get daily volumes on the existing neighborhood streets and estimates for the proposed connections in the TIS.

The Hyland-Croy Rd & Brand Rd roundabout will open this year, so please consider this the existing condition for the study. The lane configurations are shown on the attached plans.

Please assume the left turn from Avery Road onto Muirfield Drive will be restricted in 2014.

Please assume a temporary traffic signal when warranted for mitigation at Hyland-Croy Rd & Post Rd (use ODOT TEM right-turn reductions). When the signal fails, assume a roundabout for mitigation.

Assume roundabout mitigation, if needed, at Hyland-Croy Rd & McKitrick Rd and Avery Rd & Brand Rd.

Please find count data attached. The attached travel demand results are for 2030, which should make your design year a little easier.

Remember we should hold off on any new counts until school is back in session and the intersection of Hyland-Croy Rd & Brand Rd is open.

Please let me know what else you are looking for as you develop the MOU (I'm sure I haven't covered everything).

Thanks!
Tina

Tina Wawszkiewicz, PE
Civil Engineer II

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APPENDIX B
DATA COLLECTED

TRAFFIC COUNT DATA

EMH&T
5500 New Albany Rd.
Columbus, OH 43054
emht.com

File Name : McKitrick - Hyland-Croy AM
Site Code : 00000000
Start Date : 10/10/2013
Page No : 1

Groups Printed- Cars - Trucks

	HYLAND CROY Southbound					MCKITRICK Westbound					HYLAND CROY Northbound					MCKITRICK Eastbound					
Start Time	Left	Thru	Right	U-Turn	App Total	Left	Thru	Right	U-Turn	App Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App Total	Int Total
07:00 AM	3	19	2	0	24	16	9	0	0	25	0	8	5	0	13	2	5	5	0	12	74
07:15 AM	0	25	1	0	26	17	7	0	0	24	1	28	11	0	40	2	7	2	0	11	101
07:30 AM	1	55	0	0	56	47	14	0	0	61	4	29	18	0	51	1	12	10	0	23	191
07:45 AM	0	13	0	0	13	10	9	3	0	22	1	30	8	0	39	1	8	2	0	11	85
Total	4	112	3	0	119	90	39	3	0	132	6	95	42	0	143	6	32	19	0	57	451
08:00 AM	3	24	0	0	27	8	10	1	0	19	0	21	1	0	22	3	11	1	0	15	83
08:15 AM	0	18	1	0	19	7	10	0	0	17	1	22	5	0	28	2	14	4	0	20	84
08:30 AM	0	21	0	0	21	4	10	2	0	16	2	14	4	0	20	0	14	1	0	15	72
08:45 AM	2	25	1	0	28	4	11	2	0	17	1	46	4	0	51	1	8	1	0	10	106
Total	5	88	2	0	95	23	41	5	0	69	4	103	14	0	121	6	47	7	0	60	345
Grand Total	9	200	5	0	214	113	80	8	0	201	10	198	56	0	264	12	79	26	0	117	796
Apprch %	4.2	93.5	2.3	0		56.2	39.8	4	0		3.8	75	21.2	0		10.3	67.5	22.2	0		
Total %	1.1	25.1	0.6	0	26.9	14.2	10.1	1	0	25.3	1.3	24.9	7	0	33.2	1.5	9.9	3.3	0	14.7	
Cars	9	197	5	0	211	113	80	8	0	201	10	193	56	0	259	12	79	26	0	117	788
% Cars	100	98.5	100	0	98.6	100	100	100	0	100	100	97.5	100	0	98.1	100	100	100	0	100	99
Trucks	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	8
% Trucks	0	1.5	0	0	1.4	0	0	0	0	0	0	2.5	0	0	1.9	0	0	0	0	0	1

John M.
Thurs.

City of Dublin
Engineering
5800 Shier Rings Road
Dublin, Ohio 43016

File Name : HylandCroy McKitrickPM2013
Site Code : 00737003
Start Date : 2/28/2013
Page No : 1

Groups Printed- Cars - Trucks

	Hyland-Croy Road Southbound					McKitrick Road Westbound					Hyland-Croy Road Northbound					McKitrick Road Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	18	1	0	19	2	5	4	0	11	9	15	2	0	26	2	7	0	0	9	65
04:15 PM	0	18	1	0	19	0	6	7	0	13	6	17	2	0	25	0	6	0	0	6	63
04:30 PM	0	11	1	0	12	0	9	7	0	16	11	12	0	0	23	1	11	2	0	14	65
04:45 PM	1	17	0	0	18	1	6	8	0	15	16	24	1	0	41	1	7	1	0	9	83
Total	1	64	3	0	68	3	26	26	0	55	42	68	5	0	115	4	31	3	0	38	276
05:00 PM	4	20	0	1	25	2	4	10	0	16	6	22	1	0	29	1	9	1	1	12	82
05:15 PM	1	22	0	0	23	1	8	4	0	13	11	32	3	0	46	4	15	2	0	21	103
05:30 PM	2	26	2	0	30	2	10	9	0	21	11	31	1	0	43	3	10	0	0	13	107
05:45 PM	2	33	1	1	37	3	13	14	0	30	17	26	1	0	44	1	11	1	1	14	125
Total	9	101	3	2	115	8	35	37	0	80	45	111	6	0	162	9	45	4	2	60	417
Grand Total	10	165	6	2	183	11	61	63	0	135	87	179	11	0	277	13	76	7	2	98	693
Apprch %	5.5	90.2	3.3	1.1		8.1	45.2	46.7	0		31.4	64.6	4	0		13.3	77.6	7.1	2		
Total %	1.4	23.8	0.9	0.3	26.4	1.6	8.8	9.1	0	19.5	12.6	25.8	1.6	0	40	1.9	11	1	0.3	14.1	
Cars	10	161	6	2	179	11	60	63	0	134	86	178	11	0	275	12	76	7	2	97	685
% Cars	100	97.6	100	100	97.8	100	98.4	100	0	99.3	98.9	99.4	100	0	99.3	92.3	100	100	100	99	98.8
Trucks	0	4	0	0	4	0	1	0	0	1	1	1	0	0	2	1	0	0	0	1	8
% Trucks	0	2.4	0	0	2.2	0	1.6	0	0	0.7	1.1	0.6	0	0	0.7	7.7	0	0	0	1	1.2

	Hyland-Croy Road Southbound					McKitrick Road Westbound					Hyland-Croy Road Northbound					McKitrick Road Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	4	20	0	1	25	2	4	10	0	16	6	22	1	0	29	1	9	1	1	12	82
05:15 PM	1	22	0	0	23	1	8	4	0	13	11	32	3	0	46	4	15	2	0	21	103
05:30 PM	2	26	2	0	30	2	10	9	0	21	11	31	1	0	43	3	10	0	0	13	107
05:45 PM	2	33	1	1	37	3	13	14	0	30	17	26	1	0	44	1	11	1	1	14	125
Total Volume	9	101	3	2	115	8	35	37	0	80	45	111	6	0	162	9	45	4	2	60	417
% App. Total	7.8	87.8	2.6	1.7		10	43.8	46.2	0		27.8	68.5	3.7	0		15	75	6.7	3.3		
PHF	.563	.765	.375	.500	.777	.667	.673	.661	.000	.667	.662	.867	.500	.000	.880	.563	.750	.500	.500	.714	.834

EMH&T

5500 New Albany Rd.
Columbus, OH 43054
emht.com

File Name : Hyland-Croy - Tuscany
Site Code : 21131358
Start Date : 10/8/2013
Page No : 1

Groups Printed- Cars - Trucks

	Hyland-Croy Southbound					Tuscany Westbound					Hyland-Croy Northbound					Tuscany Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App Total	Left	Thru	Right	U-Turn	App Total	Left	Thru	Right	U-Turn	App Total	Int. Total
07:00 AM	1	42	0	0	43	11	0	1	0	12	0	8	1	0	9	0	0	0	0	0	64
07:15 AM	0	58	0	0	58	14	0	1	0	15	0	33	7	0	40	0	0	0	0	0	113
07:30 AM	0	92	0	0	92	38	0	1	0	39	0	53	11	0	64	0	0	0	0	0	195
07:45 AM	2	75	0	0	77	24	0	0	0	24	0	60	25	0	85	0	0	0	0	0	186
Total	3	267	0	0	270	87	0	3	0	90	0	154	44	0	198	0	0	0	0	0	558
08:00 AM	5	28	0	0	33	9	0	0	0	9	0	36	4	0	40	0	0	0	0	0	82
08:15 AM	1	44	0	0	45	9	0	1	0	10	0	34	6	0	40	0	0	0	0	0	95
08:30 AM	0	31	0	0	31	7	0	2	0	9	0	24	4	0	28	0	0	0	0	0	68
08:45 AM	5	27	0	0	32	7	0	2	0	9	0	41	3	0	44	0	0	0	0	0	85
Total	11	130	0	0	141	32	0	5	0	37	0	135	17	0	152	0	0	0	0	0	330
*** BREAK ***																					
04:00 PM	0	35	0	0	35	5	0	1	0	6	0	50	12	0	62	0	0	0	0	0	103
04:15 PM	0	47	0	0	47	8	0	0	0	8	0	34	7	0	41	0	0	0	0	0	96
04:30 PM	0	44	0	0	44	10	0	0	0	10	0	47	11	0	58	0	0	0	0	0	112
04:45 PM	1	40	0	0	41	8	0	1	0	9	0	63	13	0	76	0	0	0	0	0	126
Total	1	166	0	0	167	31	0	2	0	33	0	194	43	0	237	0	0	0	0	0	437
05:00 PM	0	28	0	0	28	8	0	1	0	9	0	66	8	0	74	0	0	0	0	0	111
05:15 PM	1	62	0	0	63	12	0	0	0	12	0	63	11	0	74	0	0	0	0	0	149
05:30 PM	0	34	0	0	34	10	0	0	0	10	0	67	7	0	74	0	0	0	0	0	118
05:45 PM	1	42	0	0	43	6	0	1	0	7	0	53	8	0	61	0	0	0	0	0	111
Total	2	166	0	0	168	36	0	2	0	38	0	249	34	0	283	0	0	0	0	0	489
Grand Total	17	729	0	0	746	186	0	12	0	198	0	732	138	0	870	0	0	0	0	0	1814
Apprch %	2.3	97.7	0	0		93.9	0	6.1	0		0	84.1	15.9	0		0	0	0	0		
Total %	0.9	40.2	0	0	41.1	10.3	0	0.7	0	10.9	0	40.4	7.6	0	48	0	0	0	0	0	
Cars	15	724	0	0	739	185	0	11	0	196	0	723	136	0	859	0	0	0	0	0	1794
% Cars	88.2	99.3	0	0	99.1	99.5	0	91.7	0	99	0	98.8	98.6	0	98.7	0	0	0	0	0	98.9
Trucks	2	5	0	0	7	1	0	1	0	2	0	9	2	0	11	0	0	0	0	0	20
% Trucks	11.8	0.7	0	0	0.9	0.5	0	8.3	0	1	0	1.2	1.4	0	1.3	0	0	0	0	0	1.1

Mike S.
Wed.

City of Dublin
Engineering
5800 Shier Rings Road
Dublin, Ohio 43016

File Name : Hyland-CroyBrandAM2012
Site Code : 01635001
Start Date : 8/29/2012
Page No : 1

Groups Printed- Cars - Trucks

	Hyland-Croy Rd Southbound					Brand Rd Westbound					Hyland-Croy Rd Northbound					Mitchell-Dewitt Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	36	5	0	41	11	11	11	0	33	7	48	3	0	58	7	7	6	0	20	152
07:15 AM	0	31	10	0	41	9	12	16	0	37	33	41	3	0	77	7	6	1	0	14	169
07:30 AM	0	35	60	0	95	22	21	46	0	89	57	38	2	1	98	9	40	4	0	53	335
07:45 AM	1	48	17	0	66	9	18	26	0	53	25	47	8	0	80	5	15	2	0	22	221
Total	1	150	92	0	243	51	62	99	0	212	122	174	16	1	313	28	68	13	0	109	877
08:00 AM	0	32	3	0	35	5	11	19	0	35	9	42	3	0	54	2	12	0	0	14	138
08:15 AM	0	31	3	0	34	2	11	10	0	23	14	30	3	0	47	2	8	1	0	11	115
08:30 AM	0	33	12	0	45	4	8	11	0	23	13	32	2	0	47	7	3	0	0	10	125
08:45 AM	1	31	5	0	37	4	9	16	0	29	12	37	0	0	49	8	7	0	0	15	130
Total	1	127	23	0	151	15	39	56	0	110	48	141	8	0	197	19	30	1	0	50	508
Grand Total	2	277	115	0	394	66	101	155	0	322	170	315	24	1	510	47	98	14	0	159	1385
Apprch %	0.5	70.3	29.2	0		20.5	31.4	48.1	0		33.3	61.8	4.7	0.2		29.6	61.6	8.8	0		
Total %	0.1	20	8.3	0	28.4	4.8	7.3	11.2	0	23.2	12.3	22.7	1.7	0.1	36.8	3.4	7.1	1	0	11.5	
Cars	2	259	111	0	372	59	100	152	0	311	156	277	23	1	457	46	88	12	0	146	1286
% Cars	100	93.5	96.5	0	94.4	89.4	99	98.1	0	96.6	91.8	87.9	95.8	100	89.6	97.9	89.8	85.7	0	91.8	92.9
Trucks	0	18	4	0	22	7	1	3	0	11	14	38	1	0	53	1	10	2	0	13	99
% Trucks	0	6.5	3.5	0	5.6	10.6	1	1.9	0	3.4	8.2	12.1	4.2	0	10.4	2.1	10.2	14.3	0	8.2	7.1

	Hyland-Croy Rd Southbound					Brand Rd Westbound					Hyland-Croy Rd Northbound					Mitchell-Dewitt Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	**0**	**36**	**5**	**0**	**41**	**11**	**11**	**11**	**0**	**33**	**7**	[illegible]	3	0	58	7	7	[illegible]	0	20	152
07:15 AM	0	31	10	0	41	9	12	16	0	37	33	41	3	0	77	7	6	1	0	14	169
07:30 AM	0	35	[illegible]	0	[illegible]	**22**	**21**	**46**	0	**89**	**57**	38	2	**1**	**98**	**9**	**40**	4	0	**53**	**335**
07:45 AM	**1**	**48**	17	0	66	9	18	26	0	53	25	47	**8**	0	80	5	15	2	0	22	221
Total Volume	1	150	92	0	243	51	62	99	0	212	122	174	16	1	313	28	68	13	0	109	877
% App. Total	0.4	61.7	37.9	0		24.1	29.2	46.7	0		39	55.6	5.1	0.3		25.7	62.4	11.9	0		
PHF	.250	.781	.383	.000	.639	.580	.738	.538	.000	.596	.535	.906	.500	.250	.798	.778	.425	.542	.000	.514	.654

City of Dublin
Engineering
5800 Shier Rings Road
Dublin, Ohio 43016

Mike S.
Tues.
(Counter board error - shut off during first interval. Start time = 4:15)

File Name : hyland-croybrandpm2012
Site Code : 01635003
Start Date : 9/4/2012
Page No : 1

Groups Printed- Cars - Trucks

	Hyland-Croy Road Southbound					Brand Road Westbound					Hyland-Croy Road Northbound					Mitchell-Dewitt Road Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:15 PM	0	33	5	0	38	5	14	13	0	32	11	41	8	0	60	6	20	0	0	26	156
04:30 PM	1	32	6	0	39	10	11	26	0	47	12	58	3	0	73	3	20	2	0	25	184
04:45 PM	1	25	13	0	39	16	14	14	0	44	18	57	3	0	78	4	12	0	0	16	177
Total	2	90	24	0	116	31	39	53	0	123	41	156	14	0	211	13	52	2	0	67	517
05:00 PM	0	44	19	0	63	17	19	24	0	60	20	73	7	0	100	7	32	3	0	42	265
05:15 PM	0	32	11	0	43	19	11	23	0	53	24	94	6	0	124	7	37	3	0	47	267
05:30 PM	1	40	16	0	57	32	12	32	0	76	18	85	6	0	109	11	31	2	0	44	286
05:45 PM	0	37	19	0	56	57	11	20	0	88	25	96	3	1	125	9	25	9	0	43	312
Total	1	153	65	0	219	125	53	99	0	277	87	348	22	1	458	34	125	17	0	176	1130
06:00 PM	1	39	21	0	61	37	10	20	0	67	35	86	9	0	130	5	23	0	0	28	286
Grand Total	4	282	110	0	396	193	102	172	0	467	163	590	45	1	799	52	200	19	0	271	1933
Apprch %	1	71.2	27.8	0		41.3	21.8	36.8	0		20.4	73.8	5.6	0.1		19.2	73.8	7	0		
Total %	0.2	14.6	5.7	0	20.5	10	5.3	8.9	0	24.2	8.4	30.5	2.3	0.1	41.3	2.7	10.3	1	0	14	
Cars	4	269	110	0	383	193	101	169	0	463	161	585	45	1	792	50	200	18	0	268	1906
% Cars	100	95.4	100	0	96.7	100	99	98.3	0	99.1	98.8	99.2	100	100	99.1	96.2	100	94.7	0	98.9	98.6
Trucks	0	13	0	0	13	0	1	3	0	4	2	5	0	0	7	2	0	1	0	3	27
% Trucks	0	4.6	0	0	3.3	0	1	1.7	0	0.9	1.2	0.8	0	0	0.9	3.8	0	5.3	0	1.1	1.4

	Hyland-Croy Road Southbound					Brand Road Westbound					Hyland-Croy Road Northbound					Mitchell-Dewitt Road Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 06:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:15 PM																					
05:15 PM	**0**	**32**	**11**	**0**	**43**	**19**	**11**	**23**	**0**	**53**	**24**	**94**	**6**	**0**	**124**	**7**	37	3	0	47	267
05:30 PM	1	40	16	0	57	32	**12**	**32**	0	76	18	85	6	0	109	**11**	31	2	0	44	286
05:45 PM	0	37	19	0	56	**57**	11	20	0	**88**	25	**96**	3	**1**	125	9	25	**9**	0	43	**312**
06:00 PM	1	39	**21**	0	**61**	37	10	20	0	67	**35**	86	**9**	0	**130**	5	23	0	0	28	286
Total Volume	2	148	67	0	217	145	44	95	0	284	102	361	24	1	488	32	116	14	0	162	1151
% App. Total	0.9	68.2	30.9	0		51.1	15.5	33.5	0		20.9	74	4.9	0.2		19.8	71.6	8.6	0		
PHF	.500	.925	.798	.000	.889	.636	.917	.742	.000	.807	.729	.940	.667	.250	.938	.727	.784	.389	.000	.862	.922

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5500 New Albany Rd.
Columbus, OH 43054
emht.com

File Name : Post Rd - Hyland-Croy
Site Code : 00000000
Start Date : 8/29/2012
Page No : 1

Groups Printed- Unshifted - Trucks

	HYLAND CROY Southbound					POST Westbound					HYLAND CROY Northbound					POST Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	19	0	76	0	95	0	79	9	0	88	0	0	0	0	0	48	50	0	0	98	281
07:15 AM	20	0	49	0	69	0	58	15	0	73	0	0	0	0	0	46	112	0	0	158	300
07:30 AM	48	0	45	0	93	0	67	29	0	96	0	0	0	0	0	44	148	0	0	192	381
07:45 AM	51	0	63	0	114	0	64	18	0	82	0	0	0	0	0	50	148	0	0	198	394
Total	138	0	233	0	371	0	268	71	0	339	0	0	0	0	0	188	458	0	0	646	1356
08:00 AM	35	0	76	0	111	0	76	11	0	87	0	0	0	0	0	41	110	0	0	151	349
08:15 AM	29	0	65	0	94	0	68	14	0	82	0	0	0	0	0	32	85	0	0	117	293
08:30 AM	20	0	54	0	74	0	62	16	0	78	0	0	0	0	0	24	63	0	0	87	239
08:45 AM	24	0	65	0	89	0	51	14	0	65	0	0	0	0	0	32	72	0	0	104	258
Total	108	0	260	0	368	0	257	55	0	312	0	0	0	0	0	129	330	0	0	459	1139
*** BREAK ***																					
04:00 PM	11	0	48	0	59	0	81	34	0	115	0	0	0	0	0	54	66	0	0	120	294
04:15 PM	11	0	58	0	69	0	96	25	0	121	0	0	0	0	0	61	55	0	0	116	306
04:30 PM	9	0	61	0	70	0	123	28	0	151	0	0	0	0	0	48	60	0	0	108	329
04:45 PM	8	0	37	0	45	0	107	28	0	135	0	0	0	0	0	65	93	0	0	158	338
Total	39	0	204	0	243	0	407	115	0	522	0	0	0	0	0	228	274	0	0	502	1267
05:00 PM	23	0	53	0	76	0	140	38	0	178	0	0	0	0	0	58	68	0	0	126	380
05:15 PM	23	0	71	0	94	0	140	65	0	205	0	0	0	0	0	64	80	0	0	144	443
05:30 PM	16	0	52	0	68	0	127	50	0	177	0	0	0	0	0	79	105	0	0	184	429
05:45 PM	14	0	52	0	66	0	105	55	0	160	0	0	0	0	0	74	104	0	0	178	404
Total	76	0	228	0	304	0	512	208	0	720	0	0	0	0	0	275	357	0	0	632	1656
Grand Total	361	0	925	0	1286	0	1444	449	0	1893	0	0	0	0	0	820	1419	0	0	2239	5418
Apprch %	28.1	0	71.9	0		0	76.3	23.7	0		0	0	0	0		36.6	63.4	0	0		
Total %	6.7	0	17.1	0	23.7	0	26.7	8.3	0	34.9	0	0	0	0	0	15.1	26.2	0	0	41.3	
Unshifted	358	0	906	0	1264	0	1438	443	0	1881	0	0	0	0	0	788	1408	0	0	2196	5341
% Unshifted	99.2	0	97.9	0	98.3	0	99.6	98.7	0	99.4	0	0	0	0	0	96.1	99.2	0	0	98.1	98.6
Trucks	3	0	19	0	22	0	6	6	0	12	0	0	0	0	0	32	11	0	0	43	77
% Trucks	0.8	0	2.1	0	1.7	0	0.4	1.3	0	0.6	0	0	0	0	0	3.9	0.8	0	0	1.9	1.4

EMH&T

5500 New Albany Rd.
Columbus, OH 43054
emht.com

File Name : brand - abbie glen
Site Code : 21131358
Start Date : 10/9/2013
Page No : 1

Groups Printed- Cars - Trucks

	ABBIE GLEN Southbound					BRAND Westbound					ABBIE GLEN Northbound					BRAND Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	2	0	3	0	5	0	49	1	0	50	0	0	0	0	0	1	10	0	0	11	66
07:15 AM	5	0	23	0	28	0	76	2	0	78	0	0	0	0	0	4	48	0	0	52	158
07:30 AM	1	0	37	0	38	0	208	1	0	209	0	0	0	0	0	10	83	0	0	93	340
07:45 AM	6	0	48	0	54	0	90	3	0	93	0	0	0	0	0	11	78	0	0	89	236
Total	14	0	111	0	125	0	423	7	0	430	0	0	0	0	0	26	219	0	0	245	800
08:00 AM	6	0	5	0	11	0	24	1	0	25	0	0	0	0	0	2	16	0	0	18	54
08:15 AM	4	0	4	0	8	0	23	2	0	25	0	0	0	0	0	1	23	0	0	24	57
08:30 AM	3	0	5	0	8	0	29	3	0	32	0	0	0	0	0	1	11	0	0	12	52
08:45 AM	1	0	3	0	4	0	21	0	0	21	0	0	0	0	0	2	25	0	0	27	52
Total	14	0	17	0	31	0	97	6	0	103	0	0	0	0	0	6	75	0	0	81	215
*** BREAK ***																					
04:00 PM	2	0	0	0	2	0	32	1	0	33	0	0	0	0	0	5	33	0	0	38	73
04:15 PM	3	0	1	0	4	0	28	3	0	31	0	0	0	0	0	3	37	0	0	40	75
04:30 PM	4	0	2	0	6	0	17	3	0	20	0	0	0	0	0	7	41	0	0	48	74
04:45 PM	3	0	6	0	9	0	51	3	0	54	0	0	0	0	0	6	33	0	0	39	102
Total	12	0	9	0	21	0	128	10	0	138	0	0	0	0	0	21	144	0	0	165	324
05:00 PM	5	0	3	0	8	0	60	8	0	68	0	0	0	0	0	6	57	0	0	63	139
05:15 PM	4	0	5	0	9	0	48	8	0	56	0	0	0	0	0	15	94	0	0	109	174
05:30 PM	6	0	2	0	8	0	50	8	0	58	0	0	0	0	0	8	84	0	0	92	158
05:45 PM	2	0	5	0	7	0	86	8	0	94	0	0	0	0	0	5	52	0	0	57	158
Total	17	0	15	0	32	0	244	32	0	276	0	0	0	0	0	34	287	0	0	321	629
Grand Total	57	0	152	0	209	0	892	55	0	947	0	0	0	0	0	87	725	0	0	812	1968
Apprch %	27.3	0	72.7	0		0	94.2	5.8	0		0	0	0	0		10.7	89.3	0	0		
Total %	2.9	0	7.7	0	10.6	0	45.3	2.8	0	48.1	0	0	0	0	0	4.4	36.8	0	0	41.3	
Cars	57	0	152	0	209	0	890	55	0	945	0	0	0	0	0	87	722	0	0	809	1963
% Cars	100	0	100	0	100	0	99.8	100	0	99.8	0	0	0	0	0	100	99.6	0	0	99.6	99.7
Trucks	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
% Trucks	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0	0	0	0	0.4	0	0	0.4	0.3

EMH&T

5500 New Albany Rd.
Columbus, OH 43054
emht.com

File Name : Muirfield Dr - Avery Rd
Site Code : 00000000
Start Date : 10/9/2013
Page No : 1

Groups Printed- Cars - Trucks

	MUIRFIELD DR Southbound					AVERY RD Westbound					MUIRFIELD DR Northbound					AVERY RD Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	156	0	0	156	0	0	0	0	0	29	48	0	0	77	0	0	82	0	82	315
07:15 AM	0	188	0	0	188	0	0	0	0	0	43	79	0	0	122	0	0	81	0	81	391
07:30 AM	0	246	0	0	246	0	0	0	0	0	50	82	0	0	132	0	0	95	0	95	473
07:45 AM	0	268	1	0	269	0	0	0	0	0	71	117	0	0	188	0	0	93	0	93	550
Total	0	858	1	0	859	0	0	0	0	0	193	326	0	0	519	0	0	351	0	351	1729
08:00 AM	0	231	3	0	234	0	0	0	0	0	37	124	0	0	161	0	0	96	0	96	491
08:15 AM	0	191	1	0	192	0	0	0	0	0	33	97	0	0	130	1	0	87	0	88	410
08:30 AM	0	171	1	0	172	0	0	0	0	0	35	71	0	0	106	1	0	66	0	67	345
08:45 AM	0	207	0	0	207	0	0	0	0	0	33	130	0	0	163	0	0	85	0	85	455
Total	0	800	5	0	805	0	0	0	0	0	138	422	0	0	560	2	0	334	0	336	1701
*** BREAK ***																					
04:00 PM	0	133	11	0	144	0	0	0	0	0	56	166	0	0	222	1	0	72	0	73	439
04:15 PM	0	130	1	0	131	0	0	0	0	0	68	182	0	0	250	1	0	55	0	56	437
04:30 PM	0	144	0	0	144	0	0	0	0	0	78	193	0	0	271	1	0	45	0	46	461
04:45 PM	0	114	1	0	115	0	0	0	0	0	102	207	0	0	309	0	0	52	0	52	476
Total	0	521	13	0	534	0	0	0	0	0	304	748	0	0	1052	3	0	224	0	227	1813
05:00 PM	0	166	2	0	168	0	0	0	0	0	118	258	0	0	376	1	0	64	0	65	609
05:15 PM	0	164	2	0	166	0	0	0	0	0	135	281	0	0	416	1	0	69	0	70	652
05:30 PM	0	161	4	0	165	0	0	0	0	0	120	286	0	0	406	0	0	65	0	65	636
05:45 PM	0	165	6	0	171	0	0	0	0	0	140	280	0	0	420	0	0	62	0	62	653
Total	0	656	14	0	670	0	0	0	0	0	513	1105	0	0	1618	2	0	260	0	262	2550
Grand Total	0	2835	33	0	2868	0	0	0	0	0	1148	2601	0	0	3749	7	0	1169	0	1176	7793
Apprch %	0	98.8	1.2	0		0	0	0	0		30.6	69.4	0	0		0.6	0	99.4	0		
Total %	0	36.4	0.4	0	36.8	0	0	0	0	0	14.7	33.4	0	0	48.1	0.1	0	15	0	15.1	
Cars	0	2766	32	0	2798	0	0	0	0	0	1128	2539	0	0	3667	7	0	1148	0	1155	7620
% Cars	0	97.6	97	0	97.6	0	0	0	0	0	98.3	97.6	0	0	97.8	100	0	98.2	0	98.2	97.8
Trucks	0	69	1	0	70	0	0	0	0	0	20	62	0	0	82	0	0	21	0	21	173
% Trucks	0	2.4	3	0	2.4	0	0	0	0	0	1.7	2.4	0	0	2.2	0	0	1.8	0	1.8	2.2

Mike S.
Thurs.

City of Dublin
Engieering
5800 Shier Rings Road
Dublin, Ohio 43016

File Name : AveryBrandAM2011
Site Code : 00001001
Start Date : 11/3/2011
Page No : 1

Groups Printed- Cars - Trucks

	Avery Rd Southbound					Brand Rd Westbound					Avery Rd Northbound					Brand Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	8	40	10	0	58	7	23	11	0	41	4	18	4	0	26	6	21	4	0	31	156
07:15 AM	21	60	21	1	103	8	33	7	0	48	5	21	12	0	38	17	26	11	1	55	244
07:30 AM	38	41	16	0	95	6	66	16	0	88	5	19	31	0	55	17	54	15	0	86	324
07:45 AM	19	45	27	0	91	14	59	18	1	92	18	47	44	0	109	22	55	24	1	102	394
Total	86	186	74	1	347	35	181	52	1	269	32	105	91	0	228	62	156	54	2	274	1118
08:00 AM	8	37	14	0	59	17	19	8	0	44	3	19	5	0	27	10	41	8	0	59	189
08:15 AM	12	32	31	0	75	14	20	10	0	44	3	20	4	0	27	11	36	11	0	58	204
08:30 AM	5	53	18	1	77	9	13	7	0	29	7	16	6	0	29	14	26	8	0	48	183
08:45 AM	9	41	7	0	57	11	25	4	0	40	3	15	6	0	24	11	17	3	0	31	152
Total	34	163	70	1	268	51	77	29	0	157	16	70	21	0	107	46	120	30	0	196	728
Grand Total	120	349	144	2	615	86	258	81	1	426	48	175	112	0	335	108	276	84	2	470	1846
Apprch %	19.5	56.7	23.4	0.3		20.2	60.6	19	0.2		14.3	52.2	33.4	0		23	58.7	17.9	0.4		
Total %	6.5	18.9	7.8	0.1	33.3	4.7	14	4.4	0.1	23.1	2.6	9.5	6.1	0	18.1	5.9	15	4.6	0.1	25.5	
Cars	115	338	141	2	596	83	244	75	1	403	41	162	105	0	308	107	263	73	2	445	1752
% Cars	95.8	96.8	97.9	100	96.9	96.5	94.6	92.6	100	94.6	85.4	92.6	93.8	0	91.9	99.1	95.3	86.9	100	94.7	94.9
Trucks	5	11	3	0	19	3	14	6	0	23	7	13	7	0	27	1	13	11	0	25	94
% Trucks	4.2	3.2	2.1	0	3.1	3.5	5.4	7.4	0	5.4	14.6	7.4	6.2	0	8.1	0.9	4.7	13.1	0	5.3	5.1

	Avery Rd Southbound					Brand Rd Westbound					Avery Rd Northbound					Brand Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	**21**	[illegible]	21	[illegible]	[illegible]	8	33	7	0	48	5	21	12	0	38	17	26	11	[illegible]	55	244
07:30 AM	38	41	16	0	95	6	66	16	0	88	5	19	31	0	55	17	54	15	0	86	324
07:45 AM	19	45	27	0	91	14	59	18	1	92	18	47	44	0	109	22	55	24	1	102	394
08:00 AM	8	37	14	0	59	17	19	8	0	44	3	19	5	0	27	10	41	8	0	59	189
Total Volume	86	183	78	1	348	45	177	49	1	272	31	106	92	0	229	66	176	58	2	302	1151
% App. Total	24.7	52.6	22.4	0.3		16.5	65.1	18	0.4		13.5	46.3	40.2	0		21.9	58.3	19.2	0.7		
PHF	.566	.763	.722	.250	.845	.662	.670	.681	.250	.739	.431	.564	.523	.000	.525	.750	.800	.604	.500	.740	.730

Mike S.
Tues.

City of Dublin
Engineering
5800 Shier Rings Road
Dublin, Ohio 43016

File Name : AveryBrandPM2012
Site Code : 01565003
Start Date : 11/20/2012
Page No : 1

Groups Printed- Cars - Trucks

	Avery Rd Southbound					Brand Rd Westbound					Avery Rd Northbound					Brand Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	12	31	19	0	62	12	38	10	0	60	2	29	9	0	40	10	17	9	0	36	198
04:15 PM	11	30	18	0	59	17	36	1	1	55	5	34	12	0	51	11	18	9	1	39	204
04:30 PM	10	32	14	0	56	20	31	4	0	55	3	38	8	0	49	8	24	9	0	41	201
04:45 PM	11	37	12	1	61	20	29	3	1	53	2	42	13	0	57	11	36	11	1	59	230
Total	44	130	63	1	238	69	134	18	2	223	12	143	42	0	197	40	95	38	2	175	833
05:00 PM	12	36	9	0	57	25	25	3	0	53	4	50	13	0	67	13	33	15	0	61	238
05:15 PM	12	35	15	1	63	29	30	6	0	65	6	52	13	0	71	9	46	14	1	70	269
05:30 PM	8	41	14	0	63	32	27	7	0	66	7	54	11	0	72	8	42	19	0	69	270
05:45 PM	7	38	20	0	65	30	35	7	0	72	7	49	15	0	71	7	32	8	0	47	255
Total	39	150	58	1	248	116	117	23	0	256	24	205	52	0	281	37	153	56	1	247	1032
Grand Total	83	280	121	2	486	185	251	41	2	479	36	348	94	0	478	77	248	94	3	422	1865
Apprch %	17.1	57.6	24.9	0.4		38.6	52.4	8.6	0.4		7.5	72.8	19.7	0		18.2	58.8	22.3	0.7		
Total %	4.5	15	6.5	0.1	26.1	9.9	13.5	2.2	0.1	25.7	1.9	18.7	5	0	25.6	4.1	13.3	5	0.2	22.6	
Cars	79	272	120	2	473	185	243	39	2	469	36	343	94	0	473	77	245	90	3	415	1830
% Cars	95.2	97.1	99.2	100	97.3	100	96.8	95.1	100	97.9	100	98.6	100	0	99	100	98.8	95.7	100	98.3	98.1
Trucks	4	8	1	0	13	0	8	2	0	10	0	5	0	0	5	0	3	4	0	7	35
% Trucks	4.8	2.9	0.8	0	2.7	0	3.2	4.9	0	2.1	0	1.4	0	0	1	0	1.2	4.3	0	1.7	1.9

	Avery Rd Southbound					Brand Rd Westbound					Avery Rd Northbound					Brand Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	12	36	9	0	57	25	25	3	0	53	4	50	13	0	67	13	33	15	0	61	238
05:15 PM	12	35	15	1	63	29	30	6	0	65	6	52	13	0	71	9	46	14	1	70	269
05:30 PM	8	41	14	0	63	32	27	7	0	66	7	54	11	0	72	8	42	19	0	69	270
05:45 PM	7	38	20	0	65	30	35	7	0	72	7	49	15	0	71	7	32	8	0	47	255
Total Volume	39	150	58	1	248	116	117	23	0	256	24	205	52	0	281	37	153	56	1	247	1032
% App. Total	15.7	60.5	23.4	0.4		45.3	45.7	9	0		8.5	73	18.5	0		15	61.9	22.7	0.4		
PHF	.813	.915	.725	.250	.954	.906	.836	.821	.000	.889	.857	.949	.867	.000	.976	.712	.832	.737	.250	.882	.956

EMH&T

5500 New Albany Rd.
Columbus, OH 43054
emht.com

File Name : Avery - Memorial
Site Code : 00000000
Start Date : 10/8/2013
Page No : 1

Groups Printed- Cars - Trucks

	AVERY Southbound					MEMORIAL Westbound					AVERY Northbound					MEMORIAL Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	2	52	0	0	54	7	0	2	0	9	0	25	5	0	30	0	0	0	0	0	93
07:15 AM	3	68	0	0	71	10	0	5	0	15	0	49	5	0	54	0	0	0	0	0	140
07:30 AM	5	81	0	0	86	25	0	6	0	31	0	54	6	0	60	0	0	0	0	0	177
07:45 AM	2	34	0	0	36	6	0	3	0	9	0	44	10	0	54	0	0	0	0	0	99
Total	12	235	0	0	247	48	0	16	0	64	0	172	26	0	198	0	0	0	0	0	509
08:00 AM	6	64	0	0	70	5	0	11	0	16	0	62	6	0	68	0	0	0	0	0	154
08:15 AM	9	67	0	0	76	11	0	5	0	16	0	38	3	0	41	0	0	0	0	0	133
08:30 AM	2	41	0	0	43	7	0	8	0	15	0	33	5	0	38	0	0	0	0	0	96
08:45 AM	5	51	0	0	56	7	0	9	0	16	0	42	5	0	47	0	0	0	0	0	119
Total	22	223	0	0	245	30	0	33	0	63	0	175	19	0	194	0	0	0	0	0	502
*** BREAK ***																					
04:00 PM	3	64	0	0	67	19	0	5	0	24	0	54	7	0	61	0	0	0	0	0	152
04:15 PM	3	44	0	0	47	5	0	3	0	8	0	49	10	0	59	0	0	0	0	0	114
04:30 PM	5	55	0	0	60	3	0	6	0	9	0	64	10	0	74	0	0	0	0	0	143
04:45 PM	1	45	0	0	46	11	0	3	0	14	0	54	11	0	65	0	0	0	0	0	125
Total	12	208	0	0	220	38	0	17	0	55	0	221	38	0	259	0	0	0	0	0	534
05:00 PM	7	64	0	0	71	9	0	15	0	24	0	105	11	0	116	0	0	0	0	0	211
05:15 PM	10	65	0	0	75	9	0	10	0	19	0	95	11	0	106	0	0	0	0	0	200
05:30 PM	7	63	0	0	70	10	0	9	0	19	0	93	18	0	111	0	0	0	0	0	200
05:45 PM	5	83	0	0	88	10	0	5	0	15	0	58	11	0	69	0	0	0	0	0	172
Total	29	275	0	0	304	38	0	39	0	77	0	351	51	0	402	0	0	0	0	0	783
Grand Total	75	941	0	0	1016	154	0	105	0	259	0	919	134	0	1053	0	0	0	0	0	2328
Apprch %	7.4	92.6	0	0		59.5	0	40.5	0		0	87.3	12.7	0		0	0	0	0		
Total %	3.2	40.4	0	0	43.6	6.6	0	4.5	0	11.1	0	39.5	5.8	0	45.2	0	0	0	0	0	
Cars	73	911	0	0	984	153	0	99	0	252	0	891	133	0	1024	0	0	0	0	0	2260
% Cars	97.3	96.8	0	0	96.9	99.4	0	94.3	0	97.3	0	97	99.3	0	97.2	0	0	0	0	0	97.1
Trucks	2	30	0	0	32	1	0	6	0	7	0	28	1	0	29	0	0	0	0	0	68
% Trucks	2.7	3.2	0	0	3.1	0.6	0	5.7	0	2.7	0	3	0.7	0	2.8	0	0	0	0	0	2.9

EMH&T

5500 New Albany Rd.
Columbus, OH 43054
emht.com

File Name : Avery - Glick
Site Code : 00000000
Start Date : 10/10/2013
Page No : 1

Groups Printed- Cars - Trucks

	MANLEY Southbound					GLICK Westbound					AVERY Northbound					GLICK Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	24	33	0	0	57	20	2	20	0	42	0	8	10	0	18	1	2	1	0	4	121
07:15 AM	29	36	0	0	65	41	2	31	0	74	1	15	14	0	30	2	3	5	0	10	179
07:30 AM	39	51	1	0	91	74	0	66	0	140	1	14	21	0	36	3	1	6	0	10	277
07:45 AM	43	36	0	0	79	49	1	36	0	86	2	22	32	0	56	0	8	4	0	12	233
Total	135	156	1	0	292	184	5	153	0	342	4	59	77	0	140	6	14	16	0	36	810
08:00 AM	18	38	0	0	56	52	1	27	0	80	2	15	33	0	50	0	2	4	0	6	192
08:15 AM	30	43	0	0	73	63	1	17	0	81	1	27	40	0	68	1	3	5	0	9	231
08:30 AM	18	17	0	0	35	26	1	22	0	49	3	22	23	0	48	0	0	4	0	4	136
08:45 AM	38	25	2	0	65	32	2	23	0	57	1	15	18	0	34	0	0	5	0	5	161
Total	104	123	2	0	229	173	5	89	0	267	7	79	114	0	200	1	5	18	0	24	720
*** BREAK ***																					
04:00 PM	29	21	0	0	50	18	0	32	0	50	1	23	36	0	60	1	0	0	0	1	161
04:15 PM	28	21	3	0	52	15	5	36	0	56	5	24	27	0	56	0	0	4	0	4	168
04:30 PM	32	25	1	0	58	34	4	30	0	68	3	34	25	0	62	1	2	3	0	6	194
04:45 PM	36	44	3	0	83	51	2	28	0	81	3	26	31	0	60	2	0	4	0	6	230
Total	125	111	7	0	243	118	11	126	0	255	12	107	119	0	238	4	2	11	0	17	753
05:00 PM	35	36	4	0	75	45	4	33	0	82	5	21	36	0	62	0	6	1	0	7	226
05:15 PM	39	41	3	0	83	43	6	33	0	82	3	28	39	0	70	1	3	6	0	10	245
05:30 PM	39	29	2	0	70	23	2	37	0	62	1	31	44	0	76	0	3	3	0	6	214
05:45 PM	37	39	2	0	78	53	4	35	0	92	3	23	35	0	61	2	0	2	0	4	235
Total	150	145	11	0	306	164	16	138	0	318	12	103	154	0	269	3	12	12	0	27	920
Grand Total	514	535	21	0	1070	639	37	506	0	1182	35	348	464	0	847	14	33	57	0	104	3203
Apprch %	48	50	2	0		54.1	3.1	42.8	0		4.1	41.1	54.8	0		13.5	31.7	54.8	0		
Total %	16	16.7	0.7	0	33.4	20	1.2	15.8	0	36.9	1.1	10.9	14.5	0	26.4	0.4	1	1.8	0	3.2	
Cars	502	518	20	0	1040	620	34	499	0	1153	35	335	439	0	809	14	31	55	0	100	3102
% Cars	97.7	96.8	95.2	0	97.2	97	91.9	98.6	0	97.5	100	96.3	94.6	0	95.5	100	93.9	96.5	0	96.2	96.8
Trucks	12	17	1	0	30	19	3	7	0	29	0	13	25	0	38	0	2	2	0	4	101
% Trucks	2.3	3.2	4.8	0	2.8	3	8.1	1.4	0	2.5	0	3.7	5.4	0	4.5	0	6.1	3.5	0	3.8	3.2

EMH&T
5500 New Albany Rd.
Columbus, OH 43054
emht.com

File Name : Jerome-McKitrick AM
Site Code : 00000000
Start Date : 10/8/2013
Page No : 1

Groups Printed- Cars - Trucks

	JEROME Southbound					MCKITRICK Westbound					JEROME Northbound					MCKITRICK Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	51	15	0	66	0	0	0	0	0	13	13	0	0	26	8	0	9	0	17	109
07:15 AM	0	43	26	0	69	0	0	0	0	0	8	19	0	0	27	8	0	10	0	18	114
07:30 AM	0	35	48	0	83	0	0	0	0	0	13	22	0	0	35	14	0	7	0	21	139
07:45 AM	0	30	3	0	33	0	0	0	0	0	17	21	0	0	38	10	0	5	0	15	86
Total	0	159	92	0	251	0	0	0	0	0	51	75	0	0	126	40	0	31	0	71	448
08:00 AM	0	54	13	0	67	0	0	0	0	0	10	39	0	0	49	3	0	15	0	18	134
08:15 AM	0	42	8	0	50	0	0	0	0	0	11	28	0	0	39	7	0	11	0	18	107
08:30 AM	0	29	8	0	37	0	0	0	0	0	10	21	0	0	31	6	0	6	0	12	80
08:45 AM	0	35	10	0	45	0	0	0	0	0	10	14	0	0	24	2	0	11	0	13	82
Total	0	160	39	0	199	0	0	0	0	0	41	102	0	0	143	18	0	43	0	61	403
Grand Total	0	319	131	0	450	0	0	0	0	0	92	177	0	0	269	58	0	74	0	132	851
Apprch %	0	70.9	29.1	0		0	0	0	0		34.2	65.8	0	0		43.9	0	56.1	0		
Total %	0	37.5	15.4	0	52.9	0	0	0	0	0	10.8	20.8	0	0	31.6	6.8	0	8.7	0	15.5	
Cars	0	319	130	0	449	0	0	0	0	0	92	177	0	0	269	57	0	74	0	131	849
% Cars	0	100	99.2	0	99.8	0	0	0	0	0	100	100	0	0	100	98.3	0	100	0	99.2	99.8
Trucks	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
% Trucks	0	0	0.8	0	0.2	0	0	0	0	0	0	0	0	0	0	1.7	0	0	0	0.8	0.2

City of Dublin
Engineering
5800 Shier Rings Road
Dublin, Ohio 43016

John M.
Tues.

File Name : JeromeMcKitrickPM2012
Site Code : 00185203
Start Date : 4/3/2012
Page No : 1

Groups Printed- Cars - Trucks

	Jerome Rd Southbound					Westbound					Jerome Rd Northbound					McKitrick Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	4	26	0	0	30	0	0	0	0	0	0	22	4	0	26	7	0	14	0	21	77
04:15 PM	7	26	0	0	33	0	0	0	0	0	0	31	11	0	42	6	0	14	0	20	95
04:30 PM	8	17	0	0	25	0	0	0	0	0	0	29	7	0	36	6	0	6	0	12	73
04:45 PM	11	30	0	0	41	0	0	0	0	0	0	28	2	0	30	7	0	13	0	20	91
Total	30	99	0	0	129	0	0	0	0	0	0	110	24	0	134	26	0	47	0	73	336
05:00 PM	6	30	0	0	36	0	0	0	0	0	0	38	9	0	47	12	0	12	0	24	107
05:15 PM	11	27	0	0	38	0	0	0	0	0	0	33	15	0	48	12	0	22	0	34	120
05:30 PM	11	38	0	0	49	0	0	0	0	0	0	34	9	0	43	13	0	9	0	22	114
05:45 PM	5	42	0	0	47	0	0	0	0	0	0	31	10	0	41	14	0	12	0	26	114
Total	33	137	0	0	170	0	0	0	0	0	0	136	43	0	179	51	0	55	0	106	455
Grand Total	63	236	0	0	299	0	0	0	0	0	0	246	67	0	313	77	0	102	0	179	791
Apprch %	21.1	78.9	0	0		0	0	0	0		0	78.6	21.4	0		43	0	57	0		
Total %	8	29.8	0	0	37.8	0	0	0	0	0	0	31.1	8.5	0	39.6	9.7	0	12.9	0	22.6	
Cars	62	232	0	0	294	0	0	0	0	0	0	246	67	0	313	76	0	102	0	178	785
% Cars	98.4	98.3	0	0	98.3	0	0	0	0	0	0	100	100	0	100	98.7	0	100	0	99.4	99.2
Trucks	1	4	0	0	5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	6
% Trucks	1.6	1.7	0	0	1.7	0	0	0	0	0	0	0	0	0	0	1.3	0	0	0	0.6	0.8

	Jerome Rd Southbound					Westbound					Jerome Rd Northbound					McKitrick Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	6	30	0	0	36	0	0	0	0	0	0	[illegible]	9	0	47	12	0	12	0	24	107
05:15 PM	[illegible]	27	0	0	38	0	0	0	0	0	0	33	[illegible]	0	[illegible]	12	0	22	0	34	120
05:30 PM	11	38	0	0	49	0	0	0	0	0	0	34	9	0	43	13	0	9	0	22	114
05:45 PM	5	42	0	0	47	0	0	0	0	0	0	31	10	0	41	14	0	12	0	26	114
Total Volume	33	137	0	0	170	0	0	0	0	0	0	136	43	0	179	51	0	55	0	106	455
% App. Total	19.4	80.6	0	0		0	0	0	0		0	76	24	0		48.1	0	51.9	0		
PHF	.750	.815	.000	.000	.867	.000	.000	.000	.000	.000	.000	.895	.717	.000	.932	.911	.000	.625	.000	.779	.948

PEAK HOUR TRAFFIC VOLUMES

City of Dublin
Engineering
5800 Shier Rings Road
Dublin, Ohio 43016

John M.
Thurs.

File Name : HylandCroy McKitrickPM2013
Site Code : 00737003
Start Date : 2/28/2013
Page No : 1

Groups Printed- Cars - Trucks

	Hyland-Croy Road Southbound					McKitrick Road Westbound					Hyland-Croy Road Northbound					McKitrick Road Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	18	1	0	19	2	5	4	0	11	9	15	2	0	26	2	7	0	0	9	65
04:15 PM	0	18	1	0	19	0	6	7	0	13	6	17	2	0	25	0	6	0	0	6	63
04:30 PM	0	11	1	0	12	0	9	7	0	16	11	12	0	0	23	1	11	2	0	14	65
04:45 PM	1	17	0	0	18	1	6	8	0	15	16	24	1	0	41	1	7	1	0	9	83
Total	1	64	3	0	68	3	26	26	0	55	42	68	5	0	115	4	31	3	0	38	276
05:00 PM	4	20	0	1	25	2	4	10	0	16	6	22	1	0	29	1	9	1	1	12	82
05:15 PM	1	22	0	0	23	1	8	4	0	13	11	32	3	0	46	4	15	2	0	21	103
05:30 PM	2	26	2	0	30	2	10	9	0	21	11	31	1	0	43	3	10	0	0	13	107
05:45 PM	2	33	1	1	37	3	13	14	0	30	17	26	1	0	44	1	11	1	1	14	125
Total	9	101	3	2	115	8	35	37	0	80	45	111	6	0	162	9	45	4	2	60	417
Grand Total	10	165	6	2	183	11	61	63	0	135	87	179	11	0	277	13	76	7	2	98	693
Apprch %	5.5	90.2	3.3	1.1		8.1	45.2	46.7	0		31.4	64.6	4	0		13.3	77.6	7.1	2		
Total %	1.4	23.8	0.9	0.3	26.4	1.6	8.8	9.1	0	19.5	12.6	25.8	1.6	0	40	1.9	11	1	0.3	14.1	
Cars	10	161	6	2	179	11	60	63	0	134	86	178	11	0	275	12	76	7	2	97	685
% Cars	100	97.6	100	100	97.8	100	98.4	100	0	99.3	98.9	99.4	100	0	99.3	92.3	100	100	100	99	98.8
Trucks	0	4	0	0	4	0	1	0	0	1	1	1	0	0	2	1	0	0	0	1	8
% Trucks	0	2.4	0	0	2.2	0	1.6	0	0	0.7	1.1	0.6	0	0	0.7	7.7	0	0	0	1	1.2

	Hyland-Croy Road Southbound					McKitrick Road Westbound					Hyland-Croy Road Northbound					McKitrick Road Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	4	20	0	1	25	2	4	10	0	16	6	22	1	0	29	1	9	1	1	12	82
05:15 PM	1	22	0	0	23	1	8	4	0	13	11	32	3	0	46	4	15	2	0	21	103
05:30 PM	2	26	2	0	30	2	10	9	0	21	11	31	1	0	43	3	10	0	0	13	107
05:45 PM	2	33	1	1	37	3	13	14	0	30	17	26	1	0	44	1	11	1	1	14	125
Total Volume	9	101	3	2	115	8	35	37	0	80	45	111	6	0	162	9	45	4	2	60	417
% App. Total	7.8	87.8	2.6	1.7		10	43.8	46.2	0		27.8	68.5	3.7	0		15	75	6.7	3.3		
PHF	.563	.765	.375	.500	.777	.667	.673	.661	.000	.667	.662	.867	.500	.000	.880	.563	.750	.500	.500	.714	.834

EMH&T
5500 New Albany Rd.
Columbus, OH 43054
emht.com

File Name : McKitrick - Hyland-Croy AM
Site Code : 00000000
Start Date : 10/10/2013
Page No : 2

	HYLAND CROY Southbound					MCKITRICK Westbound					HYLAND CROY Northbound					MCKITRICK Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	25	1	0	26	17	7	0	0	24	1	28	11	0	40	2	7	2	0	11	101
07:30 AM	1	55	0	0	56	47	14	0	0	61	4	29	18	0	51	1	12	10	0	23	191
07:45 AM	0	13	0	0	13	10	9	3	0	22	1	30	8	0	39	1	8	2	0	11	85
08:00 AM	3	24	0	0	27	8	10	1	0	19	0	21	1	0	22	3	11	1	0	15	83
Total Volume	4	117	1	0	122	82	40	4	0	126	6	108	38	0	152	7	38	15	0	60	460
% App. Total	3.3	95.9	0.8	0		65.1	31.7	3.2	0		3.9	71.1	25	0		11.7	63.3	25	0		
PHF	.333	.532	.250	.000	.545	.436	.714	.333	.000	.516	.375	.900	.528	.000	.745	.583	.792	.375	.000	.652	.602

EMH&T
5500 New Albany Rd.
Columbus, OH 43054
emht.com

File Name : Hyland-Croy - Tuscany
Site Code : 21131358
Start Date : 10/8/2013
Page No : 2

	Hyland-Croy Southbound					Tuscany Westbound					Hyland-Croy Northbound					Tuscany Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	58	0	0	58	14	0	1	0	15	0	33	7	0	40	0	0	0	0	0	113
07:30 AM	0	92	0	0	92	38	0	1	0	39	0	53	11	0	64	0	0	0	0	0	195
07:45 AM	2	75	0	0	77	24	0	0	0	24	0	60	25	0	85	0	0	0	0	0	186
08:00 AM	5	28	0	0	33	9	0	0	0	9	0	36	4	0	40	0	0	0	0	0	82
Total Volume	7	253	0	0	260	85	0	2	0	87	0	182	47	0	229	0	0	0	0	0	576
% App. Total	2.7	97.3	0	0		97.7	0	2.3	0		0	79.5	20.5	0		0	0	0	0		
PHF	.350	.688	.000	.000	.707	.559	.000	.500	.000	.558	.000	.758	.470	.000	.674	.000	.000	.000	.000	.000	.738

EMH&T
5500 New Albany Rd.
Columbus, OH 43054
emht.com

File Name : Hyland-Croy - Tuscany
Site Code : 21131358
Start Date : 10/8/2013
Page No : 3

	Hyland-Croy Southbound					Tuscany Westbound					Hyland-Croy Northbound					Tuscany Eastbound					
Start Time	Left	Thru	Right	U-Turn	App Total	Left	Thru	Right	U-Turn	App Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	28	0	0	28	8	0	1	0	9	0	66	8	0	74	0	0	0	0	0	111
05:15 PM	1	62	0	0	63	12	0	0	0	12	0	63	11	0	74	0	0	0	0	0	149
05:30 PM	0	34	0	0	34	10	0	0	0	10	0	67	7	0	74	0	0	0	0	0	118
05:45 PM	1	42	0	0	43	6	0	1	0	7	0	53	8	0	61	0	0	0	0	0	111
Total Volume	2	166	0	0	168	36	0	2	0	38	0	249	34	0	283	0	0	0	0	0	489
% App. Total	1.2	98.8	0	0		94.7	0	5.3	0		0	88	12	0		0	0	0	0		
PHF	.500	.669	.000	.000	.667	.750	.000	.500	.000	.792	.000	.929	.773	.000	.956	.000	.000	.000	.000	.000	.820

Mike S.
Wed.

City of Dublin
Engineering
5800 Shier Rings Road
Dublin, Ohio 43016

File Name : Hyland-CroyBrandAM2012
Site Code : 01635001
Start Date : 8/29/2012
Page No : 1

Groups Printed- Cars - Trucks

	Hyland-Croy Rd Southbound					Brand Rd Westbound					Hyland-Croy Rd Northbound					Mitchell-Dewitt Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	36	5	0	41	11	11	11	0	33	7	48	3	0	58	7	7	6	0	20	152
07:15 AM	0	31	10	0	41	9	12	16	0	37	33	41	3	0	77	7	6	1	0	14	169
07:30 AM	0	35	60	0	95	22	21	46	0	89	57	38	2	1	98	9	40	4	0	53	335
07:45 AM	1	48	17	0	66	9	18	26	0	53	25	47	8	0	80	5	15	2	0	22	221
Total	1	150	92	0	243	51	62	99	0	212	122	174	16	1	313	28	68	13	0	109	877
08:00 AM	0	32	3	0	35	5	11	19	0	35	9	42	3	0	54	2	12	0	0	14	138
08:15 AM	0	31	3	0	34	2	11	10	0	23	14	30	3	0	47	2	8	1	0	11	115
08:30 AM	0	33	12	0	45	4	8	11	0	23	13	32	2	0	47	7	3	0	0	10	125
08:45 AM	1	31	5	0	37	4	9	16	0	29	12	37	0	0	49	8	7	0	0	15	130
Total	1	127	23	0	151	15	39	56	0	110	48	141	8	0	197	19	30	1	0	50	508
Grand Total	2	277	115	0	394	66	101	155	0	322	170	315	24	1	510	47	98	14	0	159	1385
Apprch %	0.5	70.3	29.2	0		20.5	31.4	48.1	0		33.3	61.8	4.7	0.2		29.6	61.6	8.8	0		
Total %	0.1	20	8.3	0	28.4	4.8	7.3	11.2	0	23.2	12.3	22.7	1.7	0.1	36.8	3.4	7.1	1	0	11.5	
Cars	2	259	111	0	372	59	100	152	0	311	156	277	23	1	457	46	88	12	0	146	1286
% Cars	100	93.5	96.5	0	94.4	89.4	99	98.1	0	96.6	91.8	87.9	95.8	100	89.6	97.9	89.8	85.7	0	91.8	92.9
Trucks	0	18	4	0	22	7	1	3	0	11	14	38	1	0	53	1	10	2	0	13	99
% Trucks	0	6.5	3.5	0	5.6	10.6	1	1.9	0	3.4	8.2	12.1	4.2	0	10.4	2.1	10.2	14.3	0	8.2	7.1
7:15-8:15	1	146	90			45	62	107			124	168	16			23	73	7			

	Hyland-Croy Rd Southbound					Brand Rd Westbound					Hyland-Croy Rd Northbound					Mitchell-Dewitt Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	**0**	**36**	**5**	**0**	**41**	**11**	**11**	**11**	**0**	**33**	**7**	[illegible]	3	0	58	7	7	[illegible]	0	20	152
07:15 AM	0	31	10	0	41	9	12	16	0	37	33	41	3	0	77	7	6	1	0	14	169
07:30 AM	0	35	[illegible]	0	[illegible]	**22**	**21**	**46**	0	**89**	**57**	38	2	**1**	**98**	**9**	**40**	4	0	**53**	**335**
07:45 AM	**1**	**48**	17	0	66	9	18	26	0	53	25	47	**8**	0	80	5	15	2	0	22	221
Total Volume	1	150	92	0	243	51	62	99	0	212	122	174	16	1	313	28	68	13	0	109	877
% App. Total	0.4	61.7	37.9	0		24.1	29.2	46.7	0		39	55.6	5.1	0.3		25.7	62.4	11.9	0		
PHF	.250	.781	.383	.000	.639	.580	.738	.538	.000	.596	.535	.906	.500	.250	.798	.778	.425	.542	.000	.514	.654

City of Dublin
Engineering
5800 Shier Rings Road
Dublin, Ohio 43016

Mike S.
Tues.
(Counter board error - shut off during first interval. Start time = 4:15)

File Name : hyland-croybrandpm2012
Site Code : 01635003
Start Date : 9/4/2012
Page No : 1

Groups Printed- Cars - Trucks

	Hyland-Croy Road Southbound					Brand Road Westbound					Hyland-Croy Road Northbound					Mitchell-Dewitt Road Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:15 PM	0	33	5	0	38	5	14	13	0	32	11	41	8	0	60	6	20	0	0	26	156
04:30 PM	1	32	6	0	39	10	11	26	0	47	12	58	3	0	73	3	20	2	0	25	184
04:45 PM	1	25	13	0	39	16	14	14	0	44	18	57	3	0	78	4	12	0	0	16	177
Total	2	90	24	0	116	31	39	53	0	123	41	156	14	0	211	13	52	2	0	67	517
05:00 PM	0	44	19	0	63	17	19	24	0	60	20	73	7	0	100	7	32	3	0	42	265
05:15 PM	0	32	11	0	43	19	11	23	0	53	24	94	6	0	124	7	37	3	0	47	267
05:30 PM	1	40	16	0	57	32	12	32	0	76	18	85	6	0	109	11	31	2	0	44	286
05:45 PM	0	37	19	0	56	57	11	20	0	88	25	96	3	1	125	9	25	9	0	43	312
Total	1	153	65	0	219	125	53	99	0	277	87	348	22	1	458	34	125	17	0	176	1130
06:00 PM	1	39	21	0	61	37	10	20	0	67	35	86	9	0	130	5	23	0	0	28	286
Grand Total	4	282	110	0	396	193	102	172	0	467	163	590	45	1	799	52	200	19	0	271	1933
Apprch %	1	71.2	27.8	0		41.3	21.8	36.8	0		20.4	73.8	5.6	0.1		19.2	73.8	7	0		
Total %	0.2	14.6	5.7	0	20.5	10	5.3	8.9	0	24.2	8.4	30.5	2.3	0.1	41.3	2.7	10.3	1	0	14	
Cars	4	269	110	0	383	193	101	169	0	463	161	585	45	1	792	50	200	18	0	268	1906
% Cars	100	95.4	100	0	96.7	100	99	98.3	0	99.1	98.8	99.2	100	100	99.1	96.2	100	94.7	0	98.9	98.6
Trucks	0	13	0	0	13	0	1	3	0	4	2	5	0	0	7	2	0	1	0	3	27
% Trucks	0	4.6	0	0	3.3	0	1	1.7	0	0.9	1.2	0.8	0	0	0.9	3.8	0	5.3	0	1.1	1.4

	Hyland-Croy Road Southbound					Brand Road Westbound					Hyland-Croy Road Northbound					Mitchell-Dewitt Road Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 06:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:15 PM																					
05:15 PM	**0**	**32**	**11**	**0**	**43**	**19**	**11**	**23**	**0**	**53**	**24**	**94**	**6**	**0**	**124**	**7**	[illegible]	3	0	[illegible]	267
05:30 PM	[illegible]	[illegible]	16	0	57	32	**12**	**32**	0	76	18	85	6	0	109	**11**	31	2	0	44	286
05:45 PM	0	37	19	0	56	**57**	11	20	0	**88**	25	**96**	3	1	125	9	25	**9**	0	43	**312**
06:00 PM	1	39	**21**	0	**61**	37	10	20	0	67	**35**	86	**9**	0	**130**	5	23	0	0	28	286
Total Volume	2	148	67	0	217	145	44	95	0	284	102	361	24	1	488	32	116	14	0	162	1151
% App. Total	0.9	68.2	30.9	0		51.1	15.5	33.5	0		20.9	74	4.9	0.2		19.8	71.6	8.6	0		
PHF	.500	.925	.798	.000	.889	.636	.917	.742	.000	.807	.729	.940	.667	.250	.938	.727	.784	.389	.000	.862	.922

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File Name : Post Rd - Hyland-Croy
Site Code : 00000000
Start Date : 8/29/2012
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	HYLAND CROY Southbound					POST Westbound					HYLAND CROY Northbound					POST Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	20	0	49	0	69	0	58	15	0	73	0	0	0	0	0	46	112	0	0	158	300
07:30 AM	48	0	45	0	93	0	67	29	0	96	0	0	0	0	0	44	148	0	0	192	381
07:45 AM	51	0	63	0	114	0	64	18	0	82	0	0	0	0	0	50	148	0	0	198	394
08:00 AM	35	0	76	0	111	0	76	11	0	87	0	0	0	0	0	41	110	0	0	151	349
Total Volume	154	0	233	0	387	0	265	73	0	338	0	0	0	0	0	181	518	0	0	699	1424
% App. Total	39.8	0	60.2	0		0	78.4	21.6	0		0	0	0	0		25.9	74.1	0	0		
PHF	.755	.000	.766	.000	.849	.000	.872	.629	.000	.880	.000	.000	.000	.000	.000	.905	.875	.000	.000	.883	.904

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File Name : Post Rd - Hyland-Croy
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	HYLAND CROY Southbound					POST Westbound					HYLAND CROY Northbound					POST Eastbound					
Start Time	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	23	0	53	0	76	0	140	38	0	178	0	0	0	0	0	58	68	0	0	126	380
05:15 PM	23	0	71	0	94	0	140	65	0	205	0	0	0	0	0	64	80	0	0	144	443
05:30 PM	16	0	52	0	68	0	127	50	0	177	0	0	0	0	0	79	105	0	0	184	429
05:45 PM	14	0	52	0	66	0	105	55	0	160	0	0	0	0	0	74	104	0	0	178	404
Total Volume	76	0	228	0	304	0	512	208	0	720	0	0	0	0	0	275	357	0	0	632	1656
% App. Total	25	0	75	0		0	71.1	28.9	0		0	0	0	0		43.5	56.5	0	0		
PHF	.826	.000	.803	.000	.809	.000	.914	.800	.000	.878	.000	.000	.000	.000	.000	.870	.850	.000	.000	.859	.935

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File Name : brand - abbie glen
Site Code : 21131358
Start Date : 10/9/2013
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	ABBIE GLEN Southbound					BRAND Westbound					ABBIE GLEN Northbound					BRAND Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	5	0	23	0	28	0	76	2	0	78	0	0	0	0	0	4	48	0	0	52	158
07:30 AM	1	0	37	0	38	0	208	1	0	209	0	0	0	0	0	10	83	0	0	93	340
07:45 AM	6	0	48	0	54	0	90	3	0	93	0	0	0	0	0	11	78	0	0	89	236
08:00 AM	6	0	5	0	11	0	24	1	0	25	0	0	0	0	0	2	16	0	0	18	54
Total Volume	18	0	113	0	131	0	398	7	0	405	0	0	0	0	0	27	225	0	0	252	788
% App. Total	13.7	0	86.3	0		0	98.3	1.7	0		0	0	0	0		10.7	89.3	0	0		
PHF	.750	.000	.589	.000	.606	.000	.478	.583	.000	.484	.000	.000	.000	.000	.000	.614	.678	.000	.000	.677	.579

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File Name : brand - abbie glen
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	ABBIE GLEN Southbound					BRAND Westbound					ABBIE GLEN Northbound					BRAND Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	5	0	3	0	8	0	60	8	0	68	0	0	0	0	0	6	57	0	0	63	139
05:15 PM	4	0	5	0	9	0	48	8	0	56	0	0	0	0	0	15	94	0	0	109	174
05:30 PM	6	0	2	0	8	0	50	8	0	58	0	0	0	0	0	8	84	0	0	92	158
05:45 PM	2	0	5	0	7	0	86	8	0	94	0	0	0	0	0	5	52	0	0	57	158
Total Volume	17	0	15	0	32	0	244	32	0	276	0	0	0	0	0	34	287	0	0	321	629
% App. Total	53.1	0	46.9	0		0	88.4	11.6	0		0	0	0	0		10.6	89.4	0	0		
PHF	.708	.000	.750	.000	.889	.000	.709	1.000													

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File Name : Jerome-McKitrick AM
Site Code : 00000000
Start Date : 10/8/2013
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	JEROME Southbound					MCKITRICK Westbound					JEROME Northbound					MCKITRICK Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	43	26	0	69	0	0	0	0	0	8	19	0	0	27	8	0	10	0	18	114
07:30 AM	0	35	48	0	83	0	0	0	0	0	13	22	0	0	35	14	0	7	0	21	139
07:45 AM	0	30	3	0	33	0	0	0	0	0	17	21	0	0	38	10	0	5	0	15	86
08:00 AM	0	54	13	0	67	0	0	0	0	0	10	39	0	0	49	3	0	15	0	18	134
Total Volume	0	162	90	0	252	0	0	0	0	0	48	101	0	0	149	35	0	37	0	72	473
% App. Total	0	64.3	35.7	0		0	0	0	0		32.2	67.8	0	0		48.6	0	51.4	0		
PHF	.000	.750	.469	.000	.759	.000	.000	.000	.000	.000	.706	.647	.000	.000	.760	.625	.000	.617	.000	.857	.851

City of Dublin
Engineering
5800 Shier Rings Road
Dublin, Ohio 43016

John M.
Tues.

File Name : JeromeMcKitrickPM2012
Site Code : 00185203
Start Date : 4/3/2012
Page No : 1

Groups Printed- Cars - Trucks

	Jerome Rd Southbound					Westbound					Jerome Rd Northbound					McKitrick Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	4	26	0	0	30	0	0	0	0	0	0	22	4	0	26	7	0	14	0	21	77
04:15 PM	7	26	0	0	33	0	0	0	0	0	0	31	11	0	42	6	0	14	0	20	95
04:30 PM	8	17	0	0	25	0	0	0	0	0	0	29	7	0	36	6	0	6	0	12	73
04:45 PM	11	30	0	0	41	0	0	0	0	0	0	28	2	0	30	7	0	13	0	20	91
Total	30	99	0	0	129	0	0	0	0	0	0	110	24	0	134	26	0	47	0	73	336
05:00 PM	6	30	0	0	36	0	0	0	0	0	0	38	9	0	47	12	0	12	0	24	107
05:15 PM	11	27	0	0	38	0	0	0	0	0	0	33	15	0	48	12	0	22	0	34	120
05:30 PM	11	38	0	0	49	0	0	0	0	0	0	34	9	0	43	13	0	9	0	22	114
05:45 PM	5	42	0	0	47	0	0	0	0	0	0	31	10	0	41	14	0	12	0	26	114
Total	33	137	0	0	170	0	0	0	0	0	0	136	43	0	179	51	0	55	0	106	455
Grand Total	63	236	0	0	299	0	0	0	0	0	0	246	67	0	313	77	0	102	0	179	791
Apprch %	21.1	78.9	0	0		0	0	0	0		0	78.6	21.4	0		43	0	57	0		
Total %	8	29.8	0	0	37.8	0	0	0	0	0	0	31.1	8.5	0	39.6	9.7	0	12.9	0	22.6	
Cars	62	232	0	0	294	0	0	0	0	0	0	246	67	0	313	76	0	102	0	178	785
% Cars	98.4	98.3	0	0	98.3	0	0	0	0	0	0	100	100	0	100	98.7	0	100	0	99.4	99.2
Trucks	1	4	0	0	5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	6
% Trucks	1.6	1.7	0	0	1.7	0	0	0	0	0	0	0	0	0	0	1.3	0	0	0	0.6	0.8

	Jerome Rd Southbound					Westbound					Jerome Rd Northbound					McKitrick Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	**6**	**30**	**0**	**0**	**36**	**0**	**0**	**0**	**0**	**0**	**0**	[illegible]	**9**	**0**	**47**	**12**	**0**	**12**	**0**	**24**	**107**
05:15 PM	[illegible]	27	0	0	38	0	0	0	0	0	0	33	[illegible]	0	[illegible]	12	0	**22**	0	**34**	**120**
05:30 PM	11	38	0	0	**49**	0	0	0	0	0	0	34	9	0	43	13	0	9	0	22	114
05:45 PM	5	**42**	0	0	47	0	0	0	0	0	0	31	10	0	41	**14**	0	12	0	26	114
Total Volume	33	137	0	0	170	0	0	0	0	0	0	136	43	0	179	51	0	55	0	106	455
% App. Total	19.4	80.6	0	0		0	0	0	0		0	76	24	0		48.1	0	51.9	0		
PHF	.750	.815	.000	.000	.867	.000	.000	.000	.000	.000	.000	.895	.717	.000	.932	.911	.000	.625	.000	.779	.948

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File Name : Avery - Glick
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	MANLEY Southbound					GLICK Westbound					AVERY Northbound					GLICK Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	29	36	0	0	65	41	2	31	0	74	1	15	14	0	30	2	3	5	0	10	179
07:30 AM	39	51	1	0	91	74	0	66	0	140	1	14	21	0	36	3	1	6	0	10	277
07:45 AM	43	36	0	0	79	49	1	36	0	86	2	22	32	0	56	0	8	4	0	12	233
08:00 AM	18	38	0	0	56	52	1	27	0	80	2	15	33	0	50	0	2	4	0	6	192
Total Volume	129	161	1	0	291	216	4	160	0	380	6	66	100	0	172	5	14	19	0	38	881
% App. Total	44.3	55.3	0.3	0		56.8	1.1	42.1	0		3.5	38.4	58.1	0		13.2	36.8	50	0		
PHF	.750	.789	.250	.000	.799	.730	.500	.606	.000	.679	.750	.750	.758	.000	.768	.417	.438	.792	.000	.792	.795

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File Name : Avery - Glick
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	MANLEY Southbound					GLICK Westbound					AVERY Northbound					GLICK Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	35	36	4	0	75	45	4	33	0	82	5	21	36	0	62	0	6	1	0	7	226
05:15 PM	39	41	3	0	83	43	6	33	0	82	3	28	39	0	70	1	3	6	0	10	245
05:30 PM	39	29	2	0	70	23	2	37	0	62	1	31	44	0	76	0	3	3	0	6	214
05:45 PM	37	39	2	0	78	53	4	35	0	92	3	23	35	0	61	2	0	2	0	4	235
Total Volume	150	145	11	0	306	164	16	138	0	318	12	103	154	0	269	3	12	12	0	27	920
% App. Total	49	47.4	3.6	0		51.6	5	43.4	0		4.5	38.3	57.2	0		11.1	44.4	44.4	0		
PHF	.962	.884	.688	.000	.922	.774	.667	.932	.000	.864	.600	.831	.875	.000	.885	.375	.500	.500	.000	.675	.939

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File Name : Avery - Memorial
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	AVERY Southbound					MEMORIAL Westbound					AVERY Northbound					MEMORIAL Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	3	68	0	0	71	10	0	5	0	15	0	49	5	0	54	0	0	0	0	0	140
07:30 AM	5	81	0	0	86	25	0	6	0	31	0	54	6	0	60	0	0	0	0	0	177
07:45 AM	2	34	0	0	36	6	0	3	0	9	0	44	10	0	54	0	0	0	0	0	99
08:00 AM	6	64	0	0	70	5	0	11	0	16	0	62	6	0	68	0	0	0	0	0	154
Total Volume	16	247	0	0	263	46	0	25	0	71	0	209	27	0	236	0	0	0	0	0	570
% App. Total	6.1	93.9	0	0		64.8	0	35.2	0		0	88.6	11.4	0		0	0	0	0		
PHF	.667	.762	.000	.000	.765	.460	.000	.568	.000	.573	.000	.843	.675	.000	.868	.000	.000	.000	.000	.000	.805

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	AVERY Southbound					MEMORIAL Westbound					AVERY Northbound					MEMORIAL Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	7	64	0	0	71	9	0	15	0	24	0	105	11	0	116	0	0	0	0	0	211
05:15 PM	10	65	0	0	75	9	0	10	0	19	0	95	11	0	106	0	0	0	0	0	200
05:30 PM	7	63	0	0	70	10	0	9	0	19	0	93	18	0	111	0	0	0	0	0	200
05:45 PM	5	83	0	0	88	10	0	5	0	15	0	58	11	0	69	0	0	0	0	0	172
Total Volume	29	275	0	0	304	38	0	39	0	77	0	351	51	0	402	0	0	0	0	0	783
% App. Total	9.5	90.5	0	0		49.4	0	50.6	0		0	87.3	12.7	0		0	0	0	0		
PHF	.725	.828	.000	.000	.864	.950	.000	.650	.000	.802	.000	.836	.708	.000	.866	.000	.000	.000	.000	.000	.928

Mike S.
Thurs.

City of Dublin
Engieering
5800 Shier Rings Road
Dublin, Ohio 43016

File Name : AveryBrandAM2011
Site Code : 00001001
Start Date : 11/3/2011
Page No : 1

Groups Printed- Cars - Trucks

	Avery Rd Southbound					Brand Rd Westbound					Avery Rd Northbound					Brand Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	8	40	10	0	58	7	23	11	0	41	4	18	4	0	26	6	21	4	0	31	156
07:15 AM	21	60	21	1	103	8	33	7	0	48	5	21	12	0	38	17	26	11	1	55	244
07:30 AM	38	41	16	0	95	6	66	16	0	88	5	19	31	0	55	17	54	15	0	86	324
07:45 AM	19	45	27	0	91	14	59	18	1	92	18	47	44	0	109	22	55	24	1	102	394
Total	86	186	74	1	347	35	181	52	1	269	32	105	91	0	228	62	156	54	2	274	1118
08:00 AM	8	37	14	0	59	17	19	8	0	44	3	19	5	0	27	10	41	8	0	59	189
08:15 AM	12	32	31	0	75	14	20	10	0	44	3	20	4	0	27	11	36	11	0	58	204
08:30 AM	5	53	18	1	77	9	13	7	0	29	7	16	6	0	29	14	26	8	0	48	183
08:45 AM	9	41	7	0	57	11	25	4	0	40	3	15	6	0	24	11	17	3	0	31	152
Total	34	163	70	1	268	51	77	29	0	157	16	70	21	0	107	46	120	30	0	196	728
Grand Total	120	349	144	2	615	86	258	81	1	426	48	175	112	0	335	108	276	84	2	470	1846
Apprch %	19.5	56.7	23.4	0.3		20.2	60.6	19	0.2		14.3	52.2	33.4	0		23	58.7	17.9	0.4		
Total %	6.5	18.9	7.8	0.1	33.3	4.7	14	4.4	0.1	23.1	2.6	9.5	6.1	0	18.1	5.9	15	4.6	0.1	25.5	
Cars	115	338	141	2	596	83	244	75	1	403	41	162	105	0	308	107	263	73	2	445	1752
% Cars	95.8	96.8	97.9	100	96.9	96.5	94.6	92.6	100	94.6	85.4	92.6	93.8	0	91.9	99.1	95.3	86.9	100	94.7	94.9
Trucks	5	11	3	0	19	3	14	6	0	23	7	13	7	0	27	1	13	11	0	25	94
% Trucks	4.2	3.2	2.1	0	3.1	3.5	5.4	7.4	0	5.4	14.6	7.4	6.2	0	8.1	0.9	4.7	13.1	0	5.3	5.1

	Avery Rd Southbound					Brand Rd Westbound					Avery Rd Northbound					Brand Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	**21**	[illegible]	21	[illegible]	[illegible]	8	33	7	0	48	5	21	12	0	38	17	26	11	[illegible]	55	244
07:30 AM	**38**	41	16	0	95	6	**66**	16	0	88	5	19	31	0	55	17	54	15	0	86	324
07:45 AM	19	45	**27**	0	91	14	59	**18**	**1**	**92**	**18**	**47**	**44**	0	**109**	**22**	**55**	**24**	1	**102**	**394**
08:00 AM	8	37	14	0	59	17	19	8	0	44	3	19	5	0	27	10	41	8	0	59	189
Total Volume	86	183	78	1	348	45	177	49	1	272	31	106	92	0	229	66	176	58	2	302	1151
% App. Total	24.7	52.6	22.4	0.3		16.5	65.1	18	0.4		13.5	46.3	40.2	0		21.9	58.3	19.2	0.7		
PHF	.566	.763	.722	.250	.845	.662	.670	.681	.250	.739	.431	.564	.523	.000	.525	.750	.800	.604	.500	.740	.730

Mike S.
Tues.

City of Dublin
Engineering
5800 Shier Rings Road
Dublin, Ohio 43016

File Name : AveryBrandPM2012
Site Code : 01565003
Start Date : 11/20/2012
Page No : 1

Groups Printed- Cars - Trucks

	Avery Rd Southbound					Brand Rd Westbound					Avery Rd Northbound					Brand Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	12	31	19	0	62	12	38	10	0	60	2	29	9	0	40	10	17	9	0	36	198
04:15 PM	11	30	18	0	59	17	36	1	1	55	5	34	12	0	51	11	18	9	1	39	204
04:30 PM	10	32	14	0	56	20	31	4	0	55	3	38	8	0	49	8	24	9	0	41	201
04:45 PM	11	37	12	1	61	20	29	3	1	53	2	42	13	0	57	11	36	11	1	59	230
Total	44	130	63	1	238	69	134	18	2	223	12	143	42	0	197	40	95	38	2	175	833
05:00 PM	12	36	9	0	57	25	25	3	0	53	4	50	13	0	67	13	33	15	0	61	238
05:15 PM	12	35	15	1	63	29	30	6	0	65	6	52	13	0	71	9	46	14	1	70	269
05:30 PM	8	41	14	0	63	32	27	7	0	66	7	54	11	0	72	8	42	19	0	69	270
05:45 PM	7	38	20	0	65	30	35	7	0	72	7	49	15	0	71	7	32	8	0	47	255
Total	39	150	58	1	248	116	117	23	0	256	24	205	52	0	281	37	153	56	1	247	1032
Grand Total	83	280	121	2	486	185	251	41	2	479	36	348	94	0	478	77	248	94	3	422	1865
Apprch %	17.1	57.6	24.9	0.4		38.6	52.4	8.6	0.4		7.5	72.8	19.7	0		18.2	58.8	22.3	0.7		
Total %	4.5	15	6.5	0.1	26.1	9.9	13.5	2.2	0.1	25.7	1.9	18.7	5	0	25.6	4.1	13.3	5	0.2	22.6	
Cars	79	272	120	2	473	185	243	39	2	469	36	343	94	0	473	77	245	90	3	415	1830
% Cars	95.2	97.1	99.2	100	97.3	100	96.8	95.1	100	97.9	100	98.6	100	0	99	100	98.8	95.7	100	98.3	98.1
Trucks	4	8	1	0	13	0	8	2	0	10	0	5	0	0	5	0	3	4	0	7	35
% Trucks	4.8	2.9	0.8	0	2.7	0	3.2	4.9	0	2.1	0	1.4	0	0	1	0	1.2	4.3	0	1.7	1.9

	Avery Rd Southbound					Brand Rd Westbound					Avery Rd Northbound					Brand Rd Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	12	36	9	0	57	25	25	3	0	53	4	50	13	0	67	13	33	15	0	61	238
05:15 PM	12	35	15	1	63	29	30	6	0	65	6	52	13	0	71	9	46	14	1	70	269
05:30 PM	8	41	14	0	63	32	27	7	0	66	7	54	11	0	72	8	42	19	0	69	270
05:45 PM	7	38	20	0	65	30	35	7	0	72	7	49	15	0	71	7	32	8	0	47	255
Total Volume	39	150	58	1	248	116	117	23	0	256	24	205	52	0	281	37	153	56	1	247	1032
% App. Total	15.7	60.5	23.4	0.4		45.3	45.7	9	0		8.5	73	18.5	0		15	61.9	22.7	0.4		
PHF	.813	.915	.725	.250	.954	.906	.836	.821	.000	.889	.857	.949	.867	.000	.976	.712	.832	.737	.250	.882	.956

EMH&T
5500 New Albany Rd.
Columbus, OH 43054
emht.com

File Name : Muirfield Dr - Avery Rd
Site Code : 00000000
Start Date : 10/9/2013
Page No : 2

	MUIRFIELD DR Southbound					AVERY RD Westbound					MUIRFIELD DR Northbound					AVERY RD Eastbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	188	0	0	188	0	0	0	0	0	43	79	0	0	122	0	0	81	0	81	391
07:30 AM	0	246	0	0	246	0	0	0	0	0	50	82	0	0	132	0	0	95	0	95	473
07:45 AM	0	268	1	0	269	0	0	0	0	0	71	117	0	0	188	0	0	93	0	93	550
08:00 AM	0	231	3	0	234	0	0	0	0	0	37	124	0	0	161	0	0	96	0	96	491
Total Volume	0	933	4	0	937	0	0	0	0	0	201	402	0	0	603	0	0	365	0	365	1905
% App. Total	0	99.6	0.4	0		0	0	0	0		33.3	66.7	0	0		0	0	100	0		
PHF	.000	.870	.333	.000	.871	.000	.000	.000	.000	.000	.708	.810	.000	.000	.802	.000	.000	.951	.000	.951	.866

EMH&T
5500 New Albany Rd.
Columbus, OH 43054
emht.com

File Name : Muirfield Dr - Avery Rd
Site Code : 00000000
Start Date : 10/9/2013
Page No : 3

	MUIRFIELD DR Southbound					AVERY RD Westbound					MUIRFIELD DR Northbound					AVERY RD Eastbound					
Start Time	Left	Thru	Right	U-Turn	App Total	Left	Thru	Right	U-Turn	App Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	166	2	0	168	0	0	0	0	0	118	258	0	0	376	1	0	64	0	65	609
05:15 PM	0	164	2	0	166	0	0	0	0	0	135	281	0	0	416	1	0	69	0	70	652
05:30 PM	0	161	4	0	165	0	0	0	0	0	120	286	0	0	406	0	0	65	0	65	636
05:45 PM	0	165	6	0	171	0	0	0	0	0	140	280	0	0	420	0	0	62	0	62	653
Total Volume	0	656	14	0	670	0	0	0	0	0	513	1105	0	0	1618	2	0	260	0	262	2550
% App. Total	0	97.9	2.1	0		0	0	0	0		31.7	68.3	0	0		0.8	0	99.2	0		
PHF	.000	.988	.583	.000	.980	.000	.000	.000	.000	.000	.916	.966	.000	.000	.963	.500	.000	.942	.000	.936	.976

Traffic Engineering Services, Inc.
742 Radio Drive
Lewis Center, OH 43035
(740) 549-0070
www.trafficcounts.com

Firenza Dr

Site: 000000000000
10/15/2013
Tuesday

24 Hour Volume

Interval Start	SB	NB	Combined
2:00 PM	6	18	24
3:00 PM	7	26	33
4:00 PM	4	8	12
5:00 PM	12	10	22
6:00 PM	11	12	23
7:00 PM	7	6	13
8:00 PM	2	4	6
9:00 PM	1	2	3
10:00 PM	0	0	0
11:00 PM	0	0	0
10/16/2013 12:00 AM	0	0	0
1:00 AM	0	0	0
2:00 AM	0	0	0
3:00 AM	1	1	2
4:00 AM	0	0	0
5:00 AM	0	1	1
6:00 AM	2	2	4
7:00 AM	4	14	18
8:00 AM	8	20	28
9:00 AM	18	10	28
10:00 AM	13	13	26
11:00 AM	12	3	15
12:00 PM	16	14	30
1:00 PM	9	14	23
Totals	133 (42.8%)	178 (57.2%)	311

Peak Hours

12:00 AM - 12:00 PM	9:00 AM	8:00 AM	8:00 AM
Volume	18	20	28
12:00 PM - 12:00 AM	12:00 PM	3:00 PM	3:00 PM
Volume	16	26	33

Traffic Engineering Services, Inc.
742 Radio Drive
Lewis Center, OH 43035
(740) 549-0070
www.trafficcounts.com

Bellow Valley

Site: 000000000000
10/15/2013
Tuesday

24 Hour Volume

Interval Start	SB	NB	Combined
2:00 PM	11	8	19
3:00 PM	21	5	26
4:00 PM	16	9	25
5:00 PM	12	14	26
6:00 PM	12	9	21
7:00 PM	17	14	31
8:00 PM	3	4	7
9:00 PM	2	1	3
10:00 PM	3	0	3
11:00 PM	4	0	4
10/16/2013 12:00 AM	0	0	0
1:00 AM	0	0	0
2:00 AM	0	0	0
3:00 AM	2	0	2
4:00 AM	1	0	1
5:00 AM	1	0	1
6:00 AM	6	1	7
7:00 AM	19	2	21
8:00 AM	20	6	26
9:00 AM	9	5	14
10:00 AM	10	4	14
11:00 AM	9	6	15
12:00 PM	8	6	14
1:00 PM	7	3	10
Totals	193 (66.6%)	97 (33.4%)	290

Peak Hours

12:00 AM - 12:00 PM	8:00 AM	8:00 AM	8:00 AM
Volume	20	6	26
12:00 PM - 12:00 AM	3:00 PM	5:00 PM	7:00 PM
Volume	21	14	31

Traffic Engineering Services, Inc.
742 Radio Drive
Lewis Center, OH 43035
(740) 549-0070
www.trafficcounts.com

Summerhouse Dr

Site: 000000000000
10/15/2013
Tuesday

24 Hour Volume

Interval Start	EB	WB	Combined
2:00 PM	4	3	7
3:00 PM	10	10	20
4:00 PM	16	10	26
5:00 PM	8	8	16
6:00 PM	9	10	19
7:00 PM	5	9	14
8:00 PM	2	0	2
9:00 PM	6	4	10
10:00 PM	1	0	1
11:00 PM	0	0	0
10/16/2013 12:00 AM	0	0	0
1:00 AM	0	0	0
2:00 AM	0	0	0
3:00 AM	1	1	2
4:00 AM	0	0	0
5:00 AM	0	0	0
6:00 AM	4	0	4
7:00 AM	6	6	12
8:00 AM	10	10	20
9:00 AM	6	5	11
10:00 AM	4	6	10
11:00 AM	9	4	13
12:00 PM	4	7	11
1:00 PM	2	3	5
Totals	107 (52.7%)	96 (47.3%)	203

Peak Hours

12:00 AM - 12:00 PM	8:00 AM	8:00 AM	8:00 AM
Volume	10	10	20
12:00 PM - 12:00 AM	4:00 PM	3:00 PM	4:00 PM
Volume	16	10	26

Description 1 : Hyland Croy Rd
Description 2 : north of Post Rd
Description 3 : count program

Site: 000000000000
Date: 10/20/2008
Monday

Daily Volume

Begin	northbo und		southbo und		Combined	
12:00 AM	-	-	-	-	-	-
12:15 AM	-		-		-	
12:30 AM	-		-		-	
12:45 AM	-		-		-	
1:00 AM	-	-	-	-	-	-
1:15 AM	-		-		-	
1:30 AM	-		-		-	
1:45 AM	-		-		-	
2:00 AM	-	-	-	-	-	-
2:15 AM	-		-		-	
2:30 AM	-		-		-	
2:45 AM	-		-		-	
3:00 AM	-	-	-	-	-	-
3:15 AM	-		-		-	
3:30 AM	-		-		-	
3:45 AM	-		-		-	
4:00 AM	-	-	-	-	-	-
4:15 AM	-		-		-	
4:30 AM	-		-		-	
4:45 AM	-		-		-	
5:00 AM	-	-	-	-	-	-
5:15 AM	-		-		-	
5:30 AM	-		-		-	
5:45 AM	-		-		-	
6:00 AM	-	-	-	-	-	-
6:15 AM	-		-		-	
6:30 AM	-		-		-	
6:45 AM	-		-		-	
7:00 AM	-	-	-	-	-	-
7:15 AM	-		-		-	
7:30 AM	-		-		-	
7:45 AM	-		-		-	
8:00 AM	-	14	-	38	-	52
8:15 AM	-		-		-	
8:30 AM	-		-		-	
8:45 AM	14		38		52	
9:00 AM	46	178	100	244	146	422
9:15 AM	50		52		102	
9:30 AM	46		47		93	
9:45 AM	36		45		81	
10:00 AM	33	139	46	143	79	282
10:15 AM	50		36		86	
10:30 AM	27		30		57	
10:45 AM	29		31		60	
11:00 AM	33	178	59	191	92	369
11:15 AM	35		38		73	
11:30 AM	61		46		107	
11:45 AM	49		48		97	

Begin	northbo und		southbo und		Combined	
12:00 PM	47	194	52	190	99	384
12:15 PM	47		37		84	
12:30 PM	43		36		79	
12:45 PM	57		65		122	
1:00 PM	55	186	33	155	88	341
1:15 PM	48		28		76	
1:30 PM	45		41		86	
1:45 PM	38		53		91	
2:00 PM	52	243	46	202	98	445
2:15 PM	70		26		96	
2:30 PM	60		66		126	
2:45 PM	61		64		125	
3:00 PM	59	243	62	219	121	462
3:15 PM	57		37		94	
3:30 PM	66		50		116	
3:45 PM	61		70		131	
4:00 PM	80	356	56	196	136	552
4:15 PM	86		46		132	
4:30 PM	101		48		149	
4:45 PM	89		46		135	
5:00 PM	96	560	54	244	150	804
5:15 PM	136		65		201	
5:30 PM	159		61		220	
5:45 PM	169		64		233	
6:00 PM	142	397	67	236	209	633
6:15 PM	93		63		156	
6:30 PM	87		60		147	
6:45 PM	75		46		121	
7:00 PM	72	257	53	130	125	387
7:15 PM	67		30		97	
7:30 PM	63		25		88	
7:45 PM	55		22		77	
8:00 PM	60	191	24	65	84	256
8:15 PM	31		17		48	
8:30 PM	51		13		64	
8:45 PM	49		11		60	
9:00 PM	30	109	19	44	49	153
9:15 PM	33		14		47	
9:30 PM	22		5		27	
9:45 PM	24		6		30	
10:00 PM	16	47	14	34	30	81
10:15 PM	10		8		18	
10:30 PM	13		5		18	
10:45 PM	8		7		15	
11:00 PM	4	13	7	15	11	28
11:15 PM	5		0		5	
11:30 PM	2		4		6	
11:45 PM	2		4		6	

	northbo und	southbo und	Combined
24 Hour Volume	3305 (58.5%)	2346 (41.5%)	5651

	12:00 AM - 12:00 PM			12:00 PM - 12:00 AM		
	northbo und	southbo und	Combined	northbo und	southbo und	Combined
Count	509	616	1125	2796	1730	4526
	45.2 %	54.8 %		61.8 %	38.2 %	
Peak Hour	9:00 AM	9:00 AM	9:00 AM	5:15 PM	5:15 PM	5:15 PM
Volume	178	244	422	606	257	863
Factor	0.89	0.61	0.72	0.90	0.96	0.93

Description 1 : Hyland Croy Rd
Description 2 : north of Post Rd
Description 3 : count program

Site: 000000000000
Date: 10/21/2008
Tuesday

Daily Volume

Begin	northbo und		southbo und		Combined	
12:00 AM	3	11	1	4	4	15
12:15 AM	5		1		6	
12:30 AM	1		1		2	
12:45 AM	2		1		3	
1:00 AM	1	7	0	0	1	7
1:15 AM	3		0		3	
1:30 AM	2		0		2	
1:45 AM	1		0		1	
2:00 AM	0	0	0	1	0	1
2:15 AM	0		0		0	
2:30 AM	0		0		0	
2:45 AM	0		1		1	
3:00 AM	0	1	1	1	1	2
3:15 AM	0		0		0	
3:30 AM	1		0		1	
3:45 AM	0		0		0	
4:00 AM	0	2	0	6	0	8
4:15 AM	1		4		5	
4:30 AM	0		1		1	
4:45 AM	1		1		2	
5:00 AM	4	19	2	33	6	52
5:15 AM	2		5		7	
5:30 AM	5		11		16	
5:45 AM	8		15		23	
6:00 AM	5	47	16	173	21	220
6:15 AM	5		37		42	
6:30 AM	11		40		51	
6:45 AM	26		80		106	
7:00 AM	44	188	71	286	115	474
7:15 AM	51		65		116	
7:30 AM	35		73		108	
7:45 AM	58		77		135	
8:00 AM	40	154	91	374	131	528
8:15 AM	28		101		129	
8:30 AM	41		91		132	
8:45 AM	45		91		136	
9:00 AM	83	240	74	217	157	457
9:15 AM	72		72		144	
9:30 AM	40		33		73	
9:45 AM	45		38		83	
10:00 AM	45	176	42	179	87	355
10:15 AM	39		32		71	
10:30 AM	45		46		91	
10:45 AM	47		59		106	
11:00 AM	28	137	95	236	123	373
11:15 AM	32		40		72	
11:30 AM	38		52		90	
11:45 AM	39		49		88	

Begin	northbo und		southbo und		Combined	
12:00 PM	38	201	33	179	71	380
12:15 PM	54		36		90	
12:30 PM	55		52		107	
12:45 PM	54		58		112	
1:00 PM	62	205	28	144	90	349
1:15 PM	41		30		71	
1:30 PM	52		46		98	
1:45 PM	50		40		90	
2:00 PM	53	201	65	245	118	446
2:15 PM	57		64		121	
2:30 PM	52		60		112	
2:45 PM	39		56		95	
3:00 PM	56	261	40	204	96	465
3:15 PM	66		45		111	
3:30 PM	69		63		132	
3:45 PM	70		56		126	
4:00 PM	72	299	63	219	135	518
4:15 PM	72		53		125	
4:30 PM	67		42		109	
4:45 PM	88		61		149	
5:00 PM	105	527	52	225	157	752
5:15 PM	121		64		185	
5:30 PM	151		54		205	
5:45 PM	150		55		205	
6:00 PM	146	408	67	230	213	638
6:15 PM	105		72		177	
6:30 PM	71		42		113	
6:45 PM	86		49		135	
7:00 PM	90	303	44	129	134	432
7:15 PM	74		43		117	
7:30 PM	67		20		87	
7:45 PM	72		22		94	
8:00 PM	53	174	31	77	84	251
8:15 PM	54		22		76	
8:30 PM	32		12		44	
8:45 PM	35		12		47	
9:00 PM	35	132	18	71	53	203
9:15 PM	33		21		54	
9:30 PM	30		20		50	
9:45 PM	34		12		46	
10:00 PM	35	83	5	25	40	108
10:15 PM	19		9		28	
10:30 PM	18		4		22	
10:45 PM	11		7		18	
11:00 PM	11	25	4	7	15	32
11:15 PM	9		1		10	
11:30 PM	2		1		3	
11:45 PM	3		1		4	

	northbo und	southbo und	Combined
24 Hour Volume	3801 (53.8%)	3265 (46.2%)	7066

	12:00 AM - 12:00 PM			**12:00 PM - 12:00 AM**		
	northbo und	southbo und	Combined	northbo und	southbo und	Combined
Count	982	1510	2492	2819	1755	4574
	39.4 %	60.6 %		61.6 %	38.4 %	
Peak Hour	8:30 AM	8:00 AM	8:30 AM	5:15 PM	5:30 PM	5:15 PM
Volume	241	374	569	568	248	808
Factor	0.73	0.93	0.91	0.94	0.86	0.95

Description 1 : Hyland Croy Rd
Description 2 : north of Post Rd
Description 3 : count program

Site: 000000000000
Date: 10/22/2008
Wednesday

Daily Volume

Begin	northbo und		southbo und		Combined	
12:00 AM	3	12	1	1	4	13
12:15 AM	4		0		4	
12:30 AM	4		0		4	
12:45 AM	1		0		1	
1:00 AM	3	7	0	2	3	9
1:15 AM	3		0		3	
1:30 AM	0		0		0	
1:45 AM	1		2		3	
2:00 AM	1	3	0	3	1	6
2:15 AM	1		2		3	
2:30 AM	0		0		0	
2:45 AM	1		1		2	
3:00 AM	0	3	0	1	0	4
3:15 AM	3		0		3	
3:30 AM	0		0		0	
3:45 AM	0		1		1	
4:00 AM	0	1	0	3	0	4
4:15 AM	0		1		1	
4:30 AM	0		0		0	
4:45 AM	1		2		3	
5:00 AM	1	17	5	30	6	47
5:15 AM	3		7		10	
5:30 AM	6		4		10	
5:45 AM	7		14		21	
6:00 AM	3	68	13	91	16	159
6:15 AM	7		22		29	
6:30 AM	18		19		37	
6:45 AM	40		37		77	
7:00 AM	51	169	74	279	125	448
7:15 AM	41		73		114	
7:30 AM	33		66		99	
7:45 AM	44		66		110	
8:00 AM	38	142	69	284	107	426
8:15 AM	21		74		95	
8:30 AM	37		76		113	
8:45 AM	46		65		111	
9:00 AM	39	184	79	229	118	413
9:15 AM	39		47		86	
9:30 AM	53		54		107	
9:45 AM	53		49		102	
10:00 AM	41	123	37	161	78	284
10:15 AM	26		39		65	
10:30 AM	33		37		70	
10:45 AM	23		48		71	
11:00 AM	37	187	53	167	90	354
11:15 AM	53		42		95	
11:30 AM	47		42		89	
11:45 AM	50		30		80	

Begin	northbo und		southbo und		Combined	
12:00 PM	60	187	45	150	105	337
12:15 PM	46		38		84	
12:30 PM	28		32		60	
12:45 PM	53		35		88	
1:00 PM	76	242	53	170	129	412
1:15 PM	58		35		93	
1:30 PM	60		37		97	
1:45 PM	48		45		93	
2:00 PM	45	188	47	195	92	383
2:15 PM	45		30		75	
2:30 PM	49		61		110	
2:45 PM	49		57		106	
3:00 PM	70	247	48	194	118	441
3:15 PM	54		46		100	
3:30 PM	58		46		104	
3:45 PM	65		54		119	
4:00 PM	73	330	61	217	134	547
4:15 PM	68		47		115	
4:30 PM	95		49		144	
4:45 PM	94		60		154	
5:00 PM	119	576	54	224	173	800
5:15 PM	134		62		196	
5:30 PM	168		50		218	
5:45 PM	155		58		213	
6:00 PM	107	456	67	264	174	720
6:15 PM	120		62		182	
6:30 PM	99		79		178	
6:45 PM	130		56		186	
7:00 PM	81	304	50	145	131	449
7:15 PM	86		34		120	
7:30 PM	65		35		100	
7:45 PM	72		26		98	
8:00 PM	59	218	25	101	84	319
8:15 PM	67		35		102	
8:30 PM	53		21		74	
8:45 PM	39		20		59	
9:00 PM	48	146	81	171	129	317
9:15 PM	50		37		87	
9:30 PM	32		44		76	
9:45 PM	16		9		25	
10:00 PM	17	52	5	17	22	69
10:15 PM	10		5		15	
10:30 PM	13		3		16	
10:45 PM	12		4		16	
11:00 PM	3	18	5	12	8	30
11:15 PM	6		1		7	
11:30 PM	7		5		12	
11:45 PM	2		1		3	

	northbo und	southbo und	Combined
24 Hour Volume	3880 (55.5%)	3111 (44.5%)	6991

	12:00 AM - 12:00 PM			**12:00 PM - 12:00 AM**		
	northbo und	southbo und	Combined	northbo und	southbo und	Combined
Count	916	1251	2167	2964	1860	4824
	42.3 %	57.7 %		61.4 %	38.6 %	
Peak Hour	11:00 AM	8:15 AM	7:00 AM	5:00 PM	5:45 PM	5:15 PM
Volume	187	294	448	576	266	801
Factor	0.88	0.93	0.90	0.86	0.84	0.92

Description 1 : Hyland Croy Rd
Description 2 : north of Post Rd
Description 3 : count program

Site: 000000000000
Date: 10/23/2008
Thursday

Daily Volume

Begin	northbo und		southbo und		Combined		Begin	northbo und		southbo und		Combined	
12:00 AM	3	13	1	4	4	17	12:00 PM	54	196	39	160	93	356
12:15 AM	2		1		3		12:15 PM	41		52		93	
12:30 AM	3		1		4		12:30 PM	49		32		81	
12:45 AM	5		1		6		12:45 PM	52		37		89	
1:00 AM	2	6	0	2	2	8	1:00 PM	60	200	46	173	106	373
1:15 AM	3		0		3		1:15 PM	50		38		88	
1:30 AM	0		0		0		1:30 PM	43		32		75	
1:45 AM	1		2		3		1:45 PM	47		57		104	
2:00 AM	0	7	0	0	0	7	2:00 PM	44	201	32	175	76	376
2:15 AM	2		0		2		2:15 PM	54		36		90	
2:30 AM	1		0		1		2:30 PM	49		64		113	
2:45 AM	4		0		4		2:45 PM	54		43		97	
3:00 AM	0	4	0	2	0	6	3:00 PM	53	248	47	202	100	450
3:15 AM	3		1		4		3:15 PM	69		49		118	
3:30 AM	1		1		2		3:30 PM	77		49		126	
3:45 AM	0		0		0		3:45 PM	49		57		106	
4:00 AM	1	3	0	4	1	7	4:00 PM	98	387	58	211	156	598
4:15 AM	0		1		1		4:15 PM	91		49		140	
4:30 AM	1		0		1		4:30 PM	100		47		147	
4:45 AM	1		3		4		4:45 PM	98		57		155	
5:00 AM	3	13	1	22	4	35	5:00 PM	142	594	51	230	193	824
5:15 AM	2		6		8		5:15 PM	140		53		193	
5:30 AM	5		4		9		5:30 PM	160		56		216	
5:45 AM	3		11		14		5:45 PM	152		70		222	
6:00 AM	3	61	14	103	17	164	6:00 PM	117	407	56	232	173	639
6:15 AM	9		18		27		6:15 PM	108		60		168	
6:30 AM	11		29		40		6:30 PM	89		54		143	
6:45 AM	38		42		80		6:45 PM	93		62		155	
7:00 AM	45	173	58	248	103	421	7:00 PM	70	253	53	240	123	493
7:15 AM	50		72		122		7:15 PM	79		101		180	
7:30 AM	31		56		87		7:30 PM	54		36		90	
7:45 AM	47		62		109		7:45 PM	50		50		100	
8:00 AM	48	159	70	296	118	455	8:00 PM	41	161	49	131	90	292
8:15 AM	32		69		101		8:15 PM	37		29		66	
8:30 AM	40		70		110		8:30 PM	38		26		64	
8:45 AM	39		87		126		8:45 PM	45		27		72	
9:00 AM	39	172	71	225	110	397	9:00 PM	48	141	24	77	72	218
9:15 AM	53		51		104		9:15 PM	31		22		53	
9:30 AM	39		60		99		9:30 PM	31		16		47	
9:45 AM	41		43		84		9:45 PM	31		15		46	
10:00 AM	48	144	43	175	91	319	10:00 PM	28	73	10	29	38	102
10:15 AM	32		40		72		10:15 PM	19		8		27	
10:30 AM	31		46		77		10:30 PM	17		6		23	
10:45 AM	33		46		79		10:45 PM	9		5		14	
11:00 AM	38	164	46	181	84	345	11:00 PM	13	27	7	16	20	43
11:15 AM	45		36		81		11:15 PM	6		2		8	
11:30 AM	36		40		76		11:30 PM	5		3		8	
11:45 AM	45		59		104		11:45 PM	3		4		7	

	northbo und	southbo und	Combined
24 Hour Volume	3807 (54.8%)	3138 (45.2%)	6945

	12:00 AM - 12:00 PM			**12:00 PM - 12:00 AM**		
	northbo und	southbo und	Combined	northbo und	southbo und	Combined
Count	919	1262	2181	2888	1876	4764
	42.1 %	57.9 %		60.6 %	39.4 %	
Peak Hour	9:15 AM	8:15 AM	8:00 AM	5:00 PM	6:30 PM	5:00 PM
Volume	181	297	455	594	270	824
Factor	0.85	0.85	0.90	0.93	0.67	0.93

Description 1 : Hyland Croy Rd
Description 2 : north of Post Rd
Description 3 : count program

Site: 000000000000
Date: 10/24/2008
Friday

Daily Volume

Begin	northbo und		southbo und		Combined	
12:00 AM	6	16	2	6	8	22
12:15 AM	5		1		6	
12:30 AM	3		3		6	
12:45 AM	2		0		2	
1:00 AM	1	3	3	6	4	9
1:15 AM	1		2		3	
1:30 AM	1		0		1	
1:45 AM	0		1		1	
2:00 AM	4	8	0	1	4	9
2:15 AM	2		0		2	
2:30 AM	1		0		1	
2:45 AM	1		1		2	
3:00 AM	2	4	0	1	2	5
3:15 AM	1		0		1	
3:30 AM	1		0		1	
3:45 AM	0		1		1	
4:00 AM	0	3	0	6	0	9
4:15 AM	2		2		4	
4:30 AM	0		3		3	
4:45 AM	1		1		2	
5:00 AM	1	12	3	34	4	46
5:15 AM	4		3		7	
5:30 AM	2		8		10	
5:45 AM	5		20		25	
6:00 AM	8	67	15	141	23	208
6:15 AM	10		24		34	
6:30 AM	18		29		47	
6:45 AM	31		73		104	
7:00 AM	67	201	82	309	149	510
7:15 AM	62		97		159	
7:30 AM	26		64		90	
7:45 AM	46		66		112	
8:00 AM	38	158	75	325	113	483
8:15 AM	42		87		129	
8:30 AM	37		82		119	
8:45 AM	41		81		122	
9:00 AM	43	187	99	251	142	438
9:15 AM	49		61		110	
9:30 AM	51		45		96	
9:45 AM	44		46		90	
10:00 AM	46	157	46	164	92	321
10:15 AM	37		38		75	
10:30 AM	36		49		85	
10:45 AM	38		31		69	
11:00 AM	35	163	57	205	92	368
11:15 AM	34		48		82	
11:30 AM	46		56		102	
11:45 AM	48		44		92	

Begin	northbo und		southbo und		Combined	
12:00 PM	2	2	2	2	4	4

	northbo und	southbo und	Combined
24 Hour Volume	981 (40.3%)	1451 (59.7%)	2432

	12:00 AM - 12:00 PM			**12:00 PM - 12:00 AM**		
	northbo und	southbo und	Combined	northbo und	southbo und	Combined
Count	979	1449	2428	2	2	4
	40.3 %	59.7 %		50.0 %	50.0 %	
Peak Hour	7:00 AM	8:15 AM	8:15 AM	-	-	-
Volume	201	349	512	-	-	-
Factor	0.75	0.88	0.90	-	-	-

APPENDIX C
TRAFFIC VOLUME CALCULATIONS

Riviera

Traffic Impact Study

Trip Generation Calculations

Institute of Transportation Engineers, 9th Edition

Land Use	Square Feet or Units	ITE Code	Time Period	ITE Formula	Total Trips	Trips Entering	Trips Exiting
Single Family - Detached	248 units	210	ADT	Ln(T)=0.92Ln(x)+2.72	2,422	1,211	1,211
			AM Peak	T=0.70(x)+9.74	183	46	137
			PM Peak	Ln(T)=0.90Ln(x)+0.51	238	150	88

City of Dublin Community Plan Trip Generation

Land Use	Square Feet or Units	ITE Code	Time Period	ITE Formula	Total Trips	Trips Entering	Trips Exiting
Golf Course	18 Holes	430	ADT	Average Rate = 35.74	644	322	322
			AM Peak	Average Rate = 2.06	37	29	8
			PM Peak	Average Rate = 2.92	53	27	26
Comparison to Site Generated Trips				***ADT***	***-1,778***	***-889***	***-889***
				AM TOTAL	***-146***	***-17***	***-129***
				PM TOTAL	***-185***	***-123***	***-62***

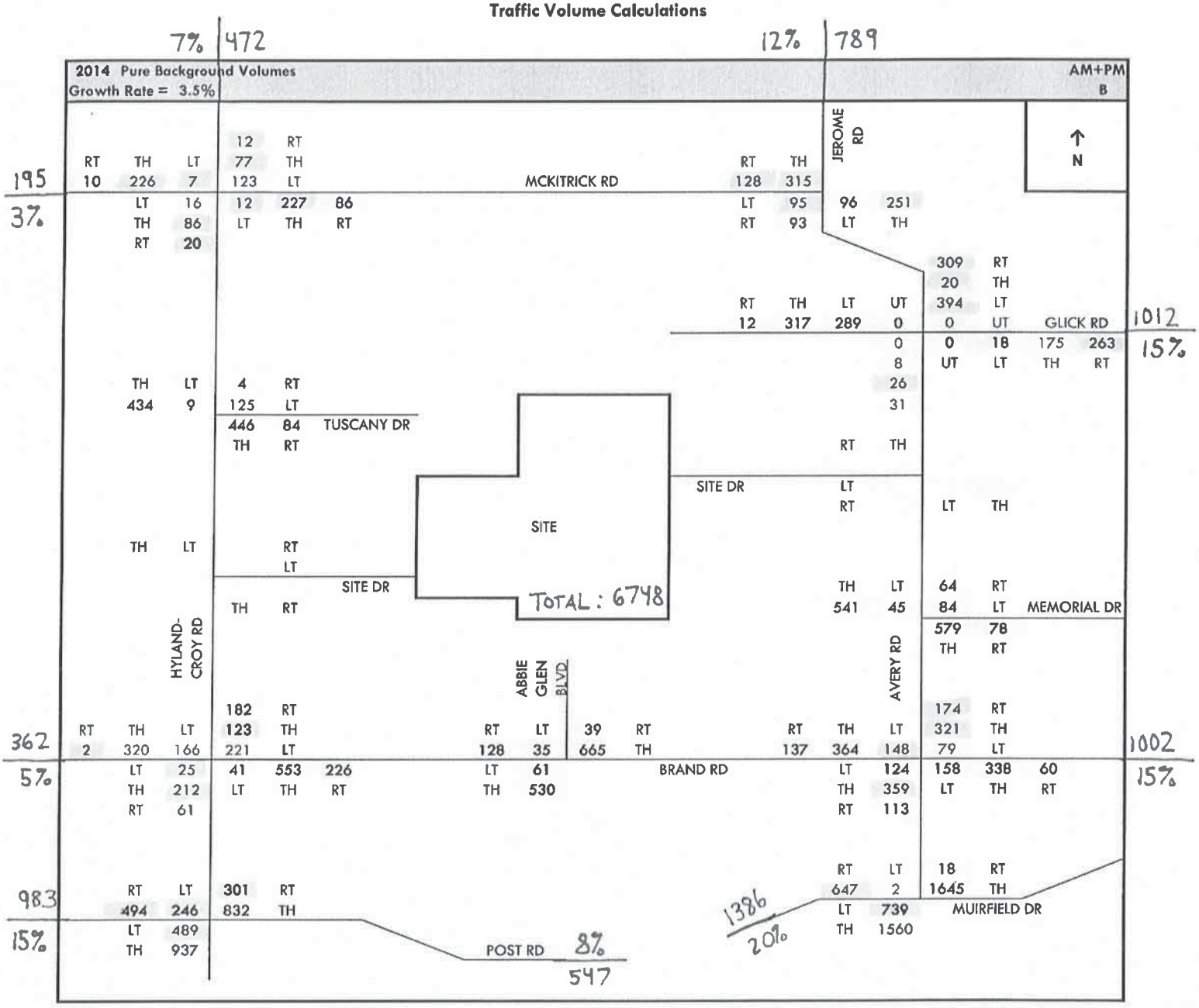
Study Area Growth Rate Comparison

Intersection	Volumes (AM+PM)		
	2003	**2013***	**2024**
Hyland-Croy / Post	1805	3080	5780
Hyland-Croy / Brand	754	1991	4498
Hyland-Croy / McKitrick	414	873	2654
Avery / Muirfield	3344	4455	6825
Avery / Brand	1828	2177	3998
Avery / Glick	1167	1801	3554
Jerome / McKitrick	644	928	2288
TOTAL	9956	15305	29597

Growth Rate	
2003-2013	4.7%
2013-2024	5.9%

*2013 Count Average Year = 2012.4

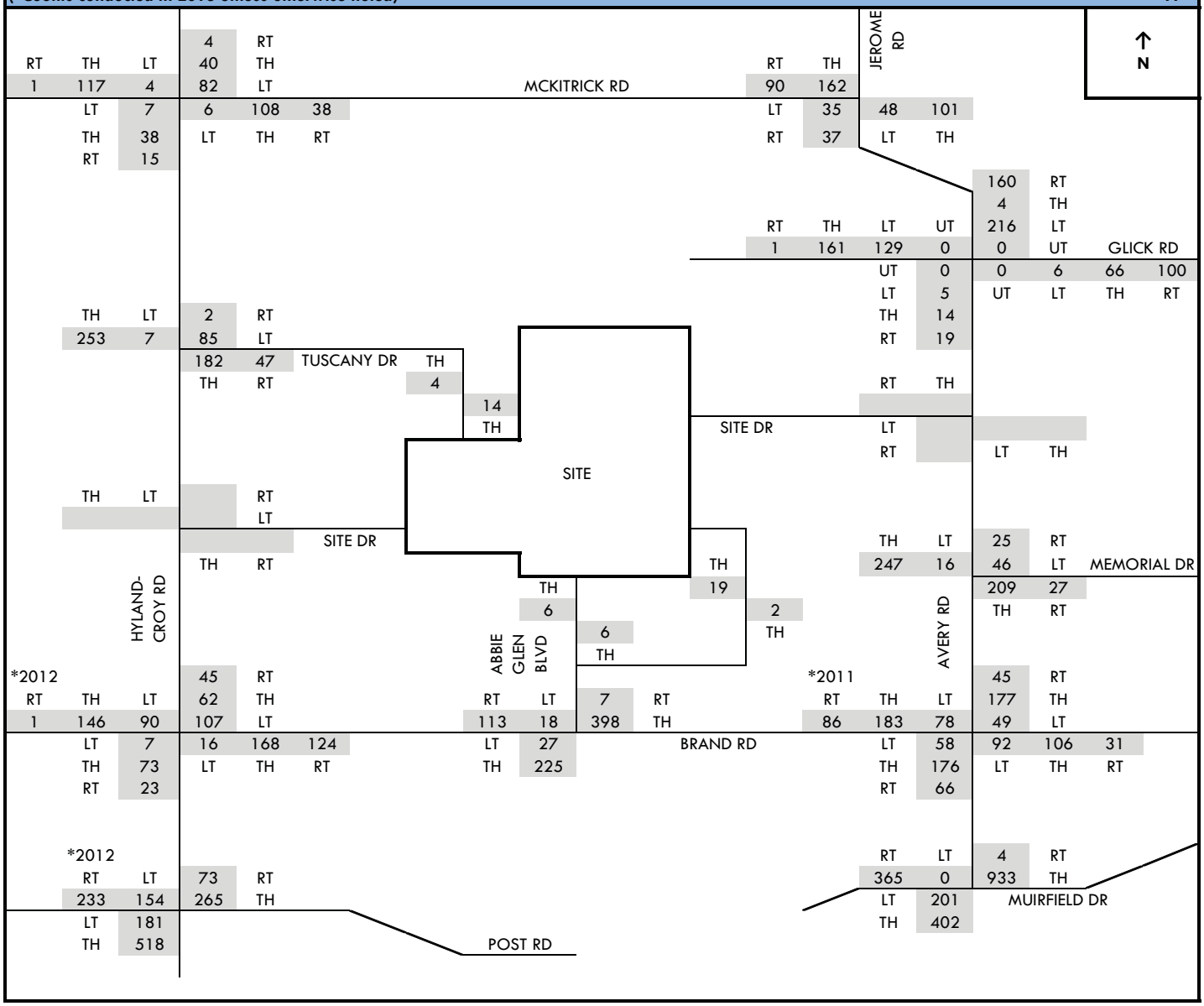
Riviera
Traffic Impact Study
Traffic Volume Calculations



AM PEAK HOUR
VOLUME CALCULATIONS

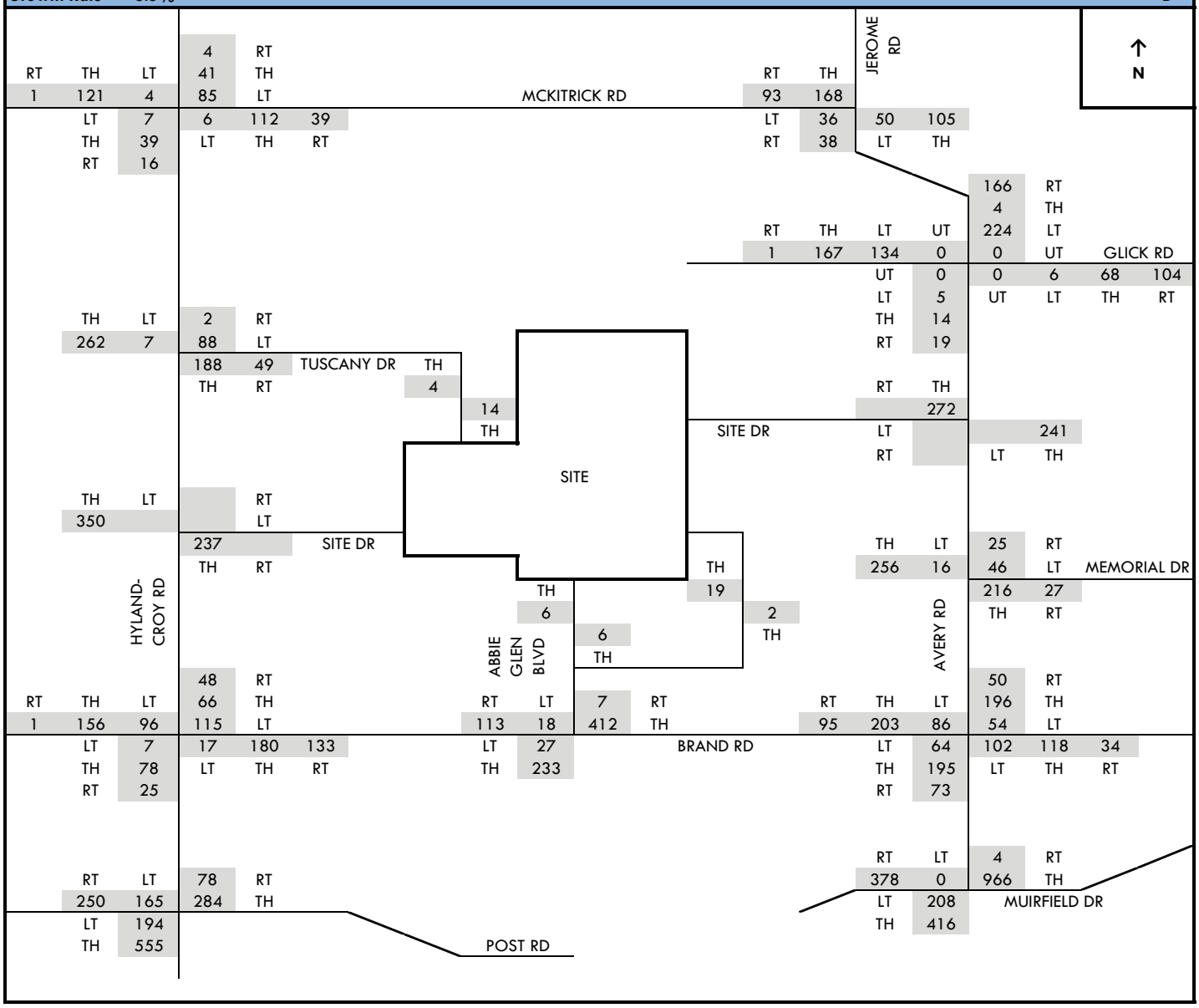
Riviera
Traffic Impact Study
Traffic Volume Calculations

2013 Count Volumes — **AM Peak Hour**
(*Counts conducted in 2013 unless otherwise noted) — **A**



Riviera
Traffic Impact Study
Traffic Volume Calculations

2014 Pure Background Volumes — **AM Peak Hour**
Growth Rate = 3.5% — **B**



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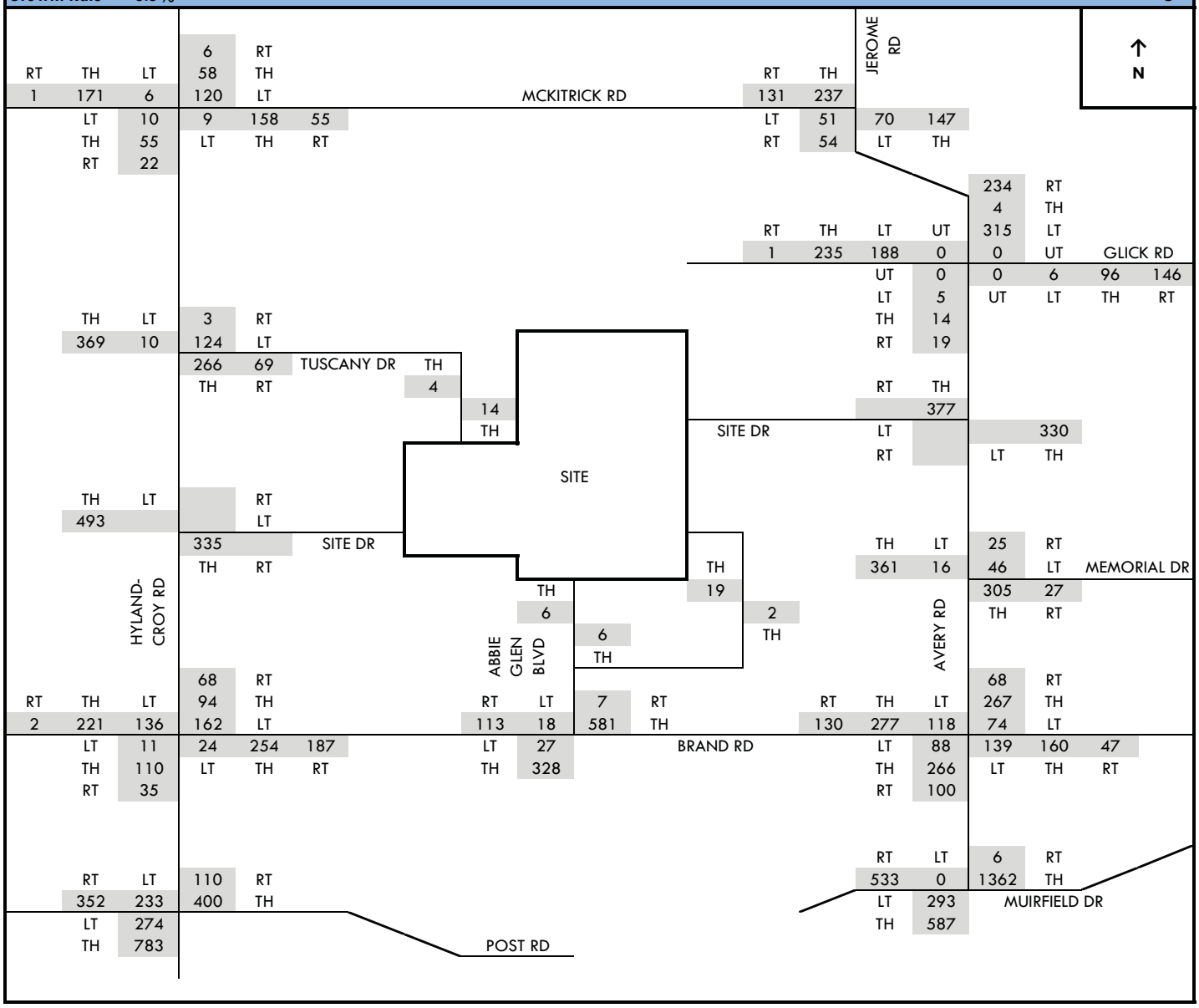
Traffic Impact Study
Traffic Volume Calculations

2024 Pure Background Volumes — **AM Peak Hour**
Growth Rate = 3.5% — **C**



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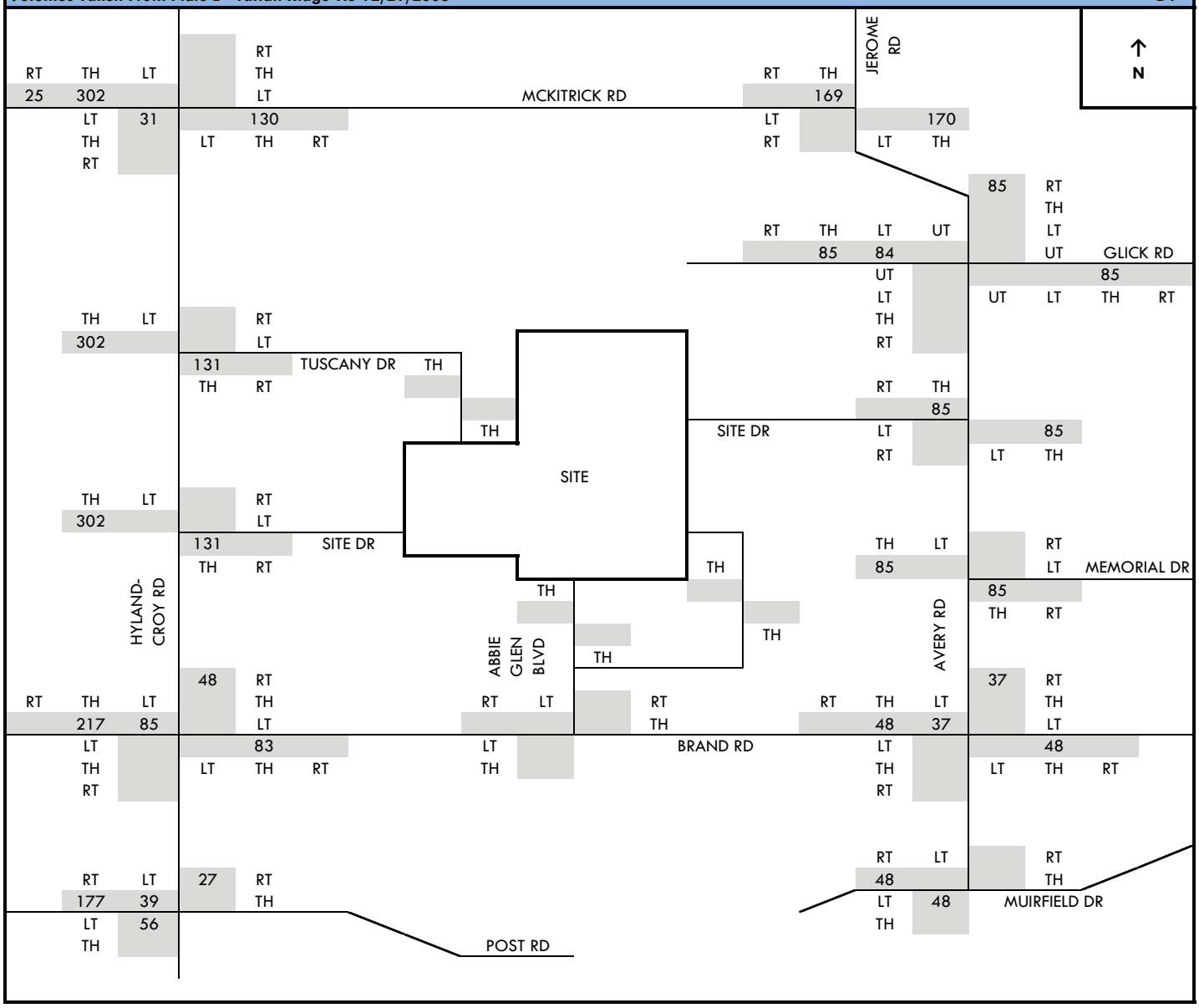
Traffic Impact Study
Traffic Volume Calculations

Jerome Village Background Traffic — **AM Peak Hour**
Volumes Taken From Plate L - Tartan Ridge TIS 12/21/2006 — **D1**



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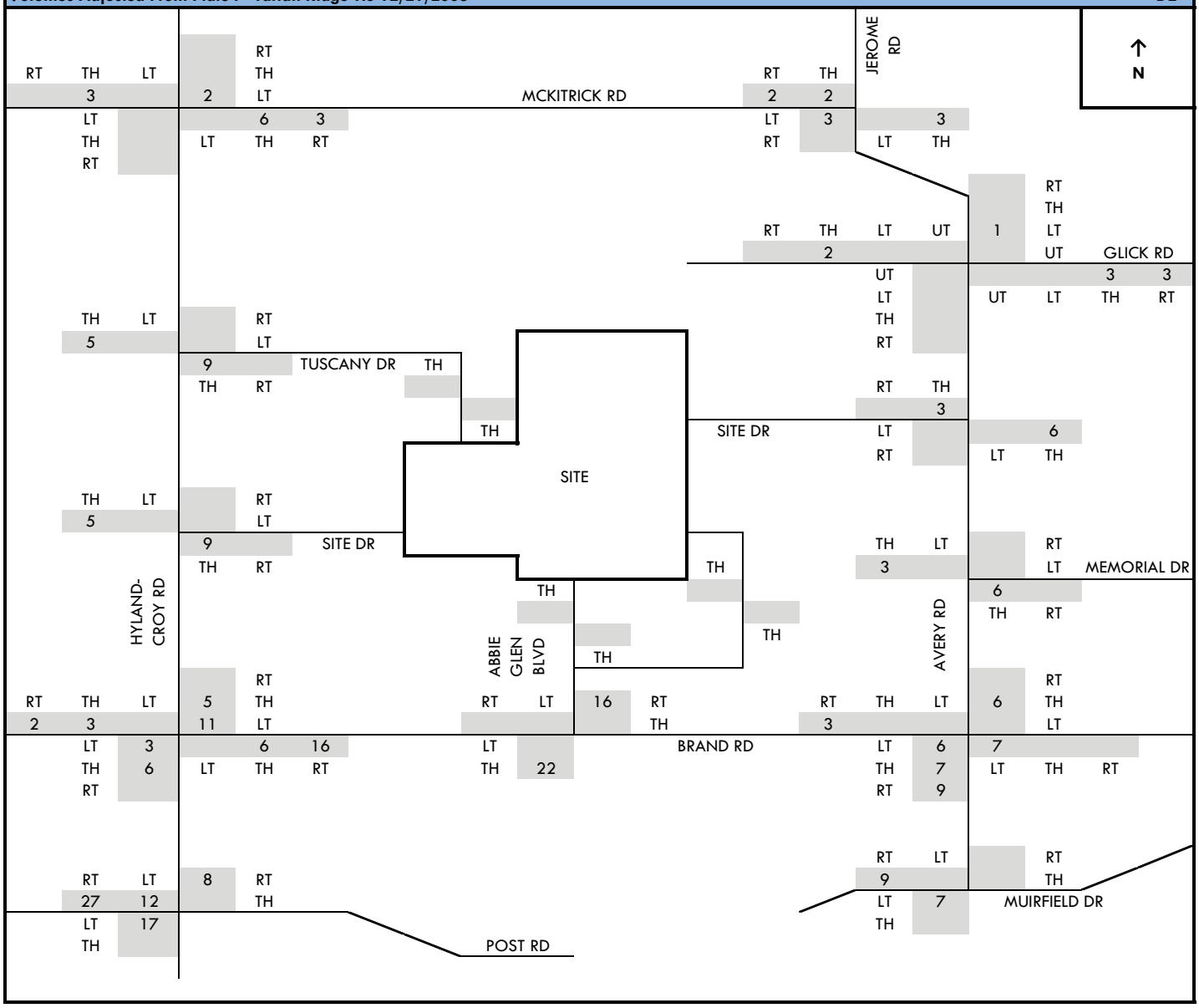
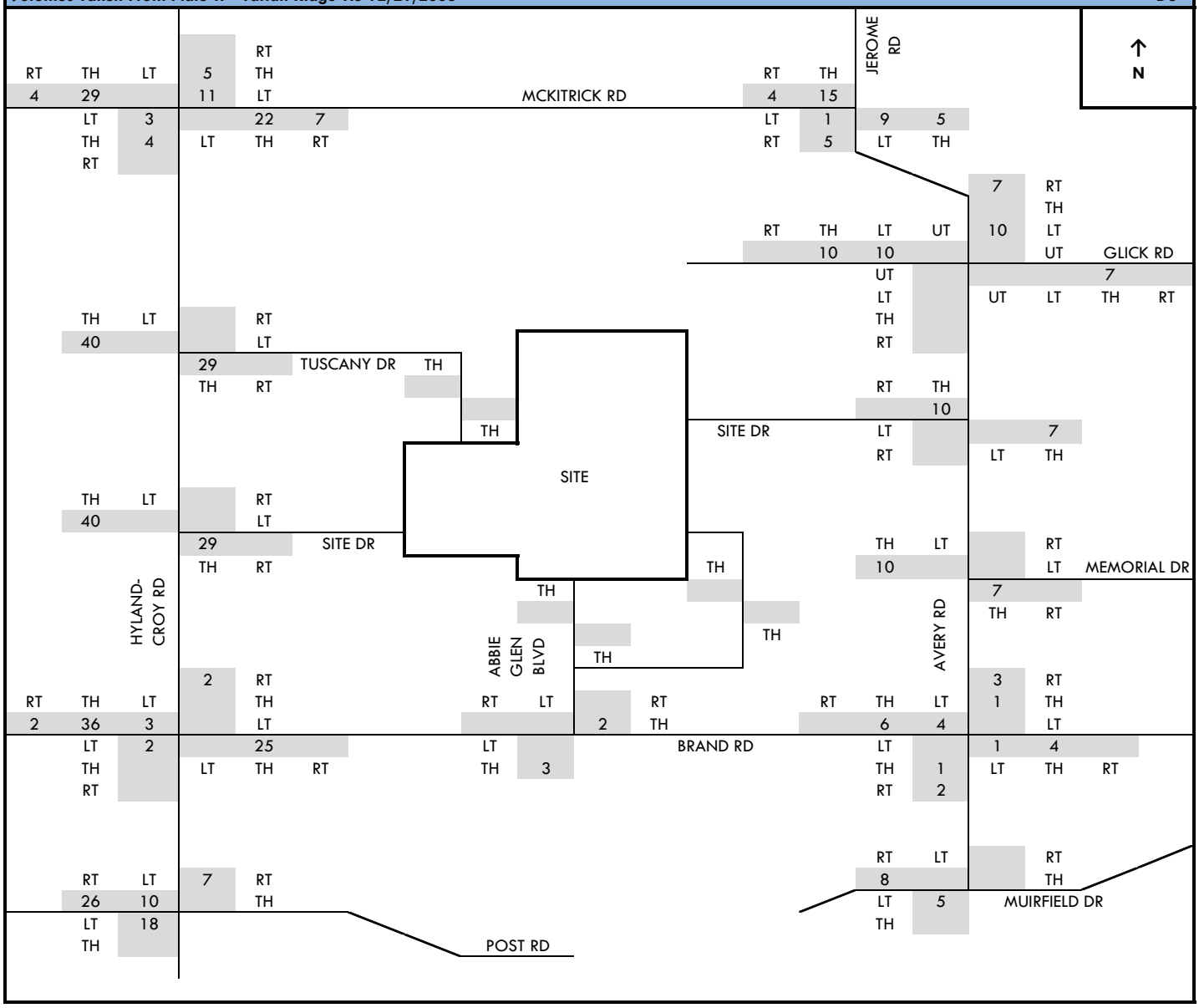
Traffic Impact Study
Traffic Volume Calculations

Oak Park Background Traffic (30% of residential trips assumed to be existing) **AM Peak Hour**
Volumes Adjusted From Plate I - Tartan Ridge TIS 12/21/2006 **D2**



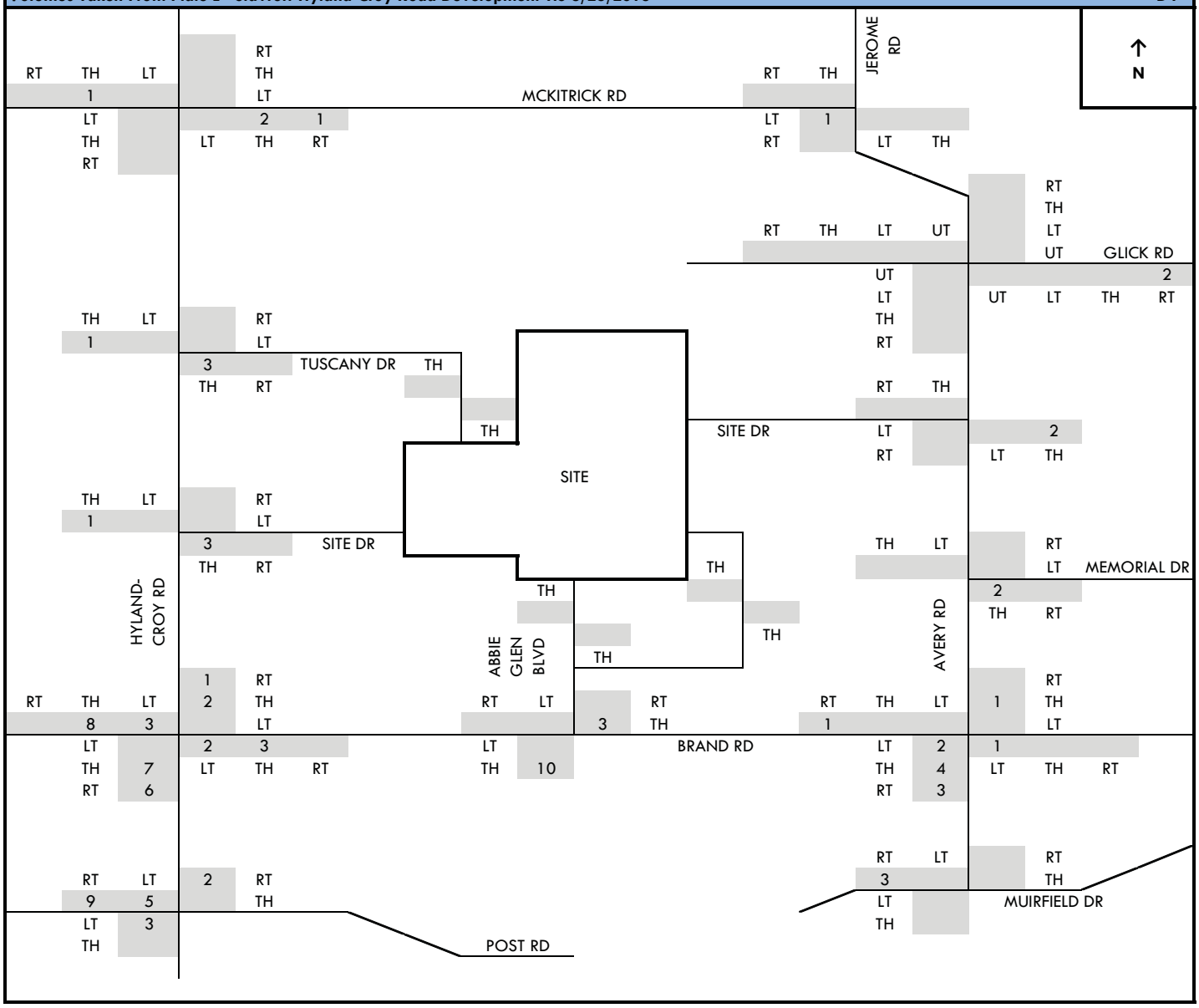
Riviera
Traffic Impact Study
Traffic Volume Calculations

Tartan Ridge Background Traffic (50%) **AM Peak Hour**
Volumes Taken From Plate W - Tartan Ridge TIS 12/21/2006 **D3**



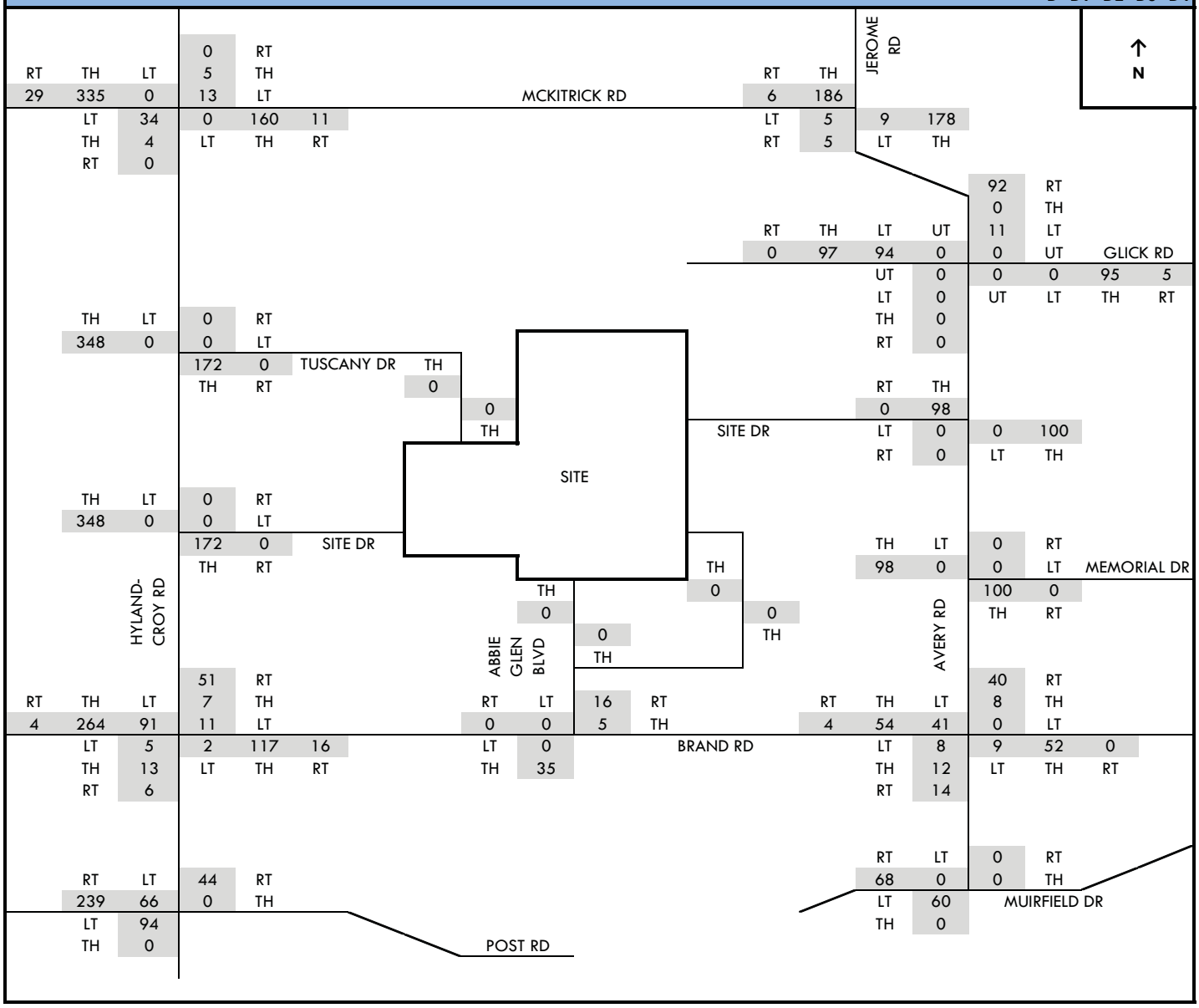
Riviera
Traffic Impact Study
Traffic Volume Calculations

Stavroff Background Site Traffic — **AM Peak Hour**
Volumes Taken From Plate L - Stavroff Hyland-Croy Road Development TIS 8/23/2013 — **D4**



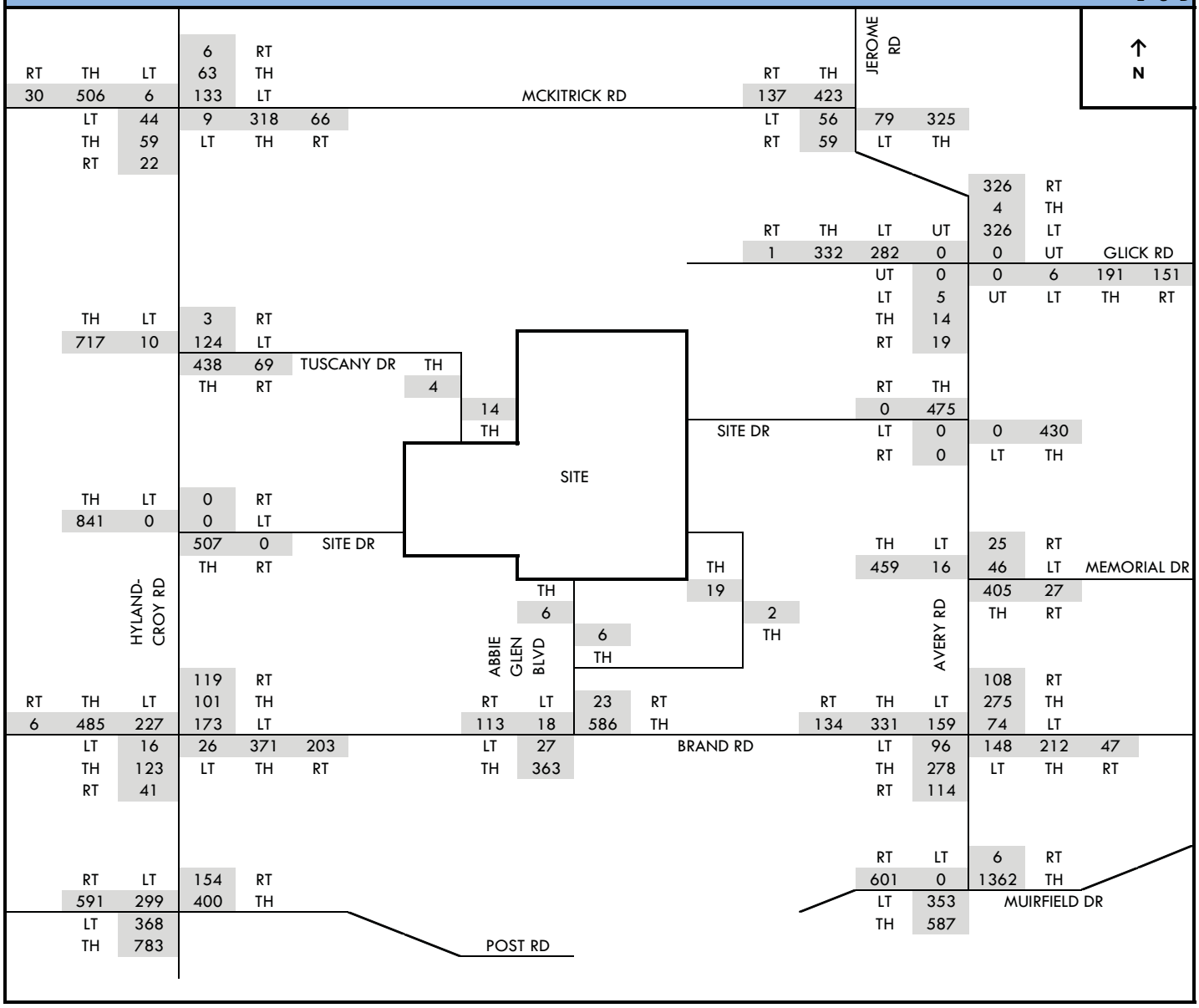
Riviera
Traffic Impact Study
Traffic Volume Calculations

Total Site Traffic From Planned Adjacent Developments — **AM Peak Hour D=D1+D2+D3+D4**



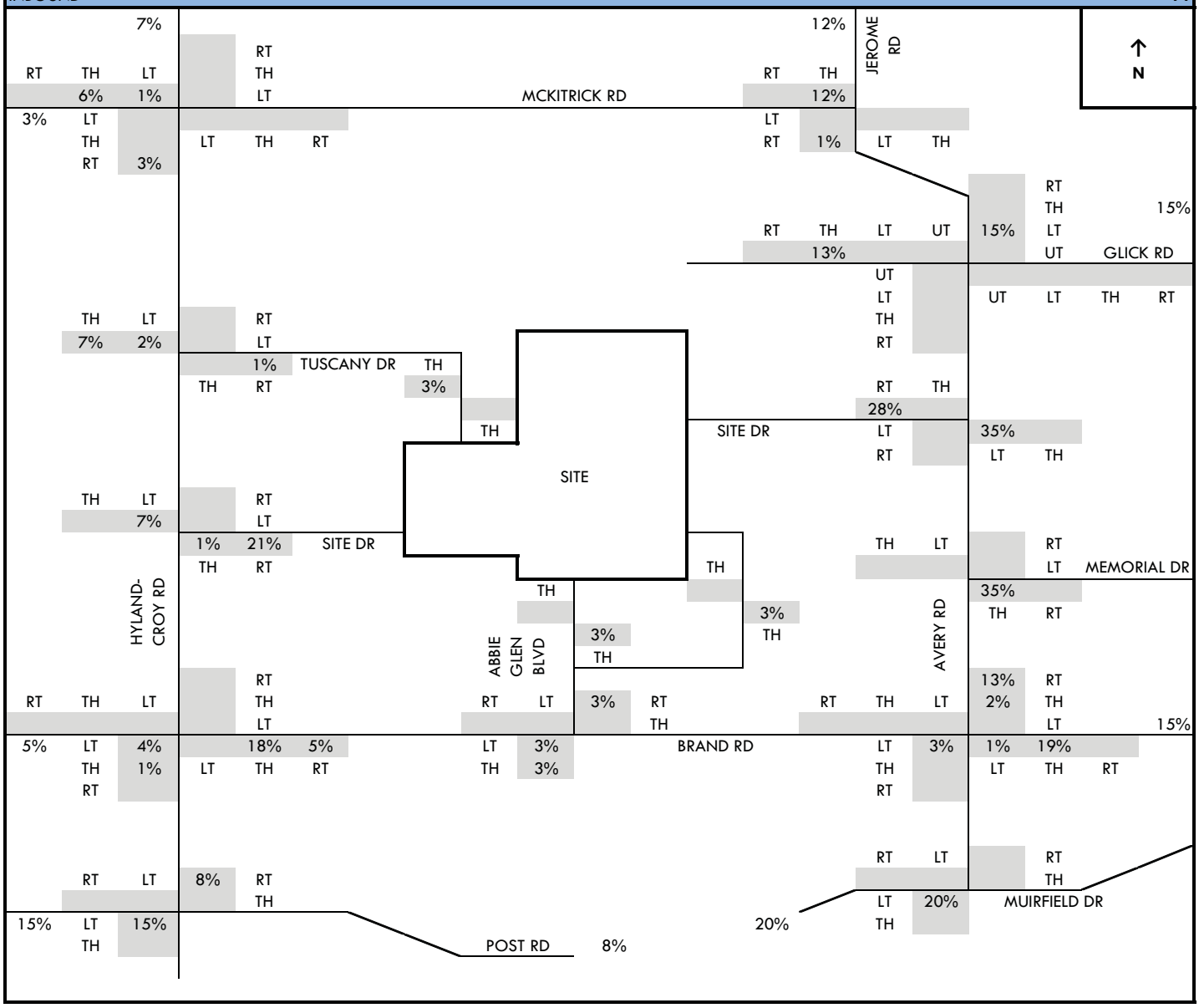
Riviera
Traffic Impact Study
Traffic Volume Calculations

2024 Background Traffic — **AM Peak Hour E=C+D**



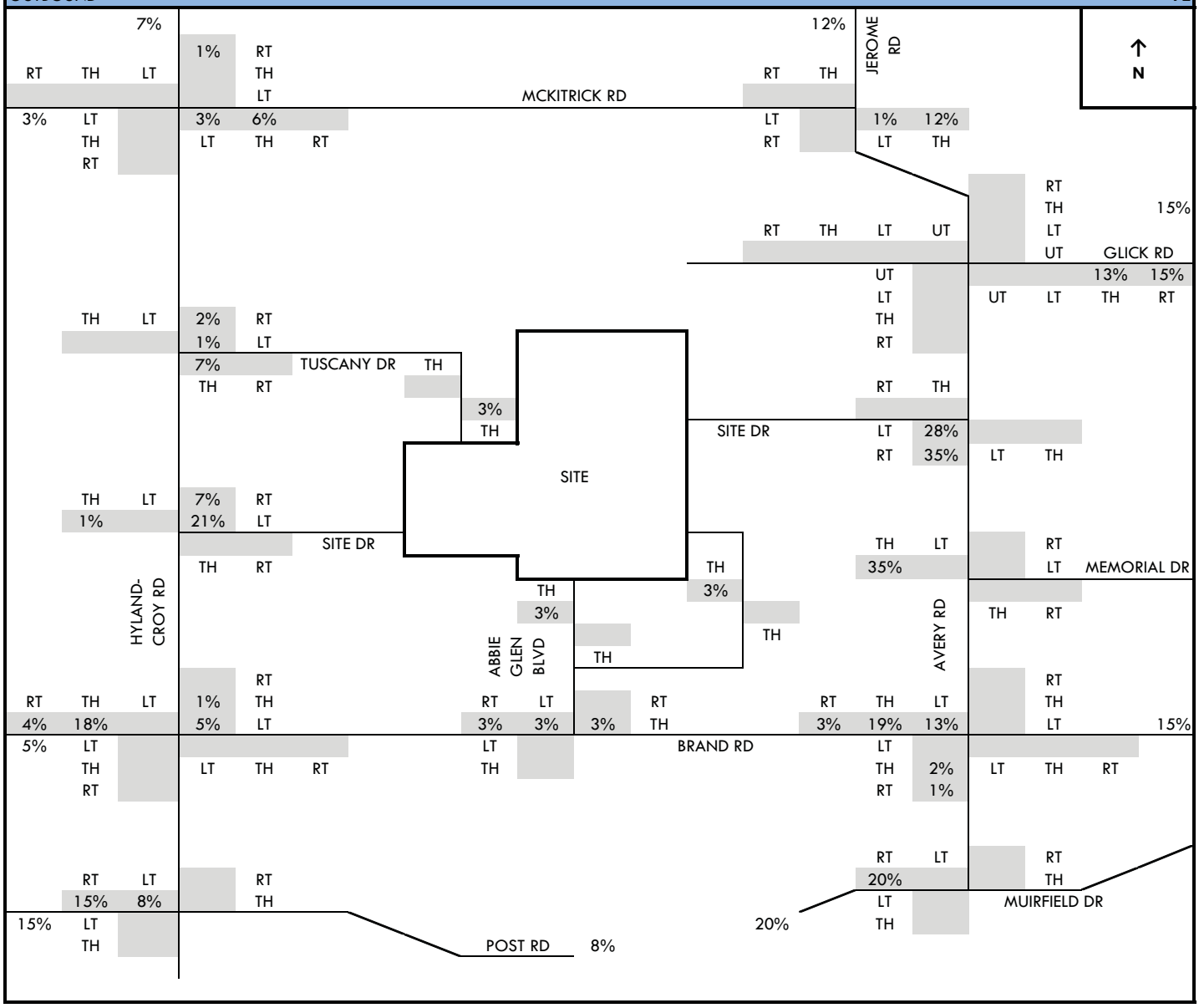
Riviera
Traffic Impact Study
Traffic Volume Calculations

Site Trip Distribution - w/ Hyland-Croy Site Drive **AM Peak Hour**
INBOUND **F1**

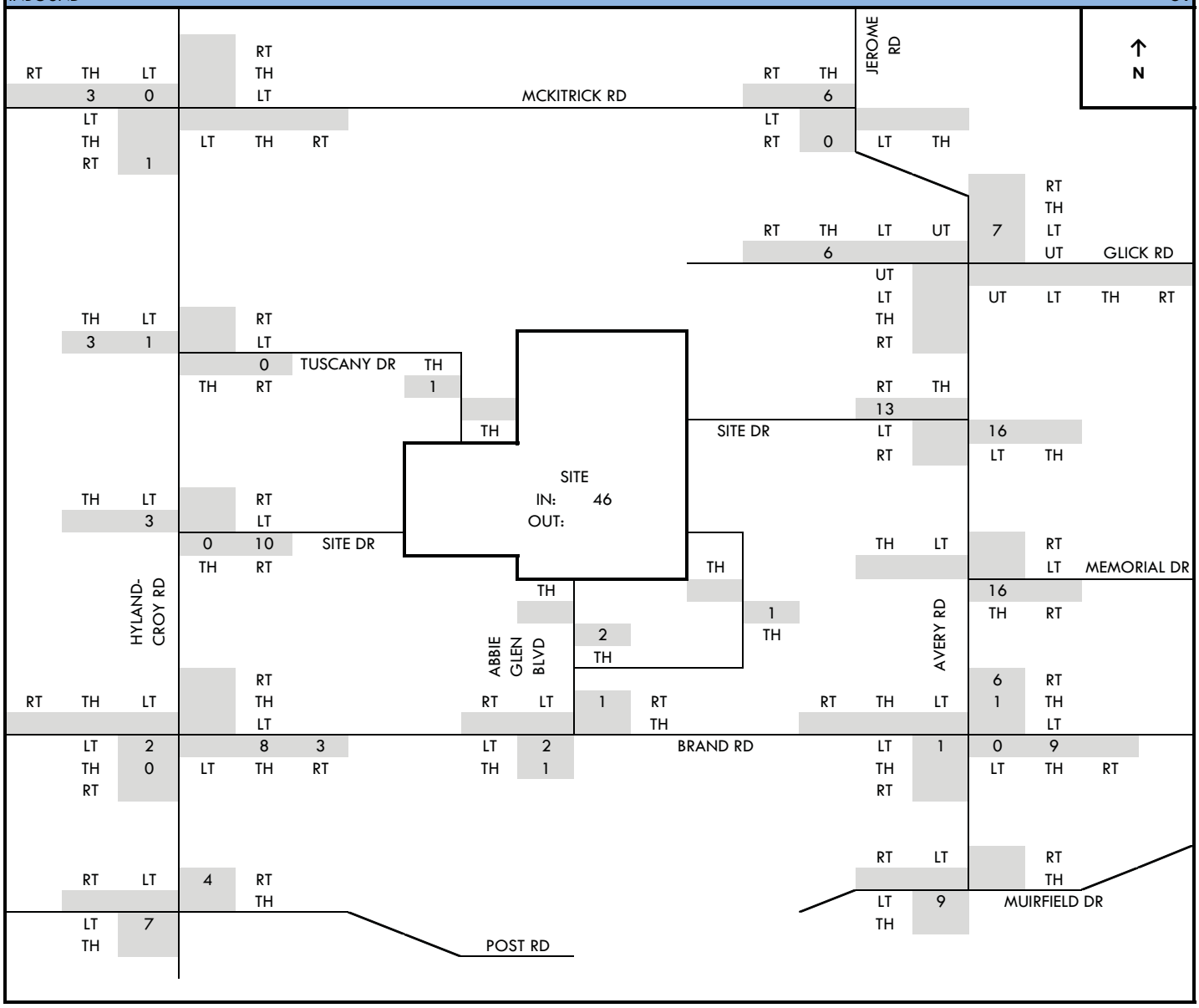


Riviera
Traffic Impact Study
Traffic Volume Calculations

Site Trip Distribution - w/ Hyland-Croy Site Drive **AM Peak Hour**
OUTBOUND **F2**

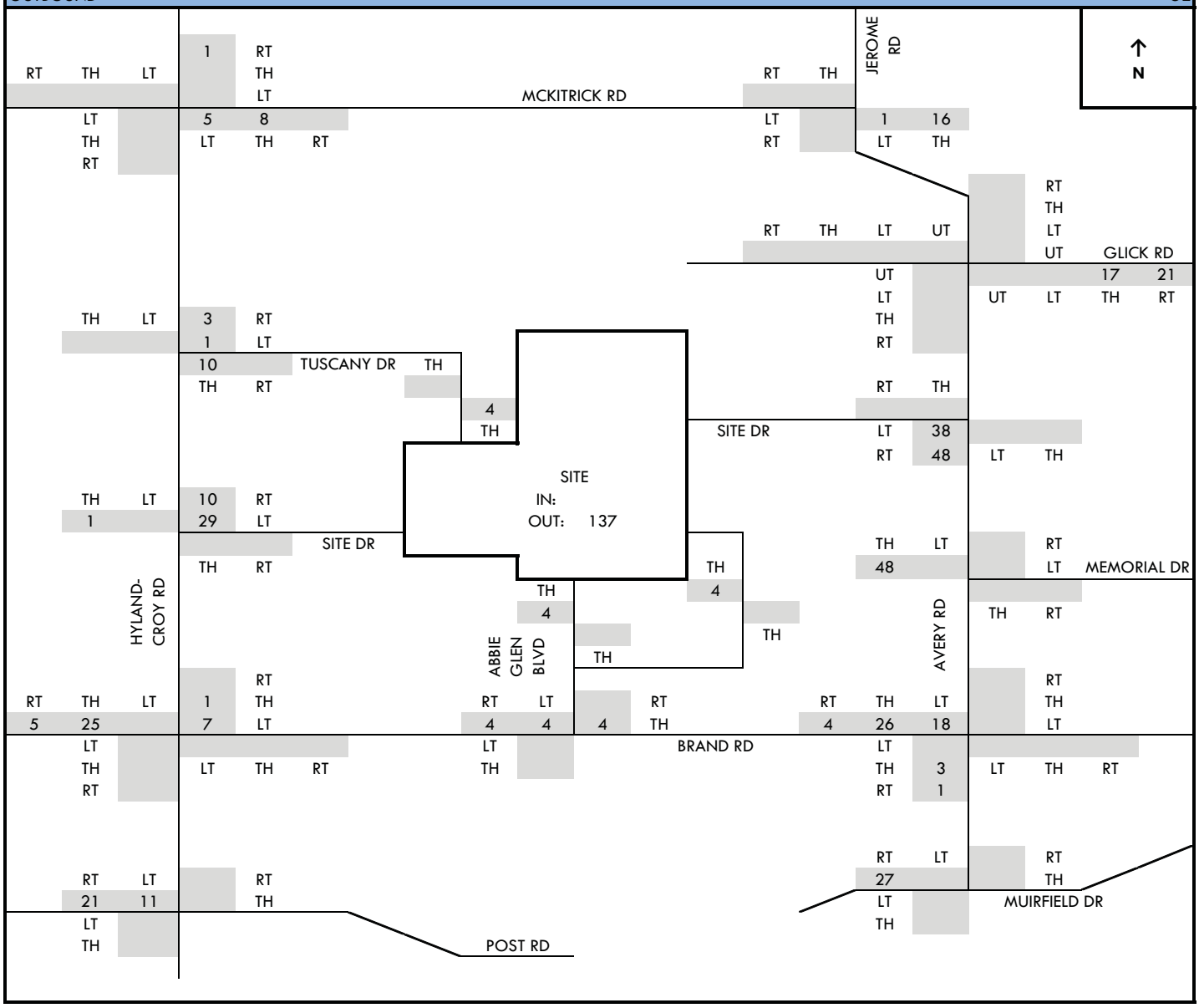


Site Trip Assignment - w/ Hyland-Croy Site Drive **AM Peak Hour**
INBOUND **G1**



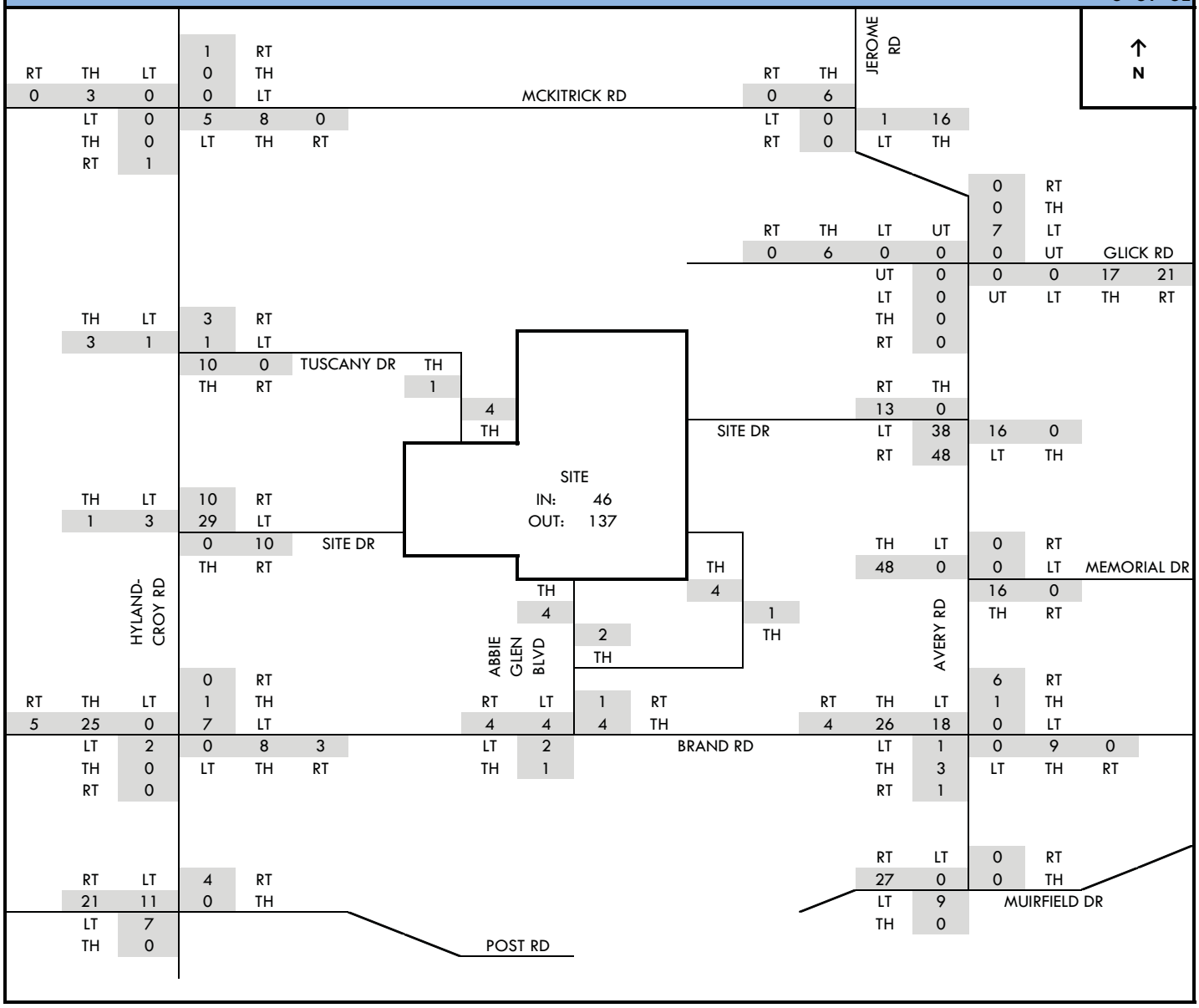
Traffic Volume Calculations

Site Trip Assignment - w/ Hyland-Croy Site Drive **AM Peak Hour**
OUTBOUND **G2**



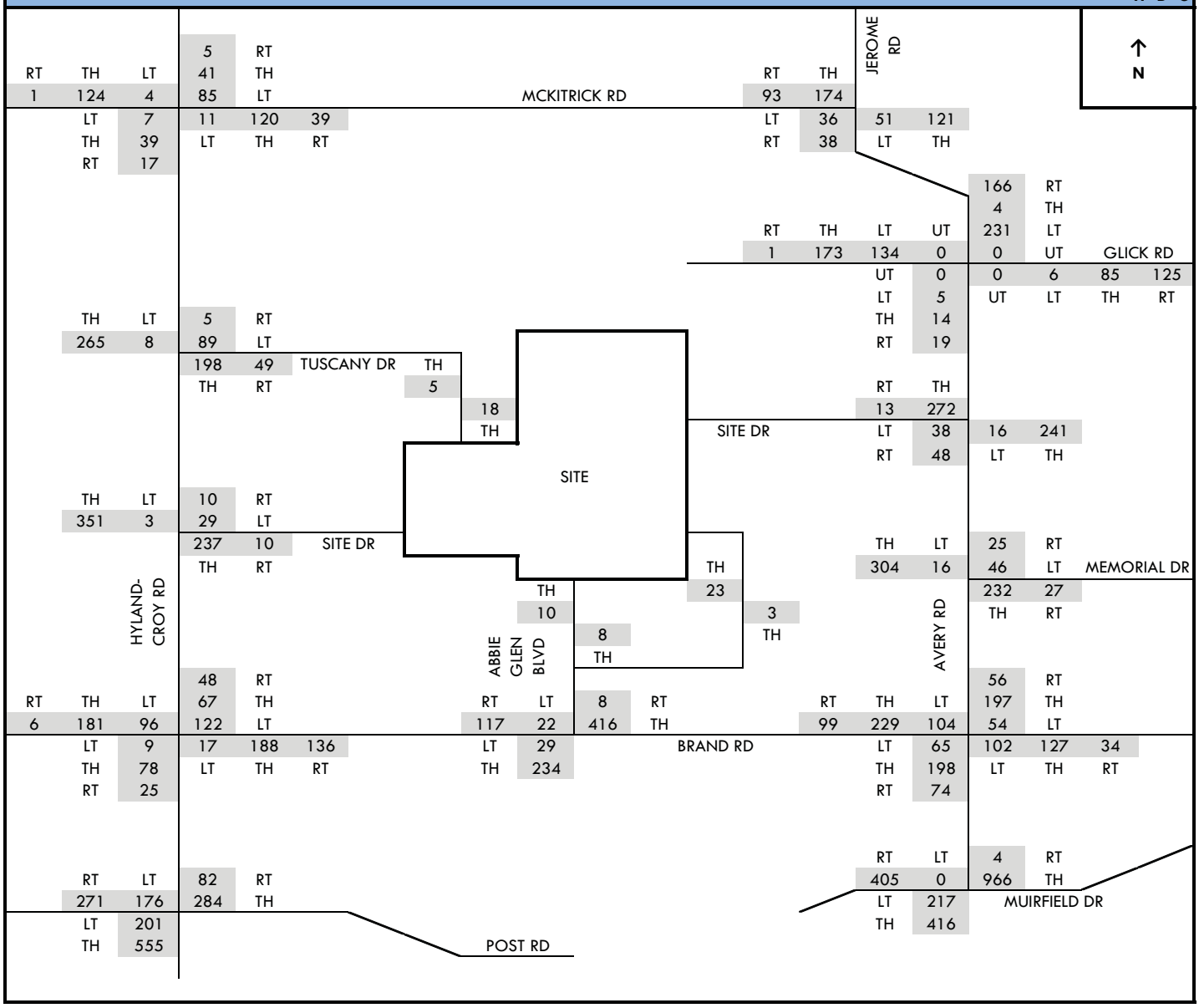
Riviera
Traffic Impact Study
Traffic Volume Calculations

Total Site Trips - w/ Hyland-Croy Site Drive — **AM Peak Hour G=G1+G2**



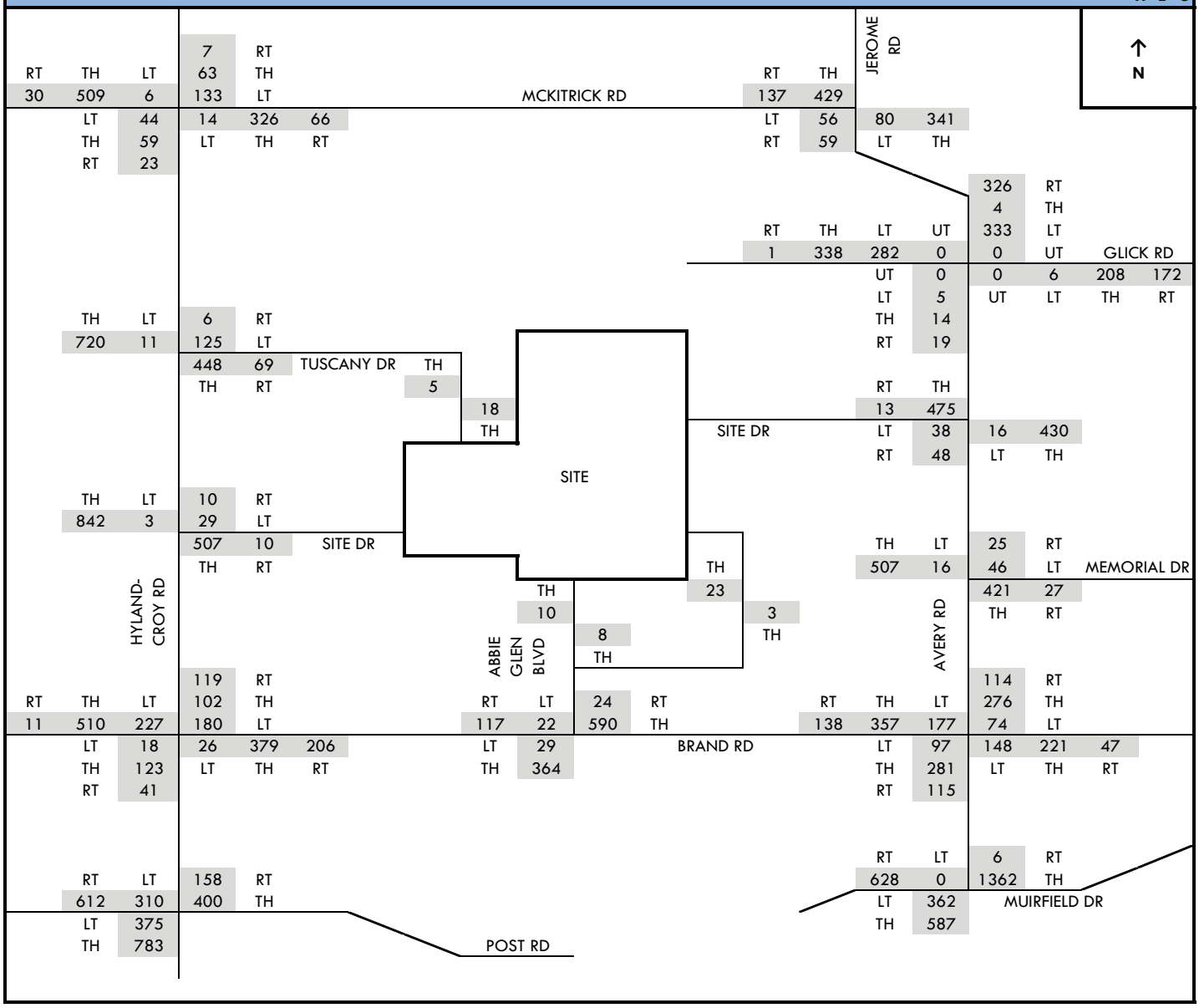
Riviera
Traffic Impact Study
Traffic Volume Calculations

2014 Full Build Traffic - w/ Hyland-Croy Site Drive — **AM Peak Hour H=B+G**



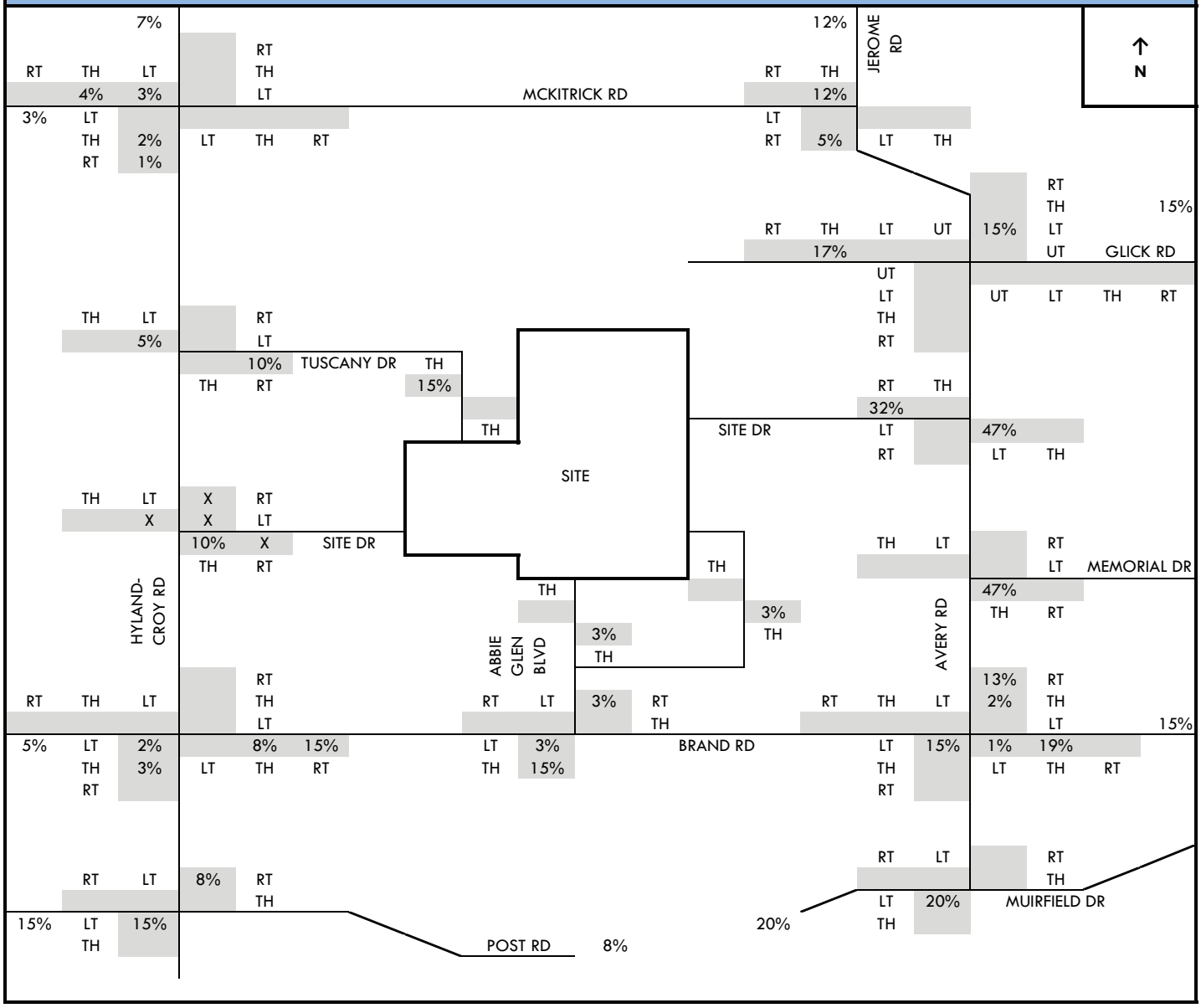
Riviera
Traffic Impact Study
Traffic Volume Calculations

2024 Full Build Traffic - w/ Hyland-Croy Site Drive — **AM Peak Hour H=E+G**



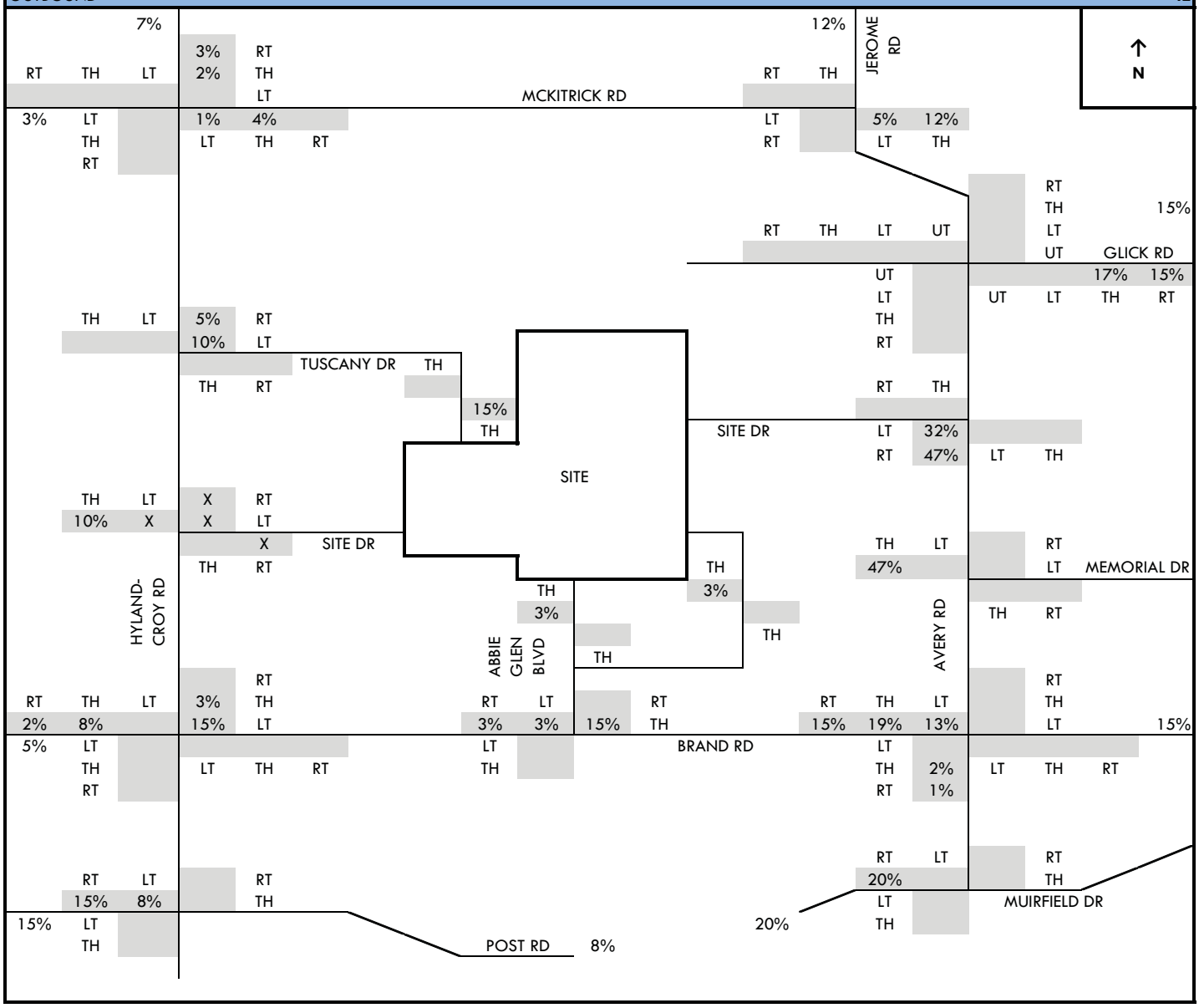
Riviera
Traffic Impact Study
Traffic Volume Calculations

Site Trip Distribution - w/o Hyland-Croy Site Drive **AM Peak Hour**
INBOUND **I1**



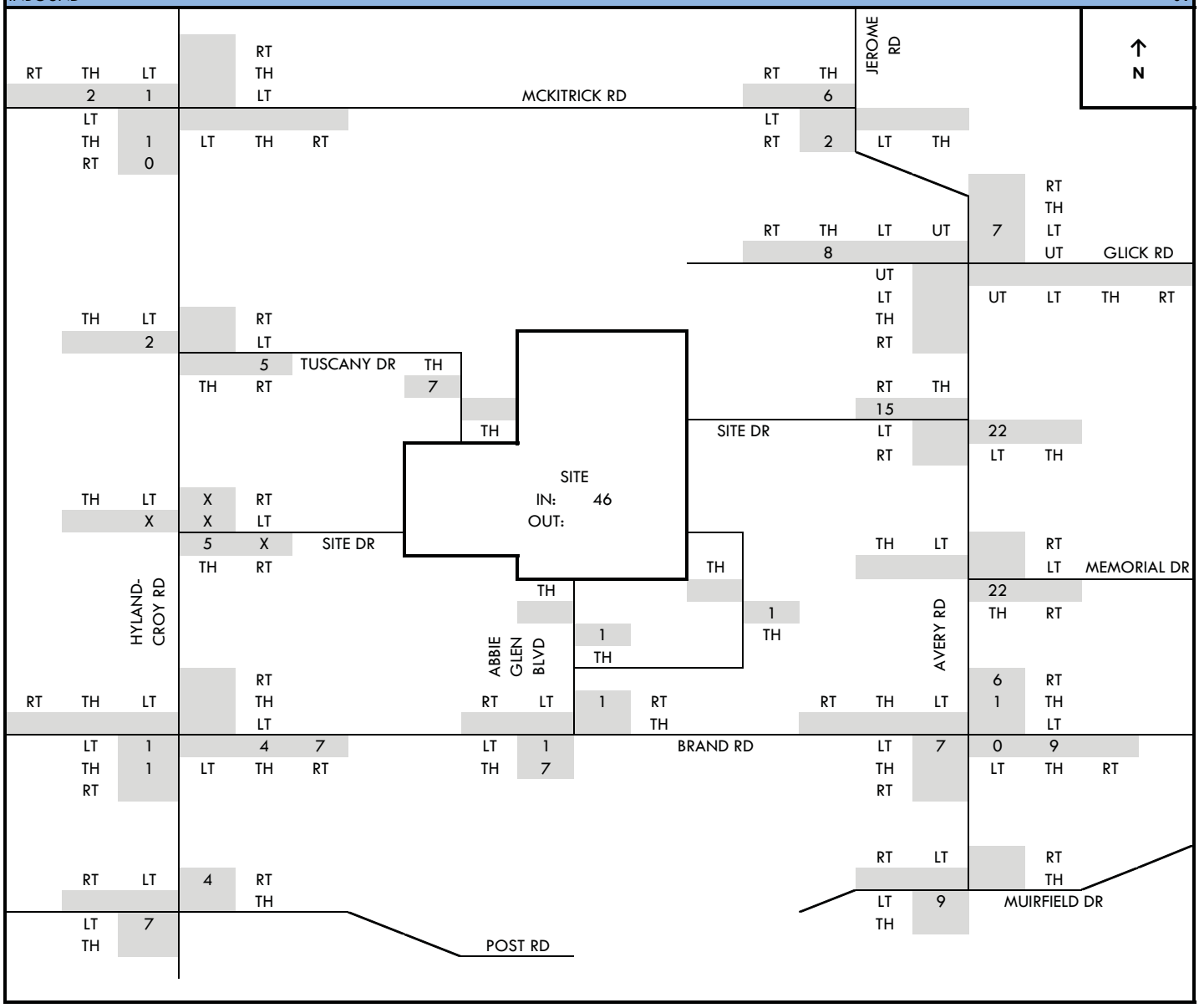
Riviera
Traffic Impact Study
Traffic Volume Calculations

Site Trip Distribution - w/o Hyland-Croy Site Drive **AM Peak Hour**
OUTBOUND **I2**



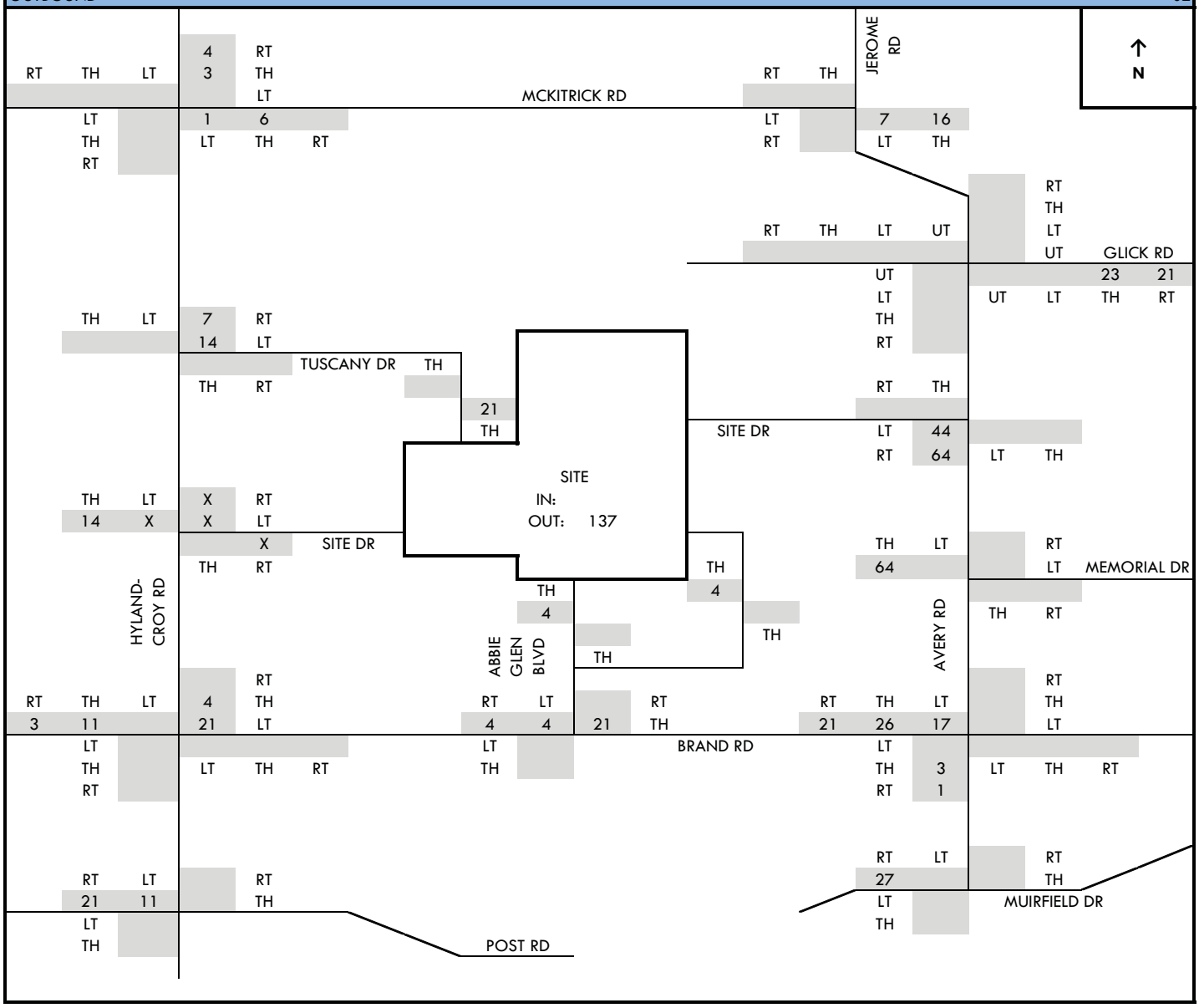
Riviera
Traffic Impact Study
Traffic Volume Calculations

Site Trip Assignment - w/o Hyland-Croy Site Drive **AM Peak Hour**
INBOUND **J1**



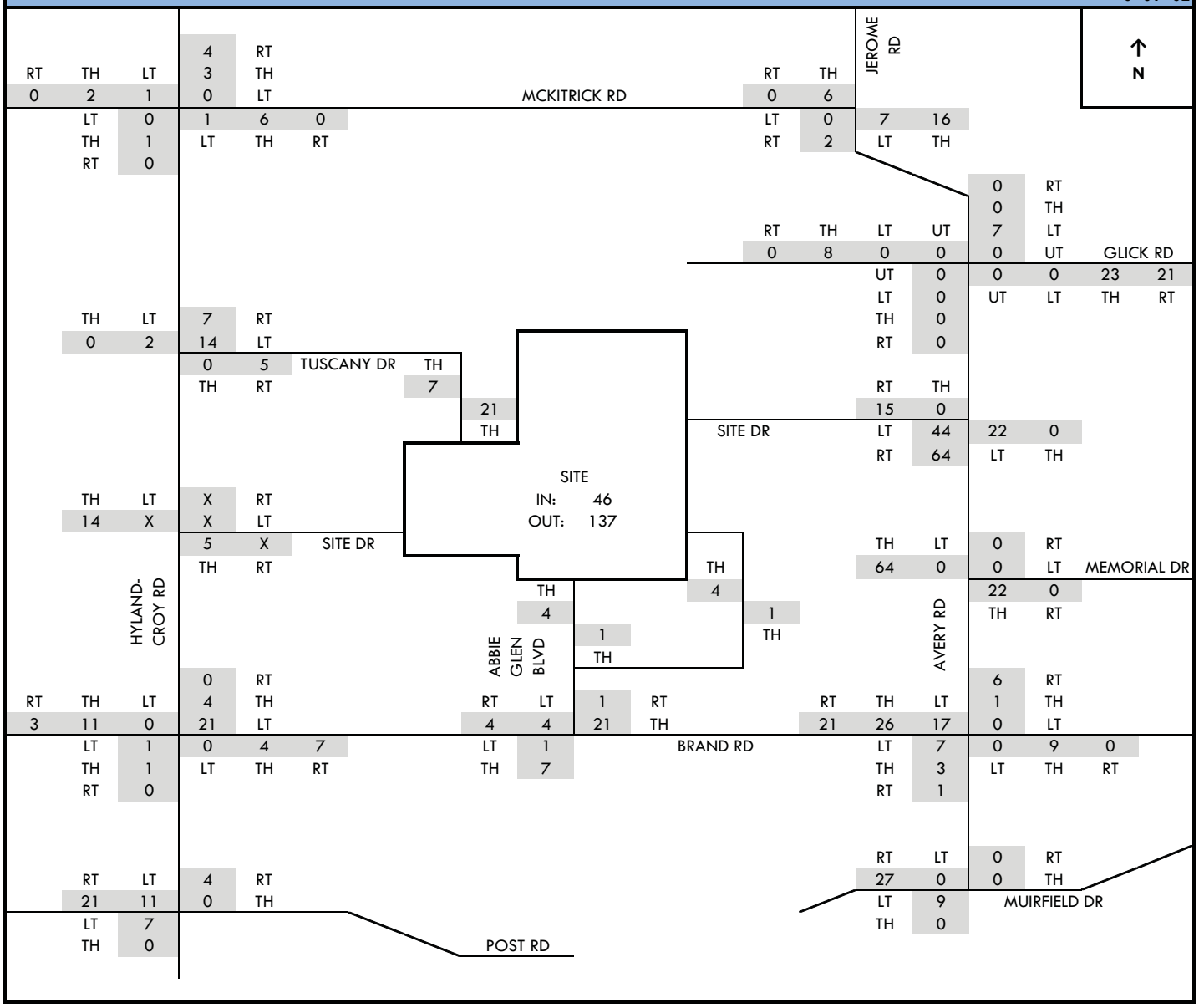
Riviera
Traffic Impact Study
Traffic Volume Calculations

Site Trip Assignment - w/o Hyland-Croy Site Drive **AM Peak Hour**
OUTBOUND **J2**



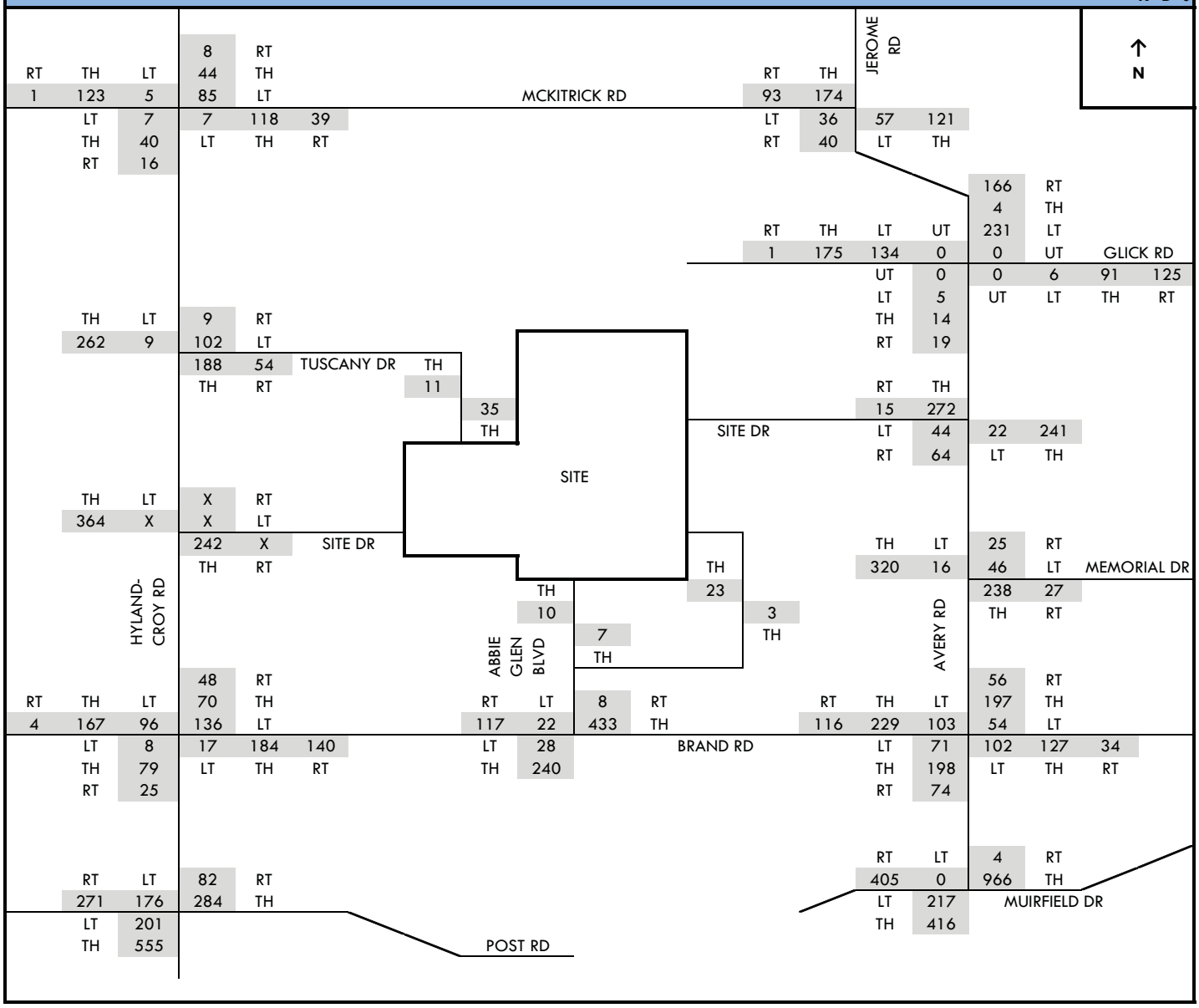
Riviera
Traffic Impact Study
Traffic Volume Calculations

Total Site Trips - w/o Hyland-Croy Site Drive — **AM Peak Hour J=J1+J2**



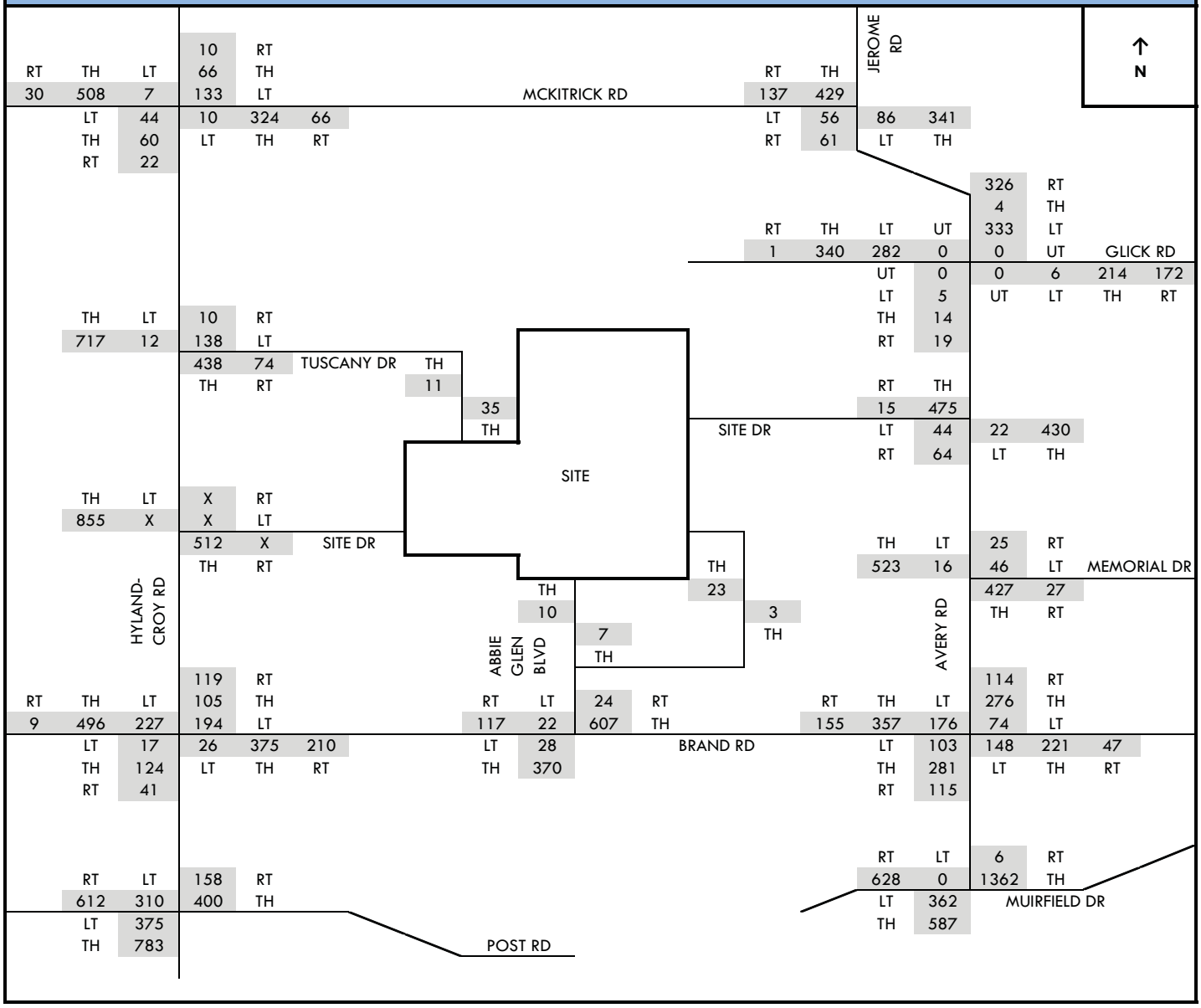
Riviera
Traffic Impact Study
Traffic Volume Calculations

2014 Full Build Traffic - w/o Hyland-Croy Site Drive — **AM Peak Hour K=B+J**



Riviera
Traffic Impact Study
Traffic Volume Calculations

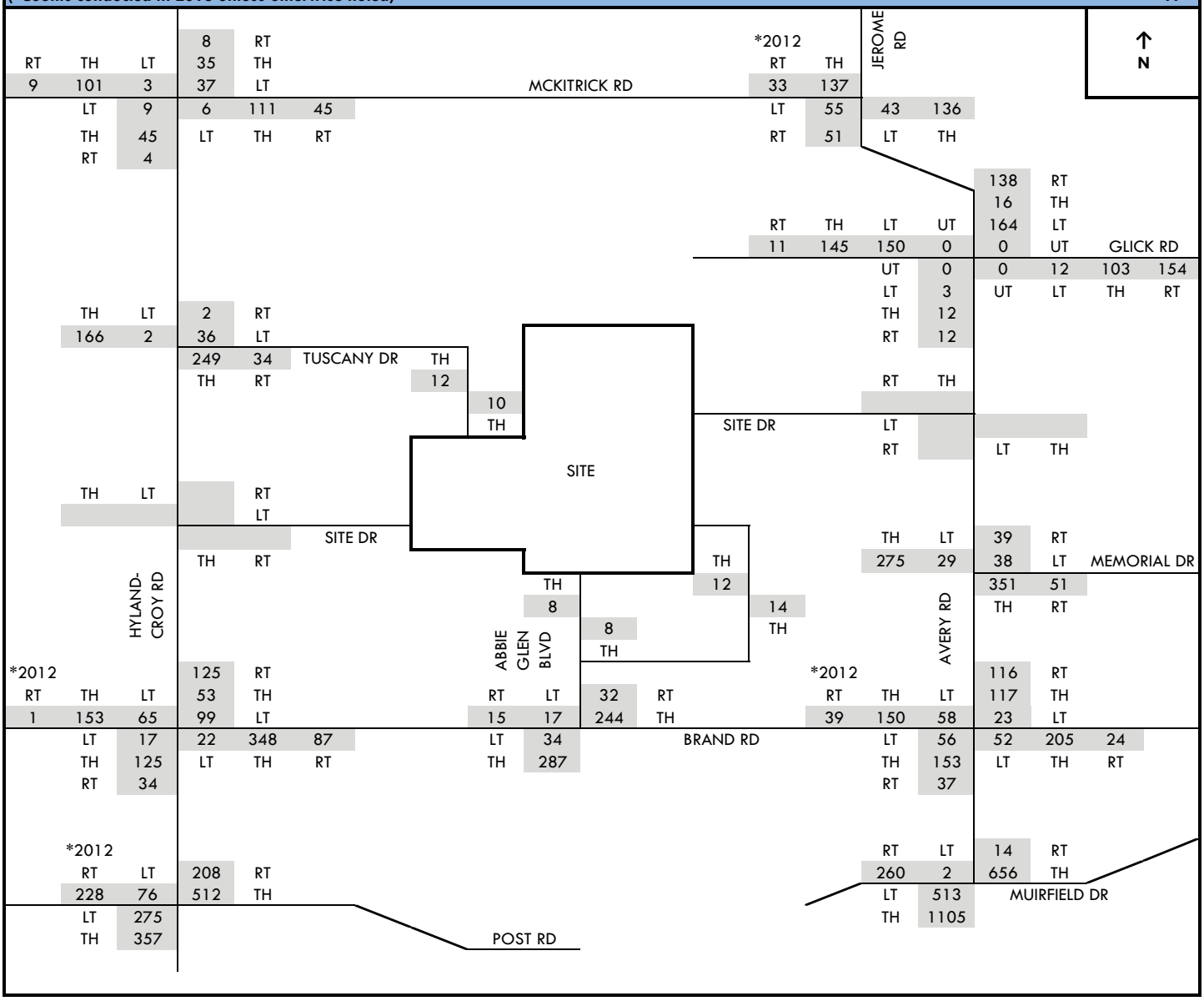
2024 Full Build Traffic - w/o Hyland-Croy Site Drive — **AM Peak Hour L=E+J**



PM PEAK HOUR
VOLUME CALCULATIONS

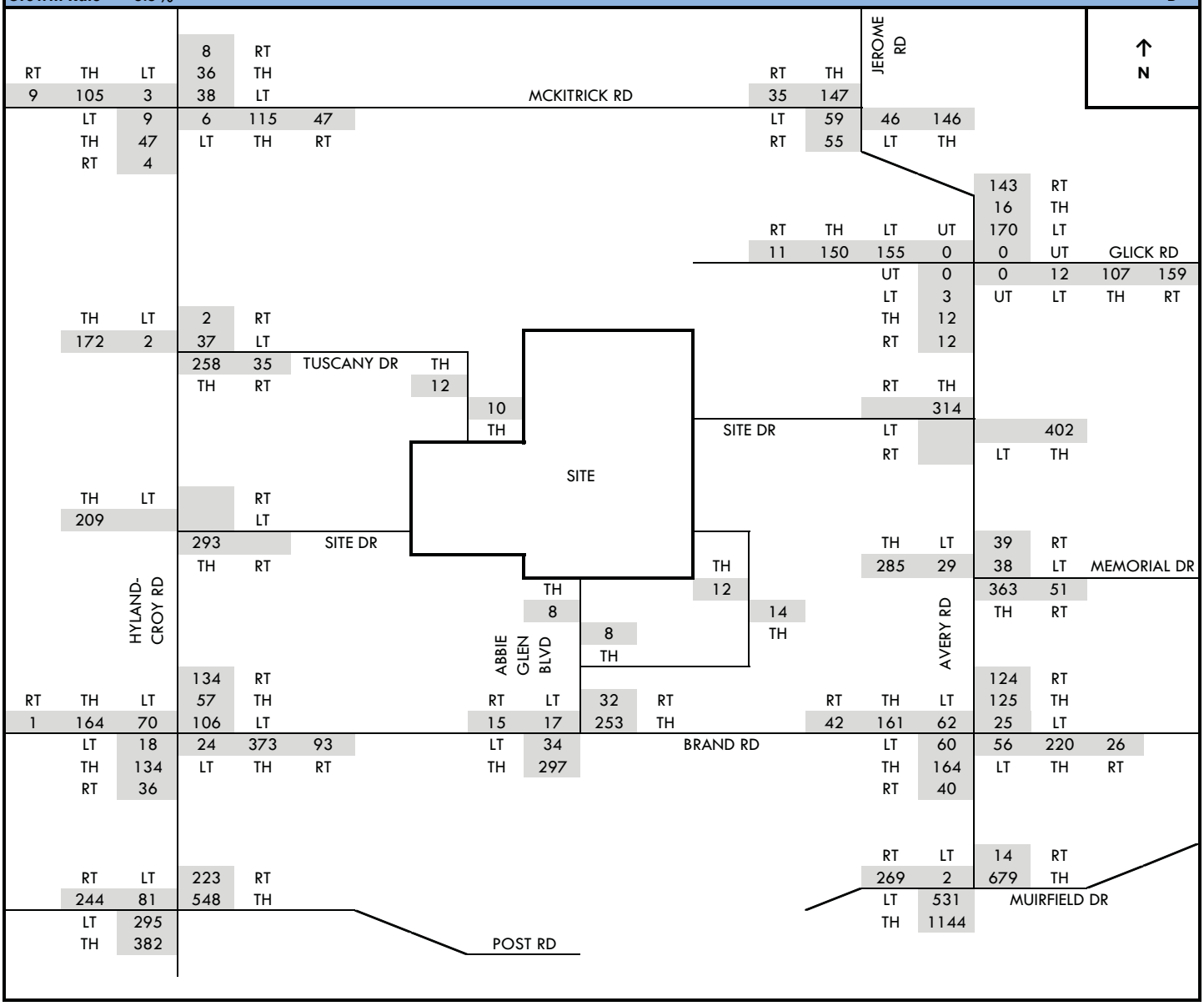
Riviera
Traffic Impact Study
Traffic Volume Calculations

2013 Count Volumes — **PM Peak Hour A**
(*Counts conducted in 2013 unless otherwise noted)



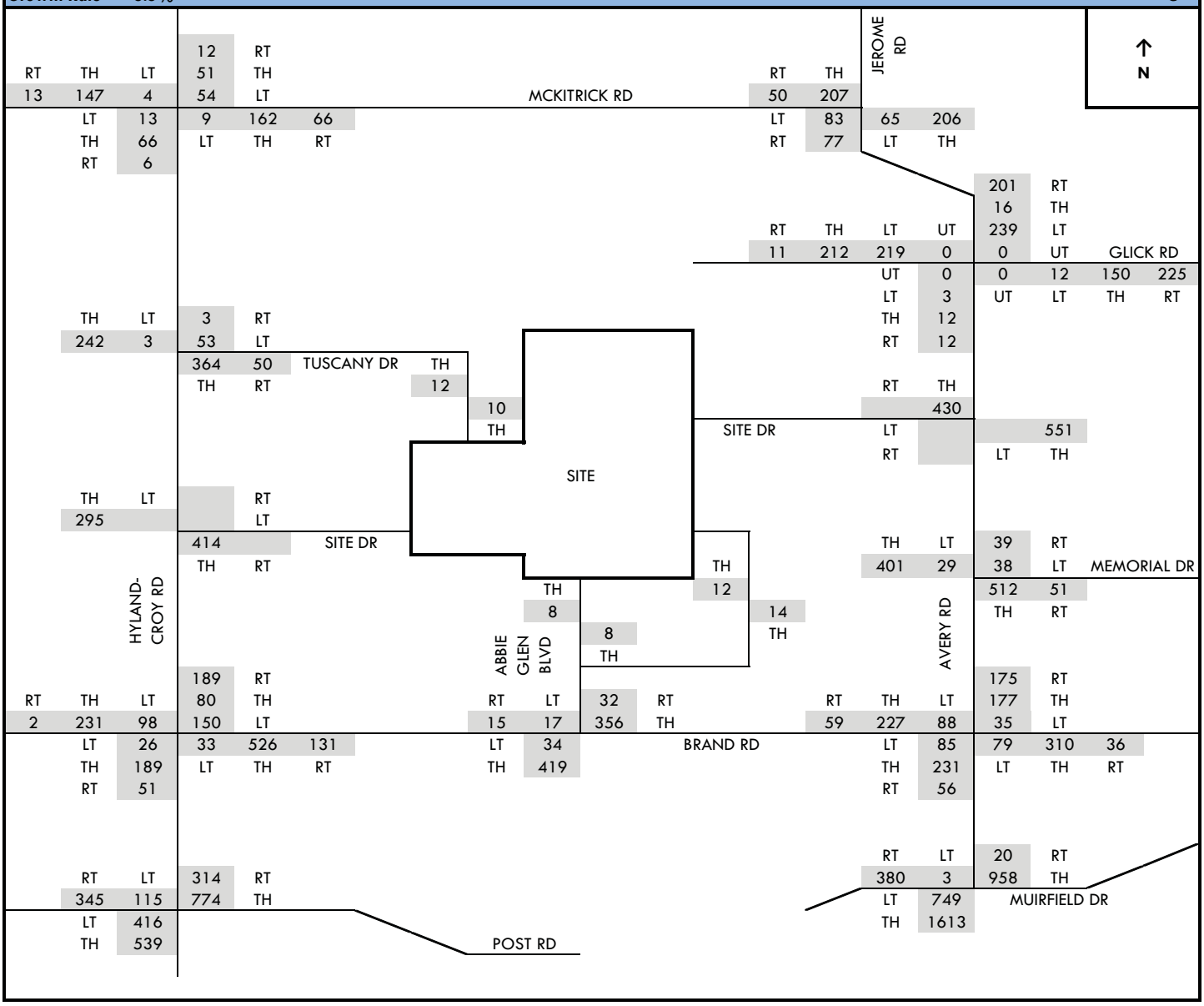
Riviera
Traffic Impact Study
Traffic Volume Calculations

2014 Pure Background Volumes — **PM Peak Hour**
Growth Rate = 3.5% — **B**



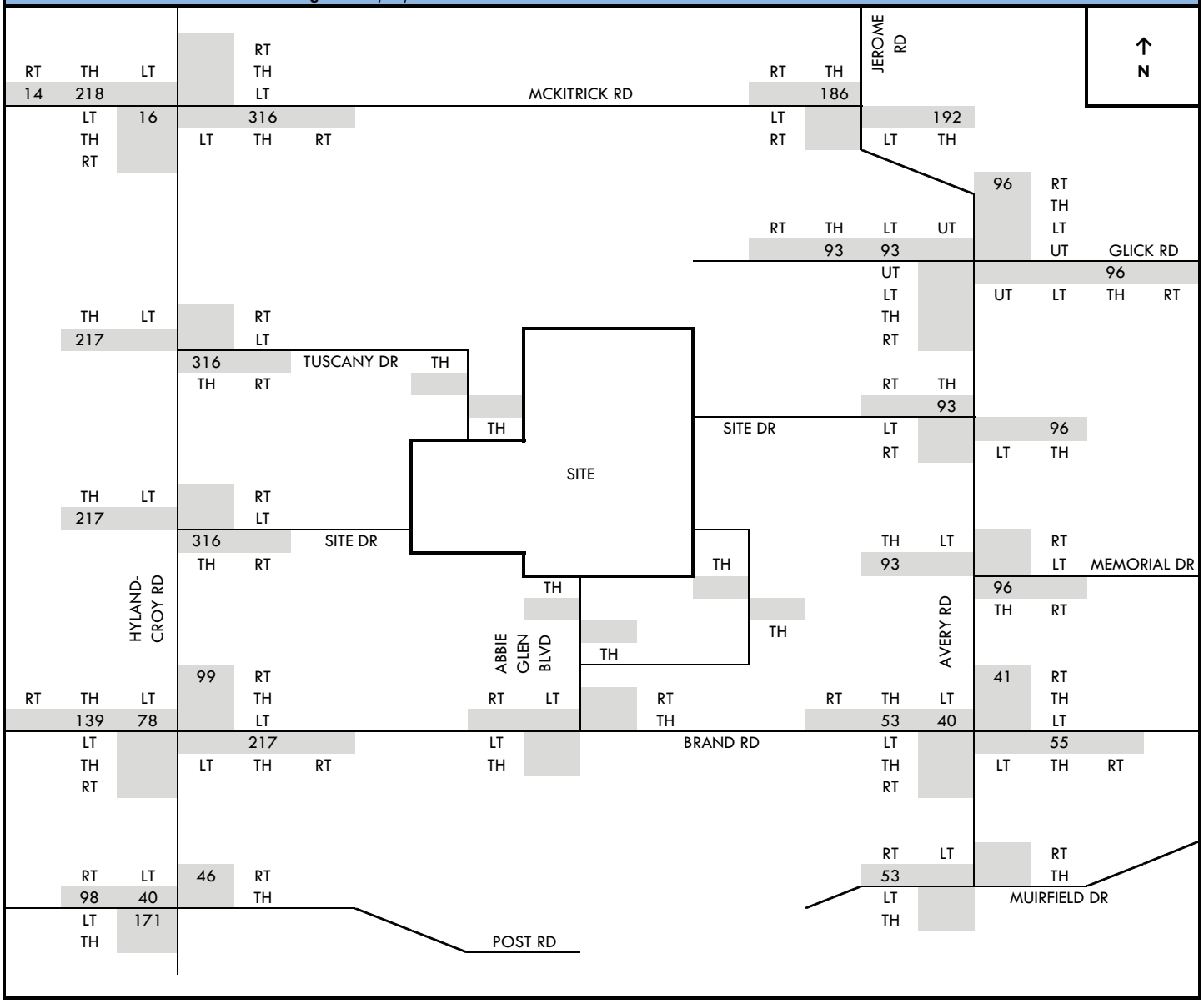
Riviera
Traffic Impact Study
Traffic Volume Calculations

2024 Pure Background Volumes — **PM Peak Hour**
Growth Rate = 3.5% — **C**



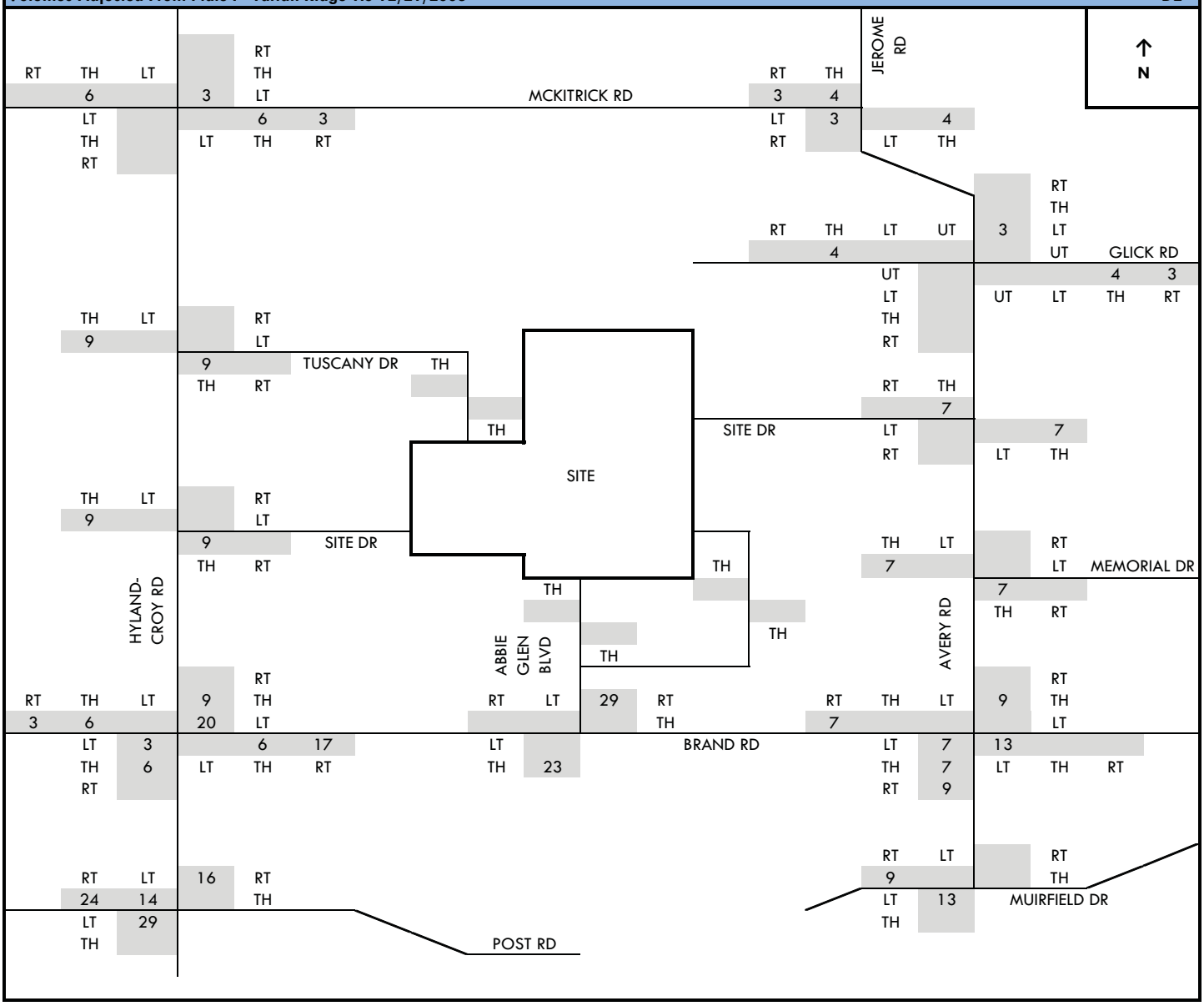
Riviera
Traffic Impact Study
Traffic Volume Calculations

Jerome Village Background Traffic — **PM Peak Hour**
Volumes Taken From Plate L - Tartan Ridge TIS 12/21/2006 — **D1**



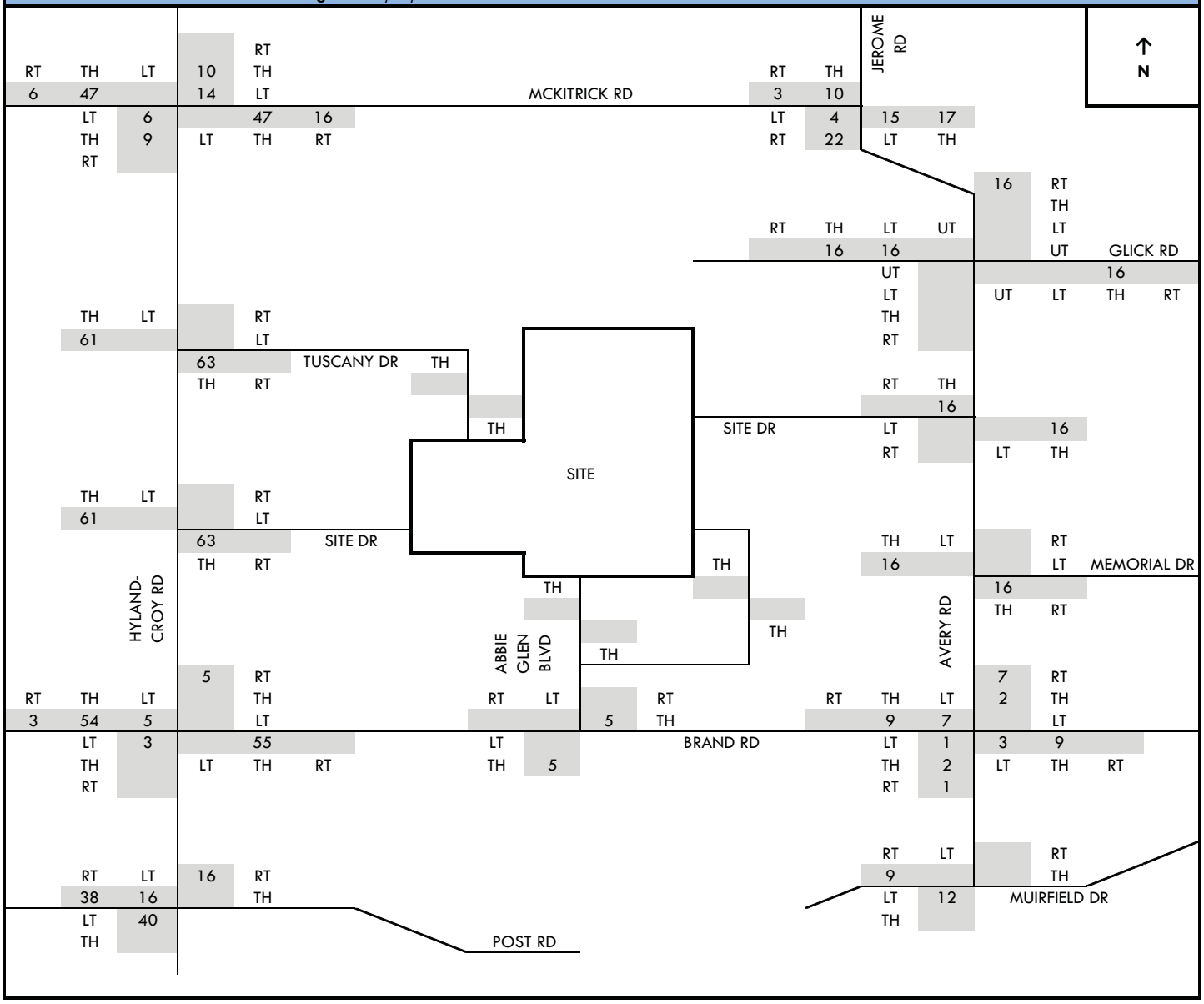
Riviera
Traffic Impact Study
Traffic Volume Calculations

Oak Park Background Traffic (30% of residential trips assumed to be existing) **PM Peak Hour**
Volumes Adjusted From Plate I - Tartan Ridge TIS 12/21/2006 **D2**



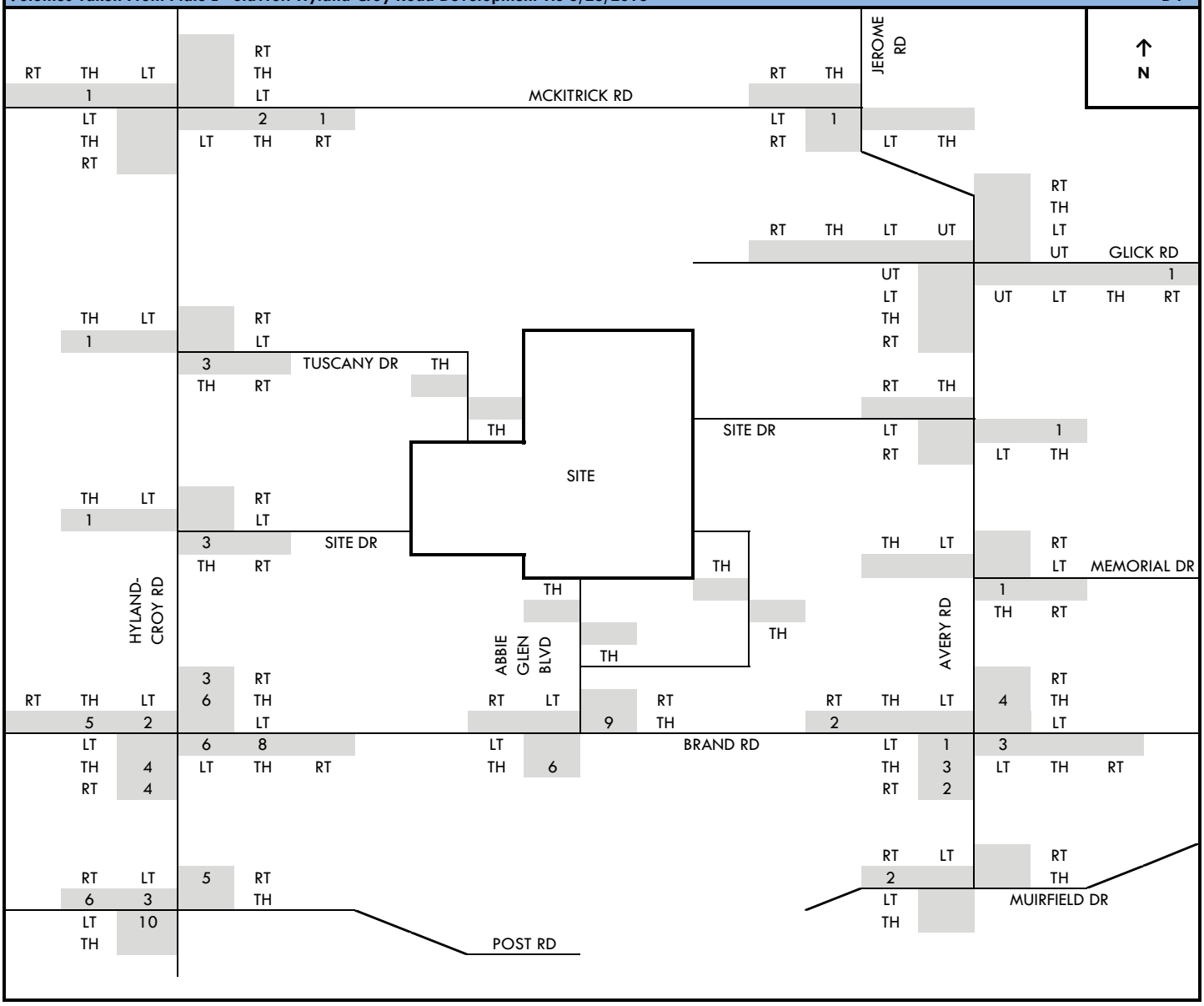
Riviera
Traffic Impact Study
Traffic Volume Calculations

Tartan Ridge Background Traffic (50%) — **PM Peak Hour**
Volumes Taken From Plate W - Tartan Ridge TIS 12/21/2006 — **D3**



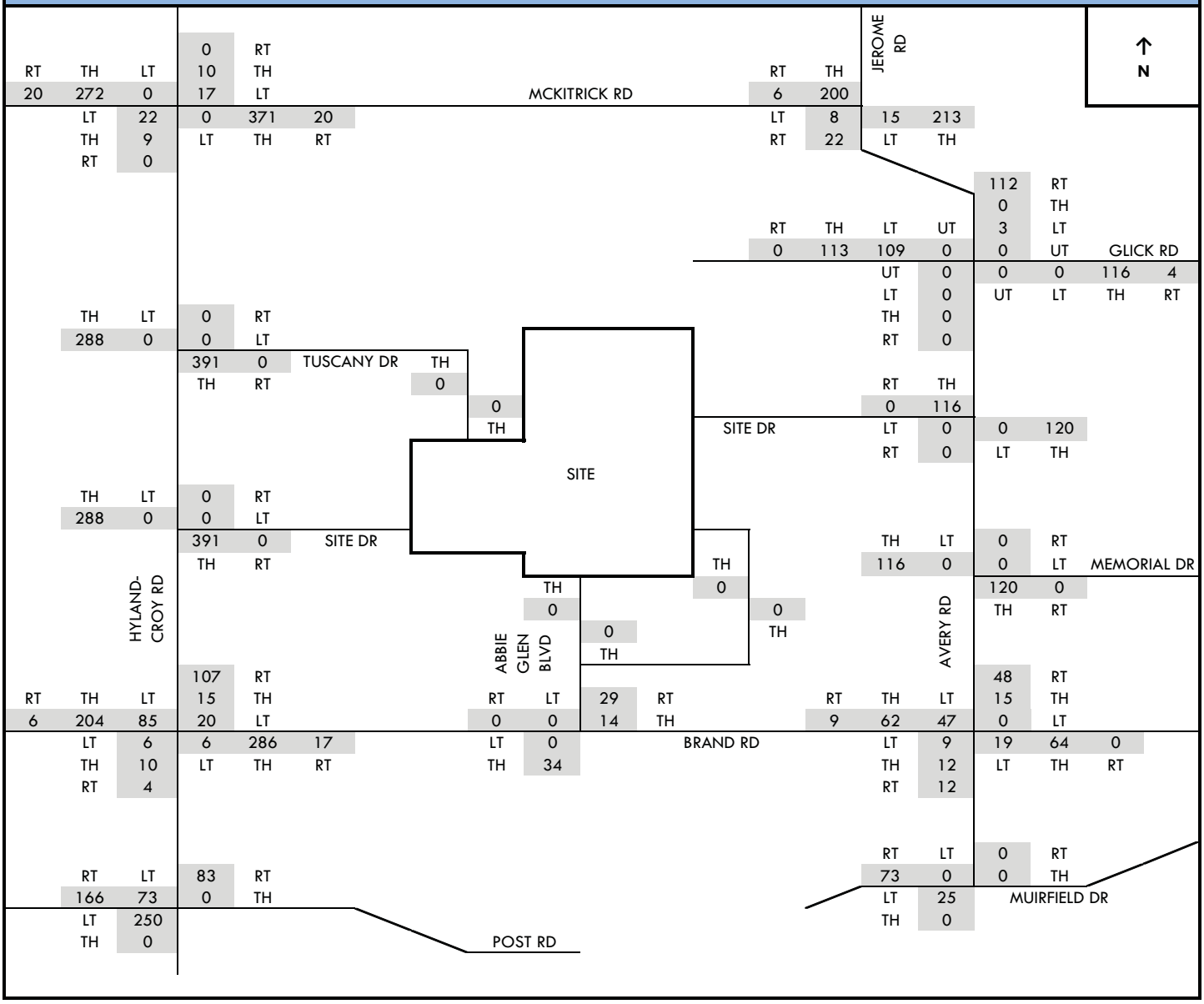
Riviera
Traffic Impact Study
Traffic Volume Calculations

Stavroff Background Site Traffic — **PM Peak Hour**
Volumes Taken From Plate L - Stavroff Hyland-Croy Road Development TIS 8/23/2013 — **D4**



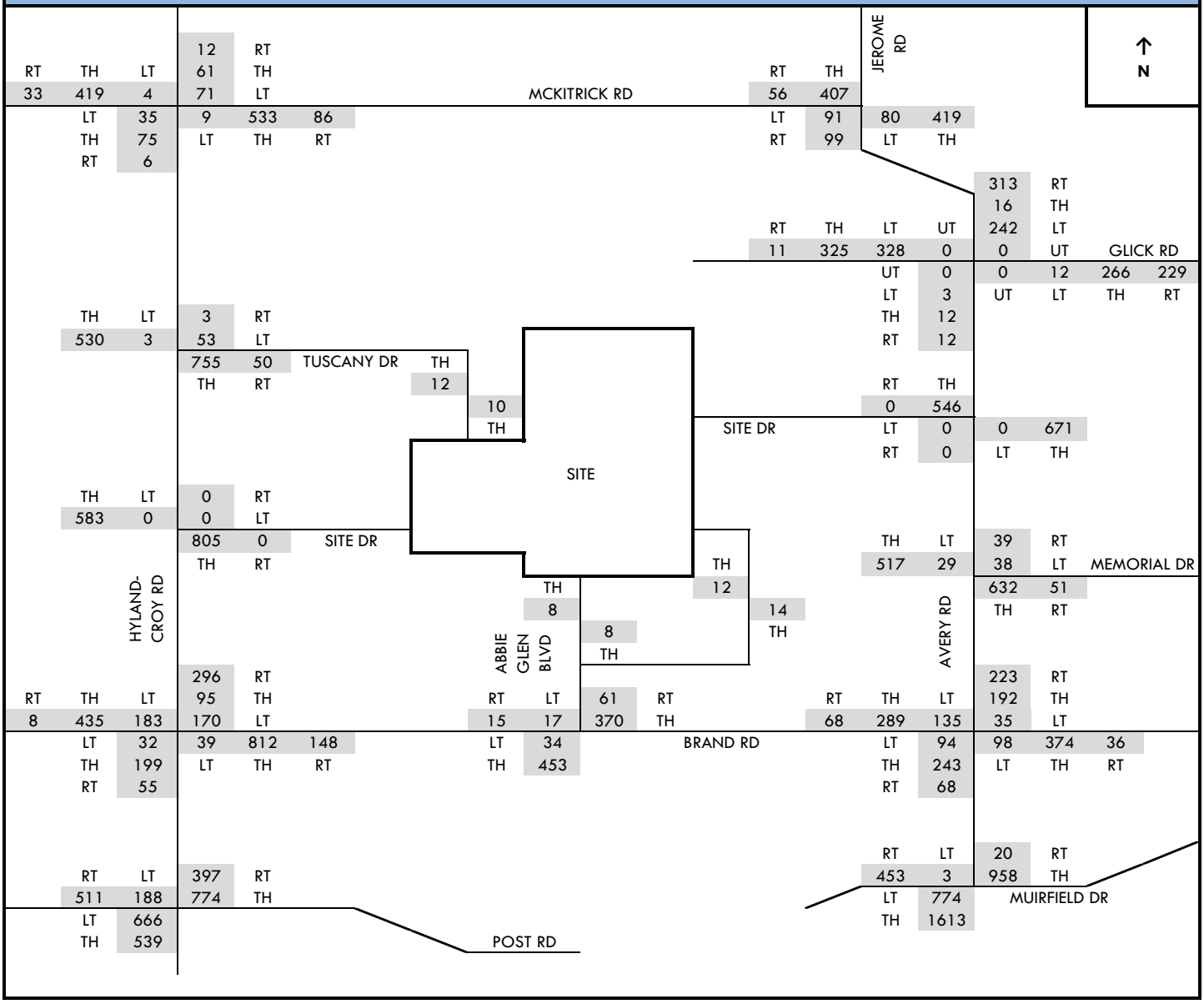
Riviera
Traffic Impact Study
Traffic Volume Calculations

Total Site Traffic From Planned Adjacent Developments — **PM Peak Hour D=D1+D2+D3+D4**



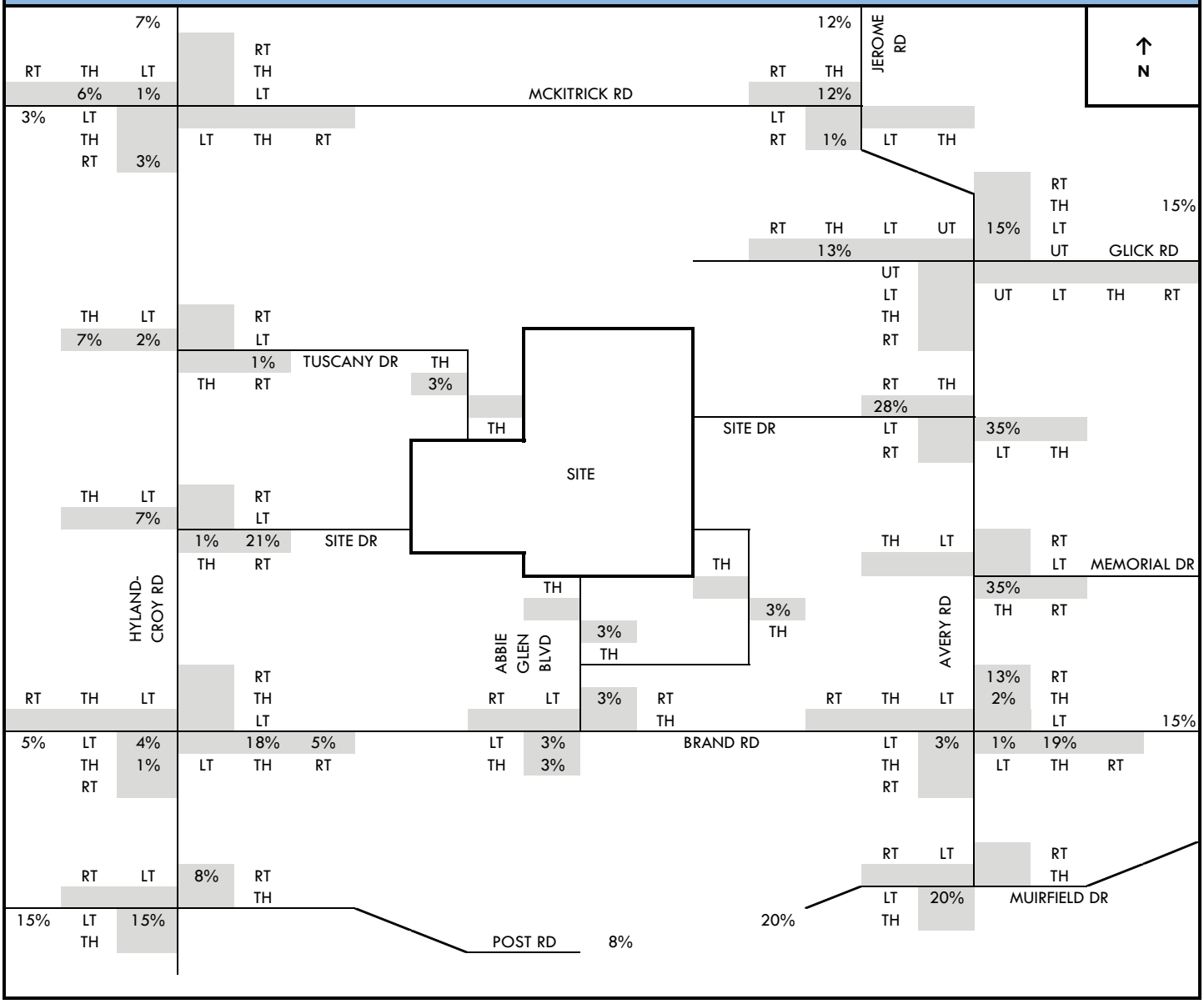
Riviera
Traffic Impact Study
Traffic Volume Calculations

2024 Background Traffic — **PM Peak Hour E=C+D**



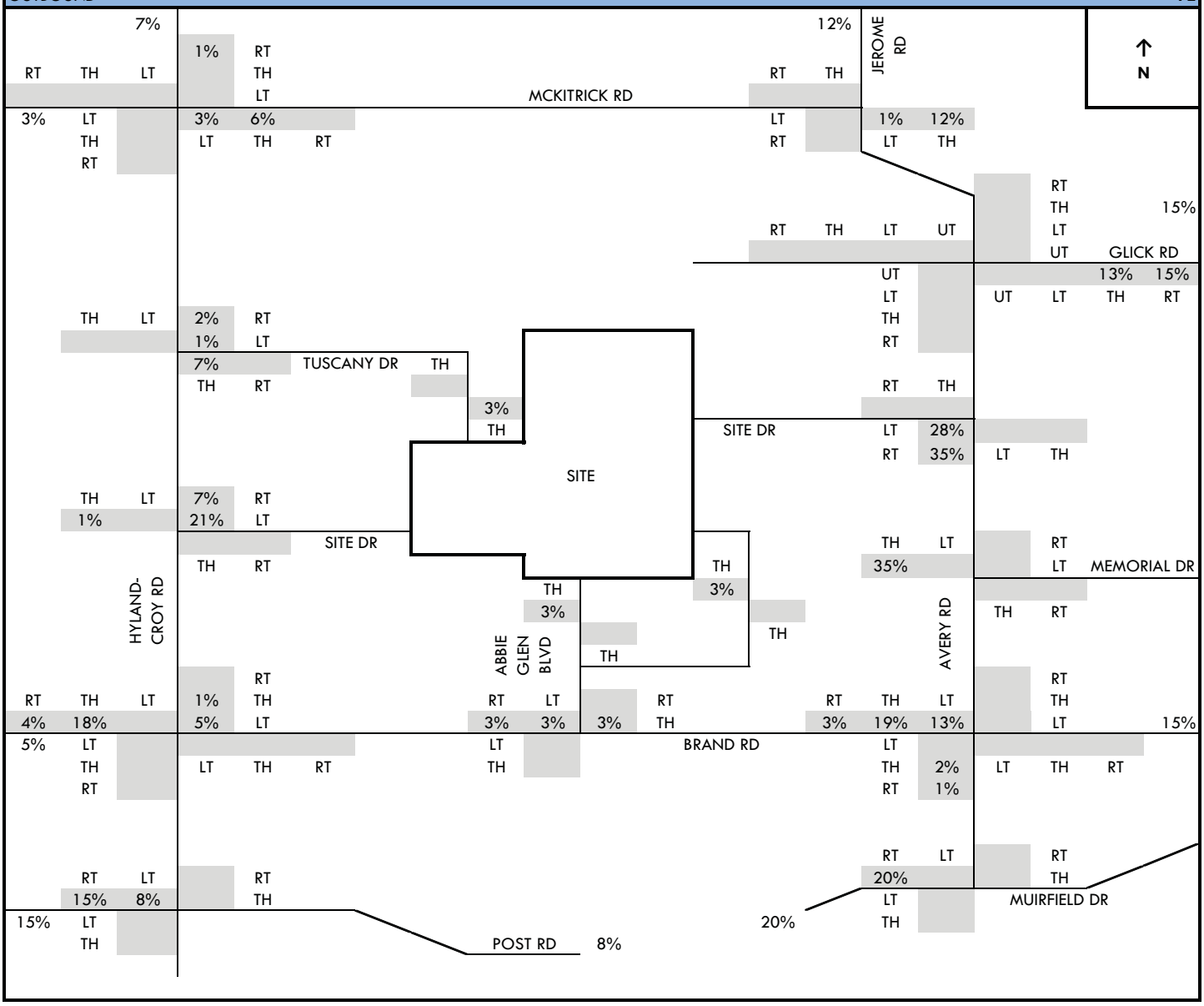
Riviera
Traffic Impact Study
Traffic Volume Calculations

Site Trip Distribution - w/ Hyland-Croy Site Drive **PM Peak Hour**
INBOUND **F1**

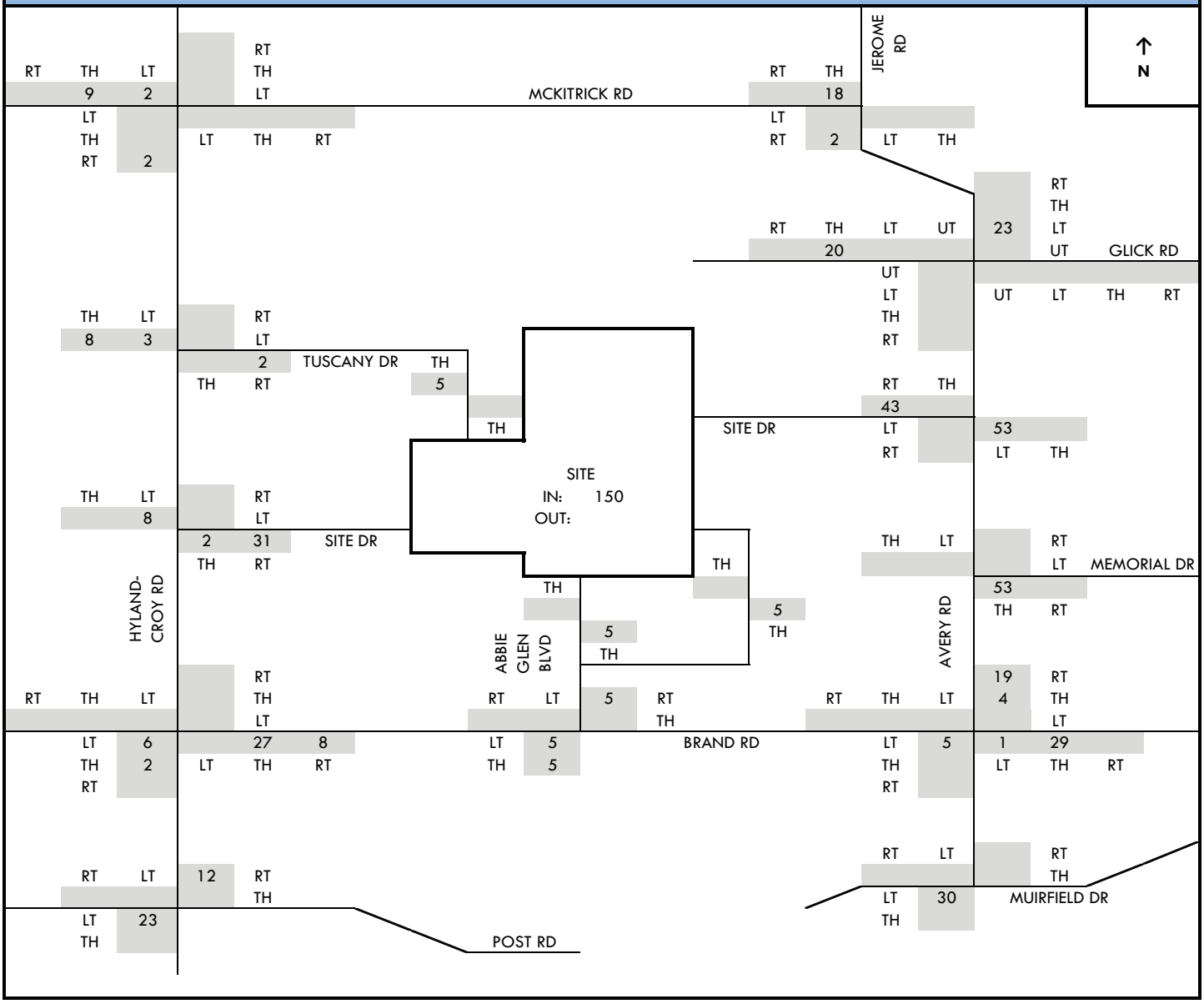


Riviera
Traffic Impact Study
Traffic Volume Calculations

Site Trip Distribution - w/ Hyland-Croy Site Drive **PM Peak Hour**
OUTBOUND **F2**

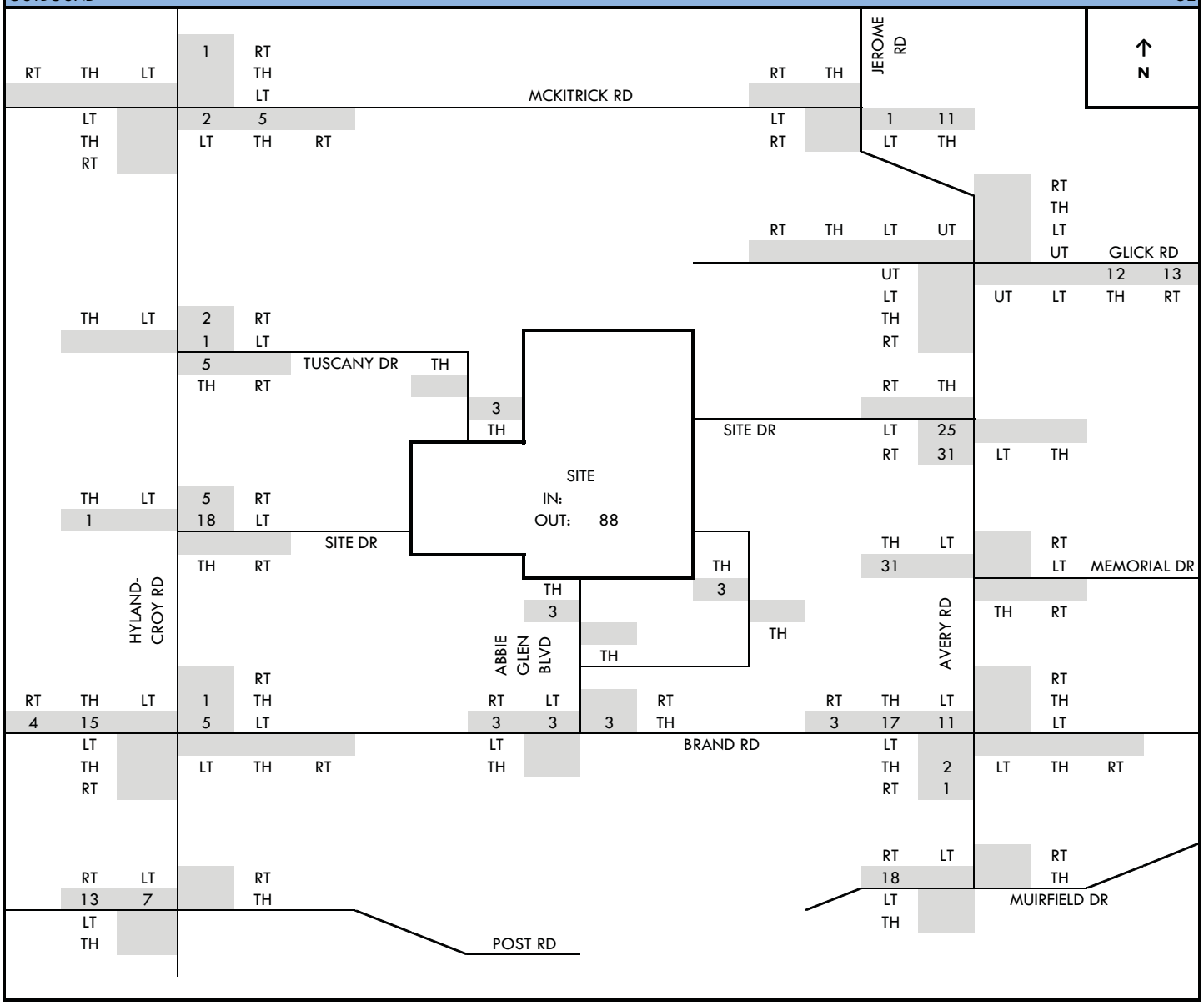


Site Trip Assignment - w/ Hyland-Croy Site Drive **PM Peak Hour**
INBOUND **G1**



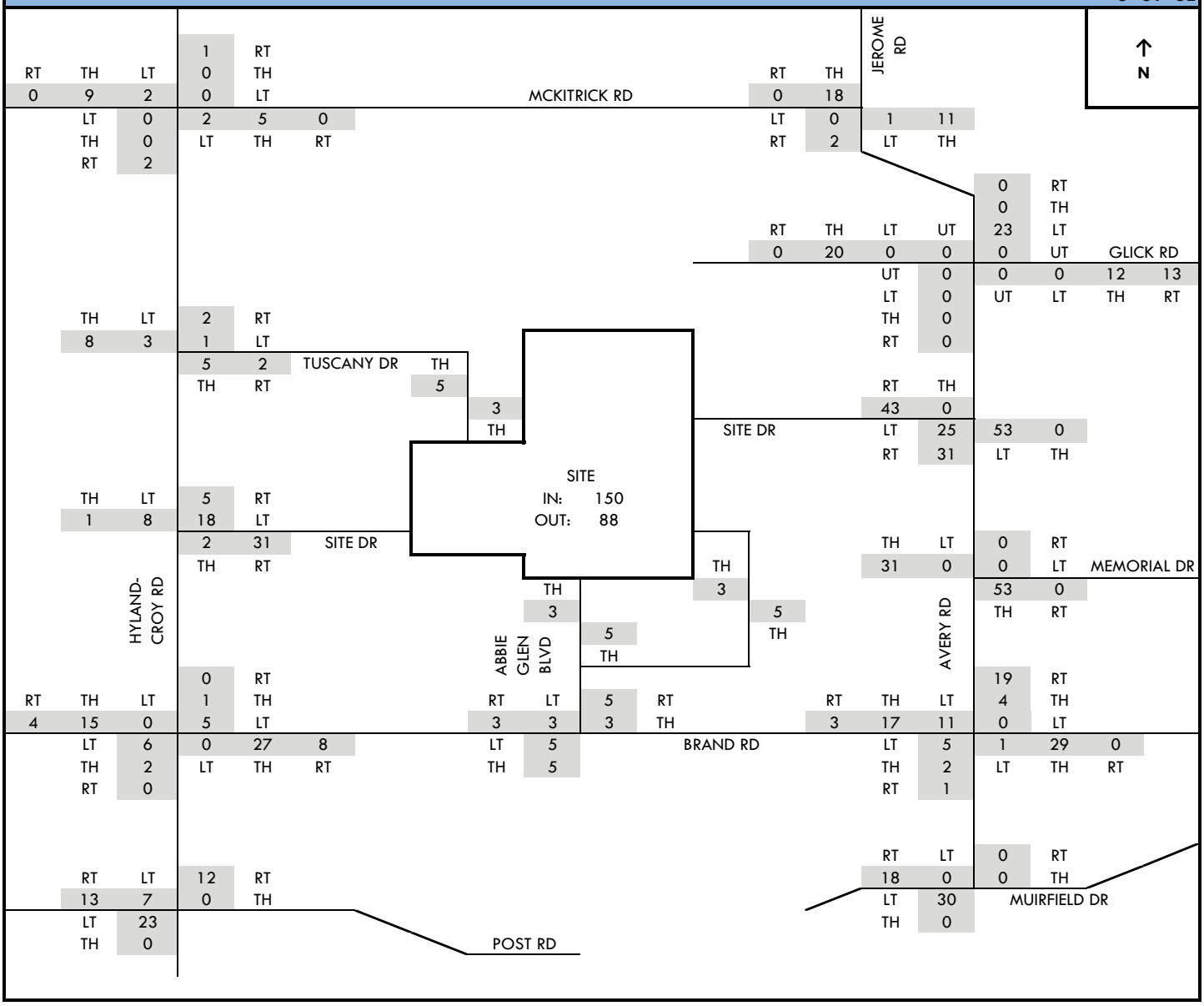
Traffic Volume Calculations

Site Trip Assignment - w/ Hyland-Croy Site Drive **PM Peak Hour**
OUTBOUND **G2**



Traffic Volume Calculations

Total Site Trips - w/ Hyland-Croy Site Drive — **PM Peak Hour G=G1+G2**



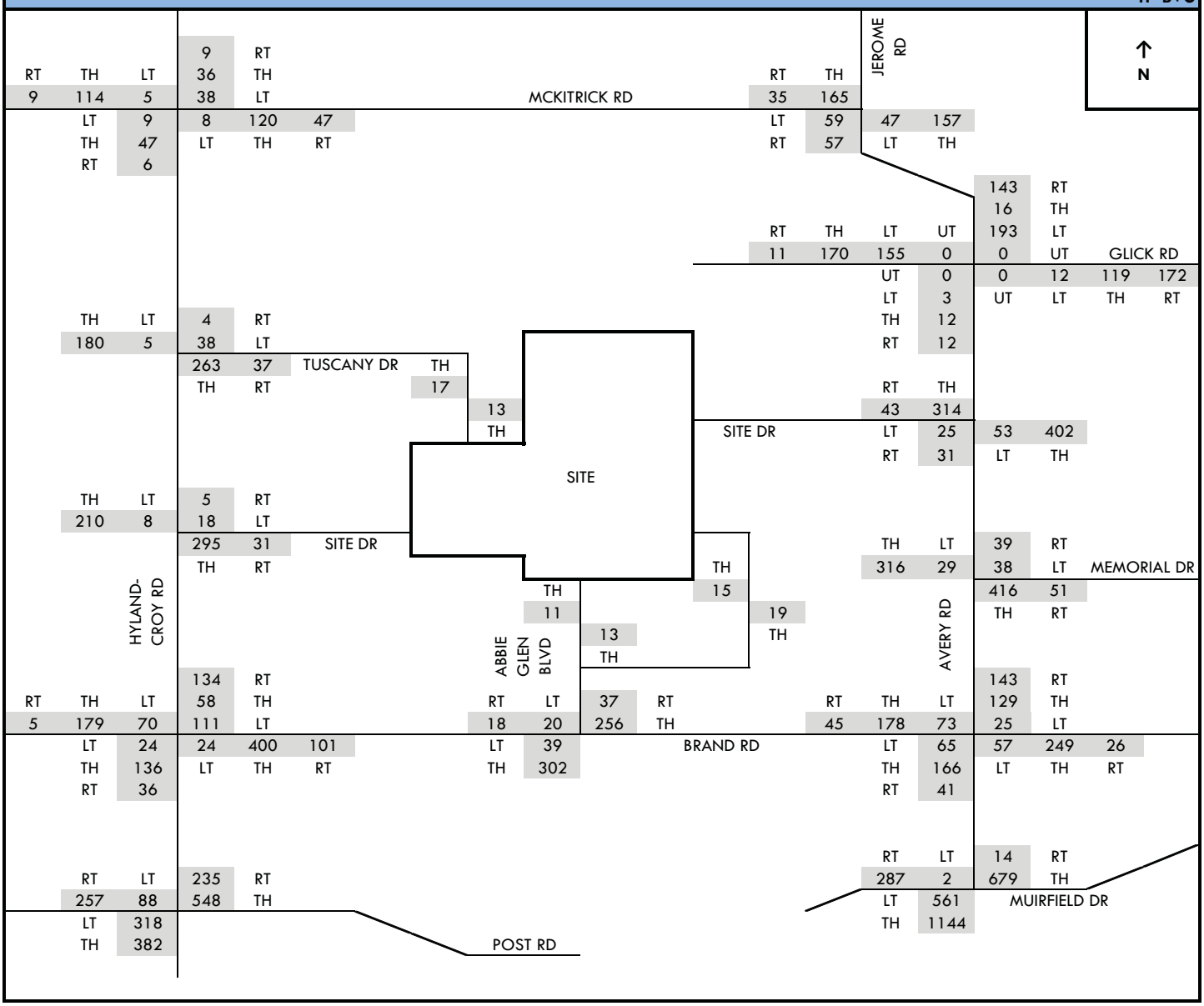
Riviera

Traffic Impact Study

Traffic Volume Calculations

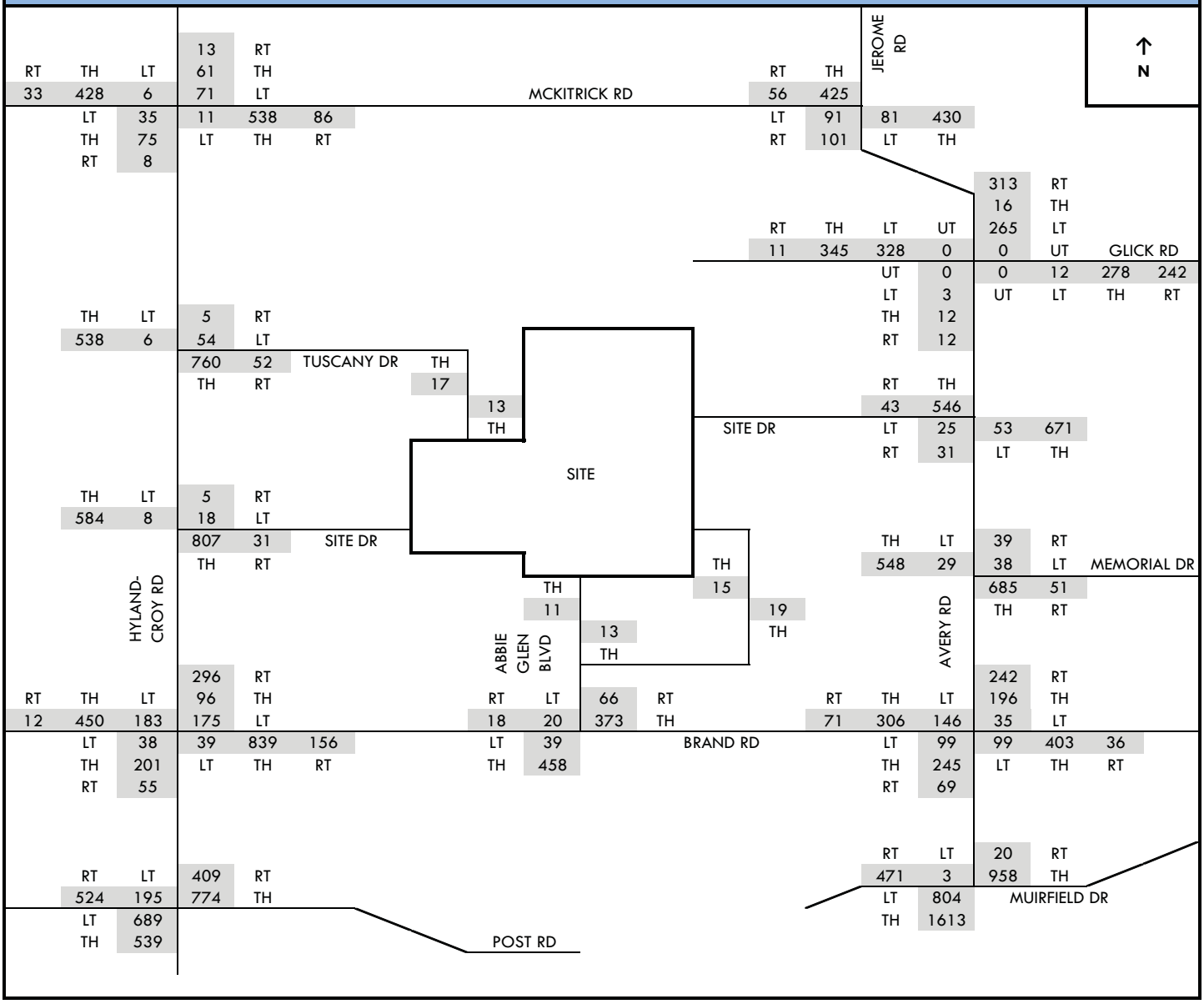
2014 Full Build Traffic - w/ Hyland-Croy Site Drive **PM Peak Hour**

H=B+G



Riviera
Traffic Impact Study
Traffic Volume Calculations

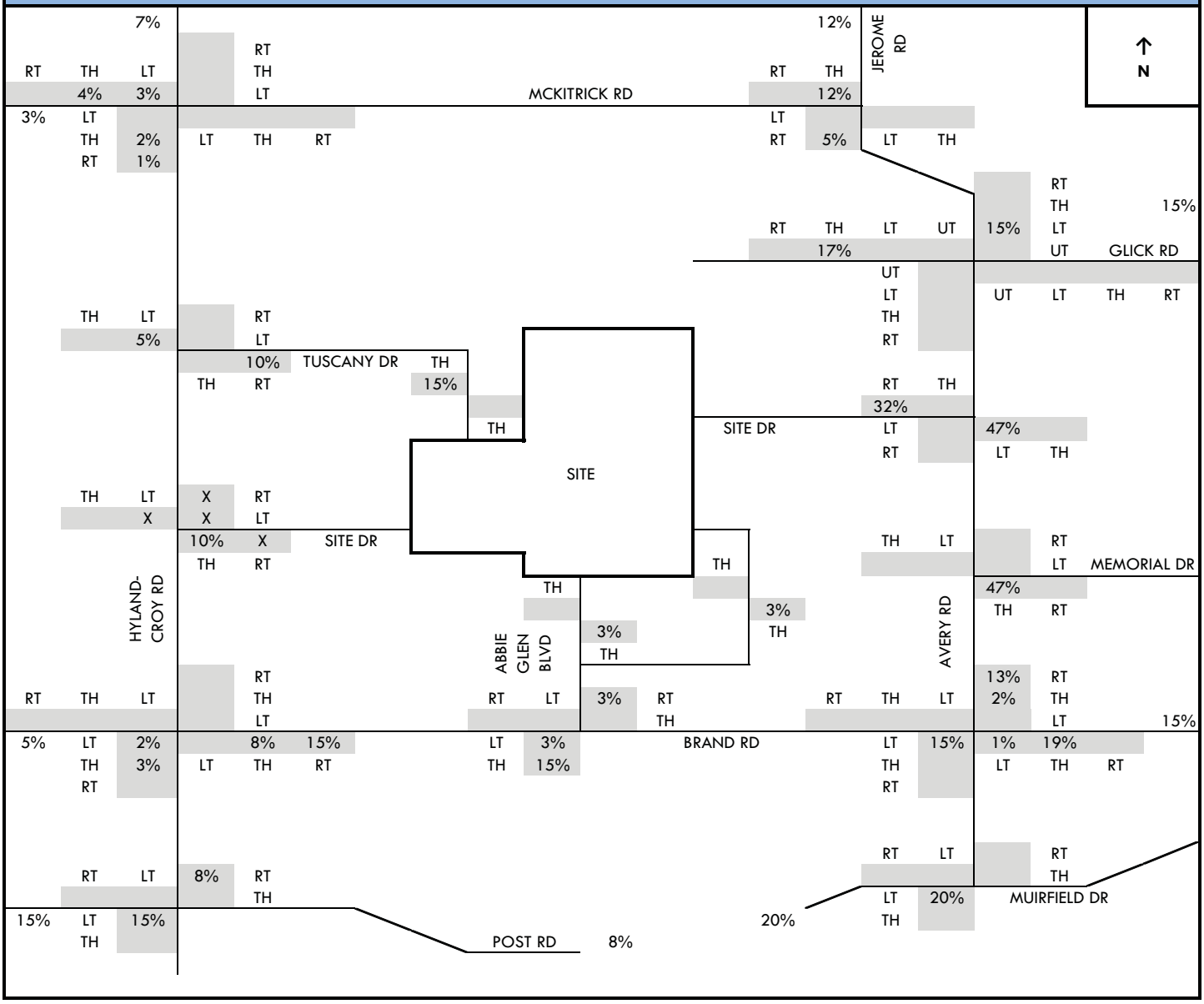
2024 Full Build Traffic - w/ Hyland-Croy Site Drive — **PM Peak Hour H=E+G**



Traffic Volume Calculations

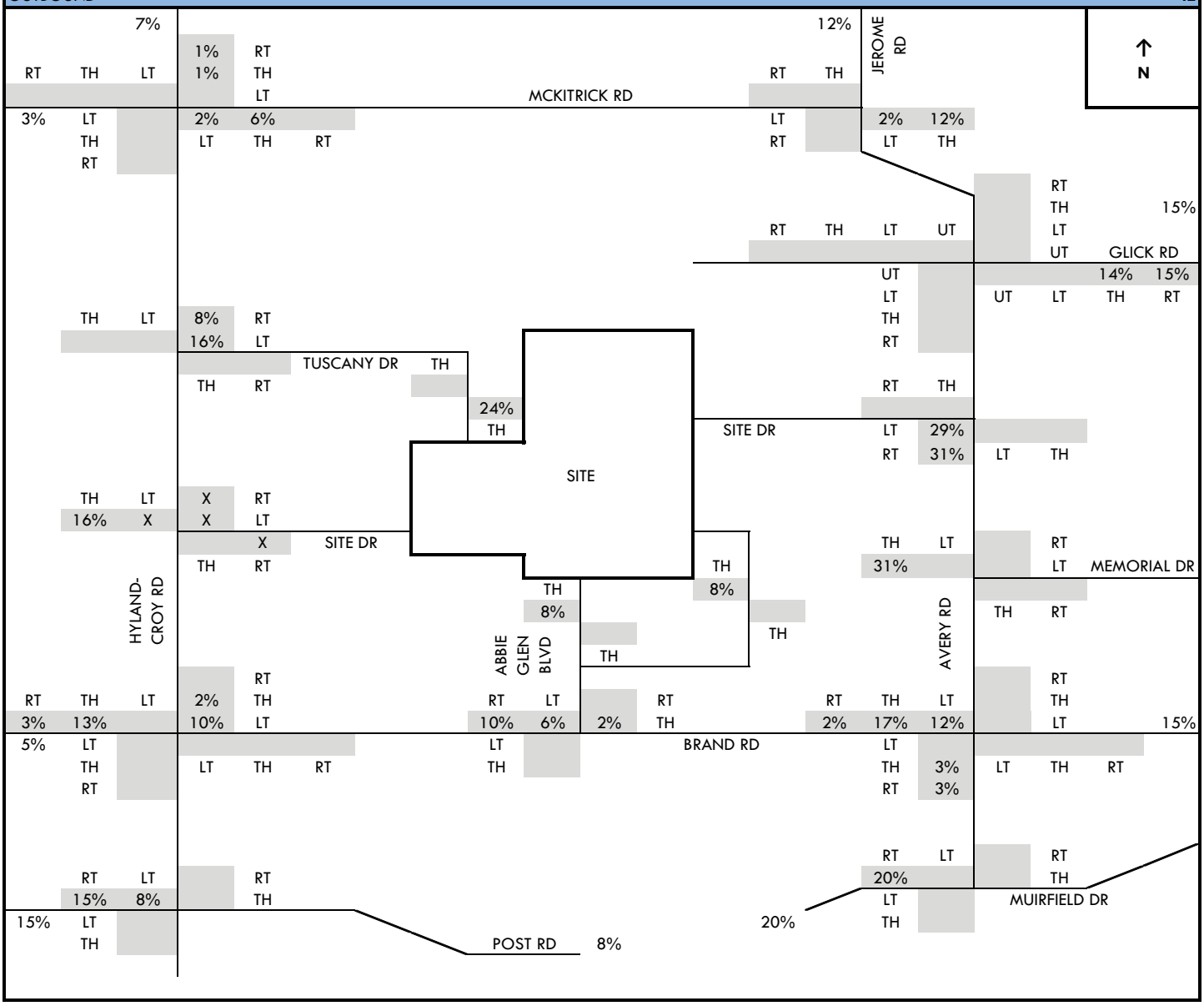
Site Trip Distribution - w/o Hyland-Croy Site Drive **PM Peak Hour**

INBOUND **I1**

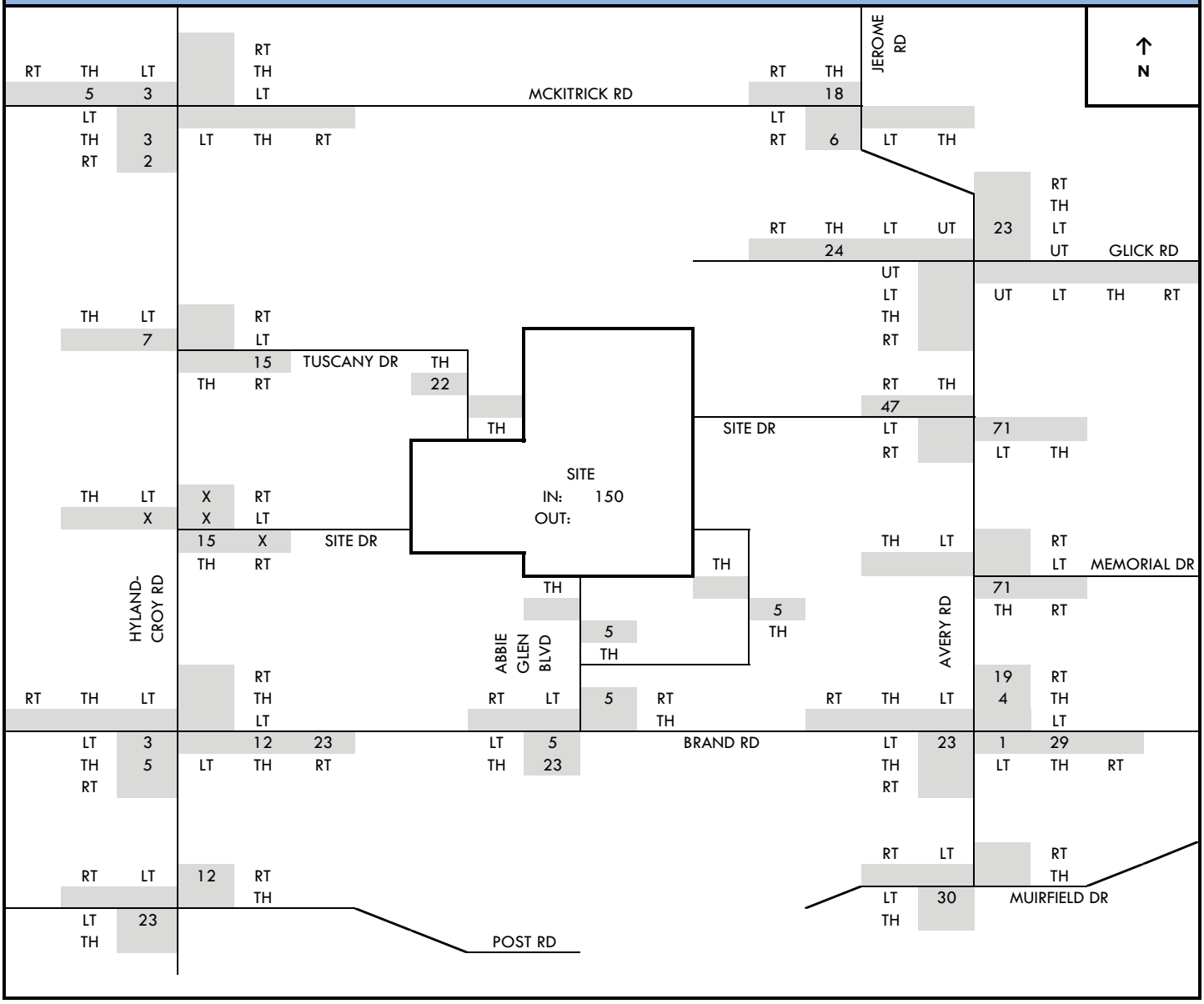


Riviera
Traffic Impact Study
Traffic Volume Calculations

Site Trip Distribution - w/o Hyland-Croy Site Drive — **PM Peak Hour**
OUTBOUND — **I2**

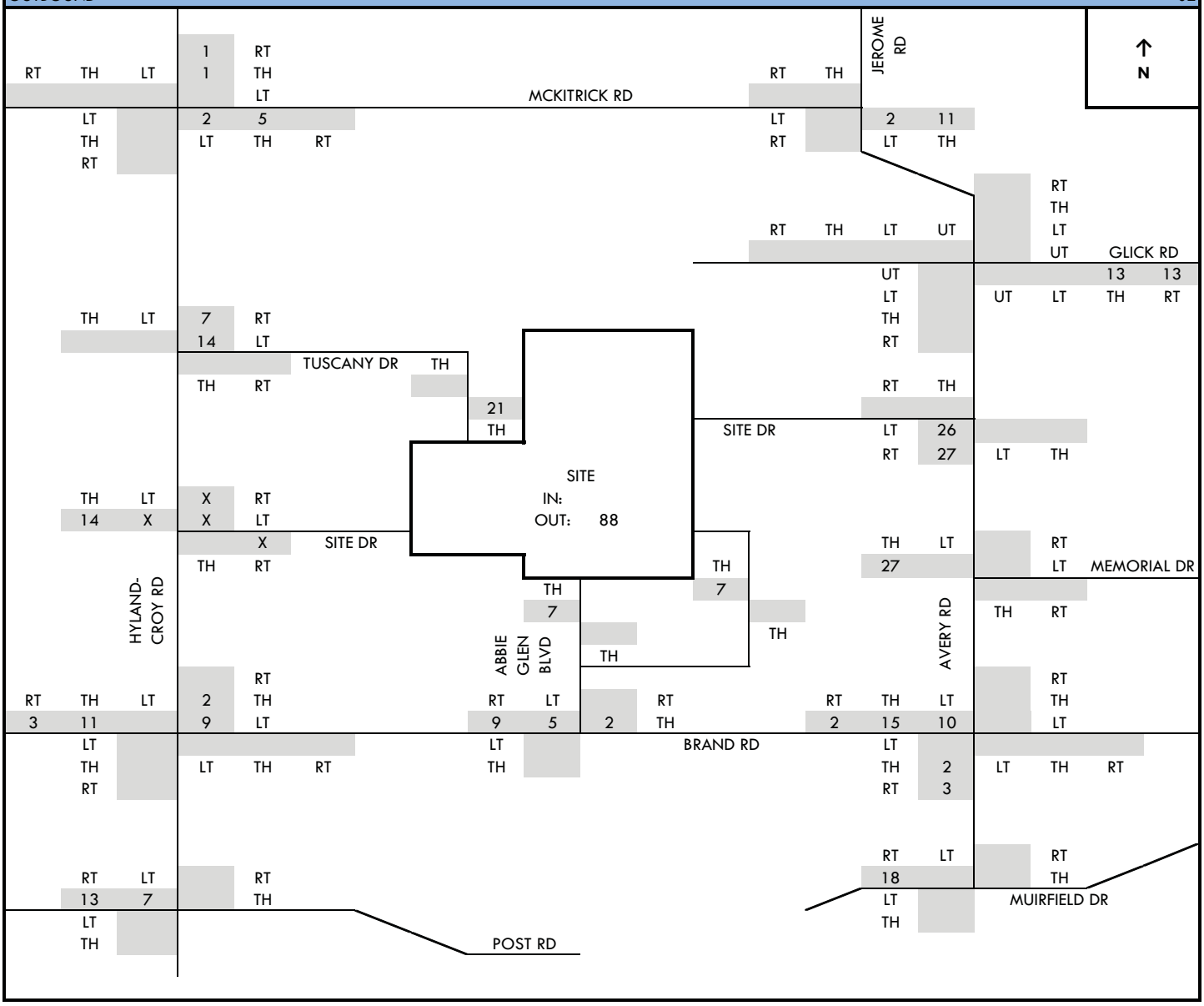


Site Trip Assignment - w/o Hyland-Croy Site Drive **PM Peak Hour**
INBOUND **J1**



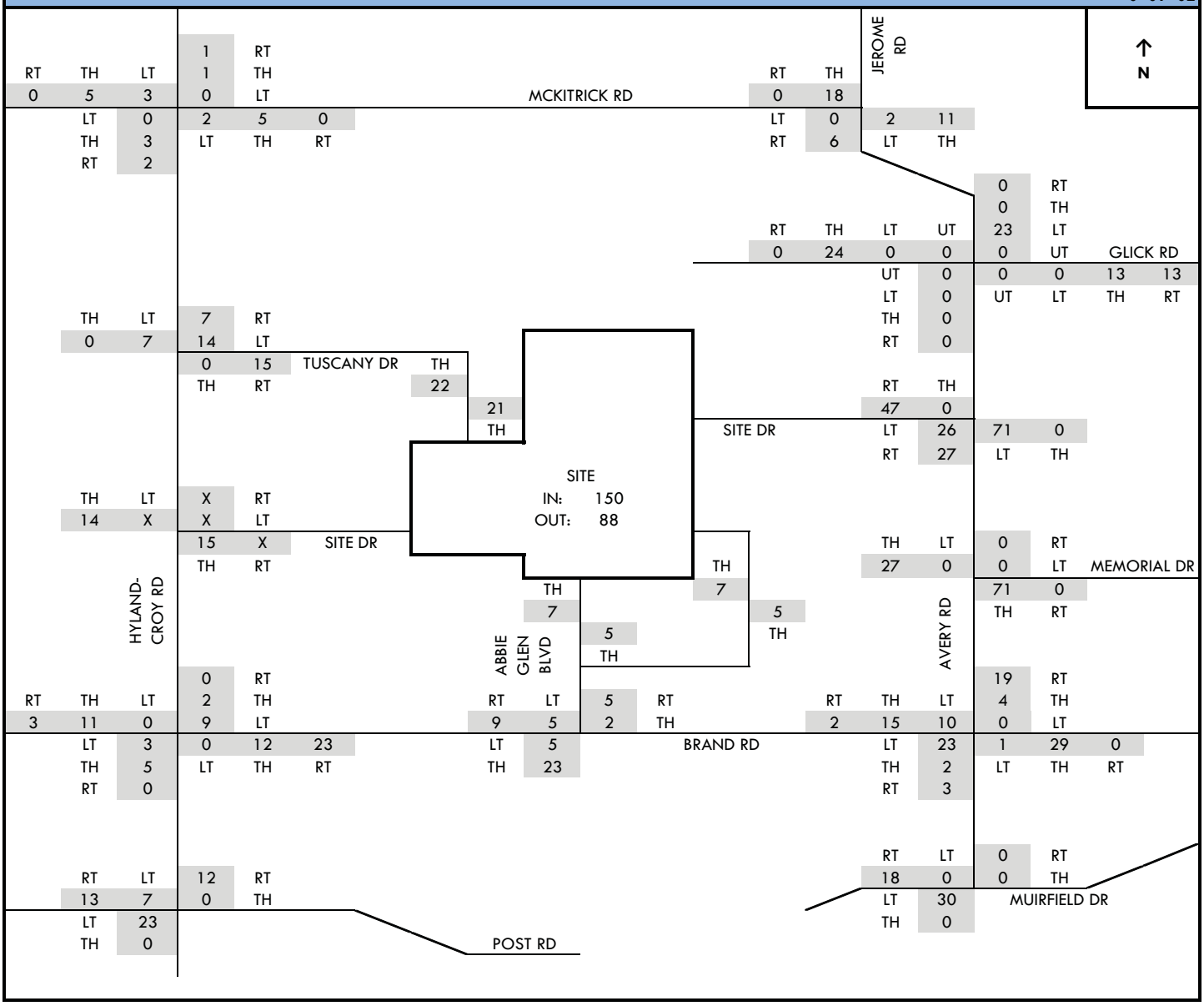
Traffic Volume Calculations

Site Trip Assignment - w/o Hyland-Croy Site Drive **PM Peak Hour**
OUTBOUND **J2**



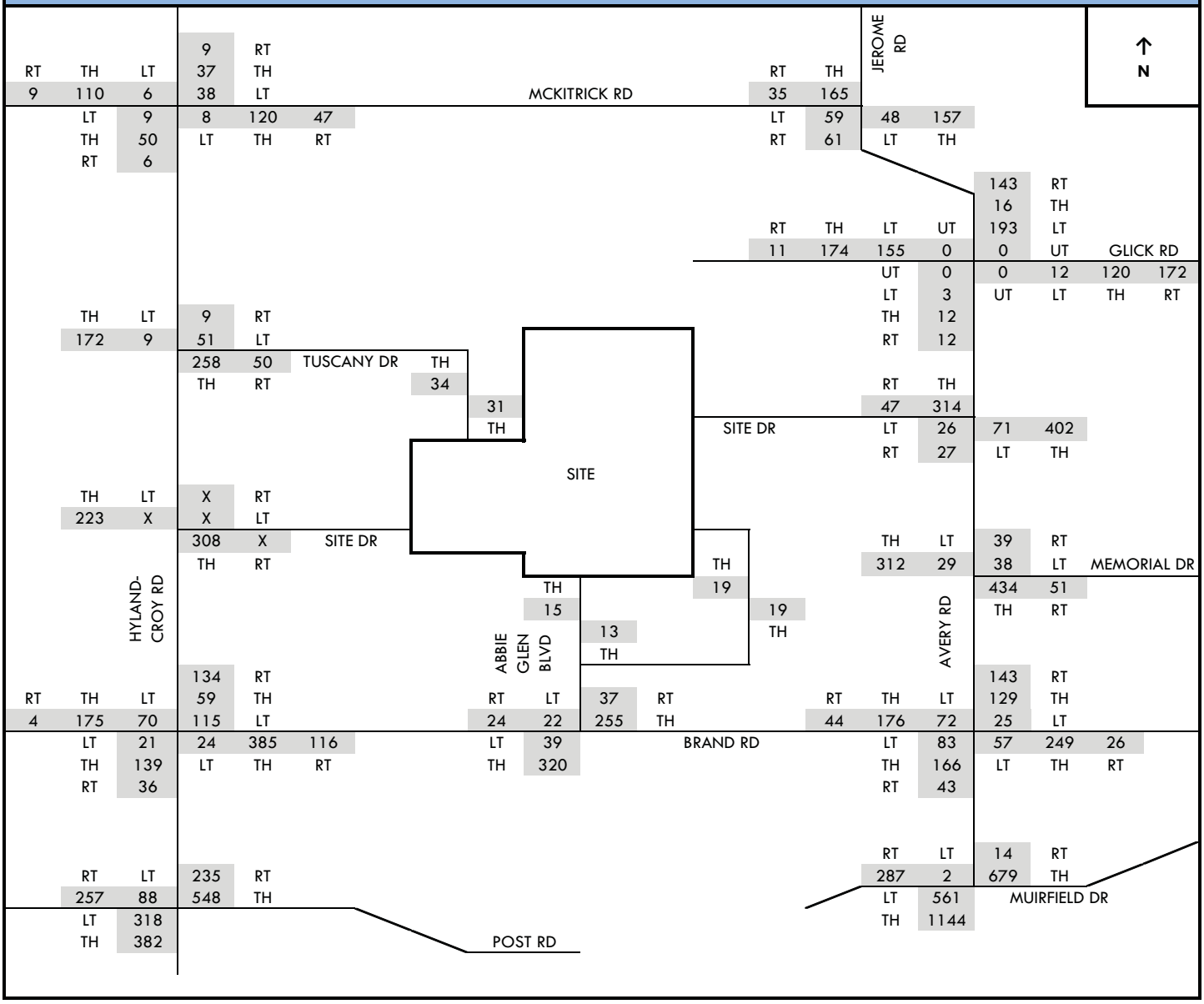
Riviera
Traffic Impact Study
Traffic Volume Calculations

Total Site Trips - w/o Hyland-Croy Site Drive — **PM Peak Hour J=J1+J2**



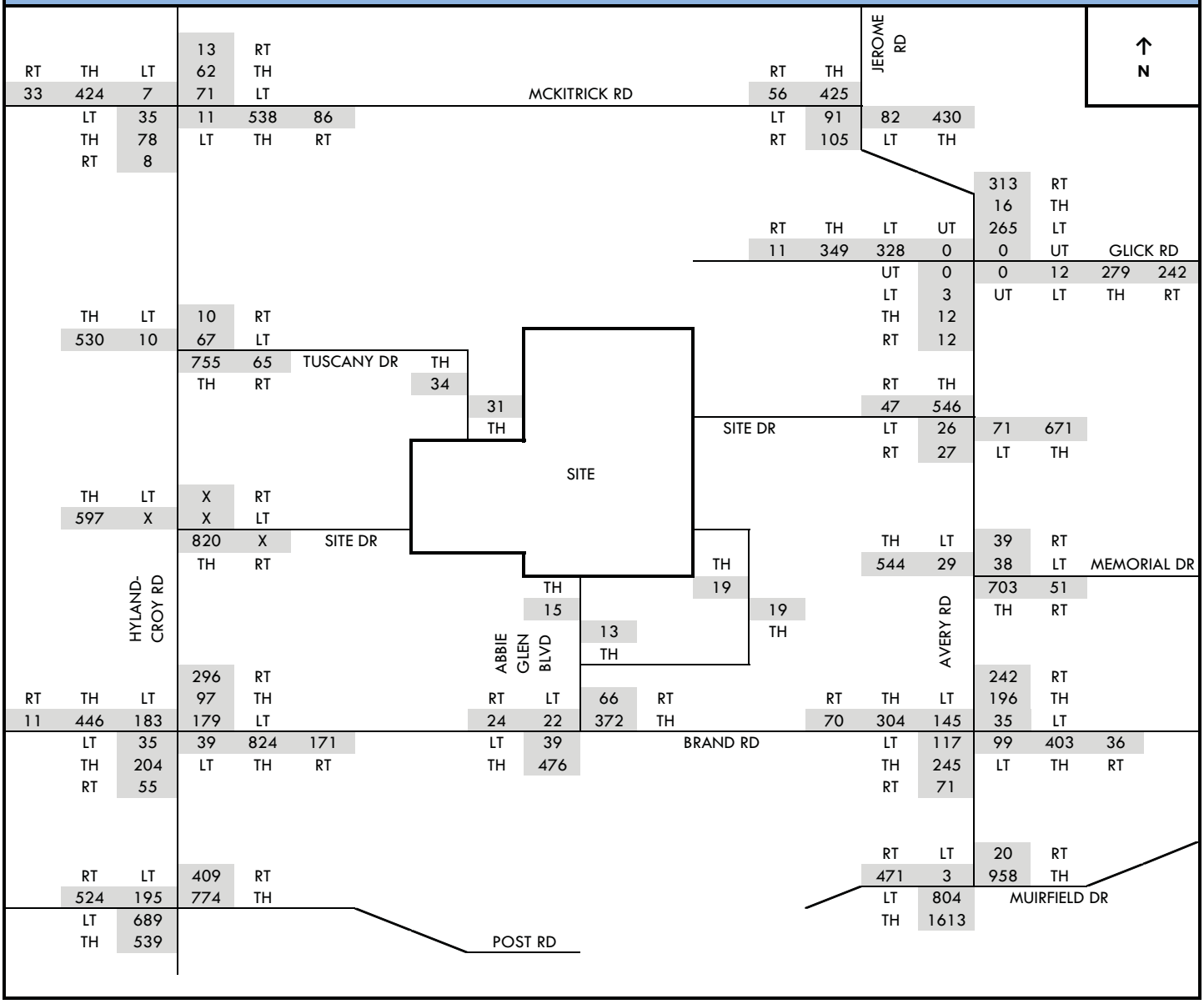
Riviera
Traffic Impact Study
Traffic Volume Calculations

2014 Full Build Traffic - w/o Hyland-Croy Site Drive — **PM Peak Hour K=B+J**



Riviera
Traffic Impact Study
Traffic Volume Calculations

2024 Full Build Traffic - w/o Hyland-Croy Site Drive — **PM Peak Hour L=E+J**



APPENDIX D
WARRANTS
(SIGNAL AND TURN LANE)

Riviera TIS

RT Reduction - Existing Geometry

(Taken From TEM Section 402-5, Ohio Department of Transportation)

HOUR BEGIN	MINOR STREET				MAINLINE VOLUME (CONFLICTING WITH RIGHT TURN)	MAINLINE APPROACH VOLUME PER LANE	BASE RIGHT TURN	MAINLINE CONGESTION FACTOR %	ADJUSTED RIGHT TURN REDUCTION %	ADJUSTED RIGHT TURNS	ADJUSTED MINOR STREET VOLUMES
	Approach A:	Hyland-Croy Rd									
	Config. "A":	1									
	Mainline Lanes:	2									
	Volumes										
	LEFT	THROUGH	RIGHT	TOTAL (A)							
AM Peak Hour	165	0	250	415	362	181	40%	0%	40%	150	315
PM Peak Hour	81	0	244	325	771	386	60%	0%	60%	98	179

1/24/2014

Hyland-Croy Road - North of Post Road - October 2008 24 Hour Data provided by City of Dublin				
TIME	NB	SB	TOTAL	PERCENT OF PEAK HOUR
7:00	177	271	448	100.0%
8:00	117	248	365	81.6%
9:00	194	229	422	94.3%
10:00	146	165	310	69.2%
11:00	167	194	360	80.5%
12:00	195	170	364	45.8%
13:00	208	161	369	46.4%
14:00	208	204	413	51.9%
15:00	250	205	455	57.2%
16:00	343	211	554	69.7%
17:00	564	231	795	100.0%
18:00	417	241	658	82.7%
19:00	279	161	440	55.4%

2014 BACKGROUND TRAFFIC - HYLAND-CROY ROAD/POST ROAD																
	HYLAND-CROY ROAD								POST ROAD							
TIME	NBLT	NBTH	NBRT	NB TOTAL	SBLT	SBTH	SBRT	SB TOTAL	EBLT	EBTH	EBRT	EB TOTAL	WBLT	WBTH	WBRT	WB TOTAL
7:00	0	0	0	0	165	0	150	315	194	555	0	749	0	284	78	362
8:00	0	0	0	0	135	0	122	257	158	453	0	611	0	232	64	295
9:00	0	0	0	0	156	0	141	297	183	523	0	706	0	268	74	341
10:00	0	0	0	0	114	0	104	218	134	384	0	519	0	197	54	251
11:00	0	0	0	0	133	0	121	253	156	447	0	603	0	229	63	291
12:00	0	0	0	0	37	0	45	82	135	175	0	310	0	251	102	353
13:00	0	0	0	0	38	0	45	83	137	177	0	314	0	254	103	358
14:00	0	0	0	0	42	0	51	93	153	198	0	351	0	284	116	400
15:00	0	0	0	0	46	0	56	102	169	218	0	387	0	313	127	441
16:00	0	0	0	0	56	0	68	125	205	266	0	472	0	382	155	537
17:00	0	0	0	0	81	0	98	179	295	382	0	677	0	548	223	771
18:00	0	0	0	0	67	0	81	148	244	316	0	560	0	453	184	638
19:00	0	0	0	0	45	0	54	99	163	212	0	375	0	303	123	427

Post Rd/Hyland-Croy Rd
Warrant 1
Ohio Manual of Uniform Traffic Control Devices

2014 Background w/ RT Reduction - Existing Geometry

CONDITION	# OF LANES	POST RD			HYLAND-CROY RD			Condition A				Condition B			
		EB	WB	2-WAY	SBLT	SBRT	1-WAY	MAJ	MIN	MAJ	MIN	MAJ	MIN	MAJ	MIN
										80%	80%			80%	80%
Standard	1							500	150	400	120	750	75	600	60
Standard	2+							600	200	480	160	900	100	720	80
High Speed	1						X	350	**105**	280	**84**	525	**53**	420	**42**
High Speed	2+			X				**420**	140	**336**	112	**630**	70	**504**	56
7-8 AM		**749**	**362**	**1111**	**165**	**150**	**315**	YES	YES	YES	YES	YES	YES	YES	YES
8-9 AM		611	295	**906**	135	122	**257**	YES	YES	YES	YES	YES	YES	YES	YES
9-10 AM		706	341	**1048**	156	141	**297**	YES	YES	YES	YES	YES	YES	YES	YES
10-11 AM		519	251	**769**	114	104	**218**	YES	YES	YES	YES	YES	YES	YES	YES
11-12 NOON		603	291	**894**	133	121	**253**	YES	YES	YES	YES	YES	YES	YES	YES
12-1 PM		310	353	**663**	37	45	**82**	YES	NO	YES	NO	YES	YES	YES	YES
1-2 PM		314	358	**672**	38	45	**83**	YES	NO	YES	NO	YES	YES	YES	YES
2-3 PM		351	400	**751**	42	51	**93**	YES	NO	YES	YES	YES	YES	YES	YES
3-4 PM		387	441	**828**	46	56	**102**	YES	NO	YES	YES	YES	YES	YES	YES
4-5 PM		472	537	**1009**	56	68	**125**	YES	YES	YES	YES	YES	YES	YES	YES
5-6 PM		**677**	**771**	**1448**	**81**	**98**	**179**	YES	YES	YES	YES	YES	YES	YES	YES
6-7 PM		560	638	**1198**	67	81	**148**	YES	YES	YES	YES	YES	YES	YES	YES
7-8 PM		375	427	**802**	45	54	**99**	YES	NO	YES	YES	YES	YES	YES	YES
							Hours Met	13	8	13	11	13	13	13	13
							Hours Warrant Met	8		11		13		13	
							Warrant Satisfied ?	YES		YES		YES		YES	

Condition A : MET
Condition B : MET
80% of Condition A and B : NOT APPLICABLE

Post Rd/Hyland-Croy Rd
Warrant 1
Ohio Manual of Uniform Traffic Control Devices

2014 Background w/ RT Reduction - SBRT

CONDITION	# OF LANES	POST RD			HYLAND-CROY RD			Condition A				Condition B			
		EB	WB	2-WAY	SBLT	SBRT	1-WAY	MAJ	MIN	MAJ	MIN	MAJ	MIN	MAJ	MIN
										80%	80%			80%	80%
Standard	1							500	150	400	120	750	75	600	60
Standard	2+							600	200	480	160	900	100	720	80
High Speed	1							350	105	280	84	525	53	420	42
High Speed	2+			X			X	**420**	**140**	**336**	**112**	**630**	**70**	**504**	**56**
7-8 AM		**749**	**362**	**1111**	**165**	**150**	**315**	YES	YES	YES	YES	YES	YES	YES	YES
8-9 AM		611	295	**906**	135	122	**257**	YES	YES	YES	YES	YES	YES	YES	YES
9-10 AM		706	341	**1048**	156	141	**297**	YES	YES	YES	YES	YES	YES	YES	YES
10-11 AM		519	251	**769**	114	104	**218**	YES	YES	YES	YES	YES	YES	YES	YES
11-12 NOON		603	291	**894**	133	121	**253**	YES	YES	YES	YES	YES	YES	YES	YES
12-1 PM		310	353	**663**	37	45	**82**	YES	NO	YES	NO	YES	YES	YES	YES
1-2 PM		314	358	**672**	38	45	**83**	YES	NO	YES	NO	YES	YES	YES	YES
2-3 PM		351	400	**751**	42	51	**93**	YES	NO	YES	NO	YES	YES	YES	YES
3-4 PM		387	441	**828**	46	56	**102**	YES	NO	YES	NO	YES	YES	YES	YES
4-5 PM		472	537	**1009**	56	68	**125**	YES	NO	YES	YES	YES	YES	YES	YES
5-6 PM		**677**	**771**	**1448**	**81**	**98**	**179**	YES	YES	YES	YES	YES	YES	YES	YES
6-7 PM		560	638	**1198**	67	81	**148**	YES	YES	YES	YES	YES	YES	YES	YES
7-8 PM		375	427	**802**	45	54	**99**	YES	NO	YES	NO	YES	YES	YES	YES
							Hours Met	**13**	**7**	**13**	**8**	**13**	**13**	**13**	**13**
							Hours Warrant Met	**7**		**8**		**13**		**13**	
							Warrant Satisfied ?	**NO**		**YES**		**YES**		**YES**	

Condition A : NOT MET
Condition B : MET
80% of Condition A and B : NOT APPLICABLE

Riviera TIS

RT Reduction - Existing Geometry

(Taken From TEM Section 402-5, Ohio Department of Transportation)

HOUR BEGIN	MINOR STREET				MAINLINE VOLUME (CONFLICTING WITH RIGHT TURN)	MAINLINE APPROACH VOLUME PER LANE	BASE RIGHT TURN	MAINLINE CONGESTION FACTOR %	ADJUSTED RIGHT TURN REDUCTION %	ADJUSTED RIGHT TURNS	ADJUSTED MINOR STREET VOLUMES
	Approach A:	Hyland-Croy Rd									
	Config. "A":	1									
	Mainline Lanes:	2									
	Volumes										
	LEFT	THROUGH	RIGHT	TOTAL (A)							
AM Peak Hour	299	0	591	890	554	277	40%	0%	40%	355	654
PM Peak Hour	188	0	511	699	1171	586	60%	10%	50%	256	444

Hyland-Croy Road - North of Post Road - October 2008 24 Hour Data provided by City of Dublin				
TIME	NB	SB	TOTAL	PERCENT OF PEAK HOUR
7:00	177	271	448	100.0%
8:00	117	248	365	81.6%
9:00	194	229	422	94.3%
10:00	146	165	310	69.2%
11:00	167	194	360	80.5%
12:00	195	170	364	45.8%
13:00	208	161	369	46.4%
14:00	208	204	413	51.9%
15:00	250	205	455	57.2%
16:00	343	211	554	69.7%
17:00	564	231	795	100.0%
18:00	417	241	658	82.7%
19:00	279	161	440	55.4%

2024 BACKGROUND TRAFFIC - HYLAND-CROY ROAD/POST ROAD																
	HYLAND-CROY ROAD								POST ROAD							
TIME	NBLT	NBTH	NBRT	NB TOTAL	SBLT	SBTH	SBRT	SB TOTAL	EBLT	EBTH	EBRT	EB TOTAL	WBLT	WBTH	WBRT	WB TOTAL
7:00	0	0	0	0	299	0	355	654	368	783	0	1151	0	400	154	554
8:00	0	0	0	0	244	0	290	534	300	639	0	939	0	326	126	452
9:00	0	0	0	0	282	0	335	617	347	739	0	1086	0	377	145	523
10:00	0	0	0	0	207	0	246	453	255	542	0	797	0	277	107	384
11:00	0	0	0	0	241	0	286	526	296	630	0	926	0	322	124	446
12:00	0	0	0	0	86	0	117	203	305	247	0	552	0	355	182	537
13:00	0	0	0	0	87	0	119	206	309	250	0	559	0	359	184	543
14:00	0	0	0	0	98	0	133	230	346	280	0	625	0	402	206	608
15:00	0	0	0	0	107	0	146	254	381	308	0	689	0	442	227	669
16:00	0	0	0	0	131	0	178	309	464	375	0	839	0	539	277	816
17:00	0	0	0	0	188	0	256	444	666	539	0	1205	0	774	397	1171
18:00	0	0	0	0	155	0	212	367	551	446	0	997	0	640	328	968
19:00	0	0	0	0	104	0	142	246	369	298	0	667	0	429	220	648

Post Rd/Hyland-Croy Rd
Warrant 1
Ohio Manual of Uniform Traffic Control Devices

2024 Background w/ RT Reduction - Existing Geometry

CONDITION	# OF LANES	POST RD			HYLAND-CROY RD			Condition A				Condition B			
		EB	WB	2-WAY	SBLT	SBRT	1-WAY	MAJ	MIN	MAJ	MIN	MAJ	MIN	MAJ	MIN
										80%	80%			80%	80%
Standard	1							500	150	400	120	750	75	600	60
Standard	2+							600	200	480	160	900	100	720	80
High Speed	1						X	350	**105**	280	**84**	525	**53**	420	**42**
High Speed	2+			X				**420**	140	**336**	112	**630**	70	**504**	56
7-8 AM		**1151**	**554**	**1705**	**299**	**355**	**654**	YES	YES	YES	YES	YES	YES	YES	YES
8-9 AM		939	452	**1391**	244	290	**534**	YES	YES	YES	YES	YES	YES	YES	YES
9-10 AM		1086	523	**1608**	282	335	**617**	YES	YES	YES	YES	YES	YES	YES	YES
10-11 AM		797	384	**1181**	207	246	**453**	YES	YES	YES	YES	YES	YES	YES	YES
11-12 NOON		926	446	**1372**	241	286	**526**	YES	YES	YES	YES	YES	YES	YES	YES
12-1 PM		552	537	**1089**	86	117	**203**	YES	YES	YES	YES	YES	YES	YES	YES
1-2 PM		559	543	**1102**	87	119	**206**	YES	YES	YES	YES	YES	YES	YES	YES
2-3 PM		625	608	**1233**	98	133	**230**	YES	YES	YES	YES	YES	YES	YES	YES
3-4 PM		689	669	**1358**	107	146	**254**	YES	YES	YES	YES	YES	YES	YES	YES
4-5 PM		839	816	**1655**	131	178	**309**	YES	YES	YES	YES	YES	YES	YES	YES
5-6 PM		**1205**	**1171**	**2376**	**188**	**256**	**444**	YES	YES	YES	YES	YES	YES	YES	YES
6-7 PM		997	968	**1965**	155	212	**367**	YES	YES	YES	YES	YES	YES	YES	YES
7-8 PM		667	648	**1316**	104	142	**246**	YES	YES	YES	YES	YES	YES	YES	YES
					Hours Met			**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**
					Hours Warrant Met			**13**		**13**		**13**		**13**	
					Warrant Satisfied ?			**YES**		**YES**		**YES**		**YES**	

Condition A : MET
Condition B : MET
80% of Condition A and B : NOT APPLICABLE

Post Rd/Hyland-Croy Rd
Warrant 1
Ohio Manual of Uniform Traffic Control Devices

2024 Background w/ RT Reduction - SBRT

CONDITION	# OF LANES	POST RD			HYLAND-CROY RD			Condition A				Condition B			
		EB	WB	2-WAY	SBLT	SBRT	1-WAY	MAJ	MIN	MAJ	MIN	MAJ	MIN	MAJ	MIN
										80%	80%			80%	80%
Standard	1							500	150	400	120	750	75	600	60
Standard	2+							600	200	480	160	900	100	720	80
High Speed	1							350	105	280	84	525	53	420	42
High Speed	2+			X			X	**420**	**140**	**336**	**112**	**630**	**70**	**504**	**56**
7-8 AM		**1151**	**554**	**1705**	**299**	**355**	**654**	YES	YES	YES	YES	YES	YES	YES	YES
8-9 AM		939	452	**1391**	244	290	**534**	YES	YES	YES	YES	YES	YES	YES	YES
9-10 AM		1086	523	**1608**	282	335	**617**	YES	YES	YES	YES	YES	YES	YES	YES
10-11 AM		797	384	**1181**	207	246	**453**	YES	YES	YES	YES	YES	YES	YES	YES
11-12 NOON		926	446	**1372**	241	286	**526**	YES	YES	YES	YES	YES	YES	YES	YES
12-1 PM		552	537	**1089**	86	117	**203**	YES	YES	YES	YES	YES	YES	YES	YES
1-2 PM		559	543	**1102**	87	119	**206**	YES	YES	YES	YES	YES	YES	YES	YES
2-3 PM		625	608	**1233**	98	133	**230**	YES	YES	YES	YES	YES	YES	YES	YES
3-4 PM		689	669	**1358**	107	146	**254**	YES	YES	YES	YES	YES	YES	YES	YES
4-5 PM		839	816	**1655**	131	178	**309**	YES	YES	YES	YES	YES	YES	YES	YES
5-6 PM		**1205**	**1171**	**2376**	**188**	**256**	**444**	YES	YES	YES	YES	YES	YES	YES	YES
6-7 PM		997	968	**1965**	155	212	**367**	YES	YES	YES	YES	YES	YES	YES	YES
7-8 PM		667	648	**1316**	104	142	**246**	YES	YES	YES	YES	YES	YES	YES	YES
					Hours Met			**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**
					Hours Warrant Met			**13**		**13**		**13**		**13**	
					Warrant Satisfied ?			**YES**		**YES**		**YES**		**YES**	

Condition A : MET
Condition B : MET
80% of Condition A and B : NOT APPLICABLE

Riviera TIS

RT Reduction - Existing Geometry

(Taken From TEM Section 402-5, Ohio Department of Transportation)

HOUR BEGIN	MINOR STREET				MAINLINE VOLUME (CONFLICTING WITH RIGHT TURN)	MAINLINE APPROACH VOLUME PER LANE	BASE RIGHT TURN	MAINLINE CONGESTION FACTOR %	ADJUSTED RIGHT TURN REDUCTION %	ADJUSTED RIGHT TURNS	ADJUSTED MINOR STREET VOLUMES
	Approach A: Site Drive										
	Config. "A": 1										
	Mainline Lanes: 1										
	Volumes										
	LEFT	THROUGH	RIGHT	TOTAL (A)							
AM Peak Hour	29	0	10	39	247	247	20%	0%	20%	8	37
PM Peak Hour	18	0	5	23	326	326	20%	0%	20%	4	22

Hyland-Croy Road - North of Post Road - October 2008 24 Hour Data provided by City of Dublin				
TIME	NB	SB	TOTAL	PERCENT OF PEAK HOUR
7:00	177	271	448	100.0%
8:00	117	248	365	81.6%
9:00	194	229	422	94.3%
10:00	146	165	310	69.2%
11:00	167	194	360	80.5%
12:00	195	170	364	45.8%
13:00	208	161	369	46.4%
14:00	208	204	413	51.9%
15:00	250	205	455	57.2%
16:00	343	211	554	69.7%
17:00	564	231	795	100.0%
18:00	417	241	658	82.7%
19:00	279	161	440	55.4%

2014 FULL BUILD TRAFFIC - HYLAND-CROY ROAD/SITE DRIVE																
	HYLAND-CROY ROAD								SITE DRIVE							
TIME	NBLT	NBTH	NBRT	NB TOTAL	SBLT	SBTH	SBRT	SB TOTAL	EBLT	EBTH	EBRT	EB TOTAL	WBLT	WBTH	WBRT	WB TOTAL
7:00	0	237	10	247	3	351	0	354	0	0	0	0	29	0	8	37
8:00	0	193	8	202	2	286	0	289	0	0	0	0	24	0	7	30
9:00	0	224	9	233	3	331	0	334	0	0	0	0	27	0	8	35
10:00	0	164	7	171	2	243	0	245	0	0	0	0	20	0	6	26
11:00	0	191	8	199	2	282	0	285	0	0	0	0	23	0	6	30
12:00	0	135	14	149	4	96	0	100	0	0	0	0	8	0	2	10
13:00	0	137	14	151	4	97	0	101	0	0	0	0	8	0	2	10
14:00	0	153	16	169	4	109	0	113	0	0	0	0	9	0	2	11
15:00	0	169	18	186	5	120	0	125	0	0	0	0	10	0	2	13
16:00	0	205	22	227	6	146	0	152	0	0	0	0	13	0	3	15
17:00	0	295	31	326	8	210	0	218	0	0	0	0	18	0	4	22
18:00	0	244	26	270	7	174	0	180	0	0	0	0	15	0	3	18
19:00	0	163	17	181	4	116	0	121	0	0	0	0	10	0	2	12

Hyland-Croy Rd / Site Dr
Warrant 1
Ohio Manual of Uniform Traffic Control Devices

2014 Full Build

CONDITION	# OF LANES	HYLAND-CROY RD			SITE DR			Condition A				Condition B			
		NB	SB	2-WAY	WBLT	WBRT	1-WAY	MAJ	MIN	MAJ	MIN	MAJ	MIN	MAJ	MIN
										80%	80%			80%	80%
Standard	1							500	150	400	120	750	75	600	60
Standard	2+							600	200	480	160	900	100	720	80
High Speed	1			X			X	**350**	**105**	**280**	**84**	**525**	**53**	**420**	**42**
High Speed	2+							420	140	336	112	630	70	504	56
7-8 AM		**247**	**354**	**601**	**29**	**8**	**37**	YES	NO	YES	NO	YES	NO	YES	NO
8-9 AM		202	289	**490**	24	7	**30**	YES	NO	YES	NO	NO	NO	YES	NO
9-10 AM		233	334	**567**	27	8	**35**	YES	NO	YES	NO	YES	NO	YES	NO
10-11 AM		171	245	**416**	20	6	**26**	YES	NO	YES	NO	NO	NO	NO	NO
11-12 NOON		199	285	**484**	23	6	**30**	YES	NO	YES	NO	NO	NO	YES	NO
12-1 PM		149	100	**249**	8	2	**10**	NO	NO	NO	NO	NO	NO	NO	NO
1-2 PM		151	101	**252**	8	2	**10**	NO	NO	NO	NO	NO	NO	NO	NO
2-3 PM		169	113	**282**	9	2	**11**	NO	NO	YES	NO	NO	NO	NO	NO
3-4 PM		186	125	**311**	10	2	**13**	NO	NO	YES	NO	NO	NO	NO	NO
4-5 PM		227	152	**379**	13	3	**15**	YES	NO	YES	NO	NO	NO	NO	NO
5-6 PM		**326**	**218**	**544**	**18**	**4**	**22**	YES	NO	YES	NO	YES	NO	YES	NO
6-7 PM		270	180	**450**	15	3	**18**	YES	NO	YES	NO	NO	NO	YES	NO
7-8 PM		181	121	**301**	10	2	**12**	NO	NO	YES	NO	NO	NO	NO	NO
					Hours Met			**8**	**0**	**11**	**0**	**3**	**0**	**6**	**0**
					Hours Warrant Met			**0**		**0**		**0**		**0**	
					Warrant Satisfied ?			**NO**		**NO**		**NO**		**NO**	

Condition A : NOT MET
Condition B : NOT MET
80% of Condition A and B : NOT MET

Riviera TIS

RT Reduction - Existing Geometry

(Taken From TEM Section 402-5, Ohio Department of Transportation)

HOUR BEGIN	MINOR STREET				MAINLINE VOLUME (CONFLICTING WITH RIGHT TURN)	MAINLINE APPROACH VOLUME PER LANE	BASE RIGHT TURN	MAINLINE CONGESTION FACTOR %	ADJUSTED RIGHT TURN REDUCTION %	ADJUSTED RIGHT TURNS	ADJUSTED MINOR STREET VOLUMES
	Approach A: Site Drive										
	Config. "A": 1										
	Mainline Lanes: 1										
	Volumes										
	LEFT	THROUGH	RIGHT	TOTAL (A)							
AM Peak Hour	29	0	10	39	517	517	20%	10%	10%	9	38
PM Peak Hour	18	0	5	23	838	838	20%	25%	0%	5	23

5/1/2014

Hyland-Croy Road - North of Post Road - October 2008 24 Hour Data provided by City of Dublin				
TIME	NB	SB	TOTAL	PERCENT OF PEAK HOUR
7:00	177	271	448	100.0%
8:00	117	248	365	81.6%
9:00	194	229	422	94.3%
10:00	146	165	310	69.2%
11:00	167	194	360	80.5%
12:00	195	170	364	45.8%
13:00	208	161	369	46.4%
14:00	208	204	413	51.9%
15:00	250	205	455	57.2%
16:00	343	211	554	69.7%
17:00	564	231	795	100.0%
18:00	417	241	658	82.7%
19:00	279	161	440	55.4%

2024 FULL BUILD TRAFFIC - HYLAND-CROY ROAD/SITE DRIVE																
	HYLAND-CROY ROAD								SITE DRIVE							
TIME	NBLT	NBTH	NBRT	NB TOTAL	SBLT	SBTH	SBRT	SB TOTAL	EBLT	EBTH	EBRT	EB TOTAL	WBLT	WBTH	WBRT	WB TOTAL
7:00	0	507	10	517	3	842	0	845	0	0	0	0	29	0	9	38
8:00	0	414	8	422	2	687	0	689	0	0	0	0	24	0	7	31
9:00	0	478	9	488	3	794	0	797	0	0	0	0	27	0	8	36
10:00	0	351	7	358	2	583	0	585	0	0	0	0	20	0	6	26
11:00	0	408	8	416	2	678	0	680	0	0	0	0	23	0	7	31
12:00	0	370	14	384	4	268	0	271	0	0	0	0	8	0	2	11
13:00	0	374	14	389	4	271	0	275	0	0	0	0	8	0	2	11
14:00	0	419	16	435	4	303	0	307	0	0	0	0	9	0	3	12
15:00	0	461	18	479	5	334	0	338	0	0	0	0	10	0	3	13
16:00	0	562	22	584	6	407	0	412	0	0	0	0	13	0	3	16
17:00	0	807	31	838	8	584	0	592	0	0	0	0	18	0	5	23
18:00	0	667	26	693	7	483	0	490	0	0	0	0	15	0	4	19
19:00	0	447	17	464	4	323	0	328	0	0	0	0	10	0	3	13

Hyland-Croy Rd / Site Dr
Warrant 1
Ohio Manual of Uniform Traffic Control Devices

2024 Full Build

CONDITION	# OF LANES	HYLAND-CROY RD			SITE DR			Condition A				Condition B			
		NB	SB	2-WAY	WBLT	WBRT	1-WAY	MAJ	MIN	MAJ	MIN	MAJ	MIN	MAJ	MIN
										80%	80%			80%	80%
Standard	1							500	150	400	120	750	75	600	60
Standard	2+							600	200	480	160	900	100	720	80
High Speed	1			**X**			**X**	**350**	**105**	**280**	**84**	**525**	**53**	**420**	**42**
High Speed	2+							420	140	336	112	630	70	504	56
7-8 AM		**517**	**845**	**1362**	**29**	**9**	**38**	YES	NO	YES	NO	YES	NO	YES	NO
8-9 AM		422	689	**1111**	24	7	**31**	YES	NO	YES	NO	YES	NO	YES	NO
9-10 AM		488	797	**1285**	27	8	**36**	YES	NO	YES	NO	YES	NO	YES	NO
10-11 AM		358	585	**943**	20	6	**26**	YES	NO	YES	NO	YES	NO	YES	NO
11-12 NOON		416	680	**1096**	23	7	**31**	YES	NO	YES	NO	YES	NO	YES	NO
12-1 PM		384	271	**655**	8	2	**11**	YES	NO	YES	NO	YES	NO	YES	NO
1-2 PM		389	275	**663**	8	2	**11**	YES	NO	YES	NO	YES	NO	YES	NO
2-3 PM		435	307	**742**	9	3	**12**	YES	NO	YES	NO	YES	NO	YES	NO
3-4 PM		479	338	**818**	10	3	**13**	YES	NO	YES	NO	YES	NO	YES	NO
4-5 PM		584	412	**996**	13	3	**16**	YES	NO	YES	NO	YES	NO	YES	NO
5-6 PM		**838**	**592**	**1430**	**18**	**5**	**23**	YES	NO	YES	NO	YES	NO	YES	NO
6-7 PM		693	490	**1183**	15	4	**19**	YES	NO	YES	NO	YES	NO	YES	NO
7-8 PM		464	328	**792**	10	3	**13**	YES	NO	YES	NO	YES	NO	YES	NO
					Hours Met			**13**	**0**	**13**	**0**	**13**	**0**	**13**	**0**
					Hours Warrant Met			**0**		**0**		**0**		**0**	
					Warrant Satisfied ?			**NO**		**NO**		**NO**		**NO**	

Condition A : NOT MET
Condition B : NOT MET
80% of Condition A and B : NOT MET

Riviera TIS

RT Reduction - Existing Geometry

(Taken From TEM Section 402-5, Ohio Department of Transportation)

HOUR BEGIN	MINOR STREET				MAINLINE VOLUME (CONFLICTING WITH RIGHT TURN)	MAINLINE APPROACH VOLUME PER LANE	BASE RIGHT TURN	MAINLINE CONGESTION FACTOR %	ADJUSTED RIGHT TURN REDUCTION %	ADJUSTED RIGHT TURNS	ADJUSTED MINOR STREET VOLUMES
	Approach A: Avery Road										
	Config. "A": 1										
	Mainline Lanes: 2										
	Volumes										
	LEFT	THROUGH	RIGHT	TOTAL (A)							
AM Peak Hour	0	0	378	378	970	485	60%	5%	55%	170	170
PM Peak Hour	0	0	269	269	693	347	60%	0%	60%	108	108

Hyland-Croy Road - North of Post Road - October 2008 24 Hour Data provided by City of Dublin				
TIME	NB	SB	TOTAL	PERCENT OF PEAK HOUR
7:00	177	271	448	100.0%
8:00	117	248	365	81.6%
9:00	194	229	422	94.3%
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11:00	167	194	360	80.5%
12:00	195	170	364	45.8%
13:00	208	161	369	46.4%
14:00	208	204	413	51.9%
15:00	250	205	455	57.2%
16:00	343	211	554	69.7%
17:00	564	231	795	100.0%
18:00	417	241	658	82.7%
19:00	279	161	440	55.4%

2014 BACKGROUND TRAFFIC - MUIRFIELD DRIVE / AVERY ROAD																
	AVERY ROAD								MUIRFIELD DRIVE							
TIME	NBLT	NBTH	NBRT	NB TOTAL	SBLT	SBTH	SBRT	SB TOTAL	EBLT	EBTH	EBRT	EB TOTAL	WBLT	WBTH	WBRT	WB TOTAL
7:00	0	0	0	0	0	0	170	170	208	416	0	624	0	966	4	970
8:00	0	0	0	0	0	0	139	139	170	339	0	509	0	788	3	791
9:00	0	0	0	0	0	0	160	160	196	392	0	589	0	911	4	915
10:00	0	0	0	0	0	0	118	118	144	288	0	432	0	669	3	672
11:00	0	0	0	0	0	0	137	137	167	335	0	502	0	777	3	781
12:00	0	0	0	0	0	0	49	49	243	524	0	767	0	311	6	318
13:00	0	0	0	0	0	0	50	50	246	531	0	777	0	315	6	321
14:00	0	0	0	0	0	0	56	56	276	594	0	869	0	352	7	360
15:00	0	0	0	0	0	0	62	62	304	654	0	958	0	388	8	396
16:00	0	0	0	0	0	0	75	75	370	797	0	1167	0	473	10	483
17:00	0	0	0	0	0	0	108	108	531	1144	0	1675	0	679	14	693
18:00	0	0	0	0	0	0	89	89	439	946	0	1385	0	562	12	573
19:00	0	0	0	0	0	0	60	60	294	634	0	928	0	376	8	384

Avery Road / Muirfield Drive
Warrant 1
Ohio Manual of Uniform Traffic Control Devices

2014 Background

CONDITION	# OF LANES	MUIRFIELD RD			AVERY RD			Condition A				Condition B			
		EB	WB	2-WAY	SBLT	SBRT	1-WAY	MAJ	MIN	MAJ	MIN	MAJ	MIN	MAJ	MIN
										80%	80%			80%	80%
Standard	1						X	500	**150**	400	**120**	750	**75**	600	**60**
Standard	2+			X				**600**	200	**480**	160	**900**	100	**720**	80
High Speed	1							350	105	280	84	525	53	420	42
High Speed	2+							420	140	336	112	630	70	504	56
7-8 AM		**624**	**970**	**1594**	**0**	**170**	**170**	YES	YES	YES	YES	YES	YES	YES	YES
8-9 AM		509	791	**1301**	0	139	**139**	YES	NO	YES	YES	YES	YES	YES	YES
9-10 AM		589	915	**1503**	0	160	**160**	YES	YES	YES	YES	YES	YES	YES	YES
10-11 AM		432	672	**1104**	0	118	**118**	YES	NO	YES	NO	YES	YES	YES	YES
11-12 NOON		502	781	**1283**	0	137	**137**	YES	NO	YES	YES	YES	YES	YES	YES
12-1 PM		767	318	**1085**	0	49	**49**	YES	NO	YES	NO	YES	NO	YES	NO
1-2 PM		777	321	**1098**	0	50	**50**	YES	NO	YES	NO	YES	NO	YES	NO
2-3 PM		869	360	**1229**	0	56	**56**	YES	NO	YES	NO	YES	NO	YES	NO
3-4 PM		958	396	**1354**	0	62	**62**	YES	NO	YES	NO	YES	NO	YES	YES
4-5 PM		1167	483	**1649**	0	75	**75**	YES	NO	YES	NO	YES	YES	YES	YES
5-6 PM		**1675**	**693**	**2368**	**0**	**108**	**108**	YES	NO	YES	NO	YES	YES	YES	YES
6-7 PM		1385	573	**1958**	0	89	**89**	YES	NO	YES	NO	YES	YES	YES	YES
7-8 PM		928	384	**1311**	0	60	**60**	YES	NO	YES	NO	YES	NO	YES	NO
					Hours Met			**13**	**2**	**13**	**4**	**13**	**8**	**13**	**9**
					Hours Warrant Met			**2**		**4**		**8**		**9**	
					Warrant Satisfied ?			**NO**		**NO**		**YES**		**YES**	

Condition A : NOT MET
Condition B : MET
80% of Condition A and B : NOT APPLICABLE

Avery Road / Muirfield Drive
Warrant 1
Ohio Manual of Uniform Traffic Control Devices

2014 Background

CONDITION	# OF LANES	MUIRFIELD RD			AVERY RD			Condition A				Condition B			
		EB	WB	2-WAY	SBLT	SBRT	1-WAY	MAJ	MIN	MAJ	MIN	MAJ	MIN	MAJ	MIN
										80%	80%			80%	80%
Standard	1							500	150	400	120	750	75	600	60
Standard	2+			X			X	**600**	**200**	**480**	**160**	**900**	**100**	**720**	**80**
High Speed	1							350	105	280	84	525	53	420	42
High Speed	2+							420	140	336	112	630	70	504	56
7-8 AM		**624**	**970**	**1594**	**0**	**170**	**170**	YES	NO	YES	YES	YES	YES	YES	YES
8-9 AM		509	791	**1301**	0	139	**139**	YES	NO	YES	NO	YES	YES	YES	YES
9-10 AM		589	915	**1503**	0	160	**160**	YES	NO	YES	YES	YES	YES	YES	YES
10-11 AM		432	672	**1104**	0	118	**118**	YES	NO	YES	NO	YES	YES	YES	YES
11-12 NOON		502	781	**1283**	0	137	**137**	YES	NO	YES	NO	YES	YES	YES	YES
12-1 PM		767	318	**1085**	0	49	**49**	YES	NO	YES	NO	YES	NO	YES	NO
1-2 PM		777	321	**1098**	0	50	**50**	YES	NO	YES	NO	YES	NO	YES	NO
2-3 PM		869	360	**1229**	0	56	**56**	YES	NO	YES	NO	YES	NO	YES	NO
3-4 PM		958	396	**1354**	0	62	**62**	YES	NO	YES	NO	YES	NO	YES	NO
4-5 PM		1167	483	**1649**	0	75	**75**	YES	NO	YES	NO	YES	NO	YES	NO
5-6 PM		**1675**	**693**	**2368**	**0**	**108**	**108**	YES	NO	YES	NO	YES	YES	YES	YES
6-7 PM		1385	573	**1958**	0	89	**89**	YES	NO	YES	NO	YES	NO	YES	YES
7-8 PM		928	384	**1311**	0	60	**60**	YES	NO	YES	NO	YES	NO	YES	NO
Hours Met								**13**	**0**	**13**	**2**	**13**	**6**	**13**	**7**
Hours Warrant Met								**0**		**2**		**6**		**7**	
Warrant Satisfied ?								**NO**		**NO**		**NO**		**NO**	

Condition A : NOT MET
Condition B : NOT MET
80% of Condition A and B : NOT MET

Riviera TIS

RT Reduction - Existing Geometry

(Taken From TEM Section 402-5, Ohio Department of Transportation)

HOUR BEGIN	MINOR STREET				MAINLINE VOLUME (CONFLICTING WITH RIGHT TURN)	MAINLINE APPROACH VOLUME PER LANE	BASE RIGHT TURN	MAINLINE CONGESTION FACTOR %	ADJUSTED RIGHT TURN REDUCTION %	ADJUSTED RIGHT TURNS	ADJUSTED MINOR STREET VOLUMES
	Approach A:	Avery Road									
	Config. "A":	1									
	Mainline Lanes:	2									
	Volumes										
	LEFT	THROUGH	RIGHT	TOTAL (A)							
AM Peak Hour	0	0	601	601	1368	684	60%	15%	45%	331	331
PM Peak Hour	0	0	453	453	978	489	60%	5%	55%	204	204

Hyland-Croy Road - North of Post Road - October 2008 24 Hour Data provided by City of Dublin				
TIME	NB	SB	TOTAL	PERCENT OF PEAK HOUR
7:00	177	271	448	100.0%
8:00	117	248	365	81.6%
9:00	194	229	422	94.3%
10:00	146	165	310	69.2%
11:00	167	194	360	80.5%
12:00	195	170	364	45.8%
13:00	208	161	369	46.4%
14:00	208	204	413	51.9%
15:00	250	205	455	57.2%
16:00	343	211	554	69.7%
17:00	564	231	795	100.0%
18:00	417	241	658	82.7%
19:00	279	161	440	55.4%

2024 BACKGROUND TRAFFIC - MUIRFIELD DRIVE / AVERY ROAD																
	AVERY ROAD								MUIRFIELD DRIVE							
TIME	NBLT	NBTH	NBRT	NB TOTAL	SBLT	SBTH	SBRT	SB TOTAL	EBLT	EBTH	EBRT	EB TOTAL	WBLT	WBTH	WBRT	WB TOTAL
7:00	0	0	0	0	0	0	331	331	353	587	0	940	0	1362	6	1368
8:00	0	0	0	0	0	0	270	270	288	479	0	767	0	1111	5	1116
9:00	0	0	0	0	0	0	312	312	333	554	0	887	0	1285	6	1290
10:00	0	0	0	0	0	0	229	229	244	406	0	651	0	943	4	947
11:00	0	0	0	0	0	0	266	266	284	472	0	756	0	1096	5	1101
12:00	0	0	0	0	0	0	93	93	355	739	0	1094	0	439	9	448
13:00	0	0	0	0	0	0	95	95	359	748	0	1107	0	444	9	454
14:00	0	0	0	0	0	0	106	106	402	837	0	1239	0	497	10	507
15:00	0	0	0	0	0	0	117	117	442	922	0	1365	0	548	11	559
16:00	0	0	0	0	0	0	142	142	539	1124	0	1663	0	667	14	681
17:00	0	0	0	0	0	0	204	204	774	1613	0	2387	0	958	20	978
18:00	0	0	0	0	0	0	169	169	640	1334	0	1974	0	792	17	809
19:00	0	0	0	0	0	0	113	113	429	893	0	1322	0	531	11	542

Avery Road / Muirfield Drive
Warrant 1
Ohio Manual of Uniform Traffic Control Devices

2024 Background

CONDITION	# OF LANES	MUIRFIELD RD			AVERY RD			Condition A				Condition B			
		EB	WB	2-WAY	SBLT	SBRT	1-WAY	MAJ	MIN	MAJ	MIN	MAJ	MIN	MAJ	MIN
										80%	80%			80%	80%
Standard	1						X	500	**150**	400	**120**	750	**75**	600	**60**
Standard	2+			X				**600**	200	**480**	160	**900**	100	**720**	80
High Speed	1							350	105	280	84	525	53	420	42
High Speed	2+							420	140	336	112	630	70	504	56
7-8 AM		**940**	**1368**	**2308**	**0**	**331**	**331**	YES	YES	YES	YES	YES	YES	YES	YES
8-9 AM		767	1116	**1883**	0	270	**270**	YES	YES	YES	YES	YES	YES	YES	YES
9-10 AM		887	1290	**2177**	0	312	**312**	YES	YES	YES	YES	YES	YES	YES	YES
10-11 AM		651	947	**1598**	0	229	**229**	YES	YES	YES	YES	YES	YES	YES	YES
11-12 NOON		756	1101	**1857**	0	266	**266**	YES	YES	YES	YES	YES	YES	YES	YES
12-1 PM		1094	448	**1542**	0	93	**93**	YES	NO	YES	NO	YES	YES	YES	YES
1-2 PM		1107	454	**1561**	0	95	**95**	YES	NO	YES	NO	YES	YES	YES	YES
2-3 PM		1239	507	**1746**	0	106	**106**	YES	NO	YES	NO	YES	YES	YES	YES
3-4 PM		1365	559	**1924**	0	117	**117**	YES	NO	YES	NO	YES	YES	YES	YES
4-5 PM		1663	681	**2344**	0	142	**142**	YES	NO	YES	YES	YES	YES	YES	YES
5-6 PM		**2387**	**978**	**3365**	**0**	**204**	**204**	YES	YES	YES	YES	YES	YES	YES	YES
6-7 PM		1974	809	**2783**	0	169	**169**	YES	YES	YES	YES	YES	YES	YES	YES
7-8 PM		1322	542	**1863**	0	113	**113**	YES	NO	YES	NO	YES	YES	YES	YES
Hours Met								**13**	**7**	**13**	**8**	**13**	**13**	**13**	**13**
Hours Warrant Met								**7**		**8**		**13**		**13**	
Warrant Satisfied ?								**NO**		**YES**		**YES**		**YES**	

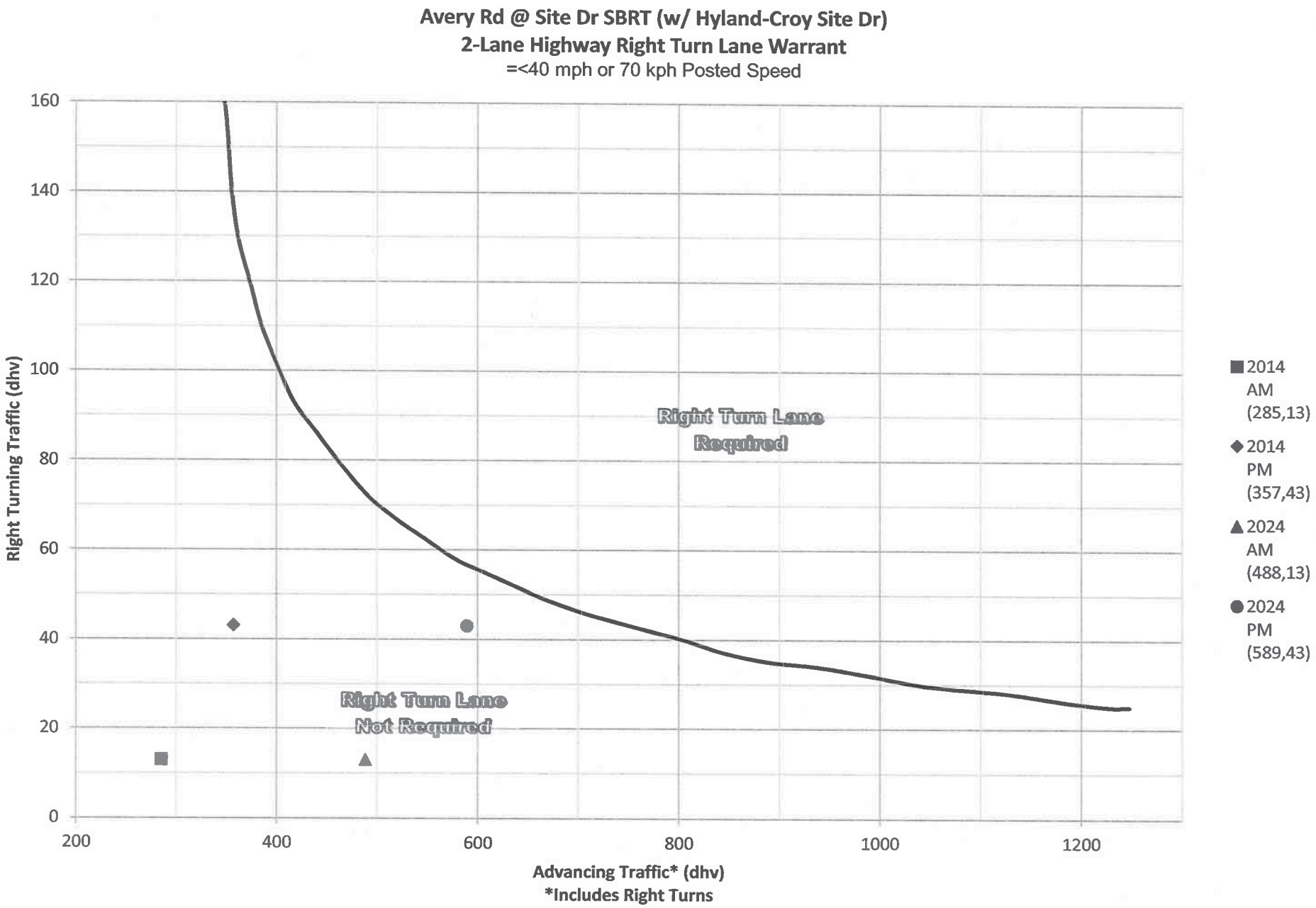
Condition A : NOT MET
Condition B : MET
80% of Condition A and B : NOT APPLICABLE

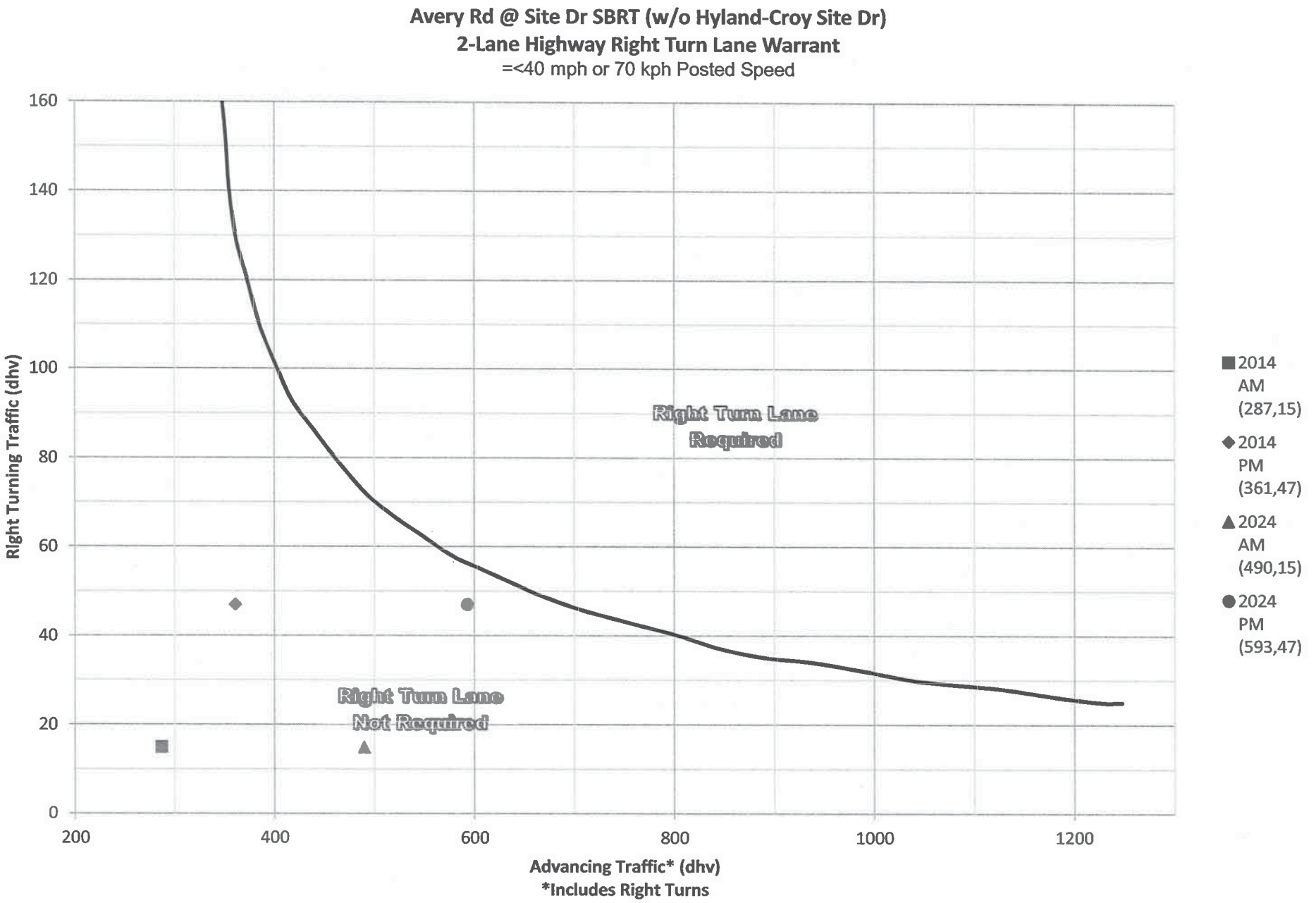
Avery Road / Muirfield Drive
Warrant 1
Ohio Manual of Uniform Traffic Control Devices

2024 Background

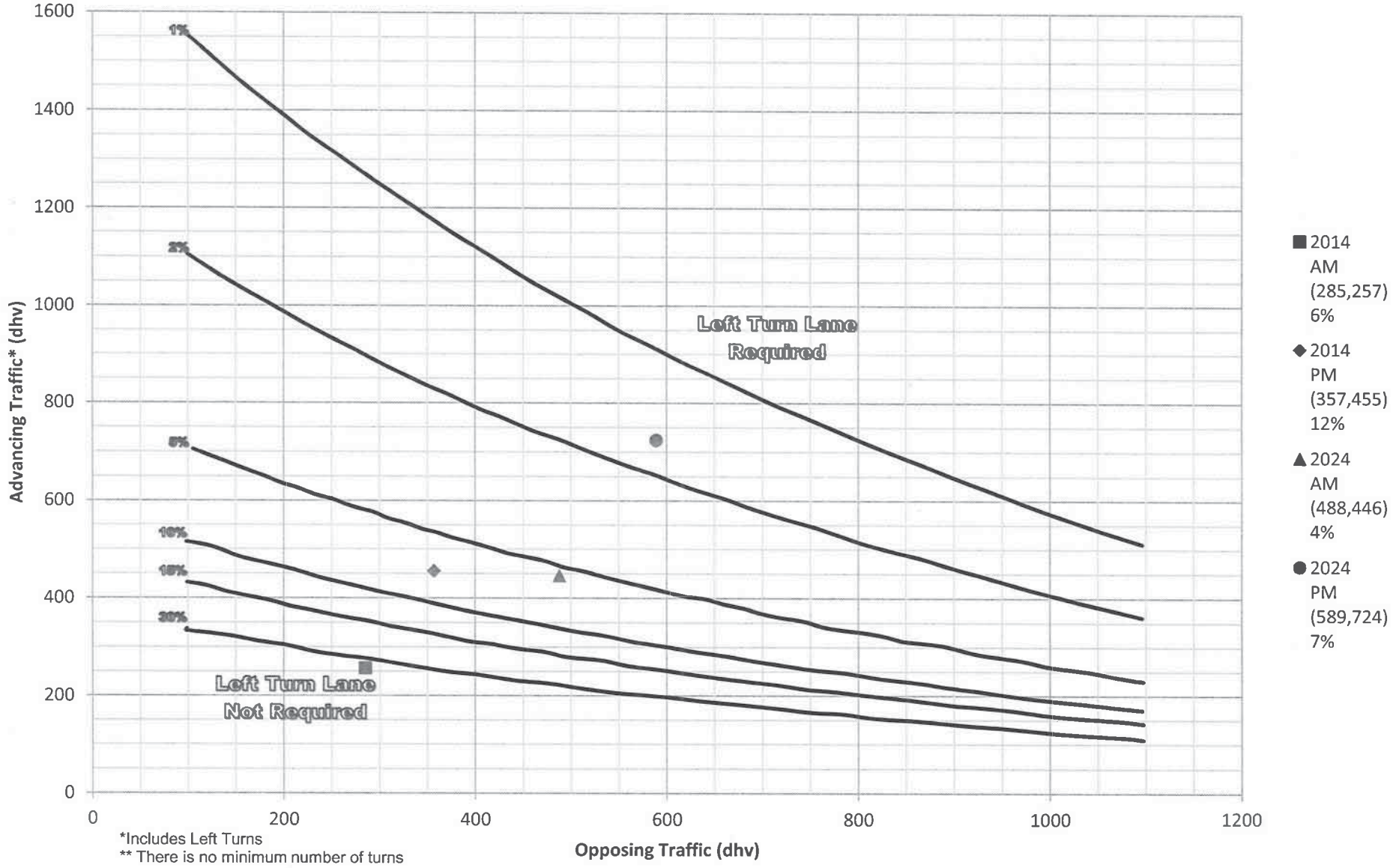
CONDITION	# OF LANES	MUIRFIELD RD			AVERY RD			Condition A				Condition B			
		EB	WB	2-WAY	SBLT	SBRT	1-WAY	MAJ	MIN	MAJ	MIN	MAJ	MIN	MAJ	MIN
										80%	80%			80%	80%
Standard	1							500	150	400	120	750	75	600	60
Standard	2+			X			X	**600**	**200**	**480**	**160**	**900**	**100**	**720**	**80**
High Speed	1							350	105	280	84	525	53	420	42
High Speed	2+							420	140	336	112	630	70	504	56
7-8 AM		**940**	**1368**	**2308**	**0**	**331**	**331**	YES	YES	YES	YES	YES	YES	YES	YES
8-9 AM		767	1116	**1883**	0	270	**270**	YES	YES	YES	YES	YES	YES	YES	YES
9-10 AM		887	1290	**2177**	0	312	**312**	YES	YES	YES	YES	YES	YES	YES	YES
10-11 AM		651	947	**1598**	0	229	**229**	YES	YES	YES	YES	YES	YES	YES	YES
11-12 NOON		756	1101	**1857**	0	266	**266**	YES	YES	YES	YES	YES	YES	YES	YES
12-1 PM		1094	448	**1542**	0	93	**93**	YES	NO	YES	NO	YES	NO	YES	YES
1-2 PM		1107	454	**1561**	0	95	**95**	YES	NO	YES	NO	YES	NO	YES	YES
2-3 PM		1239	507	**1746**	0	106	**106**	YES	NO	YES	NO	YES	YES	YES	YES
3-4 PM		1365	559	**1924**	0	117	**117**	YES	NO	YES	NO	YES	YES	YES	YES
4-5 PM		1663	681	**2344**	0	142	**142**	YES	NO	YES	NO	YES	YES	YES	YES
5-6 PM		**2387**	**978**	**3365**	**0**	**204**	**204**	YES	YES	YES	YES	YES	YES	YES	YES
6-7 PM		1974	809	**2783**	0	169	**169**	YES	NO	YES	YES	YES	YES	YES	YES
7-8 PM		1322	542	**1863**	0	113	**113**	YES	NO	YES	NO	YES	YES	YES	YES
					Hours Met			**13**	**6**	**13**	**7**	**13**	**11**	**13**	**13**
					Hours Warrant Met			**6**		**7**		**11**		**13**	
					Warrant Satisfied ?			**NO**		**NO**		**YES**		**YES**	

Condition A : NOT MET
Condition B : MET
80% of Condition A and B : NOT APPLICABLE


Avery Rd @ Site Dr SBRT (w/ Hyland-Croy Site Dr)
2-Lane Highway Right Turn Lane Warrant
=<40 mph or 70 kph Posted Speed
Right Turning Traffic (dhv)
160
140
120
100
80
60
40
20
0
200
400
600
800
1000
1200
Advancing Traffic* (dhv)
*Includes Right Turns
Right Turn Lane Required
Right Turn Lane Not Required
2014 AM (285,13)
2014 PM (357,43)
2024 AM (488,13)
2024 PM (589,43)

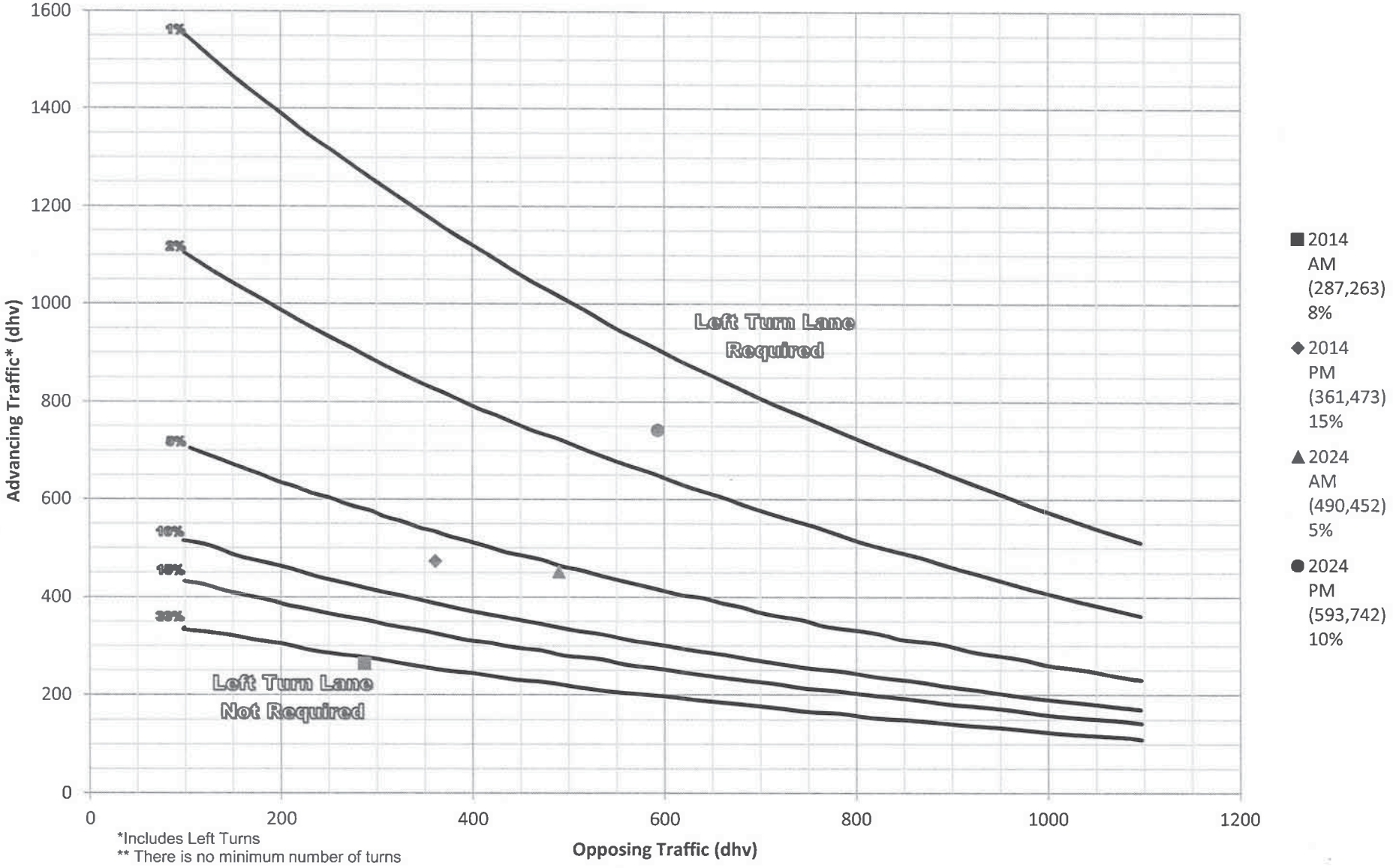

Avery Rd @ Site Dr SBRT (w/o Hyland-Croy Site Dr)
2-Lane Highway Right Turn Lane Warrant
=<40 mph or 70 kph Posted Speed
Right Turning Traffic (dhv)
160
140
120
100
80
60
40
20
0
200
400
600
800
1000
1200
Advancing Traffic* (dhv)
*Includes Right Turns
Right Turn Lane Required
Right Turn Lane Not Required
2014 AM (287,15)
2014 PM (361,47)
2024 AM (490,15)
2024 PM (593,47)

Avery Rd @ Site Dr NBLT (w/ Hyland-Croy Site Dr)
2-Lane Highway Left Turn Lane Warrant
=<40 mph or 70 kph Posted Speed

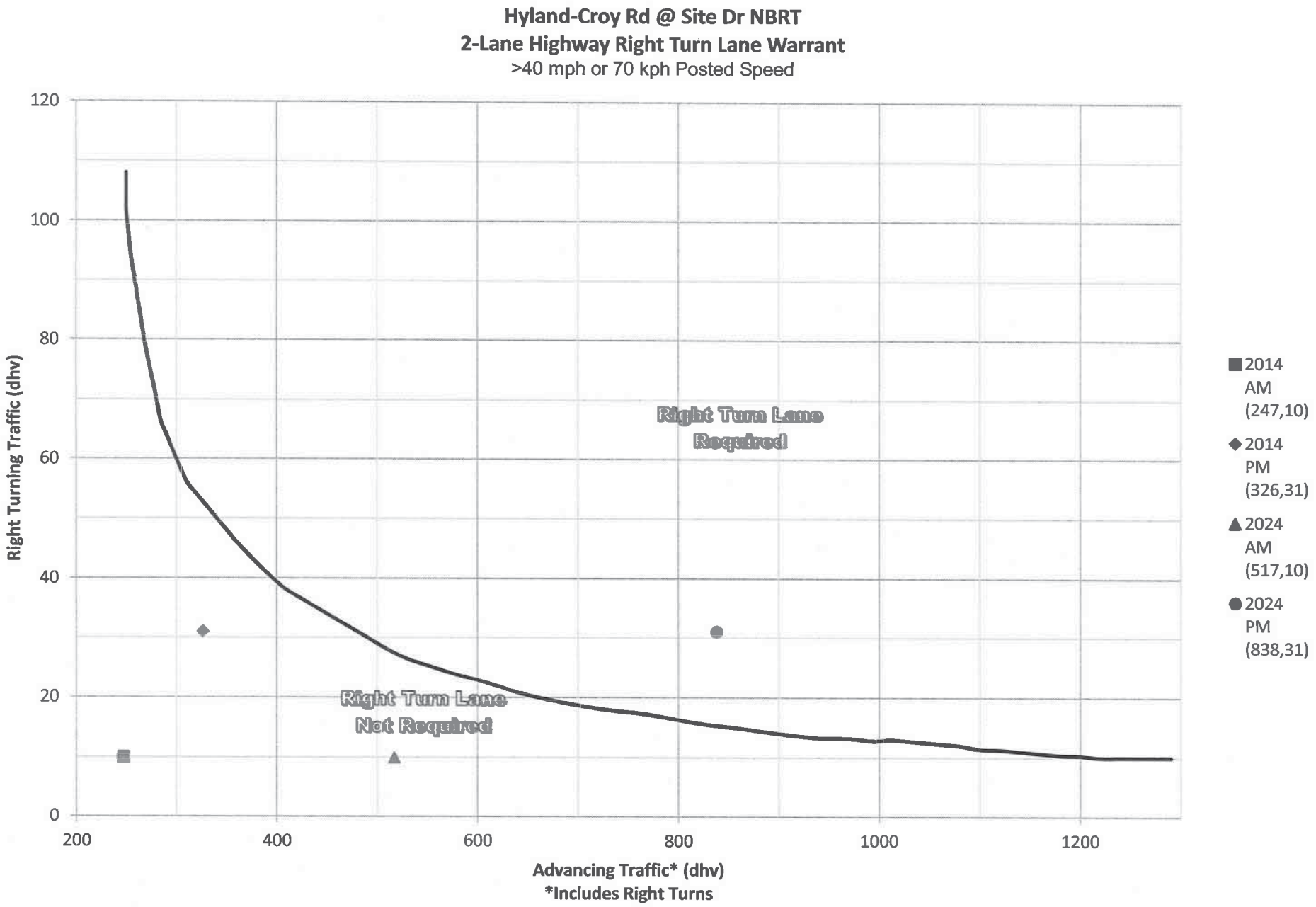


*Includes Left Turns
** There is no minimum number of turns

Avery Rd @ Site Dr NBLT (w/o Hyland-Croy Site Dr)
2-Lane Highway Left Turn Lane Warrant
=<40 mph or 70 kph Posted Speed



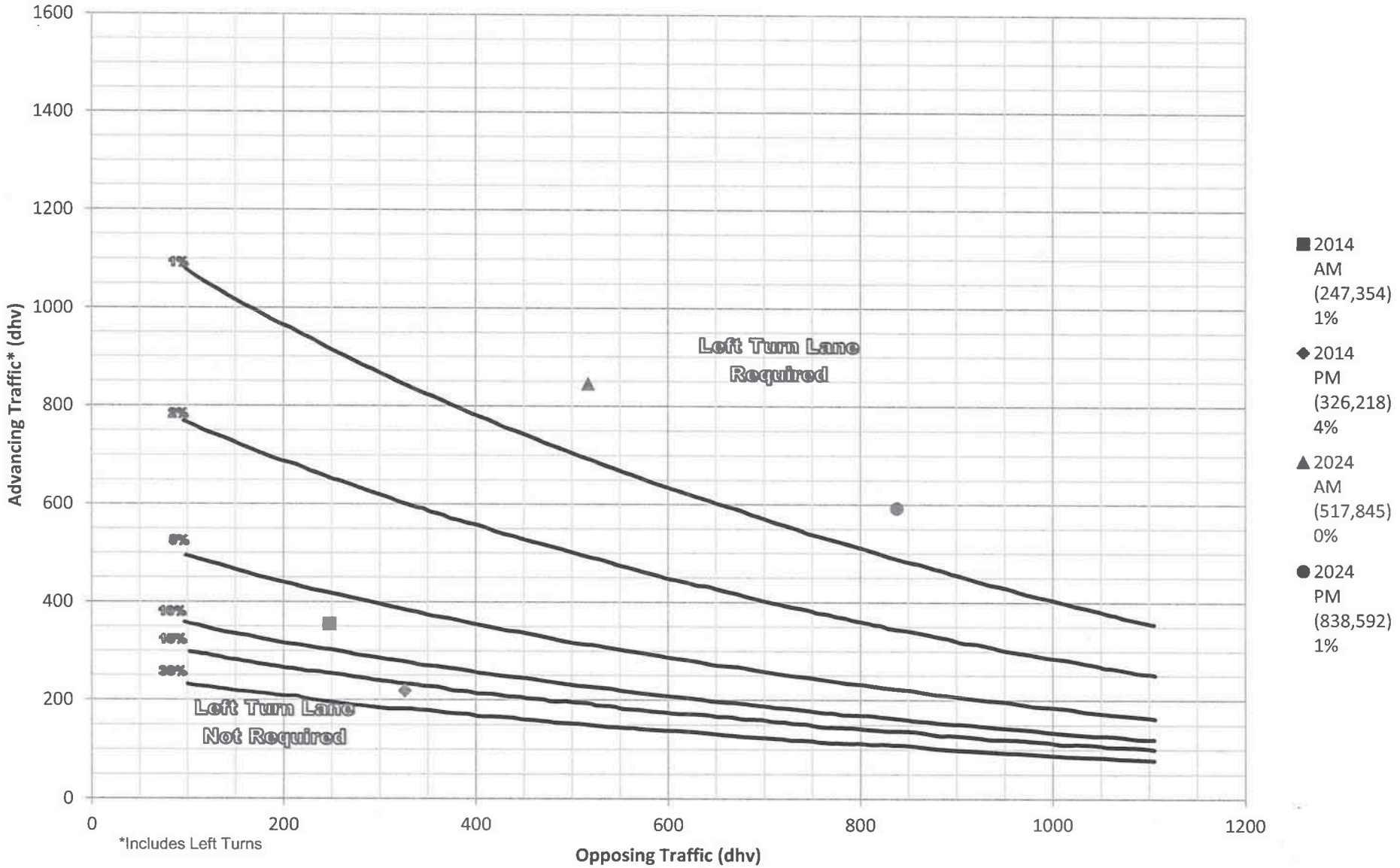
*Includes Left Turns
** There is no minimum number of turns



TurnLaneWarrants_Excel 2007 Version.xls

Fig. 401-6bE
ODOT Location and Design Manual, Volume One October 2004

Hyland-Croy Rd @ Site Dr SBLT
2-Lane Highway Left Turn Lane Warrant
>40 mph or 70 kph Posted Speed



APPENDIX E
CAPACITY ANALYSIS REPORTS

Time Period	Year	Scenario	Conditions	EBLT	EBTH	EBRT	APPROACH	WBLT	WBTH	WBRT	APPROACH	NBLT	NBTH	NBRT	APPROACH	SBLT	SBTH	SBRT	APPROACH	TOTAL
Hyland-Croy Rd / McKitrick Rd																				
AM	2014	Background	Four-way Stop		A/8.16		A/8.16		A/9.00		A/9.00		A/8.73		A/8.73		A/8.68		A/8.68	A/8.72
		Full Build	Four-way Stop		A/8.22		A/8.22		A/9.08		A/9.08		A/8.93		A/8.93		A/8.75		A/8.75	A/8.83
		Full Build w/o HCSD	Four-way Stop		A/8.22		A/8.22		A/9.09		A/9.09		A/8.86		A/8.86		A/8.76		A/8.76	A/8.82
	2024	Background	Four-way Stop		B/14.40		B/14.40		C/17.55		C/17.55		D/30.47		D/30.47		F/79.64		F/79.64	E/47.98
		Full Build	Four-way Stop		B/14.57		B/14.57		C/17.81		C/17.81		D/33.55		D/33.55		F/84.95		F/84.95	F/51.14
		Full Build w/o HCSD	Four-way Stop		B/14.62		B/14.62		C/18.14		C/18.14		D/32.94		D/32.94		F/86.42		F/86.42	F/51.54
		Background	Roundabout	B/18.2	B/11.7	B/12.8	B/14.2	B/12.8	A/7.2	A/7.8	B/10.9	B/14.3	A/7.9	A/9.0	A/8.3	B/14.6	A/9.0	B/10.1	A/9.2	A/9.7
		Full Build	Roundabout	B/18.2	B/11.7	B/12.8	B/14.2	B/12.9	A/7.3	A/7.9	B/11.0	B/14.3	A/8.0	A/9.0	A/8.3	B/14.8	A/9.2	B/10.2	A/9.3	A/9.7
		Full Build w/o HCSD	Roundabout	B/18.2	B/11.7	B/12.8	B/14.2	B/12.8	A/7.3	A/7.9	B/10.8	B/14.3	A/8.0	A/9.0	A/8.3	B/14.7	A/9.2	B/10.2	A/9.3	A/9.7
PM	2014	Background	Four-way Stop		A/8.20		A/8.20		A/8.40		A/8.40		A/8.51		A/8.51		A/8.35		A/8.35	A/8.40
		Full Build	Four-way Stop		A/8.26		A/8.26		A/8.47		A/8.47		A/8.64		A/8.64		A/8.49		A/8.49	A/8.51
		Full Build w/o HCSD	Four-way Stop		A/8.28		A/8.28		A/8.48		A/8.48		A/8.65		A/8.65		A/8.48		A/8.48	A/8.52
	2024	Background	Four-way Stop		B/13.84		B/13.84		B/14.62		B/14.62		F/112.87		F/112.87		E/37.65		E/37.65	F/68.43
		Full Build	Four-way Stop		B/14.00		B/14.00		B/14.79		B/14.79		F/121.80		F/121.80		E/41.43		E/41.43	F/73.77
		Full Build w/o HCSD	Four-way Stop		B/14.10		B/14.10		B/14.86		B/14.86		F/123.43		F/123.43		E/41.26		E/41.26	F/74.40
		Background	Roundabout	B/16.7	B/10.2	B/11.3	B/12.2	B/14.3	A/8.8	A/9.3	B/11.5	B/14.6	A/8.1	A/9.3	A/8.4	B/13.8	A/8.3	A/9.3	A/8.4	A/9.1
		Full Build	Roundabout	B/16.8	B/10.3	B/11.4	B/12.3	B/14.4	A/8.9	A/9.4	B/11.6	B/14.6	A/8.2	A/9.3	A/8.4	B/13.8	A/8.3	A/9.3	A/8.5	A/9.1
		Full Build w/o HCSD	Roundabout	B/16.8	B/10.3	B/11.4	B/12.3	B/14.4	A/8.9	A/9.4	B/11.6	B/14.6	A/8.2	A/9.3	A/8.5	B/13.8	A/8.3	A/9.3	A/8.5	A/9.1
Hyland-Croy Rd / Tuscany Dr																				
AM	2014	Background	Two-way Stop						B/13.5		B/13.5					A/7.9				
		Full Build	Two-way Stop						B/13.7		B/13.7					A/7.9				
		Full Build w/o HCSD	Two-way Stop						B/13.8		B/13.8					A/7.9				
	2024	Background	Two-way Stop						F/73.5		F/73.5					A/8.8				
		Full Build	Two-way Stop						F/79.3		F/79.3					A/8.8				
		Full Build w/o HCSD	Two-way Stop						F/92.0		F/92.0					A/8.8				
PM	2014	Background	Two-way Stop						B/12.1		B/12.1					A/8.1				
		Full Build	Two-way Stop						B/12.3		B/12.3					A/8.1				
		Full Build w/o HCSD	Two-way Stop						B/12.4		B/12.4					A/8.1				
	2024	Background	Two-way Stop						E/43.7		E/43.7					B/10.0				
		Full Build	Two-way Stop						E/46.2		E/46.2					B/10.1				
		Full Build w/o HCSD	Two-way Stop						F/53.3		F/53.3					B/10.2				

X/X = Overall LOS / Average Delay Per Vehicle

Time Period	Year	Scenario	Conditions	EBLT	EBTH	EBRT	APPROACH	WBLT	WBTH	WBRT	APPROACH	NBLT	NBTH	NBRT	APPROACH	SBLT	SBTH	SBRT	APPROACH	TOTAL
Hyland-Croy Rd / Site Dr																				
AM	2014	Full Build	Two-way Stop						B/13.2		B/13.2					A/7.8				
	2024	Full Build	Two-way Stop						E/34.1		E/34.1					A/8.6				
PM	2014	Full Build	Two-way Stop						B/12.6		B/12.6					A/8.0				
	2024	Full Build	Two-way Stop						E/36.0		E/36.0					A/9.9				
Hyland-Croy Rd / Brand Rd																				
AM	2014	Background	Roundabout - Single Lane	B/16.7	A/8.3	A/9.6	A/9.2	B/11.7	A/4.7	A/5.9	A/8.4	B/15.0	A/7.0	A/8.9	A/8.2	B/13.9	A/6.8	A/8.7	A/9.5	A/8.7
		Full Build	Roundabout - Single Lane	B/17.0	A/8.6	A/9.9	A/9.5	B/11.8	A/4.8	A/6.0	A/8.6	B/15.0	A/7.0	A/8.9	A/8.2	B/14.0	A/6.9	A/8.8	A/9.3	A/8.8
		Full Build w/o HCSD	Roundabout - Single Lane	B/17.0	A/8.6	A/9.9	A/9.5	B/11.8	A/4.7	A/6.0	A/8.7	B/15.0	A/7.0	A/8.9	A/8.2	B/14.1	A/7.0	A/8.9	A/9.5	A/8.8
	2024	Background	Roundabout - Single Lane	C/27.6	B/19.2	C/20.5	C/20.2	B/15.2	A/8.2	A/9.4	B/11.7	B/16.5	A/8.5	B/10.5	A/9.5	B/16.5	A/9.4	A/9.4	B/11.6	B/11.8
		Full Build	Roundabout - Single Lane	C/30.1	C/21.7	C/23.0	C/22.8	B/15.6	A/8.6	A/9.8	B/12.1	B/16.5	A/8.6	B/10.5	A/9.6	B/17.0	A/9.9	A/9.4	B/12.1	B/12.3
		Full Build w/o HCSD	Roundabout - Single Lane	C/30.0	C/21.6	C/23.0	C/22.7	B/15.8	A/8.8	B/10.0	B/12.4	B/16.5	A/8.5	B/10.5	A/9.6	B/17.3	B/10.2	A/9.5	B/12.4	B/12.5
		Background	Roundabout - 2 NB/SB Lanes	B/18.5	B/10.3	B/11.2	B/11.2	B/13.5	A/6.7	A/7.5	A/10.0	B/16.6	A/8.7	B/10.0	A/9.5	B/14.8	A/7.8	A/9.2	B/10.0	A/10.0
		Full Build	Roundabout - 2 NB/SB Lanes	B/18.8	B/10.6	B/11.5	B/11.6	B/13.7	A/6.9	A/7.7	B/10.2	B/16.7	A/8.8	B/10.1	A/9.5	B/14.9	A/7.9	A/9.2	B/10.0	B/10.1
		Full Build w/o HCSD	Roundabout - 2 NB/SB Lanes	C/26.8	B/18.6	B/19.5	B/19.6	B/13.8	A/7.0	A/7.9	B/10.4	B/16.7	A/8.8	B/10.1	A/9.5	B/15.0	A/8.0	A/9.3	B/10.2	B/10.9
		Background	Roundabout - 2 NB/SB Lanes w/ WBRT	B/18.5	B/10.3	B/11.2	B/11.2	B/11.7	A/4.9	A/6.8	A/8.5	B/16.6	A/8.7	B/10.0	A/9.5	B/14.8	A/7.8	A/9.2	B/10.0	A/9.7
		Full Build	Roundabout - 2 NB/SB Lanes w/ WBRT	B/18.8	B/10.6	B/11.5	B/11.6	B/11.8	A/5.0	A/6.9	A/8.6	B/16.7	A/8.8	B/10.1	A/9.5	B/14.9	A/7.9	A/9.2	B/10.0	A/9.7
		Full Build w/o HCSD	Roundabout - 2 NB/SB Lanes w/ WBRT	C/26.8	B/18.5	B/19.5	B/19.5	B/11.8	A/5.0	A/7.0	A/8.7	B/16.7	A/8.8	B/10.1	A/9.5	B/15.0	A/8.0	A/9.3	B/10.2	B/10.5
PM	2014	Background	Roundabout - Single Lane	B/16.1	A/7.7	A/9.4	A/8.8	B/13.1	A/6.1	A/7.0	A/9.0	B/14.9	A/6.8	A/9.2	A/7.6	B/13.7	A/6.7	A/8.7	A/8.8	A/8.4
		Full Build	Roundabout - Single Lane	B/16.3	A/7.9	A/9.6	A/9.2	B/13.4	A/6.4	A/7.3	A/9.4	B/15.0	A/6.8	A/9.3	A/7.7	B/13.8	A/6.7	A/8.7	A/8.7	A/8.5
		Full Build w/o HCSD	Roundabout - Single Lane	B/16.2	A/7.9	A/9.6	A/9.1	B/13.2	A/6.2	A/7.2	A/9.3	B/15.0	A/6.8	A/9.2	A/7.7	B/13.8	A/6.7	A/8.7	A/8.7	A/8.5
	2024	Background	Roundabout - Single Lane	C/22.7	B/14.3	B/16.0	B/15.6	F/275.5	F/268.5	F/269.4	F/271.1	C/22.4	B/14.3	B/10.8	B/14.1	B/14.2	A/7.2	A/8.8	A/9.2	E/71.4
		Full Build	Roundabout - Single Lane	C/23.3	B/14.9	B/16.6	B/16.3	F/344.5	F/337.5	F/338.5	F/340.2	C/24.3	B/16.2	B/10.9	B/15.7	B/14.1	A/7.1	A/8.8	A/9.1	F/86.5
		Full Build w/o HCSD	Roundabout - Single Lane	C/23.3	B/14.9	B/16.7	B/16.3	F/320.0	F/313.0	F/314.0	F/315.7	C/23.5	B/15.4	B/11.0	B/15.0	B/14.2	A/7.1	A/8.8	A/9.2	F/81.4
		Background	Roundabout - 2 NB/SB Lanes	C/23.1	B/14.9	B/16.3	B/16.1	F/47.8	F/40.8	F/41.7	D/43.4	B/17.3	A/8.9	B/10.5	A/9.4	B/14.5	A/7.5	A/9.0	A/9.6	B/18.0
		Full Build	Roundabout - 2 NB/SB Lanes	B/18.3	B/10.0	B/11.4	B/11.4	F/39.6	F/32.9	F/33.4	D/35.3	B/17.6	A/9.3	B/10.7	A/9.8	B/14.6	A/7.6	A/9.1	A/9.6	B/15.6
		Full Build w/o HCSD	Roundabout - 2 NB/SB Lanes	B/18.3	B/10.1	B/11.4	B/11.3	F/38.9	F/32.2	F/32.7	C/34.6	B/17.6	A/9.3	B/10.7	A/9.9	B/14.6	A/7.7	A/9.1	A/9.7	B/15.6
		Background	Roundabout - 2 NB/SB Lanes w/ WBRT	C/25.3	B/17.0	B/18.7	B/18.2	C/27.1	C/20.1	B/17.2	C/20.7	C/22.6	B/14.4	B/10.8	B/14.2	B/15.3	A/8.2	A/9.4	B/10.3	B/15.1
		Full Build	Roundabout - 2 NB/SB Lanes w/ WBRT	C/27.0	B/18.6	C/20.3	C/20.0	C/33.4	C/26.4	C/20.8	C/25.7	C/24.6	B/16.4	B/10.9	B/15.9	B/15.5	A/8.5	A/9.4	B/10.5	B/17.2
		Full Build w/o HCSD	Roundabout - 2 NB/SB Lanes w/ WBRT	C/27.0	B/18.6	C/20.3	B/19.9	C/31.2	C/24.2	B/19.0	C/23.7	C/23.7	B/15.6	B/11.0	B/15.1	B/15.6	A/8.5	A/9.5	B/10.5	B/16.5

X/X = Overall LOS / Average Delay Per Vehicle

Time Period	Year	Scenario	Conditions	EBLT	EBTH	EBRT	APPROACH	WBLT	WBTH	WBRT	APPROACH	NBLT	NBTH	NBRT	APPROACH	SBLT	SBTH	SBRT	APPROACH	TOTAL
Hyland-Croy Rd / Post Rd																				
AM	2014	Background	Two-way Stop	A/8.9													F/231.4		F/231.4	
		Full Build	Two-way Stop	A/8.9													F/292.2		F/292.2	
		Background	Signalized	B/12.1	B/10.8		B/11.2		B/17.3	B/17.5	B/17.4						D/51.1		D/51.1	C/23.5
		Full Build	Signalized	B/13.5	B/12.1		B/12.4		B/19.3	B/19.5	B/19.4						D/52.3		D/52.3	C/25.4
	2024	Background	Two-way Stop	B/11.6													F/3593		F/3593	
		Full Build	Two-way Stop	B/11.8													F/3932		F/3932	
		Background	Signalized	F/290.6	D/35.5		F/117.1		E/55.5	E/57.3	E/56.4						F/80.4		F/80.4	F/91.6
		Full Build	Signalized	F/306.7	D/35.5		F/123.4		E/55.9	E/57.8	E/56.8						F/94.7		F/94.7	F/99.3
		Background	Signalized (w/ SBRT)	C/23.6	B/16.4		B/18.7		C/33.6	C/34.1	C/33.8					C/30.2		C/23.0	C/25.4	C/24.2
		Full Build	Signalized (w/ SBRT)	C/25.5	B/17.1		B/19.8		D/35.6	D/36.1	D/35.9					C/29.6		C/23.3	C/25.4	C/25.2
		Background	Signalized (w/ SBRT, WBRT)	B/19.2	B/16.4		B/17.3		C/30.1	A/6.0	C/23.4					C/30.2		C/23.0	C/25.4	C/21.4
		Full Build	Signalized (w/ SBRT, WBRT)	C/20.1	B/17.1		B/18.1		C/31.7	A/6.3	C/24.5					C/29.6		C/22.0	C/24.6	C/21.7
		Background	Roundabout	B/16.3	A/7.6		B/10.3		A/5.4	A/6.4	A/5.7					F/67.0		F/61.2	E/63.2	C/27.5
		Full Build	Roundabout	B/16.3	A/7.6		B/10.4		A/5.5	A/6.4	A/5.7					F/82.5		F/76.7	F/78.7	C/33.3
		Background	Roundabout w/ SBRT	B/16.6	A/7.8		B/10.6		A/5.4	A/6.4	A/5.7					B/14.7		A/9.9	B/11.5	A/9.9
		Full Build	Roundabout w/ SBRT	B/16.8	A/8.0		B/10.9		A/5.5	A/6.4	A/5.7					B/14.8		B/10.0	B/11.6	B/10.1
AM	2014	Background	Two-way Stop	B/13.1													F/530.1		F/530.1	
		Full Build	Two-way Stop	B/13.8													F/731.7		F/731.7	
		Background	Signalized	B/15.7	A/7.3		B/11.0		B/18.8	B/18.9	B/18.8						D/48.5		D/48.5	C/21.3
		Full Build	Signalized	B/17.8	A/7.9		B/12.4		C/21.1	C/21.3	C/21.2						D/47.7		D/47.7	C/22.8
	2024	Background	Two-way Stop	F/225.7													F			
		Full Build	Two-way Stop	F/253.9													F			
		Background	Signalized	F/596.9	C/24.7		F/340.9		F/336.1	F/346.8	F/341.2						D/50.0		D/50.0	F/274.9
		Full Build	Signalized	F/705.1	C/25.9		F/407.0		F/343.8	F/355.6	F/349.4						D/50.1		D/50.1	F/303.2
		Background	Signalized (w/ SBRT)	F/70.7	A/3.3		D/40.6		E/70.7	F/76.2	E/73.3					F/90.7		C/24.5	D/42.3	D/53.4
		Full Build	Signalized (w/ SBRT)	F/88.7	A/3.6		D/51.3		F/73.4	F/79.4	E/76.3					F/82.8		C/25.2	D/40.8	E/58.3
		Background	Signalized (w/ SBRT, WBRT)	D/50.4	A/4.7		C/30.0		C/34.4	C/20.3	C/29.6					D/52.7		C/24.4	C/32.0	C/30.3
		Full Build	Signalized (w/ SBRT, WBRT)	D/53.2	A/4.7		C/31.9		D/37.4	C/22.8	C/32.4					D/54.3		C/22.4	C/31.0	C/31.9
		Background	Roundabout	B/15.0	A/6.7		B/11.3		C/20.9	C/20.9	C/20.9					F/141.2		F/135.4	F/137.0	D/43.5
		Full Build	Roundabout	B/15.0	A/6.8		B/11.4		C/25.2	C/25.1	C/25.2					F/157.7		F/151.9	F/153.4	D/49.2
		Background	Roundabout w/ SBRT	B/15.3	A/7.0		B/11.6		C/21.5	C/21.5	C/21.5					B/16.7		B/13.0	B/14.0	B/15.9
		Full Build	Roundabout w/ SBRT	B/15.4	A/7.1		B/11.7		C/26.6	C/26.4	C/26.5					B/16.8		B/13.4	B/14.3	B/17.9
Brand Rd / Abbie Glen Blvd																				
AM	2014	Background	Two-way Stop	A/8.3													B/13.8		B/13.8	
		Full Build	Two-way Stop	A/8.4													B/14.3		B/14.3	
		Full Build w/o HCSD	Two-way Stop	A/8.4													B/14.6		B/14.6	
	2024	Background	Two-way Stop	A/9.0													C/18.8		C/18.8	
		Full Build	Two-way Stop	A/9.0													C/19.9		C/19.9	
		Full Build w/o HCSD	Two-way Stop	A/9.1													C/20.6		C/20.6	
PM	2014	Background	Two-way Stop	A/7.9													B/12.6		B/12.6	
		Full Build	Two-way Stop	A/8.0													B/12.9		B/12.9	
		Full Build w/o HCSD	Two-way Stop	A/8.0													B/12.9		B/12.9	
	2024	Background	Two-way Stop	A/8.4													C/16.2		C/16.2	
		Full Build	Two-way Stop	A/8.4													C/16.8		C/16.8	
		Full Build w/o HCSD	Two-way Stop	A/8.4													C/16.9		C/16.9	

X/X = Overall LOS / Average Delay Per Vehicle

Time Period	Year	Scenario	Conditions	EBLT	EBTH	EBRT	APPROACH	WBLT	WBTH	WBRT	APPROACH	NBLT	NBTH	NBRT	APPROACH	SBLT	SBTH	SBRT	APPROACH	TOTAL
Avery Rd / Muirfield Dr																				
AM	2014	Background	Two-way Stop	B/13.7														D/31.0	D/31.0	
		Full Build	Two-way Stop	B/13.9														E/36.4	E/36.4	
	2024	Background	Two-way Stop	F/53.1														F/327.9	F/327.9	
		Full Build	Two-way Stop	F/57.3														F/360.2	F/360.2	
		Background	Signalized - Single SBRT	F/117.2	B/14.8		D/53.2		F/122.8	F/123.1	F/122.9						F/127.6		F/127.6	F/101.4
		Full Build	Signalized - Single SBRT	F/127.0	B/14.8		E/57.6		F/122.8	F/123.1	F/122.9						F/148.2		F/148.2	F/107.3
		Background	Signalized - Dual SBRT	D/53.9	A/8.0		C/25.3		D/46.5	D/46.6	D/46.6							D/53.8	D/53.8	D/41.2
		Full Build	Signalized - Dual SBRT	D/54.0	A/8.4		C/25.8		D/54.4	D/54.6	D/54.5							E/55.8	E/55.8	D/45.5
PM	2014	Background	Two-way Stop	C/18.7														B/14.8	B/14.8	
		Full Build	Two-way Stop	C/20.4														C/15.4	C/15.4	
	2024	Background	Two-way Stop	F/186.7														F/52.1	F/52.1	
		Full Build	Two-way Stop	F/208.5														F/59.9	F/59.9	
		Background	Signalized - Single SBRT	F/151.2	B/17.5		E/60.9		F/137.8	F/137.9	F/137.9						F/143.7		F/143.7	F/90.4
		Full Build	Signalized - Single SBRT	F/171.4	B/17.5		E/68.7		F/137.8	F/137.9	F/137.9						F/161.9		F/161.9	F/97.6
		Background	Signalized - Dual SBRT	D/41.6	A/2.7		B/15.3		C/32.9	C/33.0	C/32.9							C/24.1	C/24.1	C/20.9
		Full Build	Signalized - Dual SBRT	D/42.1	A/2.7		B/15.8		D/39.4	D/39.5	D/39.4							C/22.0	C/22.0	C/22.5
Avery Rd / Brand Rd																				
AM	2014	Background	Four-way Stop	B/12.37	C/20.32		C/18.79	B/12.04	C/19.12		C/17.84	B/13.71	B/14.40		B/14.13	B/12.60	C/22.42		C/20.23	C/18.07
		Full Build	Four-way Stop	B/12.75	C/22.27		C/20.44	B/12.37	C/20.94		C/19.43	B/14.13	C/15.40		B/14.90	B/13.42	D/27.92		C/24.4	C/20.41
		Full Build w/o HCSD	Four-way Stop	B/13.02	C/22.70		C/20.72	B/12.48	C/21.36		C/19.79	B/14.26	C/15.58		C/15.07	B/13.46	D/31.05		D/27.00	C/21.49
	2024	Background	Four-way Stop	C/16.64	F/102.02		F/85.26	C/15.35	F/97.13		F/83.90	C/20.78	E/35.58		D/30.19	C/20.74	F/172.39		F/133.76	F/88.91
		Full Build	Four-way Stop	C/16.78	F/108.12		F/90.22	C/15.44	F/104.55		F/90.33	C/20.82	E/38.37		D/32.13	C/22.74	F/209.02		F/160.01	F/101.37
		Full Build w/o HCSD	Four-way Stop	C/17.17	F/108.12		F/89.37	C/15.45	F/104.97		F/90.68	C/20.84	E/38.44		D/32.12	C/22.67	F/228.02		F/175.54	F/106.86
		Background	Roundabout - Single Lane	D/38.8	C/32.0	C/32.9	C/33.5	C/21.0	B/15.5	B/16.0	B/16.5	C/25.4	B/19.0	C/20.5	C/21.5	F/55.3	F/49.7	F/50.9	D/51.4	C/32.7
		Full Build	Roundabout - Single Lane	D/42.3	D/35.5	D/36.5	D/37.1	C/22.2	B/16.6	B/17.1	B/17.6	C/26.6	C/20.2	C/21.7	C/22.6	F/81.7	F/76.1	F/77.3	E/77.8	D/42.9
		Full Build w/o HCSD	Roundabout - Single Lane	D/40.4	C/33.6	D/34.6	D/35.2	C/22.6	B/17.0	B/17.5	B/18.0	C/26.8	C/20.4	C/21.9	C/22.9	F/91.6	F/86.0	F/87.2	F/87.7	D/46.9
		Background	Roundabout - 2 NB/SB Lanes	C/20.6	B/12.3	B/13.3	B/14.2	B/14.8	A/7.9	A/8.5	A/9.2	B/17.6	A/9.3	B/11.3	B/12.6	B/16.3	A/9.1	B/10.6	B/11.3	B/11.8
		Full Build	Roundabout - 2 NB/SB Lanes	C/21.5	B/13.1	B/14.2	B/15.0	B/15.0	A/8.2	A/8.7	A/9.4	B/17.9	A/9.5	B/11.5	B/12.7	B/16.4	A/9.2	B/10.7	B/11.4	B/12.1
		Full Build w/o HCSD	Roundabout - 2 NB/SB Lanes	C/21.8	B/13.5	B/14.5	B/15.4	B/15.1	A/8.3	A/8.8	A/9.5	B/17.9	A/9.6	B/11.5	B/12.8	B/16.5	A/9.2	B/10.7	B/11.4	B/12.2
PM	2014	Background	Four-way Stop	B/11.42	B/14.52		B/13.82	B/10.67	C/15.91		C/15.44	B/11.12	C/16.45		C/15.46	B/11.36	B/14.51		B/13.78	B/14.66
		Full Build	Four-way Stop	B/12.05	C/15.75		B/14.86	B/11.02	C/18.67		C/18.04	B/11.50	C/19.78		C/18.36	B/12.06	C/16.46		C/15.37	C/16.74
		Full Build w/o HCSD	Four-way Stop	B/12.56	C/15.85		C/14.91	B/11.07	C/18.89		C/18.25	B/11.58	C/20.09		C/18.63	B/12.13	C/16.51		C/15.42	C/16.87
	2024	Background	Four-way Stop	C/16.53	F/51.00		E/43.02	B/13.67	F/116.87		F/109.00	C/16.30	F/124.01		F/103.35	C/18.78	F/75.59		F/59.99	F/80.03
		Full Build	Four-way Stop	C/16.86	F/52.41		E/43.87	B/13.70	F/140.15		F/130.96	C/16.45	F/155.50		F/129.88	C/19.71	F/91.75		F/71.63	F/96.23
		Full Build w/o HCSD	Four-way Stop	C/18.04	F/53.23		E/43.70	B/13.74	F/141.87		F/132.56	C/16.50	F/156.95		F/131.07	C/19.70	F/89.69		F/70.09	F/96.02
		Background	Roundabout - Single Lane	C/20.2	B/13.6	B/14.6	B/15.3	C/23.8	B/18.3	B/18.7	B/18.9	C/23.3	B/16.8	B/17.9	B/18.1	B/17.4	B/11.9	B/13.1	B/13.6	B/16.5
		Full Build	Roundabout - Single Lane	C/21.3	B/14.7	B/15.8	B/16.5	C/32.9	C/27.3	C/27.8	C/28.0	C/26.3	B/19.9	C/21.0	C/21.2	B/18.2	B/12.7	B/13.9	B/14.4	B/19.7
		Full Build w/o HCSD	Roundabout - Single Lane	C/21.9	B/15.3	B/16.4	B/17.3	D/34.8	C/29.2	C/29.7	C/29.9	C/27.9	C/21.5	C/22.6	C/22.8	B/18.1	B/12.5	B/13.8	B/14.2	C/21.0
		Background	Roundabout - 2 NB/SB Lanes	B/17.1	A/8.9	B/10.1	B/11.0	B/14.6	A/7.8	A/8.4	A/8.6	B/16.6	A/8.4	A/9.9	B/10.1	B/14.6	A/7.6	A/9.3	A/9.7	A/9.8
		Full Build	Roundabout - 2 NB/SB Lanes	B/17.3	A/9.2	B/10.3	B/11.3	B/15.3	A/8.5	A/9.0	A/9.3	B/16.8	A/8.6	B/10.0	B/10.2	B/14.7	A/7.6	A/9.3	A/9.8	B/10.1
		Full Build w/o HCSD	Roundabout - 2 NB/SB Lanes	B/17.5	A/9.4	B/10.5	B/11.7	B/15.6	A/8.8	A/9.3	A/9.5	B/16.9	A/8.7	B/10.1	B/10.3	B/14.7	A/7.6	A/9.3	A/9.8	B/10.3

X/X = Overall LOS / Average Delay Per Vehicle

Time Period	Year	Scenario	Conditions	EBLT	EBTH	EBRT	APPROACH	WBLT	WBTH	WBRT	APPROACH	NBLT	NBTH	NBRT	APPROACH	SBLT	SBTH	SBRT	APPROACH	TOTAL
Avery Rd / Memorial Dr																				
AM	2014	Background	Two-way Stop						B/12.6		B/12.6					A/7.8				
		Full Build	Two-way Stop						B/13.4		B/13.4					A/7.9				
		Full Build w/o HCSD	Two-way Stop						B/13.6		B/13.6					A/7.9				
	2024	Background	Two-way Stop						C/19.5		C/19.5					A/8.4				
		Full Build	Two-way Stop						C/21.2		C/21.2					A/8.4				
		Full Build w/o HCSD	Two-way Stop						C/21.8		C/21.8					A/8.5				
PM	2014	Background	Two-way Stop						C/15.1		C/15.1					A/8.4				
		Full Build	Two-way Stop						C/16.6		C/16.6					A/8.6				
		Full Build w/o HCSD	Two-way Stop						C/17.0		C/17.0					A/8.6				
	2024	Background	Two-way Stop						D/29.7		D/29.7					A/9.4				
		Full Build	Two-way Stop						E/34.9		E/34.9					A/9.6				
		Full Build w/o HCSD	Two-way Stop						E/36.2		E/36.2					A/9.7				
Avery Rd / Site Dr																				
AM	2014	Full Build	Two-way Stop		B/12.5		B/12.5					A/7.9								
		Full Build w/o HCSD	Two-way Stop		B/12.8		B/12.8					A/8.0								
	2024	Full Build	Two-way Stop		C/18.6		C/18.6					A/8.6								
		Full Build w/o HCSD	Two-way Stop		C/19.6		C/19.6					A/8.6								
PM	2014	Full Build	Two-way Stop		C/15.1		C/15.1					A/8.3								
		Full Build w/o HCSD	Two-way Stop		C/16.1		C/16.1					A/8.3								
	2024	Full Build	Two-way Stop		D/28.0		D/28.0					A/9.1								
		Full Build w/o HCSD	Two-way Stop		D/31.3		D/31.3					A/9.2								

X/X = Overall LOS / Average Delay Per Vehicle

Time Period	Year	Scenario	Conditions	EBLT	EBTH	EBRT	APPROACH	WBLT	WBTH	WBRT	APPROACH	NBLT	NBTH	NBRT	APPROACH	SBLT	SBTH	SBRT	APPROACH	TOTAL
Avery Rd / Glick Rd																				
AM	2014	Background	Roundabout	B/16.9	B/10.6	B/11.7	B/12.0	B/10.9	A/5.5	A/5.9	A/8.8	B/14.6	A/8.2	A/9.5	A/9.2	B/14.6	A/9.0	A/10.0	B/11.4	A/9.9
		Full Build	Roundabout	B/17.0	B/10.8	B/11.8	B/12.1	B/11.1	A/5.7	A/6.1	A/9.0	B/14.6	A/8.3	A/9.5	A/9.2	B/14.6	A/9.0	B/10.0	B/11.5	A/9.9
		Full Build w/o HCSD	Roundabout	B/17.0	B/10.8	B/11.8	B/12.1	B/11.1	A/5.7	A/6.1	A/9.0	B/14.6	A/8.3	A/9.5	A/9.1	B/14.6	A/9.0	B/10.0	B/11.5	A/9.9
	2024	Background	Roundabout	C/22.9	B/16.7	B/17.7	B/18.0	B/13.9	A/8.5	A/8.9	B/11.4	B/16.2	A/9.8	B/11.1	B/10.5	C/21.3	B/15.8	B/16.7	B/18.3	B/13.9
		Full Build	Roundabout	C/23.2	B/17.0	B/18.0	B/18.3	B/14.7	A/9.3	A/9.7	B/12.2	B/16.6	B/10.3	B/11.5	B/10.9	C/22.2	B/16.7	B/17.6	B/19.2	B/14.6
		Full Build w/o HCSD	Roundabout	C/23.3	B/17.0	B/18.1	B/18.4	B/15.0	A/9.6	B/10.0	B/12.5	B/16.7	B/10.3	B/11.6	B/11.0	C/22.4	B/16.8	B/17.8	B/19.3	B/14.7
PM	2014	Background	Roundabout	B/16.4	B/10.2	B/11.2	B/11.3	B/11.2	A/5.8	A/6.2	A/8.8	B/14.8	A/8.5	A/9.7	A/9.4	B/14.3	A/8.7	A/9.9	B/11.5	A/9.9
		Full Build	Roundabout	B/16.8	B/10.5	B/11.6	B/11.7	B/11.4	A/6.0	A/6.4	A/9.1	B/14.8	A/8.5	A/9.7	A/9.4	B/14.5	A/8.9	B/10.1	B/11.5	B/10.1
		Full Build w/o HCSD	Roundabout	B/16.8	B/10.6	B/11.6	B/11.7	B/11.4	A/6.0	A/6.4	A/9.1	B/14.8	A/8.5	A/9.7	A/9.4	B/14.5	A/8.9	B/10.1	B/11.5	B/10.1
	2024	Background	Roundabout	C/21.7	B/15.5	B/16.5	B/16.6	B/15.4	B/10.0	B/10.4	B/12.5	B/19.7	B/13.3	B/14.6	B/14.0	B/19.5	B/13.9	B/15.1	B/16.7	B/14.6
		Full Build	Roundabout	C/22.7	B/16.5	B/17.5	B/17.6	B/16.5	B/11.1	B/11.5	B/13.7	C/20.5	B/14.1	B/15.4	B/14.8	C/22.0	B/16.4	B/17.7	B/19.1	B/16.1
		Full Build w/o HCSD	Roundabout	C/22.8	B/16.6	B/17.6	B/17.7	B/16.6	B/11.2	B/11.6	B/13.8	C/20.5	B/14.2	B/15.4	B/14.9	C/22.3	B/16.7	B/17.9	C/19.4	B/16.2
Jerome Rd / McKitrick Rd																				
AM	2014	Background	Two-way Stop		B/11.4		B/11.4					A/7.9								
		Full Build	Two-way Stop		B/11.6		B/11.6					A/7.9								
		Full Build w/o HCSD	Two-way Stop		B/11.7		B/11.7					A/8.0								
	2024	Background	Two-way Stop		C/23.9		C/23.9					A/9.1								
		Full Build	Two-way Stop		D/24.8		D/24.8					A/9.1								
		Full Build w/o HCSD	Two-way Stop		D/25.4		D/25.4					A/9.1								
		Background	Three-way Stop		B/10.9		B/10.9						C/16.7		C/16.7		D/25.9		D/25.9	C/20.9
		Full Build	Three-way Stop		B/11.0		B/11.0						C/17.8		C/17.8		D/27.3		D/27.3	C/22.0
		Full Build w/o HCSD	Three-way Stop		B/11.1		B/11.1						C/18.3		C/18.3		D/27.8		D/27.8	C/22.4
PM	2014	Background	Two-way Stop		B/11.6		B/11.6					A/7.7								
		Full Build	Two-way Stop		B/11.9		B/11.9					A/7.8								
		Full Build w/o HCSD	Two-way Stop		B/12.0		B/12.0					A/7.8								
	2024	Background	Two-way Stop		E/36.6		E/36.6					A/8.7								
		Full Build	Two-way Stop		E/40.7		E/40.7					A/8.8								
		Full Build w/o HCSD	Two-way Stop		E/41.3		E/41.3					A/8.8								
		Background	Three-way Stop		B/13.2		B/13.2						D/29.8		D/29.8		C/24.5		C/24.5	C/24.9
		Full Build	Three-way Stop		B/13.4		B/13.4						D/33.4		D/33.4		D/27.8		D/27.8	D/27.9
		Full Build w/o HCSD	Three-way Stop		B/13.6		B/13.6						D/34.2		D/34.2		D/28.2		D/28.2	D/28.4

X/X = Overall LOS / Average Delay Per Vehicle

HYLAND-CROY ROAD / McKITRICK ROAD

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	AM Peak

Site Information

Intersection	Hyland-Croy/McKitrick
Jurisdiction	Dublin
Analysis Year	2014 Background

Project ID 20131358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Hyland-Croy Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	7	39	16	85	41	4
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	112	39	4	121	1
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.90		0.90		0.90		0.90	
Flow Rate (veh/h)	67		143		173		139	
% Heavy Vehicles	0		0		2		1	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.7		0.0		0.0	
Prop. Right-Turns	0.3		0.0		0.2		0.0	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.1		0.1		-0.1		0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.06		0.13		0.15		0.12	
hd, final value (s)	4.71		4.85		4.50		4.66	
x, final value	0.09		0.19		0.22		0.18	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t_s (s)	2.7		2.8		2.5		2.7	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	317		393		423		389	
Delay (s/veh)	8.16		9.00		8.73		8.68	
LOS	A		A		A		A	
Approach: Delay (s/veh)	8.16		9.00		8.73		8.68	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.72							
Intersection LOS	A							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	AM Peak

Site Information

Intersection	Hyland-Croy/McKitrick
Jurisdiction	Dublin
Analysis Year	2014 Full Build

Project ID 20131358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Hyland-Croy Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	7	39	17	85	41	5
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	11	120	39	4	124	1
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.90		0.90		0.90		0.90	
Flow Rate (veh/h)	68		144		188		142	
% Heavy Vehicles	0		0		2		1	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.7		0.1		0.0	
Prop. Right-Turns	0.3		0.0		0.2		0.0	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.1		0.1		-0.1		0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.06		0.13		0.17		0.13	
hd, final value (s)	4.75		4.89		4.53		4.69	
x, final value	0.09		0.20		0.24		0.18	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t_s (s)	2.8		2.9		2.5		2.7	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	318		394		438		392	
Delay (s/veh)	8.22		9.08		8.93		8.75	
LOS	A		A		A		A	
Approach: Delay (s/veh)	8.22		9.08		8.93		8.75	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.83							
Intersection LOS	A							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	AM Peak

Site Information

Intersection	Hyland-Croy/McKitrick
Jurisdiction	Dublin
Analysis Year	2014 Full Build w/o HCSD

Project ID 20131358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Hyland-Croy Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	7	40	16	85	44	8
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	7	118	39	5	123	1
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.90		0.90		0.90		0.90	
Flow Rate (veh/h)	68		150		181		142	
% Heavy Vehicles	0		0		2		1	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.6		0.0		0.0	
Prop. Right-Turns	0.3		0.1		0.2		0.0	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.1		0.1		-0.1		0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.06		0.13		0.16		0.13	
hd, final value (s)	4.75		4.86		4.53		4.69	
x, final value	0.09		0.20		0.23		0.19	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t_s (s)	2.8		2.9		2.5		2.7	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	318		400		431		392	
Delay (s/veh)	8.22		9.09		8.86		8.76	
LOS	A		A		A		A	
Approach: Delay (s/veh)	8.22		9.09		8.86		8.76	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.82							
Intersection LOS	A							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	AM Peak

Site Information

Intersection	Hyland-Croy/McKitrick
Jurisdiction	Dublin
Analysis Year	2024 Background

Project ID 20131358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Hyland-Croy Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	44	59	22	133	63	6
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	9	318	66	6	506	30
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.90		0.90		0.90		0.90	
Flow Rate (veh/h)	137		223		436		601	
% Heavy Vehicles	0		0		2		1	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.4		0.7		0.0		0.0	
Prop. Right-Turns	0.2		0.0		0.2		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.0		0.1		-0.1		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.12		0.20		0.39		0.53	
hd, final value (s)	7.97		7.71		6.57		6.35	
x, final value	0.30		0.48		0.80		1.06	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t_s (s)	6.0		5.7		4.6		4.4	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	387		440		539		601	
Delay (s/veh)	14.40		17.55		30.47		79.64	
LOS	B		C		D		F	
Approach: Delay (s/veh)	14.40		17.55		30.47		79.64	
LOS	B		C		D		F	
Intersection Delay (s/veh)	47.98							
Intersection LOS	E							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	AM Peak

Site Information

Intersection	Hyland-Croy/McKitrick
Jurisdiction	Dublin
Analysis Year	2024 Full Build

Project ID 20131358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Hyland-Croy Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	44	59	23	133	63	7
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	14	326	66	6	509	30
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.90		0.90		0.90		0.90	
Flow Rate (veh/h)	138		224		450		604	
% Heavy Vehicles	0		0		2		1	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.3		0.7		0.0		0.0	
Prop. Right-Turns	0.2		0.0		0.2		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.0		0.1		-0.1		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.12		0.20		0.40		0.54	
hd, final value (s)	8.04		7.77		6.60		6.42	
x, final value	0.31		0.48		0.83		1.08	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t_s (s)	6.0		5.8		4.6		4.4	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	388		437		538		604	
Delay (s/veh)	14.57		17.81		33.55		84.95	
LOS	B		C		D		F	
Approach: Delay (s/veh)	14.57		17.81		33.55		84.95	
LOS	B		C		D		F	
Intersection Delay (s/veh)	51.14							
Intersection LOS	F							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	AM Peak

Site Information

Intersection	Hyland-Croy/McKitrick
Jurisdiction	Dublin
Analysis Year	2024 Full Build w/o HCSD

Project ID 20131358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Hyland-Croy Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	44	60	22	133	66	10
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	10	324	66	7	508	30
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.90		0.90		0.90		0.90	
Flow Rate (veh/h)	138		231		444		604	
% Heavy Vehicles	0		0		2		1	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.3		0.6		0.0		0.0	
Prop. Right-Turns	0.2		0.0		0.2		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.0		0.1		-0.1		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.12		0.21		0.39		0.54	
hd, final value (s)	8.06		7.74		6.64		6.44	
x, final value	0.31		0.50		0.82		1.08	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t_s (s)	6.1		5.7		4.6		4.4	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	388		439		535		604	
Delay (s/veh)	14.62		18.14		32.94		86.42	
LOS	B		C		D		F	
Approach: Delay (s/veh)	14.62		18.14		32.94		86.42	
LOS	B		C		D		F	
Intersection Delay (s/veh)	51.54							
Intersection LOS	F							

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MOVEMENT SUMMARY

Site: 2024 AM Background

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	10	0.0	0.386	14.3	LOS B	2.4	60.2	0.36	0.82	31.8
8T	T	353	2.5	0.386	7.9	LOS A	2.4	60.2	0.36	0.54	34.7
8R	R	73	0.0	0.386	9.0	LOS A	2.4	60.2	0.36	0.62	34.3
Approach		437	2.0	0.386	8.3	LOS A	2.4	60.2	0.36	0.56	34.5
East: McKitrick Rd											
1L	L	148	0.0	0.266	12.8	LOS B	1.3	33.2	0.54	0.82	26.7
6T	T	70	0.0	0.266	7.2	LOS A	1.3	33.2	0.54	0.63	29.0
6R	R	7	0.0	0.266	7.8	LOS A	1.3	33.2	0.54	0.67	28.4
Approach		224	0.0	0.266	10.9	LOS B	1.3	33.2	0.54	0.75	27.4
North: Hyland-Croy Rd											
7L	L	7	0.0	0.588	14.6	LOS B	4.4	110.6	0.59	0.85	31.2
4T	T	562	1.5	0.588	9.0	LOS A	4.4	110.6	0.59	0.66	33.5
4R	R	33	0.0	0.588	10.1	LOS B	4.4	110.6	0.59	0.71	33.5
Approach		602	1.4	0.588	9.2	LOS A	4.4	110.6	0.59	0.67	33.5
West: McKitrick Rd											
5L	L	49	0.0	0.221	18.2	LOS B	1.2	29.9	0.71	0.92	29.6
2T	T	66	0.0	0.221	11.7	LOS B	1.2	29.9	0.71	0.81	32.4
2R	R	24	0.0	0.221	12.8	LOS B	1.2	29.9	0.71	0.84	32.1
Approach		139	0.0	0.221	14.2	LOS B	1.2	29.9	0.71	0.85	31.3
All Vehicles		1402	1.2	0.588	9.7	LOS A	4.4	110.6	0.52	0.67	32.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Full Build w/ HCSD

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	16	0.0	0.397	14.3	LOS B	2.5	63.0	0.36	0.82	31.8
8T	T	362	2.5	0.397	8.0	LOS A	2.5	63.0	0.36	0.54	34.7
8R	R	73	0.0	0.397	9.0	LOS A	2.5	63.0	0.36	0.62	34.2
Approach		451	2.0	0.397	8.3	LOS A	2.5	63.0	0.36	0.56	34.5
East: McKitrick Rd											
1L	L	148	0.0	0.271	12.9	LOS B	1.4	34.0	0.55	0.82	26.6
6T	T	70	0.0	0.271	7.3	LOS A	1.4	34.0	0.55	0.64	28.9
6R	R	8	0.0	0.271	7.9	LOS A	1.4	34.0	0.55	0.68	28.4
Approach		226	0.0	0.271	11.0	LOS B	1.4	34.0	0.55	0.76	27.3
North: Hyland-Croy Rd											
7L	L	7	0.0	0.595	14.8	LOS B	4.5	114.3	0.60	0.85	31.1
4T	T	566	1.5	0.595	9.2	LOS A	4.5	114.3	0.60	0.67	33.5
4R	R	33	0.0	0.595	10.2	LOS B	4.5	114.3	0.60	0.72	33.4
Approach		606	1.4	0.595	9.3	LOS A	4.5	114.3	0.60	0.67	33.5
West: McKitrick Rd											
5L	L	49	0.0	0.224	18.2	LOS B	1.2	30.5	0.71	0.92	29.6
2T	T	66	0.0	0.224	11.7	LOS B	1.2	30.5	0.71	0.81	32.4
2R	R	26	0.0	0.224	12.8	LOS B	1.2	30.5	0.71	0.84	32.0
Approach		140	0.0	0.224	14.2	LOS B	1.2	30.5	0.71	0.85	31.3
All Vehicles		1422	1.2	0.595	9.7	LOS A	4.5	114.3	0.53	0.67	32.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Full Build w/o HCSD

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	11	0.0	0.393	14.3	LOS B	2.4	61.8	0.36	0.82	31.8
8T	T	360	2.5	0.393	8.0	LOS A	2.4	61.8	0.36	0.55	34.7
8R	R	73	0.0	0.393	9.0	LOS A	2.4	61.8	0.36	0.62	34.2
Approach		444	2.0	0.393	8.3	LOS A	2.4	61.8	0.36	0.56	34.5
East: McKitrick Rd											
1L	L	148	0.0	0.277	12.8	LOS B	1.4	34.9	0.55	0.82	26.6
6T	T	73	0.0	0.277	7.3	LOS A	1.4	34.9	0.55	0.64	28.9
6R	R	11	0.0	0.277	7.9	LOS A	1.4	34.9	0.55	0.68	28.4
Approach		232	0.0	0.277	10.8	LOS B	1.4	34.9	0.55	0.76	27.4
North: Hyland-Croy Rd											
7L	L	8	0.0	0.594	14.7	LOS B	4.5	114.2	0.60	0.85	31.1
4T	T	564	1.5	0.594	9.2	LOS A	4.5	114.2	0.60	0.67	33.5
4R	R	33	0.0	0.594	10.2	LOS B	4.5	114.2	0.60	0.71	33.4
Approach		606	1.4	0.594	9.3	LOS A	4.5	114.2	0.60	0.67	33.4
West: McKitrick Rd											
5L	L	49	0.0	0.224	18.2	LOS B	1.2	30.5	0.71	0.92	29.6
2T	T	67	0.0	0.224	11.7	LOS B	1.2	30.5	0.71	0.81	32.4
2R	R	24	0.0	0.224	12.8	LOS B	1.2	30.5	0.71	0.84	32.0
Approach		140	0.0	0.224	14.2	LOS B	1.2	30.5	0.71	0.85	31.3
All Vehicles		1422	1.2	0.594	9.7	LOS A	4.5	114.2	0.53	0.67	32.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	PM Peak

Site Information

Intersection	Hyland-Croy/McKitrick
Jurisdiction	Dublin
Analysis Year	2014 Background

Project ID 20131358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Hyland-Croy Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	9	47	4	38	36	8
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	6	115	47	3	105	9
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.90		0.90		0.90		0.90	
Flow Rate (veh/h)	66		90		185		129	
% Heavy Vehicles	1		1		1		2	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.2		0.5		0.0		0.0	
Prop. Right-Turns	0.1		0.1		0.3		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.0		0.1		-0.1		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.06		0.08		0.16		0.11	
hd, final value (s)	4.75		4.76		4.30		4.49	
x, final value	0.09		0.12		0.22		0.16	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t_s (s)	2.7		2.8		2.3		2.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	316		340		435		379	
Delay (s/veh)	8.20		8.40		8.51		8.35	
LOS	A		A		A		A	
Approach: Delay (s/veh)	8.20		8.40		8.51		8.35	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.40							
Intersection LOS	A							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	PM Peak

Site Information

Intersection	Hyland-Croy/McKitrick
Jurisdiction	Dublin
Analysis Year	2014 Full Build

Project ID 20131358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Hyland-Croy Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	9	47	6	38	36	9
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	8	120	47	5	114	9
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.90		0.90		0.90		0.90	
Flow Rate (veh/h)	68		92		193		141	
% Heavy Vehicles	1		1		1		2	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.5		0.0		0.0	
Prop. Right-Turns	0.1		0.1		0.3		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.0		0.0		-0.1		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.06		0.08		0.17		0.13	
hd, final value (s)	4.79		4.80		4.33		4.52	
x, final value	0.09		0.12		0.23		0.18	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t_s (s)	2.8		2.8		2.3		2.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	318		342		443		391	
Delay (s/veh)	8.26		8.47		8.64		8.49	
LOS	A		A		A		A	
Approach: Delay (s/veh)	8.26		8.47		8.64		8.49	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.51							
Intersection LOS	A							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	PM Peak

Site Information

Intersection	Hyland-Croy/McKitrick
Jurisdiction	Dublin
Analysis Year	2014 Full Build w/o HCSD

Project ID 20131358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Hyland-Croy Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	9	50	6	38	37	9
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	8	120	47	6	110	9
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.90		0.90		0.90		0.90	
Flow Rate (veh/h)	71		93		193		138	
% Heavy Vehicles	1		1		1		2	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.5		0.0		0.0	
Prop. Right-Turns	0.1		0.1		0.3		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.0		0.0		-0.1		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.06		0.08		0.17		0.12	
hd, final value (s)	4.78		4.80		4.34		4.53	
x, final value	0.09		0.12		0.23		0.17	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t_s (s)	2.8		2.8		2.3		2.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	321		343		443		388	
Delay (s/veh)	8.28		8.48		8.65		8.48	
LOS	A		A		A		A	
Approach: Delay (s/veh)	8.28		8.48		8.65		8.48	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.52							
Intersection LOS	A							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	PM Peak

Site Information

Intersection	Hyland-Croy/McKitrick
Jurisdiction	Dublin
Analysis Year	2024 Background

Project ID 20131358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Hyland-Croy Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	35	75	6	71	61	12
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	9	533	86	4	419	33
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.90		0.90		0.90		0.90	
Flow Rate (veh/h)	127		158		697		505	
% Heavy Vehicles	1		1		1		2	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.3		0.5		0.0		0.0	
Prop. Right-Turns	0.0		0.1		0.1		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.0		0.1		-0.1		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.11		0.14		0.62		0.45	
hd, final value (s)	7.86		7.72		6.01		6.22	
x, final value	0.28		0.34		1.16		0.87	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t_s (s)	5.9		5.7		4.0		4.2	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	377		408		697		575	
Delay (s/veh)	13.84		14.62		112.87		37.65	
LOS	B		B		F		E	
Approach: Delay (s/veh)	13.84		14.62		112.87		37.65	
LOS	B		B		F		E	
Intersection Delay (s/veh)	68.43							
Intersection LOS	F							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	PM Peak

Site Information

Intersection	Hyland-Croy/McKitrick
Jurisdiction	Dublin
Analysis Year	2024 Full Build

Project ID 20131358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Hyland-Croy Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	35	75	8	71	61	13
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	11	538	86	6	428	33
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.90		0.90		0.90		0.90	
Flow Rate (veh/h)	129		159		704		517	
% Heavy Vehicles	1		1		1		2	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.3		0.5		0.0		0.0	
Prop. Right-Turns	0.1		0.1		0.1		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.0		0.1		-0.1		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.11		0.14		0.63		0.46	
hd, final value (s)	7.90		7.77		6.07		6.25	
x, final value	0.28		0.34		1.19		0.90	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t_s (s)	5.9		5.8		4.1		4.2	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	379		409		704		573	
Delay (s/veh)	14.00		14.79		121.80		41.43	
LOS	B		B		F		E	
Approach: Delay (s/veh)	14.00		14.79		121.80		41.43	
LOS	B		B		F		E	
Intersection Delay (s/veh)	73.77							
Intersection LOS	F							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	PM Peak

Site Information

Intersection	Hyland-Croy/McKitrick
Jurisdiction	Dublin
Analysis Year	2024 Full Build w/o HCSD

Project ID 20131358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Hyland-Croy Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	35	78	8	71	62	13
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	11	538	86	7	424	33
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.90		0.90		0.90		0.90	
Flow Rate (veh/h)	132		160		704		514	
% Heavy Vehicles	1		1		1		2	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.3		0.5		0.0		0.0	
Prop. Right-Turns	0.1		0.1		0.1		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.0		0.1		-0.1		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.12		0.14		0.63		0.46	
hd, final value (s)	7.91		7.79		6.09		6.27	
x, final value	0.29		0.35		1.19		0.90	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t_s (s)	5.9		5.8		4.1		4.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	382		410		704		571	
Delay (s/veh)	14.10		14.86		123.43		41.26	
LOS	B		B		F		E	
Approach: Delay (s/veh)	14.10		14.86		123.43		41.26	
LOS	B		B		F		E	
Intersection Delay (s/veh)	74.40							
Intersection LOS	F							

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MOVEMENT SUMMARY

Site: 2024 PM Background

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	10	0.0	0.590	14.6	LOS B	4.7	119.1	0.46	0.80	31.8
8T	T	592	0.6	0.590	8.1	LOS A	4.7	119.1	0.46	0.56	34.1
8R	R	96	1.1	0.590	9.3	LOS A	4.7	119.1	0.46	0.62	33.9
Approach		698	0.7	0.590	8.4	LOS A	4.7	119.1	0.46	0.57	34.1
East: McKitrick Rd											
1L	L	79	0.0	0.236	14.3	LOS B	1.2	31.2	0.67	0.89	26.1
6T	T	68	1.6	0.236	8.8	LOS A	1.2	31.2	0.67	0.74	28.5
6R	R	13	0.0	0.236	9.3	LOS A	1.2	31.2	0.67	0.77	27.9
Approach		160	0.7	0.236	11.5	LOS B	1.2	31.2	0.67	0.82	27.2
North: Hyland-Croy Rd											
7L	L	4	0.0	0.466	13.8	LOS B	3.1	78.3	0.44	0.83	31.5
4T	T	466	2.4	0.466	8.3	LOS A	3.1	78.3	0.44	0.58	34.3
4R	R	37	0.0	0.466	9.3	LOS A	3.1	78.3	0.44	0.64	34.0
Approach		507	2.2	0.466	8.4	LOS A	3.1	78.3	0.44	0.59	34.2
West: McKitrick Rd											
5L	L	39	0.0	0.173	16.7	LOS B	0.8	21.2	0.59	0.88	30.5
2T	T	83	0.0	0.173	10.2	LOS B	0.8	21.2	0.59	0.72	33.2
2R	R	7	0.0	0.173	11.3	LOS B	0.8	21.2	0.59	0.76	33.2
Approach		129	0.0	0.173	12.2	LOS B	0.8	21.2	0.59	0.77	32.3
All Vehicles		1493	1.1	0.590	9.1	LOS A	4.7	119.1	0.49	0.62	33.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Full Build w/ HCSD

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	12	0.0	0.598	14.6	LOS B	4.9	122.1	0.47	0.80	31.8
8T	T	598	0.6	0.598	8.2	LOS A	4.9	122.1	0.47	0.56	34.1
8R	R	96	1.1	0.598	9.3	LOS A	4.9	122.1	0.47	0.63	33.8
Approach		706	0.7	0.598	8.4	LOS A	4.9	122.1	0.47	0.58	34.0
East: McKitrick Rd											
1L	L	79	0.0	0.240	14.4	LOS B	1.3	31.9	0.67	0.89	26.0
6T	T	68	1.6	0.240	8.9	LOS A	1.3	31.9	0.67	0.75	28.5
6R	R	14	0.0	0.240	9.4	LOS A	1.3	31.9	0.67	0.78	27.9
Approach		161	0.7	0.240	11.6	LOS B	1.3	31.9	0.67	0.82	27.2
North: Hyland-Croy Rd											
7L	L	7	0.0	0.478	13.8	LOS B	3.2	81.4	0.45	0.83	31.5
4T	T	476	2.4	0.478	8.3	LOS A	3.2	81.4	0.45	0.58	34.2
4R	R	37	0.0	0.478	9.3	LOS A	3.2	81.4	0.45	0.65	33.9
Approach		519	2.2	0.478	8.5	LOS A	3.2	81.4	0.45	0.59	34.2
West: McKitrick Rd											
5L	L	39	0.0	0.178	16.8	LOS B	0.9	22.0	0.60	0.88	30.4
2T	T	83	0.0	0.178	10.3	LOS B	0.9	22.0	0.60	0.72	33.2
2R	R	9	0.0	0.178	11.4	LOS B	0.9	22.0	0.60	0.77	33.1
Approach		131	0.0	0.178	12.3	LOS B	0.9	22.0	0.60	0.77	32.3
All Vehicles		1517	1.1	0.598	9.1	LOS A	4.9	122.1	0.50	0.62	33.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Full Build w/o HCSD

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	12	0.0	0.601	14.6	LOS B	4.9	123.0	0.48	0.80	31.8
8T	T	598	0.6	0.601	8.2	LOS A	4.9	123.0	0.48	0.57	34.0
8R	R	96	1.1	0.601	9.3	LOS A	4.9	123.0	0.48	0.63	33.8
Approach		706	0.7	0.601	8.5	LOS A	4.9	123.0	0.48	0.58	34.0
East: McKitrick Rd											
1L	L	79	0.0	0.242	14.4	LOS B	1.3	32.3	0.67	0.89	26.0
6T	T	69	1.6	0.242	8.9	LOS A	1.3	32.3	0.67	0.75	28.4
6R	R	14	0.0	0.242	9.4	LOS A	1.3	32.3	0.67	0.78	27.9
Approach		162	0.7	0.242	11.6	LOS B	1.3	32.3	0.67	0.82	27.2
North: Hyland-Croy Rd											
7L	L	8	0.0	0.476	13.8	LOS B	3.2	80.8	0.45	0.83	31.5
4T	T	471	2.4	0.476	8.3	LOS A	3.2	80.8	0.45	0.58	34.2
4R	R	37	0.0	0.476	9.3	LOS A	3.2	80.8	0.45	0.65	33.9
Approach		516	2.2	0.476	8.5	LOS A	3.2	80.8	0.45	0.59	34.2
West: McKitrick Rd											
5L	L	39	0.0	0.182	16.8	LOS B	0.9	22.5	0.60	0.88	30.4
2T	T	87	0.0	0.182	10.3	LOS B	0.9	22.5	0.60	0.72	33.2
2R	R	9	0.0	0.182	11.4	LOS B	0.9	22.5	0.60	0.77	33.1
Approach		134	0.0	0.182	12.3	LOS B	0.9	22.5	0.60	0.77	32.3
All Vehicles		1518	1.1	0.601	9.1	LOS A	4.9	123.0	0.50	0.63	33.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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HYLAND-CROY ROAD / TUSCANY DRIVE

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Tuscany
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Background
Analysis Time Period	AM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Tuscany Dr	North/South Street: Hyland-Croy Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		188	49	7	262	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	208	54	7	291	0
Percent Heavy Vehicles	0	--	--	12	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	1	1	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				88		2
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	97	0	2
Percent Heavy Vehicles	0	0	0	1	0	8
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		7		99				
C (m) (veh/h)		1246		524				
v/c		0.01		0.19				
95% queue length		0.02		0.69				
Control Delay (s/veh)		7.9		13.5				
LOS		A		B				
Approach Delay (s/veh)	--	--	13.5					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Tuscany
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Full Build
Analysis Time Period	AM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Tuscany Dr	North/South Street: Hyland-Croy Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		198	49	8	265	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	220	54	8	294	0
Percent Heavy Vehicles	0	--	--	12	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	1	1	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				89		5
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	98	0	5
Percent Heavy Vehicles	0	0	0	1	0	8
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		8		103				
C (m) (veh/h)		1234		517				
v/c		0.01		0.20				
95% queue length		0.02		0.74				
Control Delay (s/veh)		7.9		13.7				
LOS		A		B				
Approach Delay (s/veh)	--	--	13.7					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Tuscany
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Full Build w/o HCSD
Analysis Time Period	AM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Tuscany Dr	North/South Street: Hyland-Croy Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		188	54	9	262	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	208	60	10	291	0
Percent Heavy Vehicles	0	--	--	12	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	1	1	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				102		9
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	113	0	10
Percent Heavy Vehicles	0	0	0	1	0	8
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		10		123				
C (m) (veh/h)		1240		531				
v/c		0.01		0.23				
95% queue length		0.02		0.89				
Control Delay (s/veh)		7.9		13.8				
LOS		A		B				
Approach Delay (s/veh)	--	--	13.8					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Tuscany
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Background
Analysis Time Period	AM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Tuscany Dr	North/South Street: Hyland-Croy Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		438	69	10	717	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	486	76	11	796	0
Percent Heavy Vehicles	0	--	--	12	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	1	1	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				124		3
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	137	0	3
Percent Heavy Vehicles	0	0	0	1	0	8
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		11		140				
C (m) (veh/h)		961		179				
v/c		0.01		0.78				
95% queue length		0.03		5.21				
Control Delay (s/veh)		8.8		73.5				
LOS		A		F				
Approach Delay (s/veh)	--	--	73.5					
Approach LOS	--	--	F					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
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Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Full Build
Analysis Time Period	AM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Tuscany Dr	North/South Street: Hyland-Croy Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		448	69	11	720	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	497	76	12	800	0
Percent Heavy Vehicles	0	--	--	12	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	1	1	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				125		6
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	138	0	6
Percent Heavy Vehicles	0	0	0	1	0	8
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		12		144				
C (m) (veh/h)		952		177				
v/c		0.01		0.81				
95% queue length		0.04		5.57				
Control Delay (s/veh)		8.8		79.3				
LOS		A		F				
Approach Delay (s/veh)	--	--	79.3					
Approach LOS	--	--	F					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Tuscany
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Full Build w/o HCSD
Analysis Time Period	AM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Tuscany Dr	North/South Street: Hyland-Croy Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		438	74	12	717	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	486	82	13	796	0
Percent Heavy Vehicles	0	--	--	12	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	1	1	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				138		10
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	153	0	11
Percent Heavy Vehicles	0	0	0	1	0	8
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		13		164				
C (m) (veh/h)		956		184				
v/c		0.01		0.89				
95% queue length		0.04		6.69				
Control Delay (s/veh)		8.8		92.0				
LOS		A		F				
Approach Delay (s/veh)	--	--	92.0					
Approach LOS	--	--	F					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Tuscany
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Background
Analysis Time Period	PM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Tuscany Dr	North/South Street: Hyland-Croy Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		258	35	2	172	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	286	38	2	191	0
Percent Heavy Vehicles	0	--	--	12	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	1	1	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				37		2
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	41	0	2
Percent Heavy Vehicles	0	0	0	1	0	8
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		2		43				
C (m) (veh/h)		1182		552				
v/c		0.00		0.08				
95% queue length		0.01		0.25				
Control Delay (s/veh)		8.1		12.1				
LOS		A		B				
Approach Delay (s/veh)	--	--	12.1					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Tuscany
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Full Build
Analysis Time Period	PM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Tuscany Dr	North/South Street: Hyland-Croy Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		263	37	5	180	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	292	41	5	200	0
Percent Heavy Vehicles	0	--	--	12	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	1	1	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				38		4
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	42	0	4
Percent Heavy Vehicles	0	0	0	1	0	8
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		5		46				
C (m) (veh/h)		1172		542				
v/c		0.00		0.08				
95% queue length		0.01		0.28				
Control Delay (s/veh)		8.1		12.3				
LOS		A		B				
Approach Delay (s/veh)	--	--	12.3					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Tuscany
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Full Build w/o HCSD
Analysis Time Period	PM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Tuscany Dr | North/South Street: Hyland-Croy Rd

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		258	50	9	172	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	286	55	10	191	0
Percent Heavy Vehicles	0	--	--	12	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	1	1	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				51		9
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	56	0	10
Percent Heavy Vehicles	0	0	0	1	0	8
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		10		66				
C (m) (veh/h)		1164		553				
v/c		0.01		0.12				
95% queue length		0.03		0.40				
Control Delay (s/veh)		8.1		12.4				
LOS		A		B				
Approach Delay (s/veh)	--	--	12.4					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Tuscany
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Background
Analysis Time Period	PM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Tuscany Dr	North/South Street: Hyland-Croy Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		755	50	3	530	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	838	55	3	588	0
Percent Heavy Vehicles	0	--	--	12	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	1	1	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				53		3
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	58	0	3
Percent Heavy Vehicles	0	0	0	1	0	8
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		3		61				
C (m) (veh/h)		719		152				
v/c		0.00		0.40				
95% queue length		0.01		1.74				
Control Delay (s/veh)		10.0		43.7				
LOS		B		E				
Approach Delay (s/veh)	--	--	43.7					
Approach LOS	--	--	E					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Tuscany
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Full Build
Analysis Time Period	PM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Tuscany Dr	North/South Street: Hyland-Croy Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		760	52	6	538	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	844	57	6	597	0
Percent Heavy Vehicles	0	--	--	12	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	1	1	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				54		5
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	60	0	5
Percent Heavy Vehicles	0	0	0	1	0	8
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		6		65				
C (m) (veh/h)		714		150				
v/c		0.01		0.43				
95% queue length		0.03		1.94				
Control Delay (s/veh)		10.1		46.2				
LOS		B		E				
Approach Delay (s/veh)	--	--	46.2					
Approach LOS	--	--	E					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*JMH*	Intersection	*Hyland-Croy/Tuscany*
Agency/Co.	*EMHT*	Jurisdiction	*Dublin*
Date Performed	*1/7/2014*	Analysis Year	*2024 Full Build w/o HCSD*
Analysis Time Period	*PM Peak*		

Project Description *20131358 Riviera TIS*

East/West Street: *Tuscany Dr*	North/South Street: *Hyland-Croy Rd*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*755*	*65*	*10*	*530*	
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*838*	*72*	*11*	*588*	*0*
Percent Heavy Vehicles	*0*	--	--	*12*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*67*		*10*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*74*	*0*	*11*
Percent Heavy Vehicles	*0*	*0*	*0*	*1*	*0*	*8*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*		*LR*				
v (veh/h)		*11*		*85*				
C (m) (veh/h)		*708*		*155*				
v/c		*0.02*		*0.55*				
95% queue length		*0.05*		*2.77*				
Control Delay (s/veh)		*10.2*		*53.3*				
LOS		*B*		*F*				
Approach Delay (s/veh)	--	--	*53.3*					
Approach LOS	--	--	*F*					

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HYLAND-CROY ROAD / SITE DRIVE

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Site Dr
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/10/2014	Analysis Year	2014 Full Build
Analysis Time Period	AM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Site Drive	North/South Street: Hyland-Croy Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		237	10	3	351	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	263	11	3	390	0
Percent Heavy Vehicles	0	--	--	1	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				29		10
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	32	0	11
Percent Heavy Vehicles	0	0	0	1	0	1
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		3		43				
C (m) (veh/h)		1295		481				
v/c		0.00		0.09				
95% queue length		0.01		0.29				
Control Delay (s/veh)		7.8		13.2				
LOS		A		B				
Approach Delay (s/veh)	--	--	13.2					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Site Dr
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/10/2014	Analysis Year	2024 Full Build
Analysis Time Period	AM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Site Drive	North/South Street: Hyland-Croy Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		507	10	3	842	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	563	11	3	935	0
Percent Heavy Vehicles	0	--	--	1	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	1	1	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				29		10
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	32	0	11
Percent Heavy Vehicles	0	0	0	1	0	1
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		3		43				
C (m) (veh/h)		1004		166				
v/c		0.00		0.26				
95% queue length		0.01		0.99				
Control Delay (s/veh)		8.6		34.1				
LOS		A		D				
Approach Delay (s/veh)	--	--	34.1					
Approach LOS	--	--	D					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Site Dr
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/10/2014	Analysis Year	2014 Full Build
Analysis Time Period	PM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Site Drive	North/South Street: Hyland-Croy Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		295	31	8	210	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	327	34	8	233	0
Percent Heavy Vehicles	0	--	--	1	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				18		5
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	20	0	5
Percent Heavy Vehicles	0	0	0	1	0	1
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		8		25				
C (m) (veh/h)		1203		500				
v/c		0.01		0.05				
95% queue length		0.02		0.16				
Control Delay (s/veh)		8.0		12.6				
LOS		A		B				
Approach Delay (s/veh)	--	--	12.6					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Site Dr
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/10/2014	Analysis Year	2024 Full Build
Analysis Time Period	PM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Site Drive	North/South Street: Hyland-Croy Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		807	31	8	584	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	896	34	8	648	0
Percent Heavy Vehicles	0	--	--	1	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	1	1	1	0
Configuration		T	R	L	T	
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				18		5
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	20	0	5
Percent Heavy Vehicles	0	0	0	1	0	1
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		8		25				
C (m) (veh/h)		740		141				
v/c		0.01		0.18				
95% queue length		0.03		0.62				
Control Delay (s/veh)		9.9		36.0				
LOS		A		E				
Approach Delay (s/veh)	--	--	36.0					
Approach LOS	--	--	E					

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HYLAND-CROY ROAD / BRAND ROAD / MITCHELL-DEWITT ROAD

MOVEMENT SUMMARY

Site: 2014 AM Background

Roundabout with thru/left & right turn lanes on NB & SB approaches, 1-lane on EB & WB approaches, and 1 circulating lane

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	19	4.2	0.187	15.0	LOS B	0.9	23.5	0.34	0.89	32.0
8T	T	200	12.1	0.187	7.0	LOS A	0.9	23.5	0.34	0.51	35.7
8R	R	148	8.2	0.141	8.9	LOS A	0.6	16.3	0.34	0.59	34.5
Approach		367	10.1	0.187	8.2	LOS A	0.9	23.5	0.34	0.56	35.0
East: Brand Rd											
1L	L	128	1.9	0.255	11.7	LOS B	1.2	32.0	0.42	0.78	27.5
6T	T	73	1.0	0.255	4.7	LOS A	1.2	32.0	0.42	0.44	30.2
6R	R	53	10.6	0.255	5.9	LOS A	1.2	32.0	0.42	0.53	29.4
Approach		254	3.5	0.255	8.4	LOS A	1.2	32.0	0.42	0.63	28.6
North: Hyland-Croy Rd											
7L	L	107	3.5	0.227	13.9	LOS B	1.1	29.6	0.37	0.82	31.4
4T	T	173	6.5	0.227	6.8	LOS A	1.1	29.6	0.37	0.50	35.3
4R	R	1	0.0	0.001	8.7	LOS A	0.0	0.1	0.35	0.52	34.5
Approach		281	5.3	0.227	9.5	LOS A	1.1	29.6	0.37	0.62	33.7
West: Mitchell-Dewitt Rd											
5L	L	8	14.3	0.147	16.7	LOS B	0.7	17.7	0.50	0.91	31.3
2T	T	87	10.2	0.147	8.3	LOS A	0.7	17.7	0.50	0.61	34.7
2R	R	28	2.1	0.147	9.6	LOS A	0.7	17.7	0.50	0.68	34.3
Approach		122	8.6	0.147	9.2	LOS A	0.7	17.7	0.50	0.65	34.3
All Vehicles		1024	7.0	0.255	8.7	LOS A	1.2	32.0	0.39	0.60	32.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2014 AM Full Build w/ HCSD

Roundabout with thru/left & right turn lanes on NB & SB approaches, 1-lane on EB & WB approaches, and 1 circulating lane

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	19	4.2	0.195	15.0	LOS B	0.9	24.8	0.35	0.89	32.0
8T	T	209	12.1	0.195	7.0	LOS A	0.9	24.8	0.35	0.51	35.7
8R	R	151	8.2	0.145	8.9	LOS A	0.6	16.9	0.35	0.59	34.5
Approach		379	10.2	0.195	8.2	LOS A	0.9	24.8	0.35	0.56	35.0
East: Brand Rd											
1L	L	136	1.9	0.266	11.8	LOS B	1.3	33.8	0.43	0.78	27.4
6T	T	74	1.0	0.266	4.8	LOS A	1.3	33.8	0.43	0.45	30.1
6R	R	53	10.6	0.266	6.0	LOS A	1.3	33.8	0.43	0.54	29.4
Approach		263	3.4	0.266	8.6	LOS A	1.3	33.8	0.43	0.64	28.5
North: Hyland-Croy Rd											
7L	L	107	3.5	0.251	14.0	LOS B	1.3	33.7	0.39	0.83	31.5
4T	T	201	6.5	0.251	6.9	LOS A	1.3	33.7	0.39	0.51	35.2
4R	R	7	0.0	0.008	8.8	LOS A	0.0	0.8	0.36	0.55	34.4
Approach		314	5.3	0.251	9.3	LOS A	1.3	33.7	0.39	0.62	33.8
West: Mitchell-Dewitt Rd											
5L	L	10	14.3	0.154	17.0	LOS B	0.7	18.9	0.52	0.91	31.2
2T	T	87	10.2	0.154	8.6	LOS A	0.7	18.9	0.52	0.63	34.5
2R	R	28	2.1	0.154	9.9	LOS A	0.7	18.9	0.52	0.70	34.2
Approach		124	8.7	0.154	9.5	LOS A	0.7	18.9	0.52	0.67	34.1
All Vehicles		1081	6.9	0.266	8.8	LOS A	1.3	33.8	0.40	0.61	32.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2014 AM Full Build w/o HCSD

Roundabout with thru/left & right turn lanes on NB & SB approaches, 1-lane on EB & WB approaches, and 1 circulating lane

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	19	4.2	0.192	15.0	LOS B	0.9	24.2	0.35	0.89	32.0
8T	T	204	12.1	0.192	7.0	LOS A	0.9	24.2	0.35	0.51	35.7
8R	R	156	8.2	0.148	8.9	LOS A	0.6	17.3	0.35	0.59	34.5
Approach		379	10.1	0.192	8.2	LOS A	0.9	24.2	0.35	0.56	35.0
East: Brand Rd											
1L	L	151	1.9	0.283	11.8	LOS B	1.4	36.5	0.44	0.78	27.4
6T	T	78	1.0	0.283	4.7	LOS A	1.4	36.5	0.44	0.45	30.1
6R	R	53	10.6	0.283	6.0	LOS A	1.4	36.5	0.44	0.54	29.3
Approach		282	3.3	0.283	8.7	LOS A	1.4	36.5	0.44	0.64	28.4
North: Hyland-Croy Rd											
7L	L	107	3.5	0.242	14.1	LOS B	1.2	32.3	0.40	0.83	31.4
4T	T	186	6.5	0.242	7.0	LOS A	1.2	32.3	0.40	0.51	35.1
4R	R	4	0.0	0.005	8.9	LOS A	0.0	0.5	0.37	0.54	34.4
Approach		297	5.3	0.242	9.5	LOS A	1.2	32.3	0.40	0.63	33.7
West: Mitchell-Dewitt Rd											
5L	L	9	14.3	0.154	17.0	LOS B	0.7	18.9	0.52	0.91	31.2
2T	T	88	10.2	0.154	8.6	LOS A	0.7	18.9	0.52	0.63	34.5
2R	R	28	2.1	0.154	9.9	LOS A	0.7	18.9	0.52	0.70	34.2
Approach		124	8.7	0.154	9.5	LOS A	0.7	18.9	0.52	0.67	34.2
All Vehicles		1082	6.9	0.283	8.8	LOS A	1.4	36.5	0.40	0.61	32.6

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Background

Roundabout with thru/left & right turn lanes on NB & SB approaches, 1-lane on EB & WB approaches, and 1 circulating lane

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	29	4.2	0.445	16.5	LOS B	2.8	76.0	0.63	0.91	31.6
8T	T	412	12.1	0.445	8.5	LOS A	2.8	76.0	0.63	0.63	34.0
8R	R	226	8.2	0.276	10.5	LOS B	1.4	38.0	0.57	0.73	33.4
Approach		667	10.4	0.445	9.5	LOS A	2.8	76.0	0.61	0.67	33.7
East: Brand Rd											
1L	L	192	1.9	0.559	15.2	LOS B	4.3	112.5	0.77	0.96	26.0
6T	T	112	1.0	0.559	8.2	LOS A	4.3	112.5	0.77	0.83	28.3
6R	R	132	10.6	0.559	9.4	LOS A	4.3	112.5	0.77	0.88	27.9
Approach		437	4.3	0.559	11.7	LOS B	4.3	112.5	0.77	0.91	27.1
North: Hyland-Croy Rd											
7L	L	252	3.5	0.694	16.5	LOS B	7.4	192.1	0.76	0.88	30.4
4T	T	539	6.5	0.694	9.4	LOS A	7.4	192.1	0.76	0.76	32.8
4R	R	7	0.0	0.009	9.4	LOS A	0.0	1.0	0.45	0.57	34.0
Approach		798	5.5	0.694	11.6	LOS B	7.4	192.1	0.76	0.80	32.0
West: Mitchell-Dewitt Rd											
5L	L	18	14.3	0.497	27.6	LOS C	3.7	99.2	0.94	1.07	26.1
2T	T	137	10.2	0.497	19.2	LOS B	3.7	99.2	0.94	1.04	28.0
2R	R	46	2.1	0.497	20.5	LOS C	3.7	99.2	0.94	1.05	27.8
Approach		200	8.7	0.497	20.2	LOS C	3.7	99.2	0.94	1.04	27.8
All Vehicles		2101	7.1	0.694	11.8	LOS B	7.4	192.1	0.73	0.80	30.9

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Full Build w/ HCSD

Roundabout with thru/left & right turn lanes on NB & SB approaches, 1-lane on EB & WB approaches, and 1 circulating lane

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	29	4.2	0.456	16.5	LOS B	2.9	79.0	0.64	0.91	31.6
8T	T	421	12.1	0.456	8.6	LOS A	2.9	79.0	0.64	0.63	34.0
8R	R	229	8.2	0.282	10.5	LOS B	1.5	39.1	0.57	0.73	33.4
Approach		679	10.4	0.456	9.6	LOS A	2.9	79.0	0.62	0.68	33.7
East: Brand Rd											
1L	L	200	1.9	0.577	15.6	LOS B	4.7	120.2	0.78	0.98	25.8
6T	T	113	1.0	0.577	8.6	LOS A	4.7	120.2	0.78	0.86	28.2
6R	R	132	10.6	0.577	9.8	LOS A	4.7	120.2	0.78	0.91	27.7
Approach		446	4.3	0.577	12.1	LOS B	4.7	120.2	0.78	0.93	26.9
North: Hyland-Croy Rd											
7L	L	252	3.5	0.725	17.0	LOS B	8.3	217.4	0.80	0.90	30.2
4T	T	567	6.5	0.725	9.9	LOS A	8.3	217.4	0.80	0.79	32.6
4R	R	12	0.0	0.017	9.4	LOS A	0.1	1.8	0.46	0.59	33.9
Approach		831	5.5	0.725	12.1	LOS B	8.3	217.4	0.80	0.82	31.8
West: Mitchell-Dewitt Rd											
5L	L	20	14.3	0.539	30.1	LOS C	4.2	113.2	0.96	1.09	25.0
2T	T	137	10.2	0.539	21.7	LOS C	4.2	113.2	0.96	1.07	26.7
2R	R	46	2.1	0.539	23.0	LOS C	4.2	113.2	0.96	1.08	26.5
Approach		202	8.8	0.539	22.8	LOS C	4.2	113.2	0.96	1.08	26.5
All Vehicles		2158	7.1	0.725	12.3	LOS B	8.3	217.4	0.75	0.82	30.6

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Full Build w/o HCSD

Roundabout with thru/left & right turn lanes on NB & SB approaches, 1-lane on EB & WB approaches, and 1 circulating lane
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	29	4.2	0.452	16.5	LOS B	2.9	78.1	0.64	0.91	31.6
8T	T	417	12.1	0.452	8.5	LOS A	2.9	78.1	0.64	0.63	34.0
8R	R	233	8.2	0.286	10.5	LOS B	1.5	39.9	0.58	0.73	33.4
Approach		679	10.4	0.452	9.6	LOS A	2.9	78.1	0.62	0.68	33.6
East: Brand Rd											
1L	L	216	1.9	0.597	15.8	LOS B	5.0	128.8	0.79	0.99	25.7
6T	T	117	1.0	0.597	8.8	LOS A	5.0	128.8	0.79	0.87	28.1
6R	R	132	10.6	0.597	10.0	LOS B	5.0	128.8	0.79	0.92	27.6
Approach		464	4.2	0.597	12.4	LOS B	5.0	128.8	0.79	0.94	26.8
North: Hyland-Croy Rd											
7L	L	252	3.5	0.724	17.3	LOS B	8.3	217.9	0.81	0.91	30.0
4T	T	551	6.5	0.724	10.2	LOS B	8.3	217.9	0.81	0.82	32.5
4R	R	10	0.0	0.014	9.5	LOS A	0.1	1.5	0.48	0.59	33.9
Approach		813	5.5	0.724	12.4	LOS B	8.3	217.9	0.81	0.84	31.7
West: Mitchell-Dewitt Rd											
5L	L	19	14.3	0.538	30.0	LOS C	4.2	112.8	0.96	1.09	25.1
2T	T	138	10.2	0.538	21.6	LOS C	4.2	112.8	0.96	1.07	26.7
2R	R	46	2.1	0.538	23.0	LOS C	4.2	112.8	0.96	1.08	26.6
Approach		202	8.8	0.538	22.7	LOS C	4.2	112.8	0.96	1.08	26.5
All Vehicles		2159	7.1	0.724	12.5	LOS B	8.3	217.9	0.76	0.83	30.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Background - Expanded

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1-lane on EB & WB approaches, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	29	4.2	0.348	16.6	LOS B	1.9	51.4	0.58	0.91	31.3
8T	T	412	12.1	0.348	8.7	LOS A	2.0	52.9	0.57	0.64	34.1
8R	R	226	8.2	0.348	10.0	LOS B	2.0	52.9	0.56	0.71	33.7
Approach		667	10.4	0.348	9.5	LOS A	2.0	52.9	0.57	0.68	33.8
East: Brand Rd											
1L	L	192	1.9	0.551	13.5	LOS B	3.1	79.2	0.62	0.97	26.7
6T	T	112	1.0	0.551	6.7	LOS A	3.1	79.2	0.62	0.67	29.1
6R	R	132	10.6	0.551	7.5	LOS A	3.1	79.2	0.62	0.74	28.7
Approach		437	4.3	0.551	10.0	LOS A	3.1	79.2	0.62	0.82	27.9
North: Hyland-Croy Rd											
7L	L	252	3.5	0.373	14.8	LOS B	2.2	56.9	0.55	0.80	30.7
4T	T	539	6.5	0.373	7.8	LOS A	2.3	59.1	0.54	0.58	34.3
4R	R	7	0.0	0.373	9.2	LOS A	2.3	59.1	0.54	0.69	34.2
Approach		798	5.5	0.373	10.0	LOS B	2.3	59.1	0.54	0.65	33.1
West: Mitchell-Dewitt Rd											
5L	L	18	14.3	0.341	18.5	LOS B	1.4	36.9	0.64	1.00	30.4
2T	T	137	10.2	0.341	10.3	LOS B	1.4	36.9	0.64	0.78	33.7
2R	R	46	2.1	0.341	11.2	LOS B	1.4	36.9	0.64	0.85	33.6
Approach		200	8.7	0.341	11.2	LOS B	1.4	36.9	0.64	0.81	33.3
All Vehicles		2101	7.1	0.551	10.0	LOS A	3.1	79.2	0.58	0.71	32.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Full Build w/ HCSD - Expanded

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1-lane on EB & WB approaches, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	29	4.2	0.355	16.7	LOS B	1.9	52.9	0.58	0.91	31.3
8T	T	421	12.1	0.355	8.8	LOS A	2.0	54.5	0.58	0.64	34.1
8R	R	229	8.2	0.355	10.1	LOS B	2.0	54.5	0.57	0.72	33.7
Approach		679	10.4	0.355	9.5	LOS A	2.0	54.5	0.58	0.68	33.8
East: Brand Rd											
1L	L	200	1.9	0.566	13.7	LOS B	3.2	83.3	0.63	0.98	26.7
6T	T	113	1.0	0.566	6.9	LOS A	3.2	83.3	0.63	0.69	29.0
6R	R	132	10.6	0.566	7.7	LOS A	3.2	83.3	0.63	0.76	28.6
Approach		446	4.3	0.566	10.2	LOS B	3.2	83.3	0.63	0.84	27.8
North: Hyland-Croy Rd											
7L	L	252	3.5	0.392	14.9	LOS B	2.4	60.9	0.56	0.81	30.7
4T	T	567	6.5	0.392	7.9	LOS A	2.4	63.4	0.56	0.59	34.2
4R	R	12	0.0	0.392	9.2	LOS A	2.4	63.4	0.55	0.70	34.1
Approach		831	5.5	0.392	10.0	LOS B	2.4	63.4	0.56	0.66	33.0
West: Mitchell-Dewitt Rd											
5L	L	20	14.3	0.355	18.8	LOS B	1.5	39.4	0.66	1.00	30.2
2T	T	137	10.2	0.355	10.6	LOS B	1.5	39.4	0.66	0.80	33.6
2R	R	46	2.1	0.355	11.5	LOS B	1.5	39.4	0.66	0.87	33.4
Approach		202	8.8	0.355	11.6	LOS B	1.5	39.4	0.66	0.84	33.2
All Vehicles		2158	7.1	0.566	10.1	LOS B	3.2	83.3	0.59	0.72	32.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Full Build w/o HCSD - Expanded

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1-lane on EB & WB approaches, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	29	4.2	0.356	16.7	LOS B	2.0	53.4	0.59	0.91	31.3
8T	T	417	12.1	0.356	8.8	LOS A	2.0	55.0	0.58	0.64	34.0
8R	R	233	8.2	0.356	10.1	LOS B	2.0	55.0	0.57	0.72	33.6
Approach		679	10.4	0.356	9.5	LOS A	2.0	55.0	0.58	0.68	33.8
East: Brand Rd											
1L	L	216	1.9	0.588	13.8	LOS B	3.5	90.0	0.64	0.98	26.6
6T	T	117	1.0	0.588	7.0	LOS A	3.5	90.0	0.64	0.71	29.0
6R	R	132	10.6	0.588	7.9	LOS A	3.5	90.0	0.64	0.78	28.5
Approach		464	4.2	0.588	10.4	LOS B	3.5	90.0	0.64	0.86	27.7
North: Hyland-Croy Rd											
7L	L	252	3.5	0.390	15.0	LOS B	2.3	60.8	0.58	0.81	30.7
4T	T	551	6.5	0.390	8.0	LOS A	2.4	63.4	0.57	0.60	34.1
4R	R	10	0.0	0.390	9.3	LOS A	2.4	63.4	0.57	0.70	34.1
Approach		813	5.5	0.390	10.2	LOS B	2.4	63.4	0.57	0.66	32.9
West: Mitchell-Dewitt Rd											
5L	L	19	14.3	0.453	26.8	LOS C	3.3	88.5	0.92	1.06	26.4
2T	T	138	10.2	0.453	18.6	LOS B	3.3	88.5	0.92	1.02	28.4
2R	R	46	2.1	0.453	19.5	LOS B	3.3	88.5	0.92	1.03	28.2
Approach		202	8.8	0.453	19.6	LOS B	3.3	88.5	0.92	1.02	28.1
All Vehicles		2159	7.1	0.588	10.9	LOS B	3.5	90.0	0.62	0.74	31.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Background - Expanded w/ EBRT

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1-lane on EB approach, thru/left & right turn lane on WB approach, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	29	4.2	0.347	16.6	LOS B	1.9	51.2	0.58	0.91	31.3
8T	T	412	12.1	0.347	8.7	LOS A	2.0	52.7	0.57	0.64	34.1
8R	R	226	8.2	0.347	10.0	LOS B	2.0	52.7	0.56	0.71	33.7
Approach		667	10.4	0.347	9.5	LOS A	2.0	52.7	0.57	0.68	33.8
East: Brand Rd											
1L	L	192	1.9	0.304	11.7	LOS B	1.3	32.1	0.48	0.84	27.3
6T	T	112	1.0	0.304	4.9	LOS A	1.3	32.1	0.48	0.47	29.8
6R	R	132	10.6	0.193	6.8	LOS A	0.7	18.4	0.47	0.62	29.3
Approach		437	4.3	0.304	8.5	LOS A	1.3	32.1	0.48	0.68	28.5
North: Hyland-Croy Rd											
7L	L	252	3.5	0.369	14.8	LOS B	2.1	54.7	0.53	0.80	30.7
4T	T	539	6.5	0.369	7.8	LOS A	2.2	56.8	0.52	0.58	34.4
4R	R	7	0.0	0.369	9.2	LOS A	2.2	56.8	0.52	0.69	34.3
Approach		798	5.5	0.369	10.0	LOS B	2.2	56.8	0.53	0.65	33.1
West: Mitchell-Dewitt Rd											
5L	L	18	14.3	0.340	18.5	LOS B	1.4	36.6	0.64	1.00	30.4
2T	T	137	10.2	0.340	10.3	LOS B	1.4	36.6	0.64	0.77	33.7
2R	R	46	2.1	0.340	11.2	LOS B	1.4	36.6	0.64	0.85	33.6
Approach		200	8.7	0.340	11.2	LOS B	1.4	36.6	0.64	0.81	33.3
All Vehicles		2101	7.1	0.369	9.7	LOS A	2.2	56.8	0.54	0.68	32.3

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Full Build w/ HCSD - Expanded w/ EBRT

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1-lane on EB approach, thru/left & right turn lane on WB approach, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	29	4.2	0.355	16.7	LOS B	1.9	52.7	0.58	0.91	31.3
8T	T	421	12.1	0.355	8.8	LOS A	2.0	54.3	0.58	0.64	34.1
8R	R	229	8.2	0.355	10.1	LOS B	2.0	54.3	0.57	0.72	33.7
Approach		679	10.4	0.355	9.5	LOS A	2.0	54.3	0.57	0.68	33.8
East: Brand Rd											
1L	L	200	1.9	0.314	11.8	LOS B	1.3	33.6	0.49	0.84	27.3
6T	T	113	1.0	0.314	5.0	LOS A	1.3	33.6	0.49	0.47	29.7
6R	R	132	10.6	0.196	6.9	LOS A	0.7	18.8	0.48	0.63	29.2
Approach		446	4.3	0.314	8.6	LOS A	1.3	33.6	0.49	0.69	28.4
North: Hyland-Croy Rd											
7L	L	252	3.5	0.387	14.9	LOS B	2.3	58.6	0.55	0.81	30.7
4T	T	567	6.5	0.387	7.9	LOS A	2.3	60.8	0.54	0.59	34.3
4R	R	12	0.0	0.387	9.2	LOS A	2.3	60.8	0.54	0.70	34.2
Approach		831	5.5	0.387	10.0	LOS B	2.3	60.8	0.54	0.66	33.1
West: Mitchell-Dewitt Rd											
5L	L	20	14.3	0.354	18.8	LOS B	1.5	39.0	0.65	1.00	30.2
2T	T	137	10.2	0.354	10.6	LOS B	1.5	39.0	0.65	0.80	33.6
2R	R	46	2.1	0.354	11.5	LOS B	1.5	39.0	0.65	0.86	33.4
Approach		202	8.8	0.354	11.6	LOS B	1.5	39.0	0.65	0.83	33.2
All Vehicles		2158	7.1	0.387	9.7	LOS A	2.3	60.8	0.55	0.69	32.3

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Full Build w/o HCSD - Expanded w/ EBRT

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1-lane on EB approach, thru/left & right turn lane on WB approach, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	29	4.2	0.356	16.7	LOS B	2.0	53.4	0.59	0.91	31.3
8T	T	417	12.1	0.356	8.8	LOS A	2.0	55.0	0.58	0.64	34.0
8R	R	233	8.2	0.356	10.1	LOS B	2.0	55.0	0.57	0.72	33.6
Approach		679	10.4	0.356	9.5	LOS A	2.0	55.0	0.58	0.68	33.8
East: Brand Rd											
1L	L	216	1.9	0.333	11.8	LOS B	1.4	36.2	0.50	0.84	27.3
6T	T	117	1.0	0.333	5.0	LOS A	1.4	36.2	0.50	0.48	29.7
6R	R	132	10.6	0.201	7.0	LOS A	0.7	19.2	0.48	0.64	29.2
Approach		464	4.2	0.333	8.7	LOS A	1.4	36.2	0.49	0.69	28.4
North: Hyland-Croy Rd											
7L	L	252	3.5	0.385	15.0	LOS B	2.2	58.3	0.56	0.81	30.7
4T	T	551	6.5	0.385	8.0	LOS A	2.3	60.6	0.55	0.60	34.2
4R	R	10	0.0	0.385	9.3	LOS A	2.3	60.6	0.55	0.70	34.2
Approach		813	5.5	0.385	10.2	LOS B	2.3	60.6	0.56	0.66	33.0
West: Mitchell-Dewitt Rd											
5L	L	19	14.3	0.449	26.8	LOS C	3.3	87.5	0.92	1.06	26.4
2T	T	138	10.2	0.449	18.5	LOS B	3.3	87.5	0.92	1.01	28.4
2R	R	46	2.1	0.449	19.5	LOS B	3.3	87.5	0.92	1.03	28.3
Approach		202	8.8	0.449	19.5	LOS B	3.3	87.5	0.92	1.02	28.2
All Vehicles		2159	7.1	0.449	10.5	LOS B	3.3	87.5	0.58	0.71	31.6

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2014 PM Background

Roundabout with thru/left & right turn lanes on NB & SB approaches, 1-lane on EB & WB approaches, and 1 circulating lane

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	27	0.0	0.340	14.9	LOS B	1.9	47.8	0.42	0.89	32.1
8T	T	414	0.8	0.340	6.8	LOS A	1.9	47.8	0.42	0.52	35.3
8R	R	103	1.2	0.128	9.2	LOS A	0.5	13.7	0.40	0.62	34.2
Approach		544	0.8	0.340	7.6	LOS A	1.9	47.8	0.41	0.56	34.9
East: Brand Rd											
1L	L	118	1.7	0.377	13.1	LOS B	2.1	53.9	0.62	0.86	26.9
6T	T	63	1.0	0.377	6.1	LOS A	2.1	53.9	0.62	0.59	29.1
6R	R	149	0.0	0.377	7.0	LOS A	2.1	53.9	0.62	0.67	28.6
Approach		330	0.8	0.377	9.0	LOS A	2.1	53.9	0.62	0.72	28.1
North: Hyland-Croy Rd											
7L	L	78	0.0	0.206	13.7	LOS B	1.1	27.0	0.36	0.84	31.6
4T	T	182	4.6	0.206	6.7	LOS A	1.1	27.0	0.36	0.49	35.4
4R	R	1	0.0	0.001	8.7	LOS A	0.0	0.1	0.35	0.51	34.5
Approach		261	3.2	0.206	8.8	LOS A	1.1	27.0	0.36	0.59	34.1
West: Mitchell-Dewitt Rd											
5L	L	20	5.3	0.223	16.1	LOS B	1.1	27.1	0.49	0.90	31.5
2T	T	149	0.0	0.223	7.7	LOS A	1.1	27.1	0.49	0.59	34.7
2R	R	40	3.8	0.223	9.4	LOS A	1.1	27.1	0.49	0.69	34.3
Approach		209	1.2	0.223	8.8	LOS A	1.1	27.1	0.49	0.64	34.3
All Vehicles		1344	1.4	0.377	8.4	LOS A	2.1	53.9	0.47	0.62	32.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2014 PM Full Build w/ HCSD

Roundabout with thru/left & right turn lanes on NB & SB approaches, 1-lane on EB & WB approaches, and 1 circulating lane

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	27	0.0	0.365	15.0	LOS B	2.1	52.9	0.44	0.89	32.1
8T	T	444	0.8	0.365	6.8	LOS A	2.1	52.9	0.44	0.53	35.2
8R	R	112	1.2	0.140	9.3	LOS A	0.6	15.2	0.41	0.63	34.2
Approach		583	0.8	0.365	7.7	LOS A	2.1	52.9	0.43	0.56	34.8
East: Brand Rd											
1L	L	123	1.7	0.397	13.4	LOS B	2.3	58.1	0.65	0.87	26.8
6T	T	64	1.0	0.397	6.4	LOS A	2.3	58.1	0.65	0.61	28.9
6R	R	149	0.0	0.397	7.3	LOS A	2.3	58.1	0.65	0.70	28.5
Approach		337	0.8	0.397	9.4	LOS A	2.3	58.1	0.65	0.75	27.9
North: Hyland-Croy Rd											
7L	L	78	0.0	0.220	13.8	LOS B	1.2	29.6	0.38	0.84	31.6
4T	T	199	4.6	0.220	6.7	LOS A	1.2	29.6	0.38	0.50	35.4
4R	R	6	0.0	0.007	8.7	LOS A	0.0	0.7	0.36	0.54	34.4
Approach		282	3.2	0.220	8.7	LOS A	1.2	29.6	0.38	0.59	34.2
West: Mitchell-Dewitt Rd											
5L	L	27	5.3	0.237	16.3	LOS B	1.2	29.4	0.51	0.90	31.4
2T	T	151	0.0	0.237	7.9	LOS A	1.2	29.4	0.51	0.61	34.5
2R	R	40	3.8	0.237	9.6	LOS A	1.2	29.4	0.51	0.70	34.2
Approach		218	1.3	0.237	9.2	LOS A	1.2	29.4	0.51	0.66	34.0
All Vehicles		1420	1.4	0.397	8.5	LOS A	2.3	58.1	0.48	0.63	32.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2014 PM Full Build w/o HCSD

Roundabout with thru/left & right turn lanes on NB & SB approaches, 1-lane on EB & WB approaches, and 1 circulating lane
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	27	0.0	0.352	15.0	LOS B	2.0	50.5	0.43	0.89	32.1
8T	T	428	0.8	0.352	6.8	LOS A	2.0	50.5	0.43	0.53	35.2
8R	R	129	1.2	0.153	9.2	LOS A	0.7	16.9	0.41	0.62	34.2
Approach		583	0.9	0.352	7.7	LOS A	2.0	50.5	0.43	0.57	34.8
East: Brand Rd											
1L	L	128	1.7	0.397	13.2	LOS B	2.3	57.9	0.64	0.87	26.9
6T	T	66	1.0	0.397	6.2	LOS A	2.3	57.9	0.64	0.60	29.0
6R	R	149	0.0	0.397	7.2	LOS A	2.3	57.9	0.64	0.69	28.5
Approach		342	0.8	0.397	9.3	LOS A	2.3	57.9	0.64	0.74	27.9
North: Hyland-Croy Rd											
7L	L	78	0.0	0.218	13.8	LOS B	1.1	29.1	0.38	0.84	31.6
4T	T	194	4.6	0.218	6.7	LOS A	1.1	29.1	0.38	0.50	35.3
4R	R	4	0.0	0.005	8.7	LOS A	0.0	0.5	0.36	0.54	34.4
Approach		277	3.2	0.218	8.7	LOS A	1.1	29.1	0.38	0.60	34.1
West: Mitchell-Dewitt Rd											
5L	L	23	5.3	0.237	16.2	LOS B	1.2	29.3	0.51	0.91	31.4
2T	T	154	0.0	0.237	7.9	LOS A	1.2	29.3	0.51	0.61	34.6
2R	R	40	3.8	0.237	9.6	LOS A	1.2	29.3	0.51	0.70	34.2
Approach		218	1.3	0.237	9.1	LOS A	1.2	29.3	0.51	0.66	34.1
All Vehicles		1420	1.4	0.397	8.5	LOS A	2.3	57.9	0.48	0.63	32.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Background

Roundabout with thru/left & right turn lanes on NB & SB approaches, 1-lane on EB & WB approaches, and 1 circulating lane

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	43	0.0	0.847	22.4	LOS C	14.0	352.7	0.96	1.06	28.5
8T	T	902	0.8	0.847	14.3	LOS B	14.0	352.7	0.96	1.04	31.1
8R	R	164	1.2	0.242	10.8	LOS B	1.2	29.8	0.59	0.75	33.3
Approach		1110	0.8	0.847	14.1	LOS B	14.0	352.7	0.90	0.99	31.3
East: Brand Rd											
1L	L	189	1.7	1.540	275.5	LOS F	84.7	2130.0	1.00	3.54	4.6
6T	T	106	1.0	1.540	268.5	LOS F	84.7	2130.0	1.00	3.55	4.5
6R	R	329	0.0	1.540	269.4	LOS F	84.7	2130.0	1.00	3.55	4.3
Approach		623	0.7	1.540	271.1	LOS F	84.7	2130.0	1.00	3.55	4.4
North: Hyland-Croy Rd											
7L	L	203	0.0	0.544	14.2	LOS B	4.2	108.6	0.57	0.81	31.5
4T	T	483	4.6	0.544	7.2	LOS A	4.2	108.6	0.57	0.55	34.1
4R	R	9	0.0	0.011	8.8	LOS A	0.0	1.2	0.39	0.55	34.3
Approach		696	3.2	0.544	9.2	LOS A	4.2	108.6	0.56	0.62	33.3
West: Mitchell-Dewitt Rd											
5L	L	36	5.3	0.525	22.7	LOS C	4.1	104.0	0.87	1.07	28.2
2T	T	221	0.0	0.525	14.3	LOS B	4.1	104.0	0.87	1.00	30.8
2R	R	61	3.8	0.525	16.0	LOS B	4.1	104.0	0.87	1.01	30.5
Approach		318	1.3	0.525	15.6	LOS B	4.1	104.0	0.87	1.01	30.4
All Vehicles		2747	1.5	1.540	71.4	LOS E	84.7	2130.0	0.84	1.48	13.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Full Build w/ HCSD

Roundabout with thru/left & right turn lanes on NB & SB approaches, 1-lane on EB & WB approaches, and 1 circulating lane

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	43	0.0	0.881	24.3	LOS C	16.6	417.1	1.00	1.11	27.6
8T	T	932	0.8	0.881	16.2	LOS B	16.6	417.1	1.00	1.11	29.8
8R	R	173	1.2	0.257	10.9	LOS B	1.3	32.2	0.60	0.76	33.3
Approach		1149	0.8	0.881	15.7	LOS B	16.6	417.1	0.94	1.06	30.2
East: Brand Rd											
1L	L	194	1.7	1.693	344.5	LOS F	97.6	2454.6	1.00	3.71	3.7
6T	T	107	1.0	1.693	337.5	LOS F	97.6	2454.6	1.00	3.71	3.6
6R	R	329	0.0	1.693	338.5	LOS F	97.6	2454.6	1.00	3.72	3.5
Approach		630	0.7	1.693	340.2	LOS F	97.6	2454.6	1.00	3.72	3.6
North: Hyland-Croy Rd											
7L	L	203	0.0	0.550	14.1	LOS B	4.3	110.8	0.56	0.81	31.5
4T	T	500	4.6	0.550	7.1	LOS A	4.3	110.8	0.56	0.54	34.2
4R	R	13	0.0	0.016	8.8	LOS A	0.1	1.7	0.38	0.56	34.3
Approach		717	3.2	0.550	9.1	LOS A	4.3	110.8	0.55	0.62	33.3
West: Mitchell-Dewitt Rd											
5L	L	42	5.3	0.546	23.3	LOS C	4.4	111.3	0.88	1.08	27.9
2T	T	223	0.0	0.546	14.9	LOS B	4.4	111.3	0.88	1.01	30.4
2R	R	61	3.8	0.546	16.6	LOS B	4.4	111.3	0.88	1.03	30.1
Approach		327	1.4	0.546	16.3	LOS B	4.4	111.3	0.88	1.02	29.9
All Vehicles		2822	1.5	1.693	86.5	LOS F	97.6	2454.6	0.85	1.54	11.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Full Build w/o HCSD

Roundabout with thru/left & right turn lanes on NB & SB approaches, 1-lane on EB & WB approaches, and 1 circulating lane

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	43	0.0	0.866	23.5	LOS C	15.4	387.8	0.99	1.09	28.0
8T	T	916	0.8	0.866	15.4	LOS B	15.4	387.8	0.99	1.08	30.3
8R	R	190	1.2	0.282	11.0	LOS B	1.4	35.8	0.61	0.77	33.2
Approach		1149	0.8	0.866	15.0	LOS B	15.4	387.8	0.92	1.03	30.7
East: Brand Rd											
1L	L	199	1.7	1.640	320.0	LOS F	94.3	2371.9	1.00	3.69	4.0
6T	T	108	1.0	1.640	313.0	LOS F	94.3	2371.9	1.00	3.69	3.9
6R	R	329	0.0	1.640	314.0	LOS F	94.3	2371.9	1.00	3.70	3.7
Approach		636	0.7	1.640	315.7	LOS F	94.3	2371.9	1.00	3.69	3.8
North: Hyland-Croy Rd											
7L	L	203	0.0	0.552	14.2	LOS B	4.3	111.1	0.57	0.81	31.5
4T	T	496	4.6	0.552	7.1	LOS A	4.3	111.1	0.57	0.54	34.1
4R	R	12	0.0	0.015	8.8	LOS A	0.1	1.6	0.39	0.56	34.3
Approach		711	3.2	0.552	9.2	LOS A	4.3	111.1	0.56	0.62	33.3
West: Mitchell-Dewitt Rd											
5L	L	39	5.3	0.548	23.3	LOS C	4.4	112.1	0.89	1.08	27.9
2T	T	227	0.0	0.548	14.9	LOS B	4.4	112.1	0.89	1.01	30.3
2R	R	61	3.8	0.548	16.7	LOS B	4.4	112.1	0.89	1.03	30.1
Approach		327	1.3	0.548	16.3	LOS B	4.4	112.1	0.89	1.03	29.9
All Vehicles		2822	1.5	1.640	81.4	LOS F	94.3	2371.9	0.85	1.53	12.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Background - Expanded

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1-lane on EB & WB approaches, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	43	0.0	0.538	17.3	LOS B	4.1	102.2	0.70	0.95	31.0
8T	T	902	0.8	0.538	8.9	LOS A	4.1	104.4	0.70	0.71	33.5
8R	R	164	1.2	0.538	10.5	LOS B	4.1	104.4	0.70	0.79	33.5
Approach		1110	0.8	0.538	9.4	LOS A	4.1	104.4	0.70	0.73	33.4
East: Brand Rd											
1L	L	189	1.7	1.038	47.8	LOS F	20.8	522.0	1.00	1.90	16.4
6T	T	106	1.0	1.038	40.8	LOS F	20.8	522.0	1.00	1.91	17.0
6R	R	329	0.0	1.038	41.7	LOS F	20.8	522.0	1.00	1.91	16.5
Approach		623	0.7	1.038	43.4	LOS D	20.8	522.0	1.00	1.91	16.5
North: Hyland-Croy Rd											
7L	L	203	0.0	0.323	14.5	LOS B	2.0	49.6	0.55	0.79	30.8
4T	T	483	4.6	0.323	7.5	LOS A	2.0	51.8	0.54	0.57	34.3
4R	R	9	0.0	0.323	9.0	LOS A	2.0	51.8	0.54	0.68	34.2
Approach		696	3.2	0.323	9.6	LOS A	2.0	51.8	0.54	0.64	33.2
West: Mitchell-Dewitt Rd											
5L	L	36	5.3	0.516	23.1	LOS C	4.1	104.5	0.89	1.07	27.9
2T	T	221	0.0	0.516	14.9	LOS B	4.1	104.5	0.89	1.01	30.4
2R	R	61	3.8	0.516	16.3	LOS B	4.1	104.5	0.89	1.02	30.2
Approach		318	1.3	0.516	16.1	LOS B	4.1	104.5	0.89	1.02	30.0
All Vehicles		2747	1.5	1.038	18.0	LOS B	20.8	522.0	0.75	1.01	27.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Full Build w/ HCSD - Expanded

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1-lane on EB & WB approaches, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	43	0.0	0.552	17.6	LOS B	4.2	106.6	0.70	0.95	30.8
8T	T	932	0.8	0.552	9.3	LOS A	4.3	108.9	0.70	0.75	33.4
8R	R	173	1.2	0.552	10.7	LOS B	4.3	108.9	0.69	0.80	33.4
Approach		1149	0.8	0.552	9.8	LOS A	4.3	108.9	0.70	0.76	33.3
East: Brand Rd											
1L	L	194	1.7	1.010	39.6	LOS F	17.7	445.5	1.00	1.74	18.1
6T	T	107	1.0	1.010	32.9	LOS F	17.7	445.5	1.00	1.74	18.9
6R	R	329	0.0	1.010	33.4	LOS F	17.7	445.5	1.00	1.74	18.4
Approach		630	0.7	1.010	35.3	LOS D	17.7	445.5	1.00	1.74	18.4
North: Hyland-Croy Rd											
7L	L	203	0.0	0.337	14.6	LOS B	2.1	52.5	0.57	0.80	30.8
4T	T	500	4.6	0.337	7.6	LOS A	2.1	54.9	0.56	0.58	34.2
4R	R	13	0.0	0.337	9.1	LOS A	2.1	54.9	0.56	0.68	34.1
Approach		717	3.2	0.337	9.6	LOS A	2.1	54.9	0.56	0.64	33.1
West: Mitchell-Dewitt Rd											
5L	L	42	5.3	0.479	18.3	LOS B	2.3	58.9	0.67	1.02	30.3
2T	T	223	0.0	0.479	10.0	LOS B	2.3	58.9	0.67	0.81	33.5
2R	R	61	3.8	0.479	11.4	LOS B	2.3	58.9	0.67	0.88	33.5
Approach		327	1.4	0.479	11.4	LOS B	2.3	58.9	0.67	0.85	33.0
All Vehicles		2822	1.5	1.010	15.6	LOS B	17.7	445.5	0.73	0.96	28.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Full Build w/o HCSD - Expanded

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1-lane on EB & WB approaches, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	43	0.0	0.552	17.6	LOS B	4.2	106.6	0.70	0.95	30.8
8T	T	916	0.8	0.552	9.3	LOS A	4.3	108.9	0.70	0.75	33.4
8R	R	190	1.2	0.552	10.7	LOS B	4.3	108.9	0.69	0.80	33.4
Approach		1149	0.8	0.552	9.9	LOS A	4.3	108.9	0.70	0.76	33.3
East: Brand Rd											
1L	L	199	1.7	1.008	38.9	LOS F	17.7	443.8	1.00	1.73	18.3
6T	T	108	1.0	1.008	32.2	LOS F	17.7	443.8	1.00	1.73	19.1
6R	R	329	0.0	1.008	32.7	LOS F	17.7	443.8	1.00	1.73	18.6
Approach		636	0.7	1.008	34.6	LOS C	17.7	443.8	1.00	1.73	18.6
North: Hyland-Croy Rd											
7L	L	203	0.0	0.336	14.6	LOS B	2.1	52.5	0.57	0.80	30.8
4T	T	496	4.6	0.336	7.7	LOS A	2.1	54.9	0.57	0.58	34.1
4R	R	12	0.0	0.336	9.1	LOS A	2.1	54.9	0.57	0.68	34.1
Approach		711	3.2	0.336	9.7	LOS A	2.1	54.9	0.57	0.64	33.1
West: Mitchell-Dewitt Rd											
5L	L	39	5.3	0.480	18.3	LOS B	2.3	59.1	0.67	1.02	30.3
2T	T	227	0.0	0.480	10.1	LOS B	2.3	59.1	0.67	0.81	33.5
2R	R	61	3.8	0.480	11.4	LOS B	2.3	59.1	0.67	0.88	33.5
Approach		327	1.3	0.480	11.3	LOS B	2.3	59.1	0.67	0.85	33.1
All Vehicles		2822	1.5	1.008	15.6	LOS B	17.7	443.8	0.73	0.96	28.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Background - Expanded w/ EBRT

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1-lane on EB approach, thru/left & right turn lane on WB approach, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	43	0.0	0.850	22.6	LOS C	14.3	358.6	0.97	1.06	28.5
8T	T	902	0.8	0.850	14.4	LOS B	14.3	358.6	0.97	1.04	31.0
8R	R	164	1.2	0.243	10.8	LOS B	1.2	30.1	0.59	0.75	33.3
Approach		1110	0.8	0.850	14.2	LOS B	14.3	358.6	0.91	1.00	31.2
East: Brand Rd											
1L	L	189	1.7	0.685	27.1	LOS C	6.9	175.5	1.00	1.17	21.4
6T	T	106	1.0	0.685	20.1	LOS C	6.9	175.5	1.00	1.18	22.7
6R	R	329	0.0	0.621	17.2	LOS B	6.5	163.7	1.00	1.13	24.0
Approach		623	0.7	0.685	20.7	LOS C	6.9	175.5	1.00	1.15	22.9
North: Hyland-Croy Rd											
7L	L	203	0.0	0.601	15.3	LOS B	5.3	135.6	0.71	0.85	31.1
4T	T	483	4.6	0.601	8.2	LOS A	5.3	135.6	0.71	0.65	33.2
4R	R	9	0.0	0.012	9.4	LOS A	0.1	1.3	0.47	0.58	33.9
Approach		696	3.2	0.601	10.3	LOS B	5.3	135.6	0.70	0.71	32.5
West: Mitchell-Dewitt Rd											
5L	L	36	5.3	0.584	25.3	LOS C	5.0	127.2	0.93	1.10	26.9
2T	T	221	0.0	0.584	17.0	LOS B	5.0	127.2	0.93	1.06	29.1
2R	R	61	3.8	0.584	18.7	LOS B	5.0	127.2	0.93	1.07	28.9
Approach		318	1.3	0.584	18.2	LOS B	5.0	127.2	0.93	1.07	28.8
All Vehicles		2747	1.5	0.850	15.1	LOS B	14.3	358.6	0.88	0.97	28.9

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Full Build w/ HCSD - Expanded w/ EBRT

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1-lane on EB approach, thru/left & right turn lane on WB approach, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	43	0.0	0.885	24.6	LOS C	17.0	426.8	1.00	1.12	27.5
8T	T	932	0.8	0.885	16.4	LOS B	17.0	426.8	1.00	1.12	29.7
8R	R	173	1.2	0.259	10.9	LOS B	1.3	32.6	0.60	0.76	33.3
Approach		1149	0.8	0.885	15.9	LOS B	17.0	426.8	0.94	1.07	30.1
East: Brand Rd											
1L	L	194	1.7	0.759	33.4	LOS C	8.5	214.7	1.00	1.24	19.6
6T	T	107	1.0	0.759	26.4	LOS C	8.5	214.7	1.00	1.24	20.6
6R	R	329	0.0	0.672	20.8	LOS C	7.5	188.5	1.00	1.17	22.5
Approach		630	0.7	0.759	25.7	LOS C	8.5	214.7	1.00	1.20	21.1
North: Hyland-Croy Rd											
7L	L	203	0.0	0.619	15.5	LOS B	5.7	145.9	0.73	0.86	31.0
4T	T	500	4.6	0.619	8.5	LOS A	5.7	145.9	0.73	0.67	33.1
4R	R	13	0.0	0.018	9.4	LOS A	0.1	2.0	0.48	0.60	33.9
Approach		717	3.2	0.619	10.5	LOS B	5.7	145.9	0.72	0.72	32.5
West: Mitchell-Dewitt Rd											
5L	L	42	5.3	0.623	27.0	LOS C	5.7	143.4	0.95	1.12	26.2
2T	T	223	0.0	0.623	18.6	LOS B	5.7	143.4	0.95	1.10	28.1
2R	R	61	3.8	0.623	20.3	LOS C	5.7	143.4	0.95	1.10	27.9
Approach		327	1.4	0.623	20.0	LOS C	5.7	143.4	0.95	1.10	27.8
All Vehicles		2822	1.5	0.885	17.2	LOS B	17.0	426.8	0.90	1.01	27.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Full Build w/o HCSD - Expanded w/ EBRT

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1-lane on EB approach, thru/left & right turn lane on WB approach, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Hyland-Croy Rd											
3L	L	43	0.0	0.870	23.7	LOS C	15.7	396.1	1.00	1.09	27.9
8T	T	916	0.8	0.870	15.6	LOS B	15.7	396.1	1.00	1.09	30.2
8R	R	190	1.2	0.283	11.0	LOS B	1.4	36.3	0.61	0.77	33.2
Approach		1149	0.8	0.870	15.1	LOS B	15.7	396.1	0.93	1.04	30.6
East: Brand Rd											
1L	L	199	1.7	0.744	31.2	LOS C	8.2	206.5	1.00	1.22	20.2
6T	T	108	1.0	0.744	24.2	LOS C	8.2	206.5	1.00	1.22	21.3
6R	R	329	0.0	0.649	19.0	LOS B	7.1	176.9	1.00	1.15	23.2
Approach		636	0.7	0.744	23.7	LOS C	8.2	206.5	1.00	1.19	21.8
North: Hyland-Croy Rd											
7L	L	203	0.0	0.619	15.6	LOS B	5.7	146.0	0.73	0.86	30.9
4T	T	496	4.6	0.619	8.5	LOS A	5.7	146.0	0.73	0.68	33.1
4R	R	12	0.0	0.017	9.5	LOS A	0.1	1.9	0.48	0.60	33.8
Approach		711	3.2	0.619	10.5	LOS B	5.7	146.0	0.73	0.73	32.4
West: Mitchell-Dewitt Rd											
5L	L	39	5.3	0.622	27.0	LOS C	5.7	143.1	0.95	1.12	26.2
2T	T	227	0.0	0.622	18.6	LOS B	5.7	143.1	0.95	1.10	28.1
2R	R	61	3.8	0.622	20.3	LOS C	5.7	143.1	0.95	1.10	28.0
Approach		327	1.3	0.622	19.9	LOS B	5.7	143.1	0.95	1.10	27.8
All Vehicles		2822	1.5	0.870	16.5	LOS B	15.7	396.1	0.90	1.00	28.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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HYLAND-CROY ROAD / POST ROAD

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Post
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Background
Analysis Time Period	AM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Post Rd	North/South Street: Hyland-Croy Rd
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	194	555			284	78
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	215	616	0	0	315	86
Percent Heavy Vehicles	4	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				165		250
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	183	0	277
Percent Heavy Vehicles	0	0	0	1	0	2
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	215						460	
C (m) (veh/h)	1140						327	
v/c	0.19						1.41	
95% queue length	0.69						23.86	
Control Delay (s/veh)	8.9						231.4	
LOS	A						F	
Approach Delay (s/veh)	--	--				231.4		
Approach LOS	--	--				F		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Post
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Full Build
Analysis Time Period	AM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Post Rd	North/South Street: Hyland-Croy Rd
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	201	555			284	82
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	223	616	0	0	315	91
Percent Heavy Vehicles	4	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				176		271
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	195	0	301
Percent Heavy Vehicles	0	0	0	1	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	223						496	
C (m) (veh/h)	1135						320	
v/c	0.20						1.55	
95% queue length	0.73						28.52	
Control Delay (s/veh)	8.9						292.2	
LOS	A						F	
Approach Delay (s/veh)	--	--	292.2					
Approach LOS	--	--	F					

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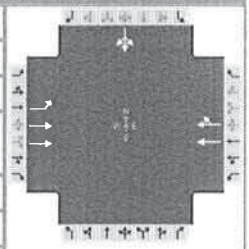
HCS 2010 Signalized Intersection Results Summary

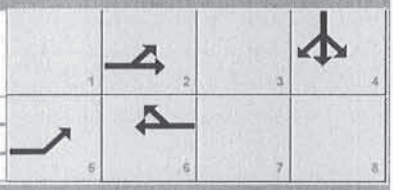
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 10, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	AM Peak - Background	PHF	0.90
Intersection	Hyland-Croy / Post Rd	Analysis Year	2014	Analysis Period	1> 7:00
File Name	2014 AM Background.xus				
Project Description	20131358 Riviera TIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	194	555			284	78				165	0	250

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	9.2	60.1	35.7	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				12.0
Phase Duration, s	14.2	79.3		65.1				40.7
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.3
Queue Clearance Time (g_s), s	8.9							34.7
Green Extension Time (g_e), s	0.4	0.0		0.0				1.0
Phase Call Probability	1.00							1.00
Max Out Probability	0.00							0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7	4	14
Adjusted Flow Rate (*v*), veh/h	216	617			206	196					461	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1740	1791			1881	1742					1651	
Queue Service Time (g_s), s	6.9	9.5			9.6	7.6					32.7	
Cycle Queue Clearance Time (g_c), s	6.9	9.5			9.6	7.6					32.7	
Green Ratio (*g/C*)	0.59	0.62			0.50	0.50					0.30	
Capacity (*c*), veh/h	597	2218			942	872					491	
Volume-to-Capacity Ratio (*X*)	0.361	0.278			0.219	0.225					0.939	
Available Capacity (c_a), veh/h	860	2218			942	872					784	
Back of Queue (*Q*), veh/ln (50th percentile)	2.6	3.7			3.3	3.1					14.4	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00					0.00	
Uniform Delay (d_1), s/veh	12.0	10.5			16.8	16.9					41.1	
Incremental Delay (d_2), s/veh	0.1	0.3			0.5	0.6					10.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0					0.0	
Control Delay (*d*), s/veh	12.1	10.8			17.3	17.5					51.1	
Level of Service (LOS)	B	B			B	B					D	
Approach Delay, s/veh / LOS	11.2	B		17.4	B		0.0			51.1	D	
Intersection Delay, s/veh / LOS	23.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.9	A	2.1	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	1.2	A	0.8	A			1.2	A

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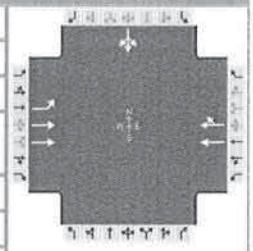
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 10, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	AM Peak - Full Build	PHF	0.90
Intersection	Hyland-Croy / Post Rd	Analysis Year	2014	Analysis Period	1> 7:00
File Name	2014 AM Full Build.xus				
Project Description	20131358 Riviera TIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	201	555			284	82				176	0	271

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	9.9	56.8	38.3	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				12.0
Phase Duration, s	14.9	76.7		61.8				43.3
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.3
Queue Clearance Time (g_s), s	9.6							37.2
Green Extension Time (g_e), s	0.3	0.0		0.0				1.1
Phase Call Probability	1.00							1.00
Max Out Probability	0.00							0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7	4	14
Adjusted Flow Rate (*v*), veh/h	223	617			209	198					497	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1740	1791			1881	1737					1650	
Queue Service Time (g_s), s	7.6	10.0			9.7	8.1					35.2	
Cycle Queue Clearance Time (g_c), s	7.6	10.0			9.7	8.1					35.2	
Green Ratio (*g/C*)	0.57	0.60			0.47	0.47					0.32	
Capacity (*c*), veh/h	579	2141			891	823					526	
Volume-to-Capacity Ratio (*X*)	0.386	0.288			0.234	0.241					0.943	
Available Capacity (c_a), veh/h	793	2141			891	823					784	
Back of Queue (*Q*), veh/ln (50th percentile)	2.9	3.9			3.5	3.4					15.7	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00					0.00	
Uniform Delay (d_1), s/veh	13.3	11.7			18.7	18.8					39.8	
Incremental Delay (d_2), s/veh	0.2	0.3			0.6	0.7					12.5	
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0					0.0	
Control Delay (*d*), s/veh	13.5	12.1			19.3	19.5					52.3	
Level of Service (LOS)	B	B			B	B					D	
Approach Delay, s/veh / LOS	12.4	B		19.4	B		0.0			52.3	D	
Intersection Delay, s/veh / LOS	25.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.9	A	2.1	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	1.2	A	0.8	A			1.3	A

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Post
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Background
Analysis Time Period	AM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Post Rd	North/South Street: Hyland-Croy Rd
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	368	783			400	154
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	408	870	0	0	444	171
Percent Heavy Vehicles	4	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				299		591
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	332	0	656
Percent Heavy Vehicles	0	0	0	1	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	408						988	
C (m) (veh/h)	947						112	
v/c	0.43						8.82	
95% queue length	2.20						112.79	
Control Delay (s/veh)	11.6						3593	
LOS	B						F	
Approach Delay (s/veh)	--	--					3593	
Approach LOS	--	--					F	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Post
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Full Build
Analysis Time Period	AM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Post Rd | North/South Street: Hyland-Croy Rd

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	375	783			400	158
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	416	870	0	0	444	175
Percent Heavy Vehicles	4	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				310		612
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	344	0	680
Percent Heavy Vehicles	0	0	0	1	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	416						1024	
C (m) (veh/h)	944						107	
v/c	0.44						9.57	
95% queue length	2.28						117.88	
Control Delay (s/veh)	11.8						3932	
LOS	B						F	
Approach Delay (s/veh)	--	--	3932					
Approach LOS	--	--	F					

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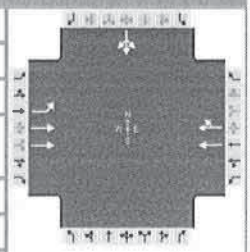
HCS 2010 Signalized Intersection Results Summary

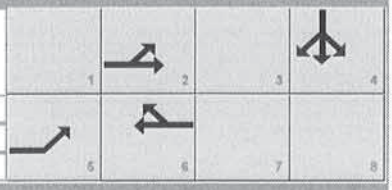
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 10, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	AM Peak - Background	PHF	0.90
Intersection	Hyland-Croy / Post Rd	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 AM Background.xus				
Project Description	20131358 Riviera TIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	368	783			400	154				299	0	591

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	11.0	27.0	67.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				12.0
Phase Duration, s	16.0	48.0		32.0				72.0
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.3
Queue Clearance Time (g_s), s	13.0							69.0
Green Extension Time (g_e), s	0.0	0.0		0.0				0.0
Phase Call Probability	1.00							1.00
Max Out Probability	1.00							1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7	4	14
Adjusted Flow Rate (*v*), veh/h	409	870			321	294					989	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1740	1791			1881	1703					1639	
Queue Service Time (g_s), s	11.0	24.7			18.8	19.4					67.0	
Cycle Queue Clearance Time (g_c), s	11.0	24.7			18.8	19.4					67.0	
Green Ratio (*g/C*)	0.33	0.36			0.22	0.22					0.56	
Capacity (*c*), veh/h	269	1283			423	383					915	
Volume-to-Capacity Ratio (*X*)	1.519	0.678			0.759	0.768					1.080	
Available Capacity (c_a), veh/h	269	1283			423	383					915	
Back of Queue (*Q*), veh/ln (50th percentile)	21.6	11.0			10.2	9.5					37.8	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00					0.00	
Uniform Delay (d_1), s/veh	38.9	32.6			43.5	43.6					26.5	
Incremental Delay (d_2), s/veh	251.8	2.9			12.0	13.8					53.9	
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0					0.0	
Control Delay (*d*), s/veh	290.6	35.5			55.5	57.3					80.4	
Level of Service (LOS)	F	D			E	E					F	
Approach Delay, s/veh / LOS	117.1	F		56.4	E		0.0			80.4	F	
Intersection Delay, s/veh / LOS	91.6						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.9	A	2.1	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	1.5	A	1.0	A			2.1	B

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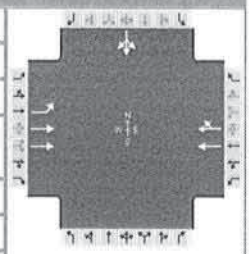
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 10, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	AM Peak - Full Build	PHF	0.90
Intersection	Hyland-Croy / Post Rd	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 AM Full Build.xus				
Project Description	20131358 Riviera TIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	375	783			400	158				310	0	612

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	11.0	27.0	67.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				12.0
Phase Duration, s	16.0	48.0		32.0				72.0
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.3
Queue Clearance Time (g_s), s	13.0							69.0
Green Extension Time (g_e), s	0.0	0.0		0.0				0.0
Phase Call Probability	1.00							1.00
Max Out Probability	1.00							1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7	4	14
Adjusted Flow Rate (*v*), veh/h	417	870			324	296					1024	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1740	1791			1881	1700					1639	
Queue Service Time (g_s), s	11.0	24.7			19.0	19.6					67.0	
Cycle Queue Clearance Time (g_c), s	11.0	24.7			19.0	19.6					67.0	
Green Ratio (*g/C*)	0.33	0.36			0.22	0.22					0.56	
Capacity (*c*), veh/h	268	1283			423	382					915	
Volume-to-Capacity Ratio (*X*)	1.556	0.678			0.765	0.775					1.119	
Available Capacity (c_a), veh/h	268	1283			423	382					915	
Back of Queue (Q), veh/ln (50th percentile)	22.7	11.0			10.3	9.7					41.4	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00					0.00	
Uniform Delay (d_1), s/veh	38.8	32.6			43.5	43.6					26.5	
Incremental Delay (d_2), s/veh	268.0	2.9			12.4	14.2					68.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0					0.0	
Control Delay (*d*), s/veh	306.7	35.5			55.9	57.8					94.7	
Level of Service (LOS)	F	D			E	E					F	
Approach Delay, s/veh / LOS	123.4	F		56.8	E		0.0			94.7	F	
Intersection Delay, s/veh / LOS	99.3						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.9	A	2.1	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	1.5	A	1.0	A			2.2	B

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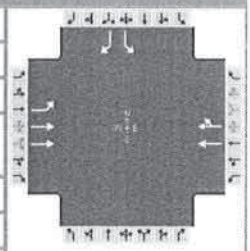
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 10, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	AM Peak - Background	PHF	0.90
Intersection	Hyland-Croy / Post Rd	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 AM Background.xus				
Project Description	20131358 Riviera TIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	368	783			400	154				299		591

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	20.1	41.5	43.4	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				9.0
Phase Duration, s	25.1	71.6		46.5				48.4
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.3
Queue Clearance Time (g_s), s	19.3							40.9
Green Extension Time (g_e), s	0.8	0.0		0.0				2.5
Phase Call Probability	1.00							1.00
Max Out Probability	0.00							0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate (*v*), veh/h	409	870			321	294				332		657
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1740	1791			1881	1703				1810		1610
Queue Service Time (g_s), s	17.3	17.1			21.5	16.4				17.2		38.9
Cycle Queue Clearance Time (g_c), s	17.3	17.1			21.5	16.4				17.2		38.9
Green Ratio (*g/C*)	0.53	0.56			0.35	0.35				0.36		0.53
Capacity (*c*), veh/h	483	1988			650	589				654		852
Volume-to-Capacity Ratio (*X*)	0.846	0.438			0.494	0.500				0.508		0.771
Available Capacity (c_a), veh/h	882	1988			650	589				1221		1357
Back of Queue (*Q*), veh/ln (50th percentile)	6.9	6.9			7.7	7.2				7.4		14.1
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00				0.00		0.00
Uniform Delay (d_1), s/veh	22.0	15.7			31.0	31.1				30.0		22.5
Incremental Delay (d_2), s/veh	1.6	0.7			2.7	3.0				0.2		0.6
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay (*d*), s/veh	23.6	16.4			33.6	34.1				30.2		23.0
Level of Service (LOS)	C	B			C	C				C		C
Approach Delay, s/veh / LOS	18.7	B		33.8	C		0.0			25.4	C	
Intersection Delay, s/veh / LOS	24.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.7	A	2.3	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	1.5	A	1.0	A				F

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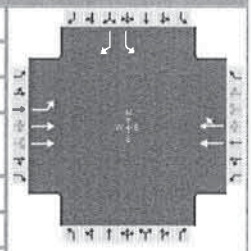
HCS 2010 Signalized Intersection Results Summary

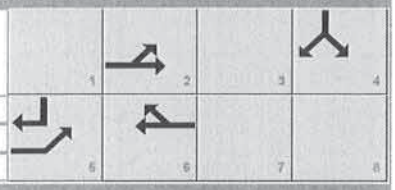
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 10, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	AM Peak - Full Build	PHF	0.90
Intersection	Hyland-Croy / Post Rd	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 AM Full Build.xus				
Project Description	20131358 Riviera TIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	375	783			400	158				310		612

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	20.9	39.6	44.5	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				9.0
Phase Duration, s	25.9	70.5		44.6				49.5
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.3
Queue Clearance Time (g_s), s	20.1							41.9
Green Extension Time (g_e), s	0.8	0.0		0.0				2.5
Phase Call Probability	1.00							1.00
Max Out Probability	0.00							0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate (*v*), veh/h	417	870			324	296				344		680
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1740	1791			1881	1700				1810		1610
Queue Service Time (g_s), s	18.1	17.5			20.4	17.0				17.8		39.9
Cycle Queue Clearance Time (g_c), s	18.1	17.5			20.4	17.0				17.8		39.9
Green Ratio (*g/C*)	0.52	0.55			0.33	0.33				0.37		0.54
Capacity (*c*), veh/h	489	1956			621	561				671		877
Volume-to-Capacity Ratio (*X*)	0.853	0.445			0.521	0.528				0.514		0.775
Available Capacity (c_a), veh/h	773	1956			621	561				965		1139
Back of Queue (*Q*), veh/ln (50th percentile)	7.4	7.1			8.0	7.4				7.6		14.6
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00				0.00		0.00
Uniform Delay (d_1), s/veh	22.4	16.3			32.5	32.6				29.4		21.5
Incremental Delay (d_2), s/veh	3.1	0.7			3.1	3.5				0.2		1.8
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay (*d*), s/veh	25.5	17.1			35.6	36.1				29.6		23.3
Level of Service (LOS)	C	B			D	D				C		C
Approach Delay, s/veh / LOS	19.8	B		35.9	D		0.0			25.4	C	
Intersection Delay, s/veh / LOS	25.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.7	A	2.3	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	1.5	A	1.0	A				F

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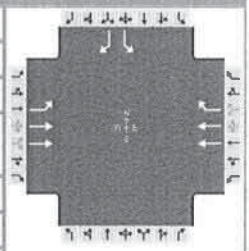
HCS 2010 Signalized Intersection Results Summary

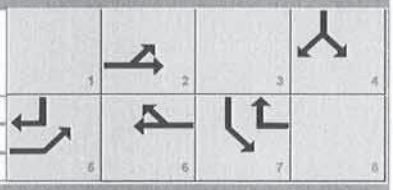
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 10, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	AM Peak - Background	PHF	0.90
Intersection	Hyland-Croy / Post Rd	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 AM Background.xus				
Project Description	20131358 Riviera TIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	368	783			400	154				299		591

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	20.1	41.5	43.4	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		7.3				9.0
Phase Duration, s	25.1	71.6		46.5				48.4
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.3
Queue Clearance Time (g_s), s	19.3							40.9
Green Extension Time (g_e), s	0.8	0.0		0.0				2.5
Phase Call Probability	1.00							1.00
Max Out Probability	0.00							0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate (*v*), veh/h	409	870			444	171				332		657
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1740	1791			1791	1610				1810		1610
Queue Service Time (g_s), s	17.3	17.1			11.1	4.2				17.2		38.9
Cycle Queue Clearance Time (g_c), s	17.3	17.1			11.1	4.2				17.2		38.9
Green Ratio (*g/C*)	0.53	0.56			0.35	0.71				0.36		0.53
Capacity (*c*), veh/h	585	1988			1238	1139				654		852
Volume-to-Capacity Ratio (*X*)	0.698	0.438			0.359	0.150				0.508		0.770
Available Capacity (c_a), veh/h	1100	1988			1238	1139				1252		1384
Back of Queue (Q), veh/ln (50th percentile)	6.8	6.9			4.9	1.4				7.4		14.1
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00				0.00		0.00
Uniform Delay (d_1), s/veh	18.6	15.7			29.3	5.8				30.0		22.4
Incremental Delay (d_2), s/veh	0.6	0.7			0.8	0.3				0.2		0.6
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay (*d*), s/veh	19.2	16.4			30.1	6.0				30.2		23.0
Level of Service (LOS)	B	B			C	A				C		C
Approach Delay, s/veh / LOS	17.3	B		23.4	C		0.0			25.4	C	
Intersection Delay, s/veh / LOS	21.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.7	A	2.3	B	2.9	C	2.9	C
Bicycle LOS Score / LOS	1.5	A	1.0	A				F

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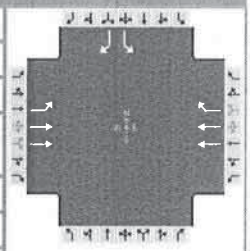
HCS 2010 Signalized Intersection Results Summary

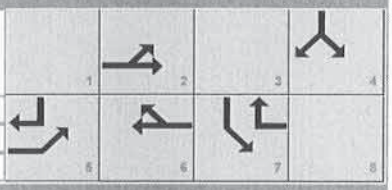
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 10, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	AM Peak - Full Build	PHF	0.90
Intersection	Hyland-Croy / Post Rd	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 AM Full Build.xus				
Project Description	20131358 Riviera TIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	375	783			400	158				310		612

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	20.9	39.6	44.5	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		7.3				9.0
Phase Duration, s	25.9	70.5		44.6				49.5
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.3
Queue Clearance Time (g_s), s	20.1							41.9
Green Extension Time (g_e), s	0.8	0.0		0.0				2.6
Phase Call Probability	1.00							1.00
Max Out Probability	0.00							0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate (*v*), veh/h	417	870			444	176				344		680
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1740	1791			1791	1610				1810		1610
Queue Service Time (g_s), s	18.1	17.5			11.4	4.4				17.7		39.9
Cycle Queue Clearance Time (g_c), s	18.1	17.5			11.4	4.4				17.7		39.9
Green Ratio (*g/C*)	0.52	0.55			0.33	0.70				0.37		0.55
Capacity (*c*), veh/h	580	1955			1181	1128				671		878
Volume-to-Capacity Ratio (*X*)	0.718	0.445			0.376	0.156				0.513		0.774
Available Capacity (c_a), veh/h	1081	1955			1181	1128				1282		1421
Back of Queue (*Q*), veh/ln (50th percentile)	7.1	7.1			5.0	1.4				7.6		14.3
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00				0.00		0.00
Uniform Delay (d_1), s/veh	19.5	16.3			30.8	6.0				29.3		21.5
Incremental Delay (d_2), s/veh	0.6	0.7			0.9	0.3				0.2		0.6
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay (*d*), s/veh	20.1	17.1			31.7	6.3				29.6		22.0
Level of Service (LOS)	C	B			C	A				C		C
Approach Delay, s/veh / LOS	18.1	B		24.5	C		0.0			24.6	C	
Intersection Delay, s/veh / LOS	21.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.7	A	2.3	B	2.9	C	2.9	C
Bicycle LOS Score / LOS	1.5	A	1.0	A				F

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MOVEMENT SUMMARY

Site: 2024 AM Background

Roundabout with thru/left and thru lanes on EB approach, thru/right and thru lanes on WB approach, 1 lane on SB approach, 2 circulating lanes EB & WB, and 1 circulating lane SB & NB

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Post Rd											
6T	T	444	0.4	0.298	5.4	LOS A	1.8	45.4	0.58	0.52	29.8
6R	R	171	1.3	0.298	6.4	LOS A	1.8	45.4	0.58	0.60	29.1
Approach		616	0.7	0.298	5.7	LOS A	1.8	45.4	0.58	0.54	29.6
North: Hyland-Croy Rd											
7L	L	332	0.8	1.097	67.0	LOS F	44.9	1136.5	1.00	2.14	14.9
4R	R	657	2.1	1.097	61.2	LOS F	44.9	1136.5	1.00	2.14	15.3
Approach		989	1.7	1.097	63.2	LOS E	44.9	1136.5	1.00	2.14	15.2
West: Post Rd											
5L	L	409	3.9	0.575	16.3	LOS B	4.7	120.8	0.68	0.81	30.8
2T	T	870	0.8	0.575	7.6	LOS A	4.8	120.8	0.67	0.59	33.6
Approach		1279	1.8	0.575	10.3	LOS B	4.8	120.8	0.68	0.66	32.6
All Vehicles		2883	1.5	1.097	27.5	LOS C	44.9	1136.5	0.77	1.14	23.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Full Build

Roundabout with thru/left and thru lanes on EB approach, thru/right and thru lanes on WB approach, 1 lane on SB approach, 2 circulating lanes EB & WB, and 1 circulating lane SB & NB

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Post Rd											
6T	T	444	0.4	0.302	5.5	LOS A	1.8	46.3	0.59	0.52	29.7
6R	R	176	1.3	0.302	6.4	LOS A	1.8	46.3	0.59	0.61	29.0
Approach		620	0.7	0.302	5.7	LOS A	1.8	46.3	0.59	0.55	29.5
North: Hyland-Croy Rd											
7L	L	344	0.8	1.134	82.5	LOS F	54.7	1385.2	1.00	2.43	12.9
4R	R	680	2.1	1.134	76.7	LOS F	54.7	1385.2	1.00	2.42	13.1
Approach		1024	1.7	1.134	78.7	LOS E	54.7	1385.2	1.00	2.42	13.1
West: Post Rd											
5L	L	417	3.9	0.579	16.3	LOS B	4.8	122.7	0.69	0.82	30.8
2T	T	870	0.8	0.579	7.6	LOS A	4.9	122.7	0.68	0.59	33.6
Approach		1287	1.8	0.579	10.4	LOS B	4.9	122.7	0.68	0.67	32.6
All Vehicles		2931	1.5	1.134	33.3	LOS C	54.7	1385.2	0.77	1.25	21.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Background w/ SBRT

Roundabout with thru/left and thru lanes on EB approach, thru/right and thru lanes on WB approach, left and right turn lanes on SB approach, 2 circulating lanes EB & WB, and 1 circulating lane SB & NB

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Post Rd											
6T	T	444	0.4	0.296	5.4	LOS A	1.8	44.7	0.58	0.52	29.8
6R	R	171	1.3	0.296	6.4	LOS A	1.8	44.7	0.57	0.60	29.1
Approach		616	0.7	0.296	5.7	LOS A	1.8	44.7	0.58	0.54	29.6
North: Hyland-Croy Rd											
7L	L	332	0.8	0.388	14.7	LOS B	1.6	41.5	0.50	0.81	30.0
4R	R	657	2.1	0.626	9.9	LOS A	4.2	105.7	0.62	0.76	33.3
Approach		989	1.7	0.626	11.5	LOS B	4.2	105.7	0.58	0.78	32.1
West: Post Rd											
5L	L	409	3.9	0.568	16.6	LOS B	4.3	110.4	0.65	0.83	30.8
2T	T	870	0.8	0.568	7.8	LOS A	4.3	110.4	0.63	0.61	33.9
Approach		1279	1.8	0.568	10.6	LOS B	4.3	110.4	0.64	0.69	32.8
All Vehicles		2883	1.5	0.626	9.9	LOS A	4.3	110.4	0.60	0.69	31.9

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Full Build w/ SBRT

Roundabout with thru/left and thru lanes on EB approach, thru/right and thru lanes on WB approach, left and right turn lanes on SB approach, 2 circulating lanes EB & WB, and 1 circulating lane SB & NB
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Post Rd											
6T	T	444	0.4	0.301	5.5	LOS A	1.8	45.9	0.59	0.52	29.7
6R	R	176	1.3	0.301	6.4	LOS A	1.8	45.9	0.58	0.61	29.0
Approach		620	0.7	0.301	5.7	LOS A	1.8	45.9	0.59	0.55	29.6
North: Hyland-Croy Rd											
7L	L	344	0.8	0.403	14.8	LOS B	1.8	44.1	0.51	0.82	30.0
4R	R	680	2.1	0.648	10.0	LOS B	4.5	114.6	0.63	0.77	33.2
Approach		1024	1.7	0.648	11.6	LOS B	4.5	114.6	0.59	0.79	32.0
West: Post Rd											
5L	L	417	3.9	0.577	16.8	LOS B	4.5	115.7	0.66	0.84	30.6
2T	T	870	0.8	0.577	8.0	LOS A	4.6	115.7	0.65	0.64	33.8
Approach		1287	1.8	0.577	10.9	LOS B	4.6	115.7	0.65	0.70	32.6
All Vehicles		2931	1.5	0.648	10.1	LOS B	4.6	115.7	0.62	0.70	31.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Post
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Background
Analysis Time Period	PM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Post Rd	North/South Street: Hyland-Croy Rd
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	295	382			548	223
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	327	424	0	0	608	247
Percent Heavy Vehicles	4	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				81		244
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	90	0	271
Percent Heavy Vehicles	0	0	0	1	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	327						361	
C (m) (veh/h)	768						177	
v/c	0.43						2.04	
95% queue length	2.14						27.86	
Control Delay (s/veh)	13.1						530.1	
LOS	B						F	
Approach Delay (s/veh)	--	--	530.1					
Approach LOS	--	--	F					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Post
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Full Build
Analysis Time Period	PM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Post Rd	North/South Street: Hyland-Croy Rd
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	318	382			548	235
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	353	424	0	0	608	261
Percent Heavy Vehicles	4	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				88		257
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	97	0	285
Percent Heavy Vehicles	0	0	0	1	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	353						382	
C (m) (veh/h)	759						154	
v/c	0.47						2.48	
95% queue length	2.49						32.86	
Control Delay (s/veh)	13.8						731.7	
LOS	B						F	
Approach Delay (s/veh)	--	--	731.7					
Approach LOS	--	--	F					

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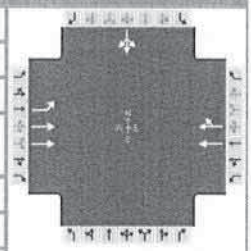
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 10, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	PM Peak - Background	PHF	0.90
Intersection	Hyland-Croy / Post Rd	Analysis Year	2014	Analysis Period	1> 7:00
File Name	2014 PM Background.xus				
Project Description	20131358 Riviera TIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	295	382			548	223				81	0	244

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	12.3	63.8	28.9	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				12.0
Phase Duration, s	17.3	86.1		68.8				33.9
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.3
Queue Clearance Time (g_s), s	11.7							28.1
Green Extension Time (g_e), s	0.6	0.0		0.0				0.8
Phase Call Probability	1.00							1.00
Max Out Probability	0.00							0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7	4	14
Adjusted Flow Rate (*v*), veh/h	328	424			450	406					361	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1740	1791			1881	1695					1623	
Queue Service Time (g_s), s	9.7	5.2			23.9	17.7					26.1	
Cycle Queue Clearance Time (g_c), s	9.7	5.2			23.9	17.7					26.1	
Green Ratio (*g/C*)	0.65	0.68			0.53	0.53					0.24	
Capacity (*c*), veh/h	448	2421			1000	901					391	
Volume-to-Capacity Ratio (*X*)	0.731	0.175			0.450	0.451					0.925	
Available Capacity (c_a), veh/h	764	2421			1000	901					771	
Back of Queue (*Q*), veh/ln (50th percentile)	3.5	1.9			7.8	7.1					10.8	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00					0.00	
Uniform Delay (d_1), s/veh	14.8	7.1			17.3	17.3					44.5	
Incremental Delay (d_2), s/veh	0.9	0.2			1.5	1.6					4.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0					0.0	
Control Delay (*d*), s/veh	15.7	7.3			18.8	18.9					48.5	
Level of Service (LOS)	B	A			B	B					D	
Approach Delay, s/veh / LOS	11.0	B		18.8	B		0.0			48.5	D	
Intersection Delay, s/veh / LOS	21.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.9	A	2.1	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	1.1	A	1.2	A			1.1	A

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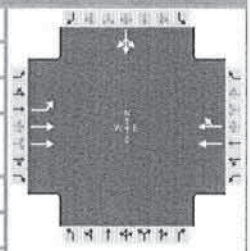
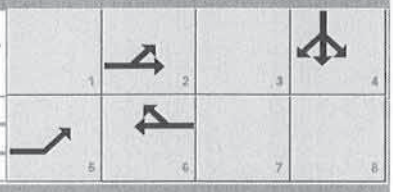
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 10, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	PM Peak - Full Build	PHF	0.90
Intersection	Hyland-Croy / Post Rd	Analysis Year	2014	Analysis Period	1> 7:00
File Name	2014 PM Full Build.xus				
Project Description	20131358 Riviera TIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	318	382			548	235				88	0	257

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	13.7	60.8	30.5	0.0	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0			



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				12.0
Phase Duration, s	18.7	84.5		65.8				35.5
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.3
Queue Clearance Time (g_s), s	13.1							29.6
Green Extension Time (g_e), s	0.6	0.0		0.0				0.9
Phase Call Probability	1.00							1.00
Max Out Probability	0.00							0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7	4	14
Adjusted Flow Rate (*v*), veh/h	353	424			458	412					383	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1740	1791			1881	1688					1624	
Queue Service Time (g_s), s	11.1	5.4			24.3	19.1					27.6	
Cycle Queue Clearance Time (g_c), s	11.1	5.4			24.3	19.1					27.6	
Green Ratio (*g/C*)	0.64	0.66			0.51	0.51					0.25	
Capacity (*c*), veh/h	448	2373			953	855					413	
Volume-to-Capacity Ratio (*X*)	0.789	0.179			0.481	0.482					0.928	
Available Capacity (c_a), veh/h	720	2373			953	855					772	
Back of Queue (*Q*), veh/ln (50th percentile)	4.1	2.0			8.5	7.7					11.4	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00					0.00	
Uniform Delay (d_1), s/veh	16.6	7.8			19.3	19.3					43.7	
Incremental Delay (d_2), s/veh	1.2	0.2			1.7	1.9					4.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0					0.0	
Control Delay (*d*), s/veh	17.8	7.9			21.1	21.3					47.7	
Level of Service (LOS)	B	A			C	C					D	
Approach Delay, s/veh / LOS	12.4	B		21.2	C		0.0			47.7	D	
Intersection Delay, s/veh / LOS	22.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.9	A	2.1	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	1.1	A	1.2	A			1.1	A

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Post
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Background
Analysis Time Period	PM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Post Rd	North/South Street: Hyland-Croy Rd
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	666	539			774	397
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	740	598	0	0	860	441
Percent Heavy Vehicles	4	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				188		511
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	208	0	567
Percent Heavy Vehicles	0	0	0	1	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	740						775	
C (m) (veh/h)	518						0	
v/c	1.43							
95% queue length	35.55							
Control Delay (s/veh)	225.7							
LOS	F						F	
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Hyland-Croy/Post
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Full Build
Analysis Time Period	PM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Post Rd	North/South Street: Hyland-Croy Rd
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	689	539			774	409
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	765	598	0	0	860	454
Percent Heavy Vehicles	4	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				195		524
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	216	0	582
Percent Heavy Vehicles	0	0	0	1	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	765						798	
C (m) (veh/h)	512						0	
v/c	1.49							
95% queue length	38.98							
Control Delay (s/veh)	253.9							
LOS	F						F	
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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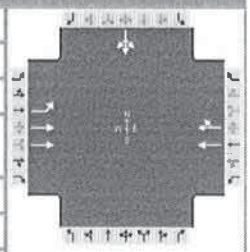
HCS 2010 Signalized Intersection Results Summary

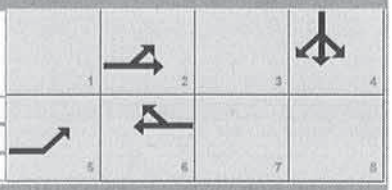
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 10, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	PM Peak - Background	PHF	0.90
Intersection	Hyland-Croy / Post Rd	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 PM Background.xus				
Project Description	20131358 Riviera TIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	666	539			774	397				188	0	511

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	18.8	27.0	59.2	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				12.0
Phase Duration, s	23.8	55.8		32.0				64.2
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.3
Queue Clearance Time (g_s), s	20.8							57.5
Green Extension Time (g_e), s	0.0	0.0		0.0				1.6
Phase Call Probability	1.00							1.00
Max Out Probability	1.00							0.11

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7	4	14
Adjusted Flow Rate (*v*), veh/h	740	599			686	615					777	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1740	1791			1881	1666					1627	
Queue Service Time (g_s), s	18.8	13.9			51.2	27.0					55.5	
Cycle Queue Clearance Time (g_c), s	18.8	13.9			51.2	27.0					55.5	
Green Ratio (*g/C*)	0.40	0.42			0.23	0.23					0.49	
Capacity (*c*), veh/h	333	1516			423	375					803	
Volume-to-Capacity Ratio (*X*)	2.225	0.395			1.620	1.641					0.968	
Available Capacity (c_a), veh/h	333	1516			423	375					908	
Back of Queue (*Q*), veh/ln (50th percentile)	59.6	6.0			46.5	42.3					25.1	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00					0.00	
Uniform Delay (d_1), s/veh	35.9	24.0			46.5	46.5					29.5	
Incremental Delay (d_2), s/veh	561.0	0.8			289.6	300.3					20.5	
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0					0.0	
Control Delay (*d*), s/veh	596.9	24.7			336.1	346.8					50.0	
Level of Service (LOS)	F	C			F	F					D	
Approach Delay, s/veh / LOS	340.9	F		341.2	F		0.0			50.0	D	
Intersection Delay, s/veh / LOS	274.9						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.9	A	2.1	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	1.6	A	1.6	A			1.8	A

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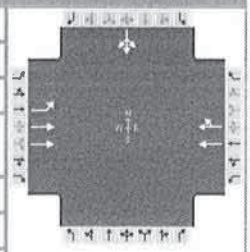
HCS 2010 Signalized Intersection Results Summary

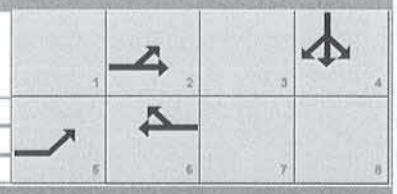
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 10, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	PM Peak - Full Build	PHF	0.90
Intersection	Hyland-Croy / Post Rd	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 PM Full Build.xus				
Project Description	20131358 Riviera TIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	689	539			774	409				195	0	524

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	17.3	27.0	60.7	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				12.0
Phase Duration, s	22.3	54.3		32.0				65.7
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.3
Queue Clearance Time (g_s), s	19.3							59.2
Green Extension Time (g_e), s	0.0	0.0		0.0				1.6
Phase Call Probability	1.00							1.00
Max Out Probability	1.00							0.21

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7	4	14
Adjusted Flow Rate (*v*), veh/h	766	599			693	621					799	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1740	1791			1881	1662					1627	
Queue Service Time (g_s), s	17.3	14.2			52.0	27.0					57.2	
Cycle Queue Clearance Time (g_c), s	17.3	14.2			52.0	27.0					57.2	
Green Ratio (*g/C*)	0.39	0.41			0.23	0.23					0.51	
Capacity (*c*), veh/h	310	1471			423	374					824	
Volume-to-Capacity Ratio (*X*)	2.467	0.407			1.637	1.661					0.970	
Available Capacity (c_a), veh/h	310	1471			423	374					909	
Back of Queue (Q), veh/ln (50th percentile)	64.9	6.1			47.4	43.1					25.8	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00					0.00	
Uniform Delay (d_1), s/veh	35.4	25.0			46.5	46.5					28.8	
Incremental Delay (d_2), s/veh	669.6	0.8			297.3	309.1					21.3	
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0					0.0	
Control Delay (*d*), s/veh	705.1	25.9			343.8	355.6					50.1	
Level of Service (LOS)	F	C			F	F					D	
Approach Delay, s/veh / LOS	407.0	F		349.4	F		0.0			50.1	D	
Intersection Delay, s/veh / LOS	303.2						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.9	A	2.1	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	1.6	A	1.6	A			1.8	A

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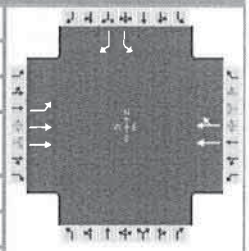
HCS 2010 Signalized Intersection Results Summary

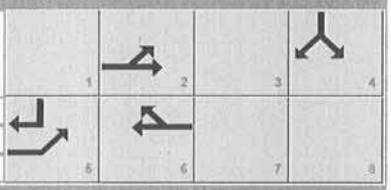
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 10, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	PM Peak - Background	PHF	0.90
Intersection	Hyland-Croy / Post Rd	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 PM Background.xus				
Project Description	20131358 Riviera TIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	666	539			774	397				188		511

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	46.0	44.0	15.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				9.0
Phase Duration, s	51.0	100.0		49.0				20.0
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.3
Queue Clearance Time (g_s), s	48.0							17.0
Green Extension Time (g_e), s	0.0	0.0		0.0				0.0
Phase Call Probability	1.00							1.00
Max Out Probability	1.00							1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate (*v*), veh/h	740	599			686	615				209		568
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1740	1791			1881	1666				1810		1610
Queue Service Time (g_s), s	46.0	5.0			41.9	44.0				13.7		15.0
Cycle Queue Clearance Time (g_c), s	46.0	5.0			41.9	44.0				13.7		15.0
Green Ratio (*g/C*)	0.77	0.79			0.37	0.37				0.12		0.51
Capacity (*c*), veh/h	727	2836			690	611				226		818
Volume-to-Capacity Ratio (*X*)	1.018	0.211			0.994	1.007				0.924		0.694
Available Capacity (c_a), veh/h	727	2836			690	611				226		818
Back of Queue (*Q*), veh/ln (50th percentile)	28.0	1.4			25.7	23.8				8.6		12.1
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00				0.00		0.00
Uniform Delay (d_1), s/veh	32.8	3.1			37.9	38.0				51.9		22.4
Incremental Delay (d_2), s/veh	37.9	0.2			32.9	38.2				38.8		2.1
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay (*d*), s/veh	70.7	3.3			70.7	76.2				90.7		24.5
Level of Service (LOS)	F	A			E	F				F		C
Approach Delay, s/veh / LOS	40.6	D		73.3	E		0.0			42.3	D	
Intersection Delay, s/veh / LOS	53.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.6	A	2.3	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	1.6	A	1.6	A				F

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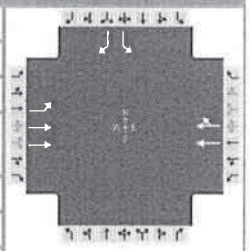
HCS 2010 Signalized Intersection Results Summary

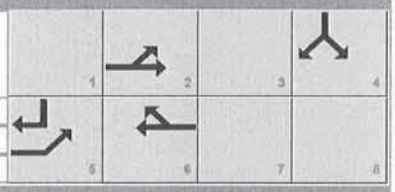
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 10, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	PM Peak - Full Build	PHF	0.90
Intersection	Hyland-Croy / Post Rd	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 PM Full Build.xus				
Project Description	20131358 Riviera TIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	689	539			774	409				195		524

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	45.0	44.0	16.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				9.0
Phase Duration, s	50.0	99.0		49.0				21.0
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.3
Queue Clearance Time (g_s), s	47.0							18.0
Green Extension Time (g_e), s	0.0	0.0		0.0				0.0
Phase Call Probability	1.00							1.00
Max Out Probability	1.00							1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate (*v*), veh/h	766	599			693	621				217		582
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1740	1791			1881	1662				1810		1610
Queue Service Time (g_s), s	45.0	5.2			42.5	44.0				14.1		16.0
Cycle Queue Clearance Time (g_c), s	45.0	5.2			42.5	44.0				14.1		16.0
Green Ratio (*g/C*)	0.76	0.78			0.37	0.37				0.13		0.51
Capacity (*c*), veh/h	712	2806			690	610				241		818
Volume-to-Capacity Ratio (*X*)	1.074	0.213			1.005	1.019				0.898		0.711
Available Capacity (c_a), veh/h	712	2806			690	610				241		818
Back of Queue (*Q*), veh/ln (50th percentile)	31.0	1.5			26.4	24.3				8.5		12.7
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00				0.00		0.00
Uniform Delay (d_1), s/veh	33.2	3.4			38.0	38.0				51.2		22.7
Incremental Delay (d_2), s/veh	55.5	0.2			35.4	41.4				31.6		2.5
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay (*d*), s/veh	88.7	3.6			73.4	79.4				82.8		25.2
Level of Service (LOS)	F	A			F	F				F		C
Approach Delay, s/veh / LOS	51.3	D		76.3	E		0.0			40.8	D	
Intersection Delay, s/veh / LOS	58.3						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.6	A	2.3	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	1.6	A	1.6	A				F

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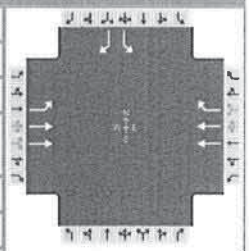
HCS 2010 Signalized Intersection Results Summary

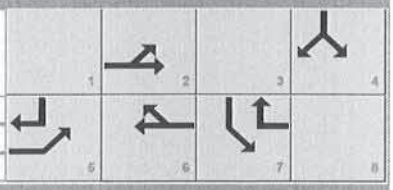
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 10, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	PM Peak - Background	PHF	0.90
Intersection	Hyland-Croy / Post Rd	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 PM Background.xus				
Project Description	20131358 Riviera TIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	666	539			774	397				188		511

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	41.2	43.8	20.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		7.3				9.0
Phase Duration, s	46.2	95.0		48.8				25.0
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.3
Queue Clearance Time (g_s), s	40.7							22.0
Green Extension Time (g_e), s	0.6	0.0		0.0				0.0
Phase Call Probability	1.00							1.00
Max Out Probability	1.00							1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate (*v*), veh/h	740	599			860	441				209		568
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1740	1791			1791	1610				1810		1610
Queue Service Time (g_s), s	38.7	6.0			24.1	21.2				13.1		20.0
Cycle Queue Clearance Time (g_c), s	38.7	6.0			24.1	21.2				13.1		20.0
Green Ratio (*g/C*)	0.73	0.75			0.37	0.53				0.17		0.51
Capacity (*c*), veh/h	761	2686			1309	857				302		820
Volume-to-Capacity Ratio (*X*)	0.973	0.223			0.657	0.515				0.693		0.692
Available Capacity (c_a), veh/h	788	2686			1309	857				302		820
Back of Queue (*Q*), veh/ln (50th percentile)	25.4	1.9			10.7	8.1				6.3		12.1
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00				0.00		0.00
Uniform Delay (d_1), s/veh	25.6	4.5			31.8	18.1				47.1		22.3
Incremental Delay (d_2), s/veh	24.8	0.2			2.6	2.2				5.6		2.1
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay (*d*), s/veh	50.4	4.7			34.4	20.3				52.7		24.4
Level of Service (LOS)	D	A			C	C				D		C
Approach Delay, s/veh / LOS	30.0	C		29.6	C		0.0			32.0	C	
Intersection Delay, s/veh / LOS	30.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.7	A	2.3	B	2.9	C	2.9	C
Bicycle LOS Score / LOS	1.6	A	1.6	A				F

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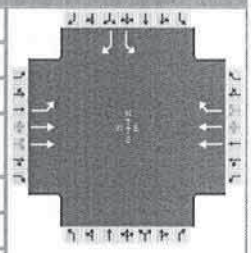
HCS 2010 Signalized Intersection Results Summary

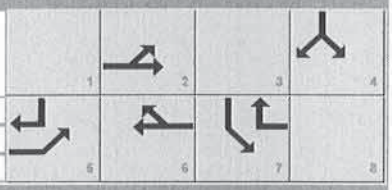
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 10, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	PM Peak - Full Build	PHF	0.90
Intersection	Hyland-Croy / Post Rd	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 PM Full Build.xus				
Project Description	20131358 Riviera TIS				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	689	539			774	409				195		524

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	43.9	41.1	20.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		7.3				9.0
Phase Duration, s	48.9	95.0		46.1				25.0
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.3
Queue Clearance Time (g_s), s	43.9							22.0
Green Extension Time (g_e), s	0.0	0.0		0.0				0.0
Phase Call Probability	1.00							1.00
Max Out Probability	1.00							1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16				7		14
Adjusted Flow Rate (*v*), veh/h	766	599			860	454				217		582
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1740	1791			1791	1610				1810		1610
Queue Service Time (g_s), s	41.9	6.0			24.9	23.1				13.6		20.0
Cycle Queue Clearance Time (g_c), s	41.9	6.0			24.9	23.1				13.6		20.0
Green Ratio (*g/C*)	0.73	0.75			0.34	0.51				0.17		0.53
Capacity (*c*), veh/h	781	2686			1228	820				302		857
Volume-to-Capacity Ratio (*X*)	0.980	0.223			0.700	0.554				0.718		0.679
Available Capacity (c_a), veh/h	783	2686			1228	820				302		857
Back of Queue (*Q*), veh/ln (50th percentile)	26.7	1.9			11.2	9.0				6.6		11.8
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00				0.00		0.00
Uniform Delay (d_1), s/veh	26.3	4.5			34.1	20.1				47.3		20.6
Incremental Delay (d_2), s/veh	26.9	0.2			3.3	2.7				7.0		1.8
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay (*d*), s/veh	53.2	4.7			37.4	22.8				54.3		22.4
Level of Service (LOS)	D	A			D	C				D		C
Approach Delay, s/veh / LOS	31.9	C		32.4	C		0.0			31.0	C	
Intersection Delay, s/veh / LOS	31.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.7	A	2.3	B	2.9	C	2.9	C
Bicycle LOS Score / LOS	1.6	A	1.6	A				F

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MOVEMENT SUMMARY

Site: 2024 PM Background

Roundabout with thru/left and thru lanes on EB approach, thru/right and thru lanes on WB approach, 1 lane on SB approach, 2 circulating lanes EB & WB, and 1 circulating lane SB & NB

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Post Rd											
6T	T	860	0.4	0.848	20.9	LOS C	14.3	360.2	1.00	1.36	23.1
6R	R	441	1.3	0.848	20.9	LOS C	14.3	360.2	1.00	1.36	22.7
Approach		1301	0.7	0.848	20.9	LOS C	14.3	360.2	1.00	1.36	22.9
North: Hyland-Croy Rd											
7L	L	209	0.8	1.263	141.2	LOS F	62.2	1576.0	1.00	3.06	8.6
4R	R	568	2.1	1.263	135.4	LOS F	62.2	1576.0	1.00	3.05	8.5
Approach		777	1.8	1.263	137.0	LOS F	62.2	1576.0	1.00	3.06	8.6
West: Post Rd											
5L	L	740	3.9	0.560	15.0	LOS B	4.7	122.2	0.52	0.68	30.4
2T	T	599	0.8	0.497	6.7	LOS A	3.8	94.9	0.49	0.52	34.9
Approach		1339	2.5	0.560	11.3	LOS B	4.7	122.2	0.51	0.61	32.2
All Vehicles		3417	1.7	1.263	43.5	LOS D	62.2	1576.0	0.81	1.45	18.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Full Build

Roundabout with thru/left and thru lanes on EB approach, thru/right and thru lanes on WB approach, 1 lane on SB approach, 2 circulating lanes EB & WB, and 1 circulating lane SB & NB

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Post Rd											
6T	T	860	0.4	0.886	25.2	LOS C	16.9	426.7	1.00	1.46	21.5
6R	R	454	1.3	0.886	25.1	LOS C	16.9	426.7	1.00	1.47	21.1
Approach		1314	0.7	0.886	25.2	LOS C	16.9	426.7	1.00	1.46	21.4
North: Hyland-Croy Rd											
7L	L	217	0.8	1.301	157.7	LOS F	69.3	1757.8	1.00	3.26	7.8
4R	R	582	2.1	1.301	151.9	LOS F	69.3	1757.8	1.00	3.25	7.8
Approach		799	1.7	1.301	153.4	LOS F	69.3	1757.8	1.00	3.25	7.8
West: Post Rd											
5L	L	766	3.9	0.579	15.0	LOS B	5.0	129.9	0.53	0.68	30.4
2T	T	599	0.8	0.500	6.8	LOS A	3.8	95.8	0.49	0.52	34.9
Approach		1364	2.5	0.579	11.4	LOS B	5.0	129.9	0.52	0.61	32.1
All Vehicles		3478	1.7	1.301	49.2	LOS D	69.3	1757.8	0.81	1.54	16.9

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Background w/ SBRT

Roundabout with thru/left and thru lanes on EB approach, thru/right and thru lanes on WB approach, left and right turn lanes on SB approach, 2 circulating lanes EB & WB, and 1 circulating lane SB & NB

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Post Rd											
6T	T	860	0.4	0.856	21.5	LOS C	14.7	371.6	1.00	1.37	22.8
6R	R	441	1.3	0.856	21.5	LOS C	14.7	371.6	1.00	1.37	22.5
Approach		1301	0.7	0.856	21.5	LOS C	14.7	371.6	1.00	1.37	22.7
North: Hyland-Croy Rd											
7L	L	209	0.8	0.382	16.7	LOS B	1.8	44.7	0.70	0.93	29.4
4R	R	568	2.1	0.742	13.0	LOS B	6.1	153.9	0.87	1.03	32.0
Approach		777	1.8	0.742	14.0	LOS B	6.1	153.9	0.82	1.01	31.2
West: Post Rd											
5L	L	740	3.9	0.577	15.3	LOS B	4.6	118.3	0.55	0.70	30.3
2T	T	599	0.8	0.511	7.0	LOS A	3.7	92.0	0.52	0.54	34.8
Approach		1339	2.5	0.577	11.6	LOS B	4.6	118.3	0.54	0.63	32.1
All Vehicles		3417	1.7	0.856	15.9	LOS B	14.7	371.6	0.78	1.00	27.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Full Build w/ SBRT

Roundabout with thru/left and thru lanes on EB approach, thru/right and thru lanes on WB approach, left and right turn lanes on SB approach, 2 circulating lanes EB & WB, and 1 circulating lane SB & NB

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Post Rd											
6T	T	860	0.4	0.898	26.6	LOS C	17.8	448.7	1.00	1.49	21.0
6R	R	454	1.3	0.898	26.4	LOS C	17.8	448.7	1.00	1.50	20.7
Approach		1314	0.7	0.898	26.5	LOS C	17.8	448.7	1.00	1.49	20.9
North: Hyland-Croy Rd											
7L	L	217	0.8	0.395	16.8	LOS B	1.9	47.0	0.70	0.93	29.3
4R	R	582	2.1	0.762	13.4	LOS B	6.5	164.1	0.88	1.05	31.7
Approach		799	1.7	0.762	14.3	LOS B	6.5	164.1	0.83	1.02	31.0
West: Post Rd											
5L	L	766	3.9	0.600	15.4	LOS B	4.9	126.9	0.57	0.71	30.2
2T	T	599	0.8	0.518	7.1	LOS A	3.7	93.7	0.53	0.55	34.7
Approach		1364	2.5	0.600	11.7	LOS B	4.9	126.9	0.56	0.64	32.0
All Vehicles		3478	1.7	0.898	17.9	LOS B	17.8	448.7	0.79	1.05	26.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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BRAND ROAD / ABBIE GLEN BOULEVARD

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Brand/Abbie Glen
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Background
Analysis Time Period	AM Peak Hour		

Project Description	20131358 Riviera TIS
East/West Street: Brand Rd	North/South Street: Abbie Glen
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	27	233			412	7
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	30	258	0	0	457	7
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				18		113
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	20	0	125
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	30						145	
C (m) (veh/h)	1108						552	
v/c	0.03						0.26	
95% queue length	0.08						1.05	
Control Delay (s/veh)	8.3						13.8	
LOS	A						B	
Approach Delay (s/veh)	--	--	13.8					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Brand/Abbie Glen
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Full Build
Analysis Time Period	AM Peak Hour		

Project Description	20131358 Riviera TIS
East/West Street: Brand Rd	North/South Street: Abbie Glen
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	29	234			416	8
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	32	260	0	0	462	8
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				22		117
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	24	0	130
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	32						154	
C (m) (veh/h)	1102						541	
v/c	0.03						0.28	
95% queue length	0.09						1.17	
Control Delay (s/veh)	8.4						14.3	
LOS	A						B	
Approach Delay (s/veh)	--	--	14.3					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Brand/Abbie Glen
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Full Build w/o HCSD
Analysis Time Period	AM Peak Hour		

Project Description 20131358 Riviera TIS

East/West Street: Brand Rd	North/South Street: Abbie Glen
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	28	240			433	8
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	31	266	0	0	481	8
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				22		117
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	24	0	130
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	31						154	
C (m) (veh/h)	1085						527	
v/c	0.03						0.29	
95% queue length	0.09						1.21	
Control Delay (s/veh)	8.4						14.6	
LOS	A						B	
Approach Delay (s/veh)	--	--	14.6					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Brand/Abbie Glen
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Background
Analysis Time Period	AM Peak Hour		

Project Description	20131358 Riviera TIS
East/West Street: Brand Rd	North/South Street: Abbie Glen
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	27	363			586	23
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	30	403	0	0	651	23
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				18		113
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	20	0	125
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	30						145	
C (m) (veh/h)	927						404	
v/c	0.03						0.36	
95% queue length	0.10						1.60	
Control Delay (s/veh)	9.0						18.8	
LOS	A						C	
Approach Delay (s/veh)	--	--				18.8		
Approach LOS	--	--				C		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Brand/Abbie Glen
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Full Build
Analysis Time Period	AM Peak Hour		

Project Description 20131358 Riviera TIS

East/West Street: Brand Rd	North/South Street: Abbie Glen
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	29	364			590	24
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	32	404	0	0	655	24
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				22		117
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	24	0	130
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	32						154	
C (m) (veh/h)	923						393	
v/c	0.03						0.39	
95% queue length	0.11						1.82	
Control Delay (s/veh)	9.0						19.9	
LOS	A						C	
Approach Delay (s/veh)	--	--	19.9					
Approach LOS	--	--	C					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Brand/Abbie Glen
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Full Build w/o HCSD
Analysis Time Period	AM Peak Hour		

Project Description 20131358 Riviera TIS

East/West Street: Brand Rd	North/South Street: Abbie Glen
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	28	370			607	24
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	31	411	0	0	674	24
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				22		117
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	24	0	130
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	31						154	
C (m) (veh/h)	908						383	
v/c	0.03						0.40	
95% queue length	0.11						1.89	
Control Delay (s/veh)	9.1						20.6	
LOS	A						C	
Approach Delay (s/veh)	--	--				20.6		
Approach LOS	--	--				C		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Brand/Abbie Glen
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Background
Analysis Time Period	PM Peak Hour		

Project Description 20131358 Riviera TIS

East/West Street: Brand Rd	North/South Street: Abbie Glen
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	34	297			253	32
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	37	330	0	0	281	32
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				17		15
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	18	0	16
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	37						34	
C (m) (veh/h)	1259						508	
v/c	0.03						0.07	
95% queue length	0.09						0.21	
Control Delay (s/veh)	7.9						12.6	
LOS	A						B	
Approach Delay (s/veh)	--	--	12.6					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Brand/Abbie Glen
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Full Build
Analysis Time Period	PM Peak Hour		

Project Description 20131358 Riviera TIS

East/West Street: Brand Rd | North/South Street: Abbie Glen

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	39	302			256	37
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	43	335	0	0	284	37
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				20		18
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	22	0	20
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	43						42	
C (m) (veh/h)	1250						497	
v/c	0.03						0.08	
95% queue length	0.11						0.28	
Control Delay (s/veh)	8.0						12.9	
LOS	A						B	
Approach Delay (s/veh)	--	--				12.9		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Brand/Abbie Glen
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Full Build w/o HCSD
Analysis Time Period	PM Peak Hour		

Project Description 20131358 Riviera TIS	
East/West Street: Brand Rd	North/South Street: Abbie Glen
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	39	320			255	37
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	43	355	0	0	283	37
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				22		24
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	24	0	26
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	43						50	
C (m) (veh/h)	1251						503	
v/c	0.03						0.10	
95% queue length	0.11						0.33	
Control Delay (s/veh)	8.0						12.9	
LOS	A						B	
Approach Delay (s/veh)	--	--	12.9					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Brand/Abbie Glen
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Background
Analysis Time Period	PM Peak Hour		

Project Description 20131358 Riviera TIS

East/West Street: Brand Rd	North/South Street: Abbie Glen
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	34	453			370	61
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	37	503	0	0	411	61
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				17		15
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	18	0	16
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	37						34	
C (m) (veh/h)	1100						354	
v/c	0.03						0.10	
95% queue length	0.10						0.32	
Control Delay (s/veh)	8.4						16.2	
LOS	A						C	
Approach Delay (s/veh)	--	--				16.2		
Approach LOS	--	--				C		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Brand/Abbie Glen
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Full Build
Analysis Time Period	PM Peak Hour		

Project Description 20131358 Riviera TIS

East/West Street: Brand Rd | North/South Street: Abbie Glen

Intersection Orientation: East-West | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	39	458			373	66
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	43	508	0	0	414	66
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				20		18
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	22	0	20
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	43						42	
C (m) (veh/h)	1093						346	
v/c	0.04						0.12	
95% queue length	0.12						0.41	
Control Delay (s/veh)	8.4						16.8	
LOS	A						C	
Approach Delay (s/veh)	--	--				16.8		
Approach LOS	--	--				C		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Brand/Abbie Glen
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Full Build w/o HCSD
Analysis Time Period	PM Peak Hour		

Project Description 20131358 Riviera TIS

East/West Street: Brand Rd	North/South Street: Abbie Glen
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	39	476			372	66
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	43	528	0	0	413	66
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				22		24
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	24	0	26
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	43						50	
C (m) (veh/h)	1094						352	
v/c	0.04						0.14	
95% queue length	0.12						0.49	
Control Delay (s/veh)	8.4						16.9	
LOS	A						C	
Approach Delay (s/veh)	--	--	16.9					
Approach LOS	--	--	C					

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AVERY ROAD / MUIRFIELD DRIVE

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Muirfield/Avery
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Background
Analysis Time Period	AM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Muirfield Dr	North/South Street: Avery Rd
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	208	416			966	4
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	231	462	0	0	1073	4
Percent Heavy Vehicles	2	--	--	0	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						378
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	420
Percent Heavy Vehicles	0	0	0	0	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L							R
v (veh/h)	231							420
C (m) (veh/h)	643							541
v/c	0.36							0.78
95% queue length	1.63							7.09
Control Delay (s/veh)	13.7							31.0
LOS	B							D
Approach Delay (s/veh)	--	--	31.0					
Approach LOS	--	--	D					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Muirfield/Avery
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Full Build
Analysis Time Period	AM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Muirfield Dr	North/South Street: Avery Rd
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	217	416			966	4
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	241	462	0	0	1073	4
Percent Heavy Vehicles	2	--	--	0	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						405
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	450
Percent Heavy Vehicles	0	0	0	0	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L							R
v (veh/h)	241							450
C (m) (veh/h)	643							541
v/c	0.37							0.83
95% queue length	1.74							8.49
Control Delay (s/veh)	13.9							36.4
LOS	B							E
Approach Delay (s/veh)	--	--	36.4					
Approach LOS	--	--	E					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Muirfield/Avery
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Background
Analysis Time Period	AM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Muirfield Dr	North/South Street: Avery Rd
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	353	587			1362	6
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	392	652	0	0	1513	6
Percent Heavy Vehicles	2	--	--	0	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						601
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	667
Percent Heavy Vehicles	0	0	0	0	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L							R
v (veh/h)	392							667
C (m) (veh/h)	435							404
v/c	0.90							1.65
95% queue length	9.73							39.25
Control Delay (s/veh)	53.1							327.9
LOS	F							F
Approach Delay (s/veh)	--	--				327.9		
Approach LOS	--	--				F		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Muirfield/Avery
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Full Build
Analysis Time Period	AM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Muirfield Dr	North/South Street: Avery Rd
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	362	587			1362	6
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	402	652	0	0	1513	6
Percent Heavy Vehicles	2	--	--	0	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						628
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	697
Percent Heavy Vehicles	0	0	0	0	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L							R
v (veh/h)	402							697
C (m) (veh/h)	435							404
v/c	0.92							1.73
95% queue length	10.39							42.74
Control Delay (s/veh)	57.3							360.2
LOS	F							F
Approach Delay (s/veh)	--	--				360.2		
Approach LOS	--	--				F		

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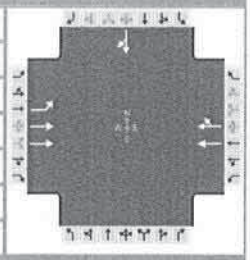
HCS 2010 Signalized Intersection Results Summary

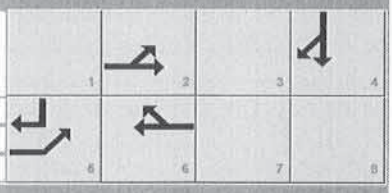
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 29, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	AM Peak	PHF	0.90
Intersection	Avery Rd / Muirfield Dr	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 AM Background.xus				
Project Description	2024 Background				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	353	587			1362	6					0	601

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	20.0	42.0	43.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				12.0
Phase Duration, s	25.0	72.0		47.0				48.0
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.4
Queue Clearance Time (g_s), s	22.0							45.0
Green Extension Time (g_e), s	0.0	0.0		0.0				0.0
Phase Call Probability	1.00							1.00
Max Out Probability	1.00							1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16					4	14
Adjusted Flow Rate (*v*), veh/h	392	652			760	760					668	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1773			1863	1860					1610	
Queue Service Time (g_s), s	20.0	11.9			53.8	42.0					43.0	
Cycle Queue Clearance Time (g_c), s	20.0	11.9			53.8	42.0					43.0	
Green Ratio (*g/C*)	0.53	0.56			0.35	0.35					0.36	
Capacity (*c*), veh/h	356	1980			652	651					577	
Volume-to-Capacity Ratio (*X*)	1.103	0.329			1.166	1.167					1.157	
Available Capacity (c_a), veh/h	356	1980			652	651					577	
Back of Queue (Q), veh/ln (50th percentile)	13.7	4.8			33.1	33.1					30.7	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00					0.00	
Uniform Delay (d_1), s/veh	38.9	14.3			32.0	32.0					38.5	
Incremental Delay (d_2), s/veh	78.3	0.4			90.8	91.1					89.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0					0.0	
Control Delay (*d*), s/veh	117.2	14.8			122.8	123.1					127.6	
Level of Service (LOS)	F	B			F	F					F	
Approach Delay, s/veh / LOS	53.2	D		122.9	F		0.0			127.6	F	
Intersection Delay, s/veh / LOS	101.4						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.9	A	2.1	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	1.3	A	1.7	A			1.6	A

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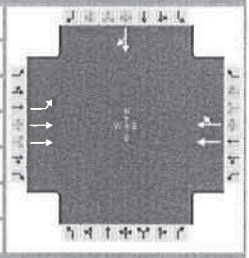
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 29, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	AM Peak	PHF	0.90
Intersection	Avery Rd / Muirfield Dr	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 AM Full Build.xus				
Project Description	2024 Full Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	362	587			1362	6					0	628

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	20.0	42.0	43.0	0.0	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				12.0
Phase Duration, s	25.0	72.0		47.0				48.0
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.5
Queue Clearance Time (g_s), s	22.0							45.0
Green Extension Time (g_e), s	0.0	0.0		0.0				0.0
Phase Call Probability	1.00							1.00
Max Out Probability	1.00							1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16					4	14
Adjusted Flow Rate (*v*), veh/h	402	652			760	760					698	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1773			1863	1860					1610	
Queue Service Time (g_s), s	20.0	11.9			53.8	42.0					43.0	
Cycle Queue Clearance Time (g_c), s	20.0	11.9			53.8	42.0					43.0	
Green Ratio (*g/C*)	0.53	0.56			0.35	0.35					0.36	
Capacity (*c*), veh/h	356	1980			652	651					577	
Volume-to-Capacity Ratio (*X*)	1.131	0.329			1.166	1.167					1.209	
Available Capacity (c_a), veh/h	356	1980			652	651					577	
Back of Queue (*Q*), veh/ln (50th percentile)	14.7	4.8			33.1	33.1					34.4	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00					0.00	
Uniform Delay (d_1), s/veh	38.9	14.3			32.0	32.0					38.5	
Incremental Delay (d_2), s/veh	88.1	0.4			90.8	91.1					109.7	
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0					0.0	
Control Delay (*d*), s/veh	127.0	14.8			122.8	123.1					148.2	
Level of Service (LOS)	F	B			F	F					F	
Approach Delay, s/veh / LOS	57.6	E		122.9	F		0.0			148.2	F	
Intersection Delay, s/veh / LOS	107.3						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.9	A	2.1	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	1.4	A	1.7	A			1.6	A

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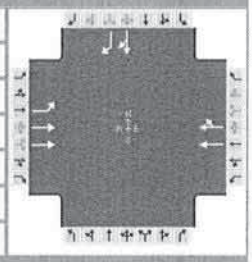
HCS 2010 Signalized Intersection Results Summary

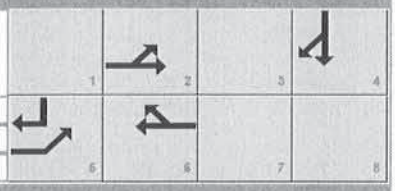
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 29, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	AM Peak	PHF	0.90
Intersection	Avery Rd / Muirfield Dr	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 AM Background.xus				
Project Description	2024 Background				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	353	587			1362	6					0	601

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	24.5	51.5	29.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				11.0
Phase Duration, s	29.5	86.0		56.5				34.0
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.4
Queue Clearance Time (g_s), s	23.9							31.0
Green Extension Time (g_e), s	0.6	0.0		0.0				0.0
Phase Call Probability	1.00							1.00
Max Out Probability	0.00							1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16					4	14
Adjusted Flow Rate (*v*), veh/h	392	652			760	760					0	668
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1773			1863	1860					1900	1579
Queue Service Time (g_s), s	21.9	8.8			54.5	46.1					0.0	29.0
Cycle Queue Clearance Time (g_c), s	21.9	8.8			54.5	46.1					0.0	29.0
Green Ratio (*g/C*)	0.65	0.68			0.43	0.43					0.24	0.45
Capacity (*c*), veh/h	422	2394			799	798					459	704
Volume-to-Capacity Ratio (*X*)	0.928	0.272			0.952	0.952					0.000	0.948
Available Capacity (c_a), veh/h	577	2394			799	798					459	704
Back of Queue (*Q*), veh/ln (50th percentile)	13.0	3.2			21.8	21.8					0.0	22.1
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00					0.00	0.00
Uniform Delay (d_1), s/veh	38.6	7.8			24.5	24.5					0.0	31.9
Incremental Delay (d_2), s/veh	15.3	0.3			22.0	22.1					0.0	21.9
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0					0.0	0.0
Control Delay (*d*), s/veh	53.9	8.0			46.5	46.6					0.0	53.8
Level of Service (LOS)	D	A			D	D						D
Approach Delay, s/veh / LOS	25.3	C		46.6	D		0.0			53.8	D	
Intersection Delay, s/veh / LOS	41.2						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.9	A	2.3	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	1.3	A	1.7	A			1.6	A

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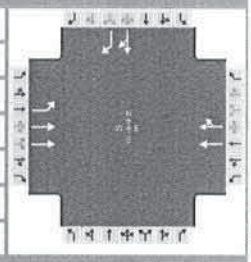
HCS 2010 Signalized Intersection Results Summary

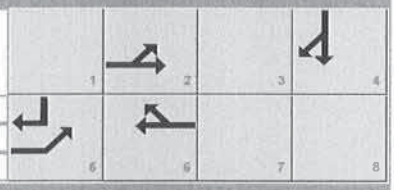
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 29, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	AM Peak	PHF	0.90
Intersection	Avery Rd / Muirfield Dr	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 AM Full Build.xus				
Project Description	2024 Full Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	362	587			1362	6					0	628

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	25.2	49.9	29.9	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				11.0
Phase Duration, s	30.2	85.1		54.9				34.9
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.5
Queue Clearance Time (g_s), s	24.5							31.9
Green Extension Time (g_e), s	0.6	0.0		0.0				0.0
Phase Call Probability	1.00							1.00
Max Out Probability	0.00							1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16					4	14
Adjusted Flow Rate (*v*), veh/h	402	652			760	760					0	698
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1773			1863	1860					1900	1579
Queue Service Time (g_s), s	22.5	9.0			55.5	47.9					0.0	29.9
Cycle Queue Clearance Time (g_c), s	22.5	9.0			55.5	47.9					0.0	29.9
Green Ratio (*g/C*)	0.64	0.67			0.42	0.42					0.25	0.46
Capacity (*c*), veh/h	432	2367			775	773					473	725
Volume-to-Capacity Ratio (*X*)	0.930	0.276			0.982	0.982					0.000	0.963
Available Capacity (c_a), veh/h	585	2367			775	773					473	725
Back of Queue (*Q*), veh/ln (50th percentile)	13.4	3.3			23.9	23.9					0.0	24.1
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00					0.00	0.00
Uniform Delay (d_1), s/veh	38.3	8.1			26.3	26.3					0.0	31.5
Incremental Delay (d_2), s/veh	15.7	0.3			28.2	28.3					0.0	24.4
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0					0.0	0.0
Control Delay (*d*), s/veh	54.0	8.4			54.4	54.6					0.0	55.8
Level of Service (LOS)	D	A			D	D						E
Approach Delay, s/veh / LOS	25.8	C		54.5	D		0.0			55.8	E	
Intersection Delay, s/veh / LOS	45.5						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.9	A	2.3	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	1.4	A	1.7	A			1.6	A

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Muirfield/Avery
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Background
Analysis Time Period	PM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Muirfield Dr	North/South Street: Avery Rd
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	531	1144			679	14
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	590	1271	0	0	754	15
Percent Heavy Vehicles	2	--	--	0	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						269
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	298
Percent Heavy Vehicles	0	0	0	0	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L							R
v (veh/h)	590							298
C (m) (veh/h)	841							662
v/c	0.70							0.45
95% queue length	5.93							2.34
Control Delay (s/veh)	18.7							14.8
LOS	C							B
Approach Delay (s/veh)	--	--				14.8		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Muirfield/Avery
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2014 Full Build
Analysis Time Period	PM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Muirfield Dr	North/South Street: Avery Rd
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	561	1144			679	14
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	623	1271	0	0	754	15
Percent Heavy Vehicles	2	--	--	0	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						287
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	318
Percent Heavy Vehicles	0	0	0	0	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L							R
v (veh/h)	623							318
C (m) (veh/h)	841							662
v/c	0.74							0.48
95% queue length	6.85							2.61
Control Delay (s/veh)	20.4							15.4
LOS	C							C
Approach Delay (s/veh)	--	--				15.4		
Approach LOS	--	--				C		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Muirfield/Avery
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Background
Analysis Time Period	PM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Muirfield Dr	North/South Street: Avery Rd
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	774	1613			958	20
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	860	1792	0	0	1064	22
Percent Heavy Vehicles	2	--	--	0	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						453
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	503
Percent Heavy Vehicles	0	0	0	0	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L							R
v (veh/h)	860							503
C (m) (veh/h)	638							538
v/c	1.35							0.93
95% queue length	36.57							11.72
Control Delay (s/veh)	186.7							52.1
LOS	F							F
Approach Delay (s/veh)	--	--	52.1					
Approach LOS	--	--	F					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Muirfield/Avery
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/7/2014	Analysis Year	2024 Full Build
Analysis Time Period	PM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Muirfield Dr	North/South Street: Avery Rd
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	804	1613			958	20
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	893	1792	0	0	1064	22
Percent Heavy Vehicles	2	--	--	0	--	--
Median Type	Raised curb					
RT Channelized			0			0
Lanes	1	2	0	0	2	0
Configuration	L	T			T	TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						471
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	523
Percent Heavy Vehicles	0	0	0	0	0	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L							R
v (veh/h)	893							523
C (m) (veh/h)	638							538
v/c	1.40							0.97
95% queue length	40.20							13.10
Control Delay (s/veh)	208.5							59.9
LOS	F							F
Approach Delay (s/veh)	--	--				59.9		
Approach LOS	--	--				F		

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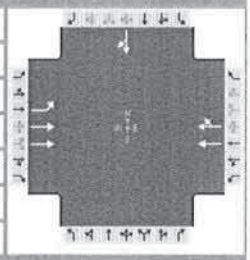
HCS 2010 Signalized Intersection Results Summary

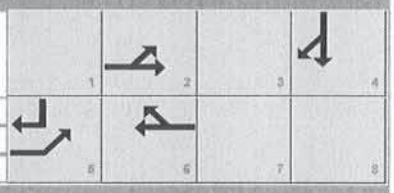
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 29, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	PM Peak	PHF	0.90
Intersection	Avery Rd / Muirfield Dr	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 PM Background.xus				
Project Description	2024 Background				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	774	1613			958	20					0	453

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	43.0	30.0	32.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				12.0
Phase Duration, s	48.0	83.0		35.0				37.0
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.4
Queue Clearance Time (g_s), s	45.0							34.0
Green Extension Time (g_e), s	0.0	0.0		0.0				0.0
Phase Call Probability	1.00							1.00
Max Out Probability	1.00							1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16					4	14
Adjusted Flow Rate (*v*), veh/h	860	1792			545	541					503	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1773			1863	1849					1610	
Queue Service Time (g_s), s	43.0	42.9			37.3	30.0					32.0	
Cycle Queue Clearance Time (g_c), s	43.0	42.9			37.3	30.0					32.0	
Green Ratio (*g/C*)	0.62	0.65			0.25	0.25					0.27	
Capacity (*c*), veh/h	696	2305			466	462					429	
Volume-to-Capacity Ratio (*X*)	1.236	0.777			1.171	1.171					1.172	
Available Capacity (c_a), veh/h	696	2305			466	462					429	
Back of Queue (*Q*), veh/ln (50th percentile)	41.2	16.3			25.3	25.1					24.4	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00					0.00	
Uniform Delay (d_1), s/veh	32.8	14.9			40.0	40.0					44.0	
Incremental Delay (d_2), s/veh	118.4	2.7			97.8	97.9					99.7	
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0					0.0	
Control Delay (*d*), s/veh	151.2	17.5			137.8	137.9					143.7	
Level of Service (LOS)	F	B			F	F					F	
Approach Delay, s/veh / LOS	60.9	E		137.9	F		0.0			143.7	F	
Intersection Delay, s/veh / LOS	90.4						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.9	A	2.1	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	2.7	B	1.4	A			1.3	A

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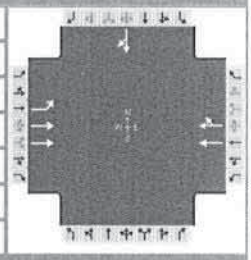
HCS 2010 Signalized Intersection Results Summary

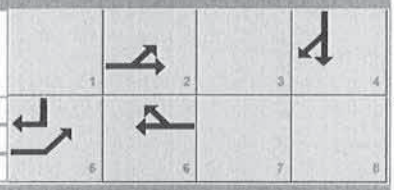
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 29, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	PM Peak	PHF	0.90
Intersection	Avery Rd / Muirfield Dr	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 PM Full Build.xus				
Project Description	2024 Full Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	804	1613			958	20					0	471

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	43.0	30.0	32.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				12.0
Phase Duration, s	48.0	83.0		35.0				37.0
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.4
Queue Clearance Time (g_s), s	45.0							34.0
Green Extension Time (g_e), s	0.0	0.0		0.0				0.0
Phase Call Probability	1.00							1.00
Max Out Probability	1.00							1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16					4	14
Adjusted Flow Rate (*v*), veh/h	893	1792			545	541					523	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1773			1863	1849					1610	
Queue Service Time (g_s), s	43.0	42.9			37.3	30.0					32.0	
Cycle Queue Clearance Time (g_c), s	43.0	42.9			37.3	30.0					32.0	
Green Ratio (*g/C*)	0.62	0.65			0.25	0.25					0.27	
Capacity (*c*), veh/h	696	2305			466	462					429	
Volume-to-Capacity Ratio (*X*)	1.284	0.777			1.171	1.171					1.219	
Available Capacity (c_a), veh/h	696	2305			466	462					429	
Back of Queue (Q), veh/ln (50th percentile)	45.1	16.3			25.3	25.1					26.6	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00					0.00	
Uniform Delay (d_1), s/veh	32.8	14.9			40.0	40.0					44.0	
Incremental Delay (d_2), s/veh	138.6	2.7			97.8	97.9					117.9	
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0					0.0	
Control Delay (*d*), s/veh	171.4	17.5			137.8	137.9					161.9	
Level of Service (LOS)	F	B			F	F					F	
Approach Delay, s/veh / LOS	68.7	E		137.9	F		0.0			161.9	F	
Intersection Delay, s/veh / LOS	97.6						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.9	A	2.1	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	2.7	B	1.4	A			1.4	A

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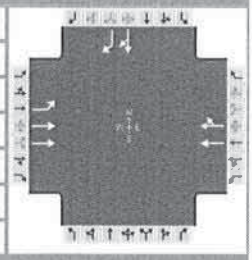
HCS 2010 Signalized Intersection Results Summary

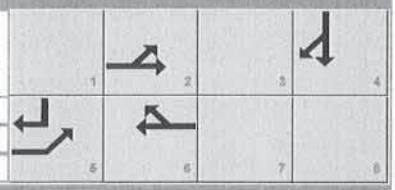
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 29, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	PM Peak	PHF	0.90
Intersection	Avery Rd / Muirfield Dr	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 PM Background.xus				
Project Description	2024 Background				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	774	1613			958	20					0	453

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	54.2	45.8	5.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				11.0
Phase Duration, s	59.2	110.0		50.8				10.0
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.4
Queue Clearance Time (g_s), s	52.1							7.0
Green Extension Time (g_e), s	2.1	0.0		0.0				0.0
Phase Call Probability	1.00							1.00
Max Out Probability	0.00							1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16					4	14
Adjusted Flow Rate (*v*), veh/h	860	1792			545	541					0	503
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1773			1863	1849					1900	1579
Queue Service Time (g_s), s	50.1	15.3			38.9	28.3					0.0	5.0
Cycle Queue Clearance Time (g_c), s	50.1	15.3			38.9	28.3					0.0	5.0
Green Ratio (*g/C*)	0.85	0.88			0.38	0.38					0.04	0.49
Capacity (*c*), veh/h	891	3103			711	706					79	779
Volume-to-Capacity Ratio (*X*)	0.965	0.578			0.767	0.767					0.000	0.646
Available Capacity (c_a), veh/h	1184	3103			711	706					79	779
Back of Queue (*Q*), veh/ln (50th percentile)	26.1	2.2			12.5	12.4					0.0	10.5
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00					0.00	0.00
Uniform Delay (d_1), s/veh	27.2	1.9			25.2	25.2					0.0	22.6
Incremental Delay (d_2), s/veh	14.5	0.8			7.8	7.8					0.0	1.5
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0					0.0	0.0
Control Delay (*d*), s/veh	41.6	2.7			32.9	33.0					0.0	24.1
Level of Service (LOS)	D	A			C	C						C
Approach Delay, s/veh / LOS	15.3	B		32.9	C		0.0			24.1	C	
Intersection Delay, s/veh / LOS	20.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.8	A	2.3	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	2.7	B	1.4	A			1.3	A

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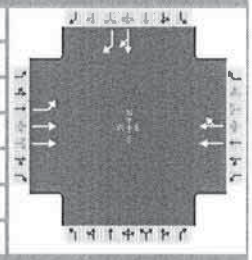
HCS 2010 Signalized Intersection Results Summary

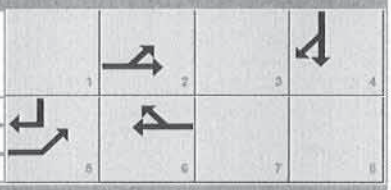
General Information				Intersection Information	
Agency	EMHT			Duration, h	0.25
Analyst	JMH	Analysis Date	Jan 29, 2014	Area Type	Other
Jurisdiction	Dublin	Time Period	PM Peak	PHF	0.90
Intersection	Avery Rd / Muirfield Dr	Analysis Year	2024	Analysis Period	1> 7:00
File Name	2024 PM Full Build.xus				
Project Description	2024 Full Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	804	1613			958	20					0	471

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	57.3	42.7	5.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	1.0	4.0		8.3				11.0
Phase Duration, s	62.3	110.0		47.7				10.0
Change Period, ($Y+R_c$), s	5.0	5.0		5.0				5.0
Max Allow Headway (*MAH*), s	3.1	0.0		0.0				3.4
Queue Clearance Time (g_s), s	55.2							7.0
Green Extension Time (g_e), s	2.2	0.0		0.0				0.0
Phase Call Probability	1.00							1.00
Max Out Probability	0.01							1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16					4	14
Adjusted Flow Rate (*v*), veh/h	893	1792			545	541					0	523
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1773			1863	1849					1900	1579
Queue Service Time (g_s), s	53.2	15.3			38.9	30.3					0.0	5.0
Cycle Queue Clearance Time (g_c), s	53.2	15.3			38.9	30.3					0.0	5.0
Green Ratio (*g/C*)	0.85	0.88			0.36	0.36					0.04	0.52
Capacity (*c*), veh/h	924	3103			662	658					79	820
Volume-to-Capacity Ratio (*X*)	0.967	0.578			0.823	0.823					0.000	0.638
Available Capacity (c_a), veh/h	1170	3103			662	658					79	820
Back of Queue (*Q*), veh/ln (50th percentile)	27.2	2.2			14.0	13.9					0.0	10.4
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00			0.00	0.00					0.00	0.00
Uniform Delay (d_1), s/veh	26.4	1.9			28.3	28.3					0.0	20.7
Incremental Delay (d_2), s/veh	15.7	0.8			11.1	11.2					0.0	1.3
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0					0.0	0.0
Control Delay (*d*), s/veh	42.1	2.7			39.4	39.5					0.0	22.0
Level of Service (LOS)	D	A			D	D						C
Approach Delay, s/veh / LOS	15.8	B		39.4	D		0.0			22.0	C	
Intersection Delay, s/veh / LOS	22.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.8	A	2.3	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	2.7	B	1.4	A			1.4	A

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AVERY ROAD / BRAND ROAD

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	AM Peak Hour

Site Information

Intersection	Avery/Brand
Jurisdiction	Dublin
Analysis Year	2014 Background

Project ID 20131358 Riviera TIS

East/West Street: Brand Rd

North/South Street: Avery Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	64	195	73	54	196	50
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	102	118	34	86	203	95
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	L	TR	L	TR	L	TR
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Flow Rate (veh/h)	71	297	60	272	113	168	95	330
% Heavy Vehicles	13	4	7	5	6	9	2	3
No. Lanes	2		2		2		2	
Geometry Group	5		5		5		5	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Prop. Right-Turns	0.0	0.3	0.0	0.2	0.0	0.2	0.0	0.3
Prop. Heavy Vehicle	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0
hLT-adj	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.7	-0.1	0.6	-0.1	0.6	-0.0	0.5	-0.2

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.06	0.26	0.05	0.24	0.10	0.15	0.08	0.29
hd, final value (s)	8.12	7.28	8.08	7.41	8.20	7.59	7.85	7.15
x, final value	0.16	0.60	0.13	0.56	0.26	0.35	0.21	0.66
Move-up time, m (s)	2.3		2.3		2.3		2.3	
Service Time, t_s (s)	5.8	5.0	5.8	5.1	5.9	5.3	5.6	4.8

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	321	479	310	469	363	418	345	490
Delay (s/veh)	12.37	20.32	12.04	19.12	13.71	14.40	12.60	22.42
LOS	B	C	B	C	B	B	B	C
Approach: Delay (s/veh)	18.79		17.84		14.13		20.23	
LOS	C		C		B		C	
Intersection Delay (s/veh)	18.07							
Intersection LOS	C							

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Generated: 4/29/2014 7:41 AM

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	AM Peak Hour

Site Information

Intersection	Avery/Brand
Jurisdiction	Dublin
Analysis Year	2014 Full Build

Project ID 20131358 Riviera TIS

East/West Street: Brand Rd

North/South Street: Avery Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	65	198	74	54	197	56
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	102	127	34	104	229	99
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	L	TR	L	TR	L	TR
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Flow Rate (veh/h)	72	302	60	280	113	178	115	364
% Heavy Vehicles	13	4	7	5	6	9	2	3
No. Lanes	2		2		2		2	
Geometry Group	5		5		5		5	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Prop. Right-Turns	0.0	0.3	0.0	0.2	0.0	0.2	0.0	0.3
Prop. Heavy Vehicle	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0
hLT-adj	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.7	-0.1	0.6	-0.1	0.6	0.0	0.5	-0.2

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.06	0.27	0.05	0.25	0.10	0.16	0.10	0.32
hd, final value (s)	8.37	7.53	8.33	7.64	8.43	7.83	8.00	7.31
x, final value	0.17	0.63	0.14	0.59	0.26	0.39	0.26	0.74
Move-up time, m (s)	2.3		2.3		2.3		2.3	
Service Time, t_s (s)	6.1	5.2	6.0	5.3	6.1	5.5	5.7	5.0

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	322	464	310	455	363	428	365	483
Delay (s/veh)	12.75	22.27	12.37	20.94	14.13	15.40	13.42	27.92
LOS	B	C	B	C	B	C	B	D
Approach: Delay (s/veh)	20.44		19.43		14.90		24.44	
LOS	C		C		B		C	
Intersection Delay (s/veh)	20.41							
Intersection LOS	C							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	AM Peak Hour

Site Information

Intersection	Avery/Brand
Jurisdiction	Dublin
Analysis Year	2014 Full Build w/o HCSD

Project ID 20131358 Riviera TIS

East/West Street: Brand Rd

North/South Street: Avery Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	71	198	74	54	197	56
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	102	127	34	103	229	116
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	L	TR	L	TR	L	TR
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Flow Rate (veh/h)	78	302	60	280	113	178	114	382
% Heavy Vehicles	13	4	7	5	6	9	2	3
No. Lanes	2		2		2		2	
Geometry Group	5		5		5		5	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Prop. Right-Turns	0.0	0.3	0.0	0.2	0.0	0.2	0.0	0.3
Prop. Heavy Vehicle	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0
hLT-adj	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.7	-0.1	0.6	-0.1	0.6	0.0	0.5	-0.2

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.07	0.27	0.05	0.25	0.10	0.16	0.10	0.34
hd, final value (s)	8.44	7.60	8.41	7.72	8.50	7.90	8.04	7.32
x, final value	0.18	0.64	0.14	0.60	0.27	0.39	0.25	0.78
Move-up time, m (s)	2.3		2.3		2.3		2.3	
Service Time, t_s (s)	6.1	5.3	6.1	5.4	6.2	5.6	5.7	5.0

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	328	460	310	451	363	428	364	484
Delay (s/veh)	13.02	22.70	12.48	21.36	14.26	15.58	13.46	31.05
LOS	B	C	B	C	B	C	B	D
Approach: Delay (s/veh)	20.72		19.79		15.07		27.00	
LOS	C		C		C		D	
Intersection Delay (s/veh)	21.49							
Intersection LOS	C							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	AM Peak Hour

Site Information

Intersection	Avery/Brand
Jurisdiction	Dublin
Analysis Year	2024 Background

Project ID 20131358 Riviera TIS

East/West Street: Brand Rd

North/South Street: Avery Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	96	278	114	74	275	108
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	148	212	47	159	331	134
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	L	TR	L	TR	L	TR
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Flow Rate (veh/h)	106	434	82	425	164	287	176	515
% Heavy Vehicles	13	4	7	5	6	9	2	3
No. Lanes	2		2		2		2	
Geometry Group	5		5		5		5	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Prop. Right-Turns	0.0	0.3	0.0	0.3	0.0	0.2	0.0	0.3
Prop. Heavy Vehicle	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0
hLT-adj	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.7	-0.1	0.6	-0.1	0.6	0.0	0.5	-0.2

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.09	0.39	0.07	0.38	0.15	0.26	0.16	0.46
hd, final value (s)	9.91	9.05	9.84	9.11	9.99	9.42	9.67	8.98
x, final value	0.29	1.09	0.22	1.07	0.46	0.75	0.47	1.29
Move-up time, m (s)	2.3		2.3		2.3		2.3	
Service Time, t_s (s)	7.6	6.8	7.5	6.8	7.7	7.1	7.4	6.7

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	356	434	332	425	360	382	372	515
Delay (s/veh)	16.64	102.02	15.35	97.13	20.78	35.58	20.74	172.39
LOS	C	F	C	F	C	E	C	F
Approach: Delay (s/veh)	85.26		83.90		30.19		133.76	
LOS	F		F		D		F	
Intersection Delay (s/veh)	88.91							
Intersection LOS	F							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	AM Peak Hour

Site Information

Intersection	Avery/Brand
Jurisdiction	Dublin
Analysis Year	2024 Full Build

Project ID 20131358 Riviera TIS

East/West Street: Brand Rd

North/South Street: Avery Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	97	281	115	74	276	114
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	148	221	47	177	357	138
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	L	TR	L	TR	L	TR
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Flow Rate (veh/h)	107	439	82	432	164	297	196	549
% Heavy Vehicles	13	4	7	5	6	9	2	3
No. Lanes	2		2		2		2	
Geometry Group	5		5		5		5	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Prop. Right-Turns	0.0	0.3	0.0	0.3	0.0	0.2	0.0	0.3
Prop. Heavy Vehicle	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0
hLT-adj	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.7	-0.1	0.6	-0.1	0.6	0.0	0.5	-0.1

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.10	0.39	0.07	0.38	0.15	0.26	0.17	0.49
hd, final value (s)	9.95	9.10	9.89	9.15	10.01	9.43	9.70	9.02
x, final value	0.30	1.11	0.23	1.10	0.46	0.78	0.53	1.38
Move-up time, m (s)	2.3		2.3		2.3		2.3	
Service Time, t_s (s)	7.7	6.8	7.6	6.8	7.7	7.1	7.4	6.7

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	357	439	332	432	360	382	371	549
Delay (s/veh)	16.78	108.12	15.44	104.55	20.82	38.37	22.74	209.02
LOS	C	F	C	F	C	E	C	F
Approach: Delay (s/veh)	90.22		90.33		32.13		160.01	
LOS	F		F		D		F	
Intersection Delay (s/veh)	101.37							
Intersection LOS	F							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	AM Peak Hour

Site Information

Intersection	Avery/Brand
Jurisdiction	Dublin
Analysis Year	2024 Full Build w/o HCSD

Project ID 20131358 Riviera TIS

East/West Street: Brand Rd

North/South Street: Avery Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	103	281	115	74	276	114
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	148	221	47	176	357	155
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	L	TR	L	TR	L	TR
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Flow Rate (veh/h)	114	439	82	432	164	297	195	568
% Heavy Vehicles	13	4	7	5	6	9	2	3
No. Lanes	2		2		2		2	
Geometry Group	5		5		5		5	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Prop. Right-Turns	0.0	0.3	0.0	0.3	0.0	0.2	0.0	0.3
Prop. Heavy Vehicle	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0
hLT-adj	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.7	-0.1	0.6	-0.1	0.6	0.0	0.5	-0.2

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.10	0.39	0.07	0.38	0.15	0.26	0.17	0.50
hd, final value (s)	9.95	9.10	9.90	9.16	10.01	9.44	9.70	9.01
x, final value	0.32	1.11	0.23	1.10	0.46	0.78	0.53	1.42
Move-up time, m (s)	2.3		2.3		2.3		2.3	
Service Time, t_s (s)	7.7	6.8	7.6	6.9	7.7	7.1	7.4	6.7

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	361	439	332	432	360	382	371	568
Delay (s/veh)	17.17	108.12	15.45	104.97	20.84	38.44	22.67	228.02
LOS	C	F	C	F	C	E	C	F
Approach: Delay (s/veh)	89.37		90.68		32.18		175.54	
LOS	F		F		D		F	
Intersection Delay (s/veh)	106.86							
Intersection LOS	F							

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MOVEMENT SUMMARY

Site: 2024 AM Background

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	164	6.2	0.749	25.4	LOS C	7.9	209.9	0.94	1.15	26.1
8T	T	236	7.4	0.749	19.0	LOS B	7.9	209.9	0.94	1.12	27.9
8R	R	52	14.6	0.749	20.5	LOS C	7.9	209.9	0.94	1.12	27.7
Approach		452	7.8	0.749	21.5	LOS C	7.9	209.9	0.94	1.13	27.2
East: Brand Rd											
1L	L	82	7.4	0.765	21.0	LOS C	8.6	223.2	0.94	1.17	23.5
6T	T	306	5.4	0.765	15.5	LOS B	8.6	223.2	0.94	1.14	25.3
6R	R	120	3.5	0.765	16.0	LOS B	8.6	223.2	0.94	1.15	24.7
Approach		508	5.3	0.765	16.5	LOS B	8.6	223.2	0.94	1.15	24.8
North: Avery Rd											
7L	L	177	2.1	1.025	55.3	LOS F	28.9	740.3	1.00	1.74	16.6
4T	T	368	3.2	1.025	49.7	LOS F	28.9	740.3	1.00	1.74	17.4
4R	R	149	4.2	1.025	50.9	LOS F	28.9	740.3	1.00	1.73	17.3
Approach		693	3.1	1.025	51.4	LOS D	28.9	740.3	1.00	1.74	17.2
West: Brand Rd											
5L	L	107	13.1	0.926	38.8	LOS D	16.0	417.2	1.00	1.37	21.4
2T	T	309	4.7	0.926	32.0	LOS C	16.0	417.2	1.00	1.38	22.3
2R	R	127	0.9	0.926	32.9	LOS C	16.0	417.2	1.00	1.39	22.2
Approach		542	5.5	0.926	33.5	LOS C	16.0	417.2	1.00	1.38	22.1
All Vehicles		2196	5.2	1.025	32.7	LOS C	28.9	740.3	0.97	1.39	21.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Full Build w/ HCSD

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	164	6.2	0.773	26.6	LOS C	8.6	228.3	0.96	1.17	25.6
8T	T	246	7.4	0.773	20.2	LOS C	8.6	228.3	0.96	1.15	27.2
8R	R	52	14.6	0.773	21.7	LOS C	8.6	228.3	0.96	1.15	27.1
Approach		462	7.8	0.773	22.6	LOS C	8.6	228.3	0.96	1.16	26.6
East: Brand Rd											
1L	L	82	7.4	0.788	22.2	LOS C	9.3	242.5	0.96	1.20	23.1
6T	T	307	5.4	0.788	16.6	LOS B	9.3	242.5	0.96	1.18	24.7
6R	R	127	3.5	0.788	17.1	LOS B	9.3	242.5	0.96	1.19	24.2
Approach		516	5.3	0.788	17.6	LOS B	9.3	242.5	0.96	1.19	24.3
North: Avery Rd											
7L	L	197	2.1	1.104	81.7	LOS F	42.1	1078.0	1.00	2.14	12.7
4T	T	397	3.2	1.104	76.1	LOS F	42.1	1078.0	1.00	2.13	13.2
4R	R	153	4.2	1.104	77.3	LOS F	42.1	1078.0	1.00	2.13	13.1
Approach		747	3.1	1.104	77.8	LOS E	42.1	1078.0	1.00	2.13	13.1
West: Brand Rd											
5L	L	108	13.1	0.943	41.5	LOS D	17.3	451.4	1.00	1.42	20.6
2T	T	312	4.7	0.943	34.7	LOS C	17.3	451.4	1.00	1.43	21.4
2R	R	128	0.9	0.943	35.7	LOS D	17.3	451.4	1.00	1.43	21.3
Approach		548	5.5	0.943	36.3	LOS D	17.3	451.4	1.00	1.43	21.2
All Vehicles		2272	5.1	1.104	42.9	LOS D	42.1	1078.0	0.98	1.55	18.6

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Full Build w/o HCSD

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	164	6.2	0.777	26.8	LOS C	8.7	231.0	0.96	1.17	25.5
8T	T	246	7.4	0.777	20.4	LOS C	8.7	231.0	0.96	1.16	27.1
8R	R	52	14.6	0.777	21.9	LOS C	8.7	231.0	0.96	1.16	27.0
Approach		462	7.8	0.777	22.9	LOS C	8.7	231.0	0.96	1.16	26.5
East: Brand Rd											
1L	L	82	7.4	0.794	22.6	LOS C	9.5	246.9	0.96	1.21	23.0
6T	T	307	5.4	0.794	17.0	LOS B	9.5	246.9	0.96	1.19	24.6
6R	R	127	3.5	0.794	17.5	LOS B	9.5	246.9	0.96	1.20	24.0
Approach		516	5.3	0.794	18.0	LOS B	9.5	246.9	0.96	1.20	24.2
North: Avery Rd											
7L	L	196	2.1	1.130	91.6	LOS F	46.9	1202.3	1.00	2.28	11.7
4T	T	397	3.2	1.130	86.0	LOS F	46.9	1202.3	1.00	2.27	12.1
4R	R	172	4.2	1.130	87.2	LOS F	46.9	1202.3	1.00	2.27	12.0
Approach		764	3.1	1.130	87.7	LOS F	46.9	1202.3	1.00	2.27	12.0
West: Brand Rd											
5L	L	114	13.1	0.939	40.4	LOS D	17.1	446.5	1.00	1.40	20.9
2T	T	312	4.7	0.939	33.6	LOS C	17.1	446.5	1.00	1.42	21.7
2R	R	128	0.9	0.939	34.6	LOS C	17.1	446.5	1.00	1.42	21.6
Approach		554	5.6	0.939	35.2	LOS D	17.1	446.5	1.00	1.41	21.5
All Vehicles		2297	5.1	1.130	46.3	LOS D	46.9	1202.3	0.98	1.60	17.9

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Background - Expanded

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1 lane on EB & WB approaches, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	164	6.2	0.278	17.6	LOS B	1.6	42.1	0.69	0.87	30.2
8T	T	236	7.4	0.278	9.3	LOS A	1.7	44.9	0.69	0.70	33.3
8R	R	52	14.6	0.278	11.3	LOS B	1.7	44.9	0.69	0.79	33.5
Approach		452	7.8	0.278	12.6	LOS B	1.7	44.9	0.69	0.77	32.1
East: Brand Rd											
1L	L	82	7.4	0.659	14.8	LOS B	4.3	112.6	0.69	1.05	26.5
6T	T	306	5.4	0.659	7.9	LOS A	4.3	112.6	0.69	0.81	29.1
6R	R	120	3.5	0.659	8.5	LOS A	4.3	112.6	0.69	0.89	28.7
Approach		508	5.3	0.659	9.2	LOS A	4.3	112.6	0.69	0.87	28.5
North: Avery Rd											
7L	L	177	2.1	0.382	16.3	LOS B	2.3	59.5	0.70	0.89	30.1
4T	T	368	3.2	0.382	9.1	LOS A	2.5	63.1	0.69	0.69	33.1
4R	R	149	4.2	0.382	10.6	LOS B	2.5	63.1	0.69	0.78	33.3
Approach		693	3.1	0.382	11.3	LOS B	2.5	63.1	0.69	0.76	32.3
West: Brand Rd											
5L	L	107	13.1	0.751	20.6	LOS C	5.8	150.3	0.79	1.08	29.2
2T	T	309	4.7	0.751	12.3	LOS B	5.8	150.3	0.79	0.98	32.2
2R	R	127	0.9	0.751	13.3	LOS B	5.8	150.3	0.79	1.00	31.9
Approach		542	5.5	0.751	14.2	LOS B	5.8	150.3	0.79	1.00	31.5
All Vehicles		2196	5.2	0.751	11.8	LOS B	5.8	150.3	0.72	0.85	31.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Full Build w/ HCSD - Expanded

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1 lane on EB & WB approaches, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	164	6.2	0.292	17.9	LOS B	1.7	44.9	0.71	0.88	30.0
8T	T	246	7.4	0.292	9.5	LOS A	1.8	48.0	0.71	0.71	33.2
8R	R	52	14.6	0.292	11.5	LOS B	1.8	48.0	0.71	0.81	33.4
Approach		462	7.8	0.292	12.7	LOS B	1.8	48.0	0.71	0.78	32.0
East: Brand Rd											
1L	L	82	7.4	0.674	15.0	LOS B	4.5	118.5	0.71	1.06	26.4
6T	T	307	5.4	0.674	8.2	LOS A	4.5	118.5	0.71	0.84	29.0
6R	R	127	3.5	0.674	8.7	LOS A	4.5	118.5	0.71	0.91	28.6
Approach		516	5.3	0.674	9.4	LOS A	4.5	118.5	0.71	0.89	28.4
North: Avery Rd											
7L	L	197	2.1	0.413	16.4	LOS B	2.6	66.1	0.71	0.89	30.0
4T	T	397	3.2	0.413	9.2	LOS A	2.7	69.8	0.71	0.70	33.0
4R	R	153	4.2	0.413	10.7	LOS B	2.7	69.8	0.71	0.78	33.3
Approach		747	3.1	0.413	11.4	LOS B	2.7	69.8	0.71	0.77	32.2
West: Brand Rd											
5L	L	108	13.1	0.782	21.5	LOS C	6.3	164.4	0.82	1.10	28.8
2T	T	312	4.7	0.782	13.1	LOS B	6.3	164.4	0.82	1.01	31.6
2R	R	128	0.9	0.782	14.2	LOS B	6.3	164.4	0.82	1.04	31.3
Approach		548	5.5	0.782	15.0	LOS B	6.3	164.4	0.82	1.04	30.9
All Vehicles		2272	5.1	0.782	12.1	LOS B	6.3	164.4	0.74	0.86	31.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Full Build w/o HCSD - Expanded

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1 lane on EB & WB approaches, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	164	6.2	0.294	17.9	LOS B	1.7	45.6	0.71	0.88	30.0
8T	T	246	7.4	0.294	9.6	LOS A	1.8	48.8	0.71	0.72	33.2
8R	R	52	14.6	0.294	11.5	LOS B	1.8	48.8	0.71	0.81	33.4
Approach		462	7.8	0.294	12.8	LOS B	1.8	48.8	0.71	0.79	31.9
East: Brand Rd											
1L	L	82	7.4	0.677	15.1	LOS B	4.6	119.6	0.71	1.06	26.4
6T	T	307	5.4	0.677	8.3	LOS A	4.6	119.6	0.71	0.85	29.0
6R	R	127	3.5	0.677	8.8	LOS A	4.6	119.6	0.71	0.91	28.6
Approach		516	5.3	0.677	9.5	LOS A	4.6	119.6	0.71	0.90	28.4
North: Avery Rd											
7L	L	196	2.1	0.423	16.5	LOS B	2.7	69.1	0.72	0.90	30.0
4T	T	397	3.2	0.423	9.2	LOS A	2.8	72.1	0.72	0.71	33.0
4R	R	172	4.2	0.423	10.7	LOS B	2.8	72.1	0.71	0.78	33.2
Approach		764	3.1	0.423	11.4	LOS B	2.8	72.1	0.72	0.77	32.2
West: Brand Rd											
5L	L	114	13.1	0.794	21.8	LOS C	6.6	172.6	0.83	1.11	28.6
2T	T	312	4.7	0.794	13.5	LOS B	6.6	172.6	0.83	1.03	31.3
2R	R	128	0.9	0.794	14.5	LOS B	6.6	172.6	0.83	1.05	31.1
Approach		554	5.6	0.794	15.4	LOS B	6.6	172.6	0.83	1.05	30.6
All Vehicles		2297	5.1	0.794	12.2	LOS B	6.6	172.6	0.74	0.87	30.9

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	PM Peak Hour

Site Information

Intersection	Avery/Brand
Jurisdiction	Dublin
Analysis Year	2014 Background

Project ID *20131358 Riviera TIS*

East/West Street: *Brand Rd* | North/South Street: *Avery Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	60	164	40	25	125	124
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	56	220	26	62	161	42
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	L	TR	L	TR	L	TR
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Flow Rate (veh/h)	66	226	27	275	62	272	68	224
% Heavy Vehicles	4	0	5	2	0	1	1	3
No. Lanes	2		2		2		2	
Geometry Group	5		5		5		5	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Prop. Right-Turns	0.0	0.2	0.0	0.5	0.0	0.1	0.0	0.2
Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
hLT-adj	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.6	-0.1	0.6	-0.3	0.5	-0.1	0.5	-0.1

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.06	0.20	0.02	0.24	0.06	0.24	0.06	0.20
hd, final value (s)	7.52	6.82	7.52	6.62	7.35	6.80	7.45	6.84
x, final value	0.14	0.43	0.06	0.51	0.13	0.51	0.14	0.43
Move-up time, m (s)	2.3		2.3		2.3		2.3	
Service Time, t_s (s)	5.2	4.5	5.2	4.3	5.1	4.5	5.1	4.5

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	316	476	277	519	312	508	318	474
Delay (s/veh)	11.42	14.52	10.67	15.91	11.12	16.45	11.36	14.51
LOS	B	B	B	C	B	C	B	B
Approach: Delay (s/veh)	13.82		15.44		15.46		13.78	
LOS	B		C		C		B	
Intersection Delay (s/veh)	14.66							
Intersection LOS	B							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	PM Peak Hour

Site Information

Intersection	Avery/Brand
Jurisdiction	Dublin
Analysis Year	2014 Full Build

Project ID 20131358 Riviera TIS

East/West Street: Brand Rd

North/South Street: Avery Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	65	166	41	25	129	143
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	57	249	26	73	178	45
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	L	TR	L	TR	L	TR
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Flow Rate (veh/h)	72	229	27	301	63	304	81	247
% Heavy Vehicles	4	0	5	2	0	1	1	3
No. Lanes	2		2		2		2	
Geometry Group	5		5		5		5	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Prop. Right-Turns	0.0	0.2	0.0	0.5	0.0	0.1	0.0	0.2
Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
hLT-adj	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.6	-0.1	0.6	-0.3	0.5	-0.0	0.5	-0.1

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.06	0.20	0.02	0.27	0.06	0.27	0.07	0.22
hd, final value (s)	7.88	7.17	7.83	6.92	7.63	7.08	7.73	7.13
x, final value	0.16	0.46	0.06	0.58	0.13	0.60	0.17	0.49
Move-up time, m (s)	2.3		2.3		2.3		2.3	
Service Time, t_s (s)	5.6	4.9	5.5	4.6	5.3	4.8	5.4	4.8

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	322	477	277	500	313	491	331	483
Delay (s/veh)	12.05	15.75	11.02	18.67	11.50	19.78	12.06	16.46
LOS	B	C	B	C	B	C	B	C
Approach: Delay (s/veh)	14.86		18.04		18.36		15.37	
LOS	B		C		C		C	
Intersection Delay (s/veh)	16.74							
Intersection LOS	C							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	PM Peak Hour

Site Information

Intersection	Avery/Brand
Jurisdiction	Dublin
Analysis Year	2014 Full Build w/o HCSD

Project ID 20131358 Riviera TIS

East/West Street: Brand Rd

North/South Street: Avery Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	83	166	43	25	129	143
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	57	249	26	72	176	44
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	L	TR	L	TR	L	TR
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Flow Rate (veh/h)	92	231	27	301	63	304	80	243
% Heavy Vehicles	4	0	5	2	0	1	1	3
No. Lanes	2		2		2		2	
Geometry Group	5		5		5		5	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Prop. Right-Turns	0.0	0.2	0.0	0.5	0.0	0.1	0.0	0.2
Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
hLT-adj	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.6	-0.1	0.6	-0.3	0.5	-0.0	0.5	-0.1

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.08	0.21	0.02	0.27	0.06	0.27	0.07	0.22
hd, final value (s)	7.89	7.17	7.88	6.96	7.69	7.14	7.80	7.20
x, final value	0.20	0.46	0.06	0.58	0.13	0.60	0.17	0.49
Move-up time, m (s)	2.3		2.3		2.3		2.3	
Service Time, t_s (s)	5.6	4.9	5.6	4.7	5.4	4.8	5.5	4.9

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	342	478	277	497	313	487	330	478
Delay (s/veh)	12.56	15.85	11.07	18.89	11.58	20.09	12.13	16.51
LOS	B	C	B	C	B	C	B	C
Approach: Delay (s/veh)	14.91		18.25		18.63		15.42	
LOS	B		C		C		C	
Intersection Delay (s/veh)	16.87							
Intersection LOS	C							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	PM Peak Hour

Site Information

Intersection	Avery/Brand
Jurisdiction	Dublin
Analysis Year	2024 Background

Project ID 20131358 Riviera TIS

East/West Street: Brand Rd

North/South Street: Avery Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	94	243	68	35	192	223
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	98	374	36	135	289	68
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	L	TR	L	TR	L	TR
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Flow Rate (veh/h)	104	345	38	460	108	455	150	396
% Heavy Vehicles	4	0	5	2	0	1	1	3
No. Lanes	2		2		2		2	
Geometry Group	5		5		5		5	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Prop. Right-Turns	0.0	0.2	0.0	0.5	0.0	0.1	0.0	0.2
Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
hLT-adj	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.6	-0.2	0.6	-0.3	0.5	-0.0	0.5	-0.1

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.09	0.31	0.03	0.41	0.10	0.40	0.13	0.35
hd, final value (s)	9.91	9.19	9.83	8.90	9.68	9.14	9.68	9.09
x, final value	0.29	0.88	0.10	1.14	0.29	1.16	0.40	1.00
Move-up time, m (s)	2.3		2.3		2.3		2.3	
Service Time, t_s (s)	7.6	6.9	7.5	6.6	7.4	6.8	7.4	6.8

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	354	392	288	460	358	455	372	397
Delay (s/veh)	16.53	51.00	13.67	116.87	16.30	124.01	18.78	75.59
LOS	C	F	B	F	C	F	C	F
Approach: Delay (s/veh)	43.02		109.00		103.35		59.99	
LOS	E		F		F		F	
Intersection Delay (s/veh)	80.03							
Intersection LOS	F							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	PM Peak Hour

Site Information

Intersection	Avery/Brand
Jurisdiction	Dublin
Analysis Year	2024 Full Build

Project ID 20131358 Riviera TIS

East/West Street: Brand Rd

North/South Street: Avery Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	99	245	69	35	196	242
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	99	403	36	146	306	71
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	L	TR	L	TR	L	TR
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Flow Rate (veh/h)	110	348	38	485	110	487	162	418
% Heavy Vehicles	4	0	5	2	0	1	1	3
No. Lanes	2		2		2		2	
Geometry Group	5		5		5		5	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Prop. Right-Turns	0.0	0.2	0.0	0.6	0.0	0.1	0.0	0.2
Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
hLT-adj	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.6	-0.2	0.6	-0.4	0.5	-0.0	0.5	-0.1

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.10	0.31	0.03	0.43	0.10	0.43	0.14	0.37
hd, final value (s)	9.91	9.19	9.86	8.92	9.71	9.17	9.70	9.11
x, final value	0.30	0.89	0.10	1.20	0.30	1.24	0.44	1.06
Move-up time, m (s)	2.3		2.3		2.3		2.3	
Service Time, t_s (s)	7.6	6.9	7.6	6.6	7.4	6.9	7.4	6.8

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	360	392	288	485	360	487	371	418
Delay (s/veh)	16.86	52.41	13.70	140.15	16.45	155.50	19.71	91.75
LOS	C	F	B	F	C	F	C	F
Approach: Delay (s/veh)	43.87		130.96		129.88		71.63	
LOS	E		F		F		F	
Intersection Delay (s/veh)	96.23							
Intersection LOS	F							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/7/2014
Analysis Time Period	PM Peak Hour

Site Information

Intersection	Avery/Brand
Jurisdiction	Dublin
Analysis Year	2024 Full Build w/o HCSD

Project ID 20131358 Riviera TIS

East/West Street: Brand Rd

North/South Street: Avery Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	117	245	71	35	196	242
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	99	403	36	145	304	70
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	L	TR	L	TR	L	TR
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Flow Rate (veh/h)	130	350	38	485	110	487	161	414
% Heavy Vehicles	4	0	5	2	0	1	1	3
No. Lanes	2		2		2		2	
Geometry Group	5		5		5		5	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
Prop. Right-Turns	0.0	0.2	0.0	0.6	0.0	0.1	0.0	0.2
Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
hLT-adj	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.6	-0.2	0.6	-0.4	0.5	-0.0	0.5	-0.1

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.12	0.31	0.03	0.43	0.10	0.43	0.14	0.37
hd, final value (s)	9.91	9.19	9.89	8.95	9.73	9.19	9.73	9.13
x, final value	0.36	0.89	0.10	1.21	0.30	1.24	0.43	1.05
Move-up time, m (s)	2.3		2.3		2.3		2.3	
Service Time, t_s (s)	7.6	6.9	7.6	6.7	7.4	6.9	7.4	6.8

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	364	392	288	485	360	487	370	414
Delay (s/veh)	18.04	53.23	13.74	141.87	16.50	156.95	19.70	89.69
LOS	C	F	B	F	C	F	C	F
Approach: Delay (s/veh)	43.70		132.56		131.07		70.09	
LOS	E		F		F		F	
Intersection Delay (s/veh)	96.02							
Intersection LOS	F							

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MOVEMENT SUMMARY

Site: 2024 PM Background

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	109	0.0	0.765	23.3	LOS C	8.8	222.6	0.92	1.13	27.2
8T	T	416	1.4	0.765	16.8	LOS B	8.8	222.6	0.92	1.10	29.2
8R	R	40	0.0	0.765	17.9	LOS B	8.8	222.6	0.92	1.10	29.0
Approach		564	1.0	0.765	18.1	LOS B	8.8	222.6	0.92	1.10	28.8
East: Brand Rd											
1L	L	39	4.9	0.799	23.8	LOS C	9.7	245.4	0.99	1.23	22.4
6T	T	213	3.2	0.799	18.3	LOS B	9.7	245.4	0.99	1.22	23.9
6R	R	248	0.0	0.799	18.7	LOS B	9.7	245.4	0.99	1.23	23.4
Approach		500	1.7	0.799	18.9	LOS B	9.7	245.4	0.99	1.22	23.6
North: Avery Rd											
7L	L	150	0.8	0.647	17.4	LOS B	5.9	150.2	0.77	0.94	29.3
4T	T	321	2.9	0.647	11.9	LOS B	5.9	150.2	0.77	0.85	32.3
4R	R	76	4.8	0.647	13.1	LOS B	5.9	150.2	0.77	0.88	32.1
Approach		547	2.6	0.647	13.6	LOS B	5.9	150.2	0.77	0.88	31.4
West: Brand Rd											
5L	L	104	4.3	0.627	20.2	LOS C	5.5	138.4	0.83	1.04	28.8
2T	T	270	1.2	0.627	13.6	LOS B	5.5	138.4	0.83	0.96	31.2
2R	R	76	0.0	0.627	14.6	LOS B	5.5	138.4	0.83	0.98	31.0
Approach		450	1.7	0.627	15.3	LOS B	5.5	138.4	0.83	0.98	30.5
All Vehicles		2061	1.8	0.799	16.5	LOS B	9.7	245.4	0.88	1.05	28.3

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Full Build w/ HCSD

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	110	0.0	0.829	26.3	LOS C	11.3	284.3	0.98	1.20	25.8
8T	T	448	1.4	0.829	19.9	LOS B	11.3	284.3	0.98	1.20	27.5
8R	R	40	0.0	0.829	21.0	LOS C	11.3	284.3	0.98	1.20	27.3
Approach		598	1.0	0.829	21.2	LOS C	11.3	284.3	0.98	1.20	27.1
East: Brand Rd											
1L	L	39	4.9	0.891	31.6	LOS C	13.8	348.9	1.00	1.38	19.9
6T	T	218	3.2	0.891	26.0	LOS C	13.8	348.9	1.00	1.39	21.1
6R	R	269	0.0	0.891	26.5	LOS C	13.8	348.9	1.00	1.39	20.6
Approach		526	1.7	0.891	26.7	LOS C	13.8	348.9	1.00	1.39	20.7
North: Avery Rd											
7L	L	162	0.8	0.690	18.1	LOS B	6.9	175.7	0.81	0.96	28.9
4T	T	340	2.9	0.690	12.6	LOS B	6.9	175.7	0.81	0.89	31.9
4R	R	79	4.8	0.690	13.8	LOS B	6.9	175.7	0.81	0.92	31.6
Approach		581	2.6	0.690	14.3	LOS B	6.9	175.7	0.81	0.91	31.0
West: Brand Rd											
5L	L	110	4.3	0.666	21.3	LOS C	6.2	157.5	0.87	1.08	28.2
2T	T	272	1.2	0.666	14.7	LOS B	6.2	157.5	0.87	1.02	30.4
2R	R	77	0.0	0.666	15.8	LOS B	6.2	157.5	0.87	1.03	30.2
Approach		459	1.7	0.666	16.5	LOS B	6.2	157.5	0.87	1.03	29.8
All Vehicles		2163	1.8	0.891	19.7	LOS B	13.8	348.9	0.92	1.13	26.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Full Build w/o HCSD

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	110	0.0	0.849	27.9	LOS C	12.2	307.1	1.00	1.24	25.1
8T	T	448	1.4	0.849	21.5	LOS C	12.2	307.1	1.00	1.23	26.6
8R	R	40	0.0	0.849	22.6	LOS C	12.2	307.1	1.00	1.24	26.5
Approach		598	1.0	0.849	22.8	LOS C	12.2	307.1	1.00	1.23	26.3
East: Brand Rd											
1L	L	39	4.9	0.912	34.8	LOS C	15.0	381.0	1.00	1.44	19.1
6T	T	218	3.2	0.912	29.2	LOS C	15.0	381.0	1.00	1.44	20.1
6R	R	269	0.0	0.912	29.7	LOS C	15.0	381.0	1.00	1.45	19.6
Approach		526	1.7	0.912	29.9	LOS C	15.0	381.0	1.00	1.45	19.7
North: Avery Rd											
7L	L	161	0.8	0.685	18.1	LOS B	6.8	172.6	0.80	0.96	28.9
4T	T	338	2.9	0.685	12.5	LOS B	6.8	172.6	0.80	0.88	31.9
4R	R	78	4.8	0.685	13.8	LOS B	6.8	172.6	0.80	0.91	31.7
Approach		577	2.6	0.685	14.2	LOS B	6.8	172.6	0.80	0.91	31.0
West: Brand Rd											
5L	L	130	4.3	0.696	21.9	LOS C	6.9	174.3	0.89	1.09	27.8
2T	T	272	1.2	0.696	15.3	LOS B	6.9	174.3	0.89	1.04	30.0
2R	R	79	0.0	0.696	16.4	LOS B	6.9	174.3	0.89	1.05	29.8
Approach		481	1.8	0.696	17.3	LOS B	6.9	174.3	0.89	1.06	29.3
All Vehicles		2181	1.8	0.912	21.0	LOS C	15.0	381.0	0.92	1.16	26.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Background - Expanded

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1 lane on EB & WB approaches, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	109	0.0	0.287	16.6	LOS B	1.6	40.7	0.62	0.87	31.0
8T	T	416	1.4	0.287	8.4	LOS A	1.7	42.7	0.61	0.64	33.8
8R	R	40	0.0	0.287	9.9	LOS A	1.7	42.7	0.61	0.74	33.9
Approach		564	1.0	0.287	10.1	LOS B	1.7	42.7	0.61	0.69	33.2
East: Brand Rd											
1L	L	39	4.9	0.644	14.6	LOS B	4.0	101.2	0.69	1.05	26.6
6T	T	213	3.2	0.644	7.8	LOS A	4.0	101.2	0.69	0.80	29.0
6R	R	248	0.0	0.644	8.4	LOS A	4.0	101.2	0.69	0.88	28.7
Approach		500	1.7	0.644	8.6	LOS A	4.0	101.2	0.69	0.86	28.7
North: Avery Rd											
7L	L	150	0.8	0.251	14.6	LOS B	1.3	33.9	0.51	0.81	30.9
4T	T	321	2.9	0.251	7.6	LOS A	1.4	35.2	0.50	0.57	34.4
4R	R	76	4.8	0.251	9.3	LOS A	1.4	35.2	0.50	0.68	34.2
Approach		547	2.6	0.251	9.7	LOS A	1.4	35.2	0.50	0.65	33.3
West: Brand Rd											
5L	L	104	4.3	0.543	17.1	LOS B	2.9	72.5	0.59	1.00	30.9
2T	T	270	1.2	0.543	8.9	LOS A	2.9	72.5	0.59	0.71	33.8
2R	R	76	0.0	0.543	10.1	LOS B	2.9	72.5	0.59	0.78	33.7
Approach		450	1.7	0.543	11.0	LOS B	2.9	72.5	0.59	0.79	33.0
All Vehicles		2061	1.8	0.644	9.8	LOS A	4.0	101.2	0.60	0.74	32.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Full Build w/ HCSD - Expanded

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1 lane on EB & WB approaches, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	110	0.0	0.310	16.8	LOS B	1.8	44.9	0.64	0.88	30.9
8T	T	448	1.4	0.310	8.6	LOS A	1.9	47.2	0.63	0.66	33.7
8R	R	40	0.0	0.310	10.0	LOS B	1.9	47.2	0.63	0.75	33.8
Approach		598	1.0	0.310	10.2	LOS B	1.9	47.2	0.63	0.70	33.1
East: Brand Rd											
1L	L	39	4.9	0.692	15.3	LOS B	4.6	117.5	0.73	1.07	26.3
6T	T	218	3.2	0.692	8.5	LOS A	4.6	117.5	0.73	0.88	28.8
6R	R	269	0.0	0.692	9.0	LOS A	4.6	117.5	0.73	0.93	28.3
Approach		526	1.7	0.692	9.3	LOS A	4.6	117.5	0.73	0.92	28.4
North: Avery Rd											
7L	L	162	0.8	0.269	14.7	LOS B	1.5	37.1	0.52	0.81	30.9
4T	T	340	2.9	0.269	7.6	LOS A	1.5	38.6	0.51	0.58	34.3
4R	R	79	4.8	0.269	9.3	LOS A	1.5	38.6	0.51	0.69	34.2
Approach		581	2.6	0.269	9.8	LOS A	1.5	38.6	0.52	0.66	33.2
West: Brand Rd											
5L	L	110	4.3	0.563	17.3	LOS B	3.1	77.6	0.61	1.01	30.7
2T	T	272	1.2	0.563	9.2	LOS A	3.1	77.6	0.61	0.73	33.7
2R	R	77	0.0	0.563	10.3	LOS B	3.1	77.6	0.61	0.81	33.6
Approach		459	1.7	0.563	11.3	LOS B	3.1	77.6	0.61	0.81	32.9
All Vehicles		2163	1.8	0.692	10.1	LOS B	4.6	117.5	0.62	0.77	31.9

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Full Build w/o HCSD - Expanded

Roundabout with thru/left & thru/right lanes on NB & SB approaches, 1 lane on EB & WB approaches, 2 circulating lanes NB & SB, and 1 circulating lane EB & WB
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	110	0.0	0.316	16.9	LOS B	1.8	46.4	0.65	0.89	30.8
8T	T	448	1.4	0.316	8.7	LOS A	1.9	48.9	0.65	0.67	33.6
8R	R	40	0.0	0.316	10.1	LOS B	1.9	48.9	0.65	0.76	33.7
Approach		598	1.0	0.316	10.3	LOS B	1.9	48.9	0.65	0.71	33.0
East: Brand Rd											
1L	L	39	4.9	0.701	15.6	LOS B	4.8	121.2	0.75	1.08	26.1
6T	T	218	3.2	0.701	8.8	LOS A	4.8	121.2	0.75	0.91	28.8
6R	R	269	0.0	0.701	9.3	LOS A	4.8	121.2	0.75	0.94	28.2
Approach		526	1.7	0.701	9.5	LOS A	4.8	121.2	0.75	0.94	28.3
North: Avery Rd											
7L	L	161	0.8	0.267	14.7	LOS B	1.5	36.8	0.52	0.81	30.9
4T	T	338	2.9	0.267	7.6	LOS A	1.5	38.3	0.51	0.58	34.3
4R	R	78	4.8	0.267	9.3	LOS A	1.5	38.3	0.51	0.69	34.2
Approach		577	2.6	0.267	9.8	LOS A	1.5	38.3	0.52	0.66	33.2
West: Brand Rd											
5L	L	130	4.3	0.590	17.5	LOS B	3.4	85.1	0.63	1.01	30.6
2T	T	272	1.2	0.590	9.4	LOS A	3.4	85.1	0.63	0.75	33.6
2R	R	79	0.0	0.590	10.5	LOS B	3.4	85.1	0.63	0.83	33.5
Approach		481	1.8	0.590	11.7	LOS B	3.4	85.1	0.63	0.83	32.6
All Vehicles		2181	1.8	0.701	10.3	LOS B	4.8	121.2	0.63	0.78	31.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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AVERY ROAD / MEMORIAL DRIVE

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*JMH*	Intersection	*Avery/Memorial*
Agency/Co.	*EMHT*	Jurisdiction	*Dublin*
Date Performed	*1/9/2014*	Analysis Year	*2014 Background*
Analysis Time Period	*AM Peak*		

Project Description *20131358 Riviera TIS*	
East/West Street: *Memorial Dr*	North/South Street: *Avery Rd*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*216*	*27*	*16*	*256*	
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*240*	*30*	*17*	*284*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*46*		*25*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*51*	*0*	*27*
Percent Heavy Vehicles	*0*	*0*	*0*	*1*	*0*	*6*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*17*		*78*				
C (m) (veh/h)		*1288*		*550*				
v/c		*0.01*		*0.14*				
95% queue length		*0.04*		*0.49*				
Control Delay (s/veh)		*7.8*		*12.6*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*12.6*					
Approach LOS	--	--	*B*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery/Memorial
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2014 Full Build
Analysis Time Period	AM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Memorial Dr	North/South Street: Avery Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		232	27	16	304	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	257	30	17	337	0
Percent Heavy Vehicles	0	--	--	3	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				46		25
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	51	0	27
Percent Heavy Vehicles	0	0	0	1	0	6
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		17		78				
C (m) (veh/h)		1269		508				
v/c		0.01		0.15				
95% queue length		0.04		0.54				
Control Delay (s/veh)		7.9		13.4				
LOS		A		B				
Approach Delay (s/veh)	--	--	13.4					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery/Memorial
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2014 Full Build w/o HCSD
Analysis Time Period	AM Peak		

Project Description 20131358 Riviera TIS	
East/West Street: Memorial Dr	North/South Street: Avery Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		238	27	16	320	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	264	30	17	355	0
Percent Heavy Vehicles	0	--	--	3	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				46		25
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	51	0	27
Percent Heavy Vehicles	0	0	0	1	0	6
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		17		78				
C (m) (veh/h)		1262		495				
v/c		0.01		0.16				
95% queue length		0.04		0.56				
Control Delay (s/veh)		7.9		13.6				
LOS		A		B				
Approach Delay (s/veh)	--	--	13.6					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery/Memorial
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2024 Background
Analysis Time Period	AM Peak		

Project Description 20131358 Riviera TIS	
East/West Street: Memorial Dr	North/South Street: Avery Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		405	27	16	459	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	450	30	17	510	0
Percent Heavy Vehicles	0	--	--	3	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				46		25
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	51	0	27
Percent Heavy Vehicles	0	0	0	1	0	6
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		17		78				
C (m) (veh/h)		1077		325				
v/c		0.02		0.24				
95% queue length		0.05		0.92				
Control Delay (s/veh)		8.4		19.5				
LOS		A		C				
Approach Delay (s/veh)	--	--	19.5					
Approach LOS	--	--	C					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery/Memorial
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2024 Full Build
Analysis Time Period	AM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Memorial Dr	North/South Street: Avery Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		421	27	16	507	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	467	30	17	563	0
Percent Heavy Vehicles	0	--	--	3	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				46		25
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	51	0	27
Percent Heavy Vehicles	0	0	0	1	0	6
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		17		78				
C (m) (veh/h)		1062		300				
v/c		0.02		0.26				
95% queue length		0.05		1.02				
Control Delay (s/veh)		8.4		21.2				
LOS		A		C				
Approach Delay (s/veh)	--	--	21.2					
Approach LOS	--	--	C					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery/Memorial
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2024 Full Build w/o HCSD
Analysis Time Period	AM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Memorial Dr | North/South Street: Avery Rd

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		427	27	16	523	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	474	30	17	581	0
Percent Heavy Vehicles	0	--	--	3	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				46		25
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	51	0	27
Percent Heavy Vehicles	0	0	0	1	0	6
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		17		78				
C (m) (veh/h)		1055		291				
v/c		0.02		0.27				
95% queue length		0.05		1.06				
Control Delay (s/veh)		8.5		21.8				
LOS		A		C				
Approach Delay (s/veh)	--	--	21.8					
Approach LOS	--	--	C					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery/Memorial
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2014 Background
Analysis Time Period	PM Peak		

Project Description 20131358 Riviera TIS	
East/West Street: Memorial Dr	North/South Street: Avery Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		363	51	29	285	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	403	56	32	316	0
Percent Heavy Vehicles	0	--	--	3	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				38		39
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	42	0	43
Percent Heavy Vehicles	0	0	0	1	0	6
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		32		85				
C (m) (veh/h)		1097		440				
v/c		0.03		0.19				
95% queue length		0.09		0.71				
Control Delay (s/veh)		8.4		15.1				
LOS		A		C				
Approach Delay (s/veh)	--	--	15.1					
Approach LOS	--	--	C					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery/Memorial
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2014 Full Build
Analysis Time Period	PM Peak		

Project Description 20131358 Riviera TIS	
East/West Street: Memorial Dr	North/South Street: Avery Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		416	51	29	316	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	462	56	32	351	0
Percent Heavy Vehicles	0	--	--	3	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				38		39
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	42	0	43
Percent Heavy Vehicles	0	0	0	1	0	6
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		32		85				
C (m) (veh/h)		1043		394				
v/c		0.03		0.22				
95% queue length		0.09		0.81				
Control Delay (s/veh)		8.6		16.6				
LOS		A		C				
Approach Delay (s/veh)	--	--	16.6					
Approach LOS	--	--	C					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery/Memorial
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2014 Full Build w/o HCSD
Analysis Time Period	PM Peak		

Project Description 20131358 Riviera TIS	
East/West Street: Memorial Dr	North/South Street: Avery Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		434	51	29	312	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	482	56	32	346	0
Percent Heavy Vehicles	0	--	--	3	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				38		39
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	42	0	43
Percent Heavy Vehicles	0	0	0	1	0	6
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		32		85				
C (m) (veh/h)		1025		385				
v/c		0.03		0.22				
95% queue length		0.10		0.83				
Control Delay (s/veh)		8.6		17.0				
LOS		A		C				
Approach Delay (s/veh)	--	--	17.0					
Approach LOS	--	--	C					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery/Memorial
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2024 Background
Analysis Time Period	PM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Memorial Dr	North/South Street: Avery Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		632	51	29	517	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	702	56	32	574	0
Percent Heavy Vehicles	0	--	--	3	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				38		39
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	42	0	43
Percent Heavy Vehicles	0	0	0	1	0	6
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		32		85				
C (m) (veh/h)		849		229				
v/c		0.04		0.37				
95% queue length		0.12		1.62				
Control Delay (s/veh)		9.4		29.7				
LOS		A		D				
Approach Delay (s/veh)	--	--	29.7					
Approach LOS	--	--	D					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery/Memorial
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2024 Full Build
Analysis Time Period	PM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Memorial Dr	North/South Street: Avery Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		685	51	29	548	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	761	56	32	608	0
Percent Heavy Vehicles	0	--	--	3	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				38		39
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	42	0	43
Percent Heavy Vehicles	0	0	0	1	0	6
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		32		85				
C (m) (veh/h)		807		203				
v/c		0.04		0.42				
95% queue length		0.12		1.91				
Control Delay (s/veh)		9.6		34.9				
LOS		A		D				
Approach Delay (s/veh)	--	--	34.9					
Approach LOS	--	--	D					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery/Memorial
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2024 Full Build w/o HCSD
Analysis Time Period	PM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Memorial Dr | North/South Street: Avery Rd

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		703	51	29	544	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	781	56	32	604	0
Percent Heavy Vehicles	0	--	--	3	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				38		39
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	42	0	43
Percent Heavy Vehicles	0	0	0	1	0	6
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		32		85				
C (m) (veh/h)		793		198				
v/c		0.04		0.43				
95% queue length		0.13		1.98				
Control Delay (s/veh)		9.7		36.2				
LOS		A		E				
Approach Delay (s/veh)	--	--	36.2					
Approach LOS	--	--	E					

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AVERY ROAD / SITE DRIVE

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery Rd/Site Dr
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/10/2014	Analysis Year	2014 Full Build
Analysis Time Period	AM Peak		

Project Description 20131358 Riviera TIS	
East/West Street: Site Drive	North/South Street: Avery Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	16	241			272	13
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	17	267	0	0	302	14
Percent Heavy Vehicles	3	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	38		48			
Peak-Hour Factor, PHF	0.90	1.00	0.90	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	42	0	53	0	0	0
Percent Heavy Vehicles	1	0	1	1	0	1
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	17						95	
C (m) (veh/h)	1239						576	
v/c	0.01						0.16	
95% queue length	0.04						0.59	
Control Delay (s/veh)	7.9						12.5	
LOS	A						B	
Approach Delay (s/veh)	--	--	12.5					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery Rd/Site Dr
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/10/2014	Analysis Year	2014 Full Build w/o HCSD
Analysis Time Period	AM Peak		

Project Description 20131358 Riviera TIS	
East/West Street: Site Drive	North/South Street: Avery Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	22	241			272	15
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	24	267	0	0	302	16
Percent Heavy Vehicles	3	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	44		64			
Peak-Hour Factor, PHF	0.90	1.00	0.90	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	48	0	71	0	0	0
Percent Heavy Vehicles	1	0	1	1	0	1
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	24						119	
C (m) (veh/h)	1236						578	
v/c	0.02						0.21	
95% queue length	0.06						0.77	
Control Delay (s/veh)	8.0						12.8	
LOS	A						B	
Approach Delay (s/veh)	--	--	12.8					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery Rd/Site Dr
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/10/2014	Analysis Year	2024 Full Build
Analysis Time Period	AM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Site Drive	North/South Street: Avery Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	16	430			475	13
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	17	477	0	0	527	14
Percent Heavy Vehicles	3	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	38		48			
Peak-Hour Factor, PHF	0.90	1.00	0.90	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	42	0	53	0	0	0
Percent Heavy Vehicles	1	0	1	1	0	1
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	17						95	
C (m) (veh/h)	1023						359	
v/c	0.02						0.26	
95% queue length	0.05						1.05	
Control Delay (s/veh)	8.6						18.6	
LOS	A						C	
Approach Delay (s/veh)	--	--				18.6		
Approach LOS	--	--				C		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery Rd/Site Dr
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/10/2014	Analysis Year	2024 Full Build w/o HCSD
Analysis Time Period	AM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Site Drive	North/South Street: Avery Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	22	430			475	15
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	24	477	0	0	527	16
Percent Heavy Vehicles	3	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	44		64			
Peak-Hour Factor, PHF	0.90	1.00	0.90	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	48	0	71	0	0	0
Percent Heavy Vehicles	1	0	1	1	0	1
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	24						119	
C (m) (veh/h)	1021						364	
v/c	0.02						0.33	
95% queue length	0.07						1.39	
Control Delay (s/veh)	8.6						19.6	
LOS	A						C	
Approach Delay (s/veh)	--	--	19.6					
Approach LOS	--	--	C					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery Rd/Site Dr
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/10/2014	Analysis Year	2014 Full Build
Analysis Time Period	PM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Site Drive | North/South Street: Avery Rd

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	53	402			314	43
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	58	446	0	0	348	47
Percent Heavy Vehicles	3	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	25		31			
Peak-Hour Factor, PHF	0.90	1.00	0.90	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	27	0	34	0	0	0
Percent Heavy Vehicles	1	0	1	1	0	1
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	58						61	
C (m) (veh/h)	1158						417	
v/c	0.05						0.15	
95% queue length	0.16						0.51	
Control Delay (s/veh)	8.3						15.1	
LOS	A						C	
Approach Delay (s/veh)	--	--	15.1					
Approach LOS	--	--	C					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery Rd/Site Dr
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/10/2014	Analysis Year	2014 Full Build w/o HCSD
Analysis Time Period	PM Peak		

Project Description	20131358 Riviera TIS
East/West Street: Site Drive	North/South Street: Avery Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	71	402			314	47
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	78	446	0	0	348	52
Percent Heavy Vehicles	3	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	26		27			
Peak-Hour Factor, PHF	0.90	1.00	0.90	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	28	0	30	0	0	0
Percent Heavy Vehicles	1	0	1	1	0	1
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	78						58	
C (m) (veh/h)	1153						382	
v/c	0.07						0.15	
95% queue length	0.22						0.53	
Control Delay (s/veh)	8.3						16.1	
LOS	A						C	
Approach Delay (s/veh)	--	--	16.1					
Approach LOS	--	--	C					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery Rd/Site Dr
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/10/2014	Analysis Year	2024 Full Build
Analysis Time Period	PM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Site Drive	North/South Street: Avery Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	53	671			546	43
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	58	745	0	0	606	47
Percent Heavy Vehicles	3	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	25		31			
Peak-Hour Factor, PHF	0.90	1.00	0.90	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	27	0	34	0	0	0
Percent Heavy Vehicles	1	0	1	1	0	1
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	58						61	
C (m) (veh/h)	929						217	
v/c	0.06						0.28	
95% queue length	0.20						1.11	
Control Delay (s/veh)	9.1						28.0	
LOS	A						D	
Approach Delay (s/veh)	--	--	28.0					
Approach LOS	--	--	D					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Avery Rd/Site Dr
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/10/2014	Analysis Year	2024 Full Build w/o HCSD
Analysis Time Period	PM Peak		

Project Description 20131358 Riviera TIS

East/West Street: Site Drive	North/South Street: Avery Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	71	671			546	47
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	78	745	0	0	606	52
Percent Heavy Vehicles	3	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	0	0	1	0
Configuration	L	T				TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	26		27			
Peak-Hour Factor, PHF	0.90	1.00	0.90	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	28	0	30	0	0	0
Percent Heavy Vehicles	1	0	1	1	0	1
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L						LR	
v (veh/h)	78						58	
C (m) (veh/h)	925						194	
v/c	0.08						0.30	
95% queue length	0.28						1.20	
Control Delay (s/veh)	9.2						31.3	
LOS	A						D	
Approach Delay (s/veh)	--	--				31.3		
Approach LOS	--	--				D		

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AVERY ROAD / GLICK ROAD / MANLEY ROAD

MOVEMENT SUMMARY

Site: 2014 AM Background

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	7	0.0	0.202	14.6	LOS B	0.9	24.5	0.35	0.81	31.6
8T	T	76	3.7	0.202	8.2	LOS A	0.9	24.5	0.35	0.55	34.6
8R	R	116	5.4	0.202	9.5	LOS A	0.9	24.5	0.35	0.63	34.2
Approach		198	4.6	0.202	9.2	LOS A	0.9	24.5	0.35	0.60	34.2
East: Glick Rd											
1L	L	249	3.0	0.370	10.9	LOS B	2.1	53.0	0.28	0.69	27.2
6T	T	4	8.1	0.370	5.5	LOS A	2.1	53.0	0.28	0.42	30.2
6R	R	184	1.4	0.370	5.9	LOS A	2.1	53.0	0.28	0.48	29.4
Approach		438	2.4	0.370	8.8	LOS A	2.1	53.0	0.28	0.60	28.1
North: Manley Rd											
7L	L	149	2.3	0.358	14.6	LOS B	1.9	48.3	0.47	0.82	30.8
4T	T	186	3.2	0.358	9.0	LOS A	1.9	48.3	0.47	0.62	33.8
4R	R	1	4.8	0.358	10.0	LOS A	1.9	48.3	0.47	0.68	33.5
Approach		336	2.8	0.358	11.4	LOS B	1.9	48.3	0.47	0.71	32.4
West: Glick Rd											
5L	L	6	0.0	0.061	16.9	LOS B	0.3	7.0	0.57	0.83	30.3
2T	T	16	6.1	0.061	10.6	LOS B	0.3	7.0	0.57	0.67	33.3
2R	R	21	3.5	0.061	11.7	LOS B	0.3	7.0	0.57	0.72	33.1
Approach		42	4.0	0.061	12.0	LOS B	0.3	7.0	0.57	0.72	32.8
All Vehicles		1013	3.0	0.370	9.9	LOS A	2.1	53.0	0.37	0.64	30.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2014 AM Full Build w/ HCSD

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	7	0.0	0.243	14.6	LOS B	1.2	30.7	0.36	0.81	31.6
8T	T	94	3.7	0.243	8.3	LOS A	1.2	30.7	0.36	0.56	34.5
8R	R	139	5.4	0.243	9.5	LOS A	1.2	30.7	0.36	0.63	34.1
Approach		240	4.6	0.243	9.2	LOS A	1.2	30.7	0.36	0.61	34.2
East: Glick Rd											
1L	L	257	3.0	0.388	11.1	LOS B	2.2	56.7	0.32	0.69	27.2
6T	T	4	8.1	0.388	5.7	LOS A	2.2	56.7	0.32	0.44	30.0
6R	R	184	1.4	0.388	6.1	LOS A	2.2	56.7	0.32	0.50	29.2
Approach		446	2.4	0.388	9.0	LOS A	2.2	56.7	0.32	0.61	28.0
North: Manley Rd											
7L	L	149	2.3	0.369	14.6	LOS B	2.0	50.5	0.49	0.83	30.8
4T	T	192	3.2	0.369	9.0	LOS A	2.0	50.5	0.49	0.63	33.7
4R	R	1	4.8	0.369	10.0	LOS B	2.0	50.5	0.49	0.69	33.5
Approach		342	2.8	0.369	11.5	LOS B	2.0	50.5	0.49	0.72	32.4
West: Glick Rd											
5L	L	6	0.0	0.061	17.0	LOS B	0.3	7.2	0.57	0.84	30.3
2T	T	16	6.1	0.061	10.8	LOS B	0.3	7.2	0.57	0.68	33.3
2R	R	21	3.5	0.061	11.8	LOS B	0.3	7.2	0.57	0.72	33.0
Approach		42	4.0	0.061	12.1	LOS B	0.3	7.2	0.57	0.72	32.7
All Vehicles		1070	3.1	0.388	9.9	LOS A	2.2	56.7	0.39	0.65	30.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2014 AM Full Build w/o HCSD

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	7	0.0	0.249	14.6	LOS B	1.2	31.7	0.36	0.81	31.6
8T	T	101	3.7	0.249	8.3	LOS A	1.2	31.7	0.36	0.56	34.5
8R	R	139	5.4	0.249	9.5	LOS A	1.2	31.7	0.36	0.63	34.1
Approach		247	4.6	0.249	9.1	LOS A	1.2	31.7	0.36	0.61	34.2
East: Glick Rd											
1L	L	257	3.0	0.392	11.1	LOS B	2.3	57.5	0.33	0.70	27.2
6T	T	4	8.1	0.392	5.7	LOS A	2.3	57.5	0.33	0.44	29.9
6R	R	184	1.4	0.392	6.1	LOS A	2.3	57.5	0.33	0.50	29.2
Approach		446	2.4	0.392	9.0	LOS A	2.3	57.5	0.33	0.61	28.0
North: Manley Rd											
7L	L	149	2.3	0.371	14.6	LOS B	2.0	51.1	0.49	0.83	30.8
4T	T	194	3.2	0.371	9.0	LOS A	2.0	51.1	0.49	0.63	33.7
4R	R	1	4.8	0.371	10.0	LOS B	2.0	51.1	0.49	0.69	33.5
Approach		344	2.8	0.371	11.5	LOS B	2.0	51.1	0.49	0.72	32.4
West: Glick Rd											
5L	L	6	0.0	0.062	17.0	LOS B	0.3	7.2	0.58	0.84	30.2
2T	T	16	6.1	0.062	10.8	LOS B	0.3	7.2	0.58	0.68	33.3
2R	R	21	3.5	0.062	11.8	LOS B	0.3	7.2	0.58	0.72	33.0
Approach		42	4.0	0.062	12.1	LOS B	0.3	7.2	0.58	0.72	32.7
All Vehicles		1079	3.1	0.392	9.9	LOS A	2.3	57.5	0.40	0.65	30.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Background

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	7	0.0	0.471	16.2	LOS B	3.1	79.1	0.65	0.87	31.0
8T	T	212	3.7	0.471	9.8	LOS A	3.1	79.1	0.65	0.72	33.0
8R	R	168	5.4	0.471	11.1	LOS B	3.1	79.1	0.65	0.78	33.0
Approach		387	4.4	0.471	10.5	LOS B	3.1	79.1	0.65	0.75	33.0
East: Glick Rd											
1L	L	362	3.0	0.724	13.9	LOS B	7.9	200.3	0.74	0.82	26.1
6T	T	4	8.1	0.724	8.5	LOS A	7.9	200.3	0.74	0.72	28.0
6R	R	362	1.4	0.724	8.9	LOS A	7.9	200.3	0.74	0.73	27.7
Approach		729	2.2	0.724	11.4	LOS B	7.9	200.3	0.74	0.77	26.9
North: Manley Rd											
7L	L	313	2.3	0.812	21.3	LOS C	11.1	282.8	0.94	1.05	27.2
4T	T	369	3.2	0.812	15.8	LOS B	11.1	282.8	0.94	1.03	29.6
4R	R	1	4.8	0.812	16.7	LOS B	11.1	282.8	0.94	1.03	29.4
Approach		683	2.8	0.812	18.3	LOS B	11.1	282.8	0.94	1.04	28.4
West: Glick Rd											
5L	L	6	0.0	0.117	22.9	LOS C	0.7	17.4	0.85	0.93	27.2
2T	T	16	6.1	0.117	16.7	LOS B	0.7	17.4	0.85	0.89	29.3
2R	R	21	3.5	0.117	17.7	LOS B	0.7	17.4	0.85	0.90	29.1
Approach		42	4.0	0.117	18.0	LOS B	0.7	17.4	0.85	0.90	28.9
All Vehicles		1841	2.9	0.812	13.9	LOS B	11.1	282.8	0.80	0.87	28.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Full Build w/ HCSD

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	7	0.0	0.522	16.6	LOS B	3.7	96.9	0.68	0.89	30.7
8T	T	231	3.7	0.522	10.3	LOS B	3.7	96.9	0.68	0.76	32.9
8R	R	191	5.4	0.522	11.5	LOS B	3.7	96.9	0.68	0.80	32.9
Approach		429	4.4	0.522	10.9	LOS B	3.7	96.9	0.68	0.78	32.8
East: Glick Rd											
1L	L	370	3.0	0.749	14.7	LOS B	8.8	224.1	0.79	0.85	25.8
6T	T	4	8.1	0.749	9.3	LOS A	8.8	224.1	0.79	0.78	27.7
6R	R	362	1.4	0.749	9.7	LOS A	8.8	224.1	0.79	0.79	27.5
Approach		737	2.2	0.749	12.2	LOS B	8.8	224.1	0.79	0.82	26.6
North: Manley Rd											
7L	L	313	2.3	0.831	22.2	LOS C	12.0	305.9	0.97	1.08	26.7
4T	T	376	3.2	0.831	16.7	LOS B	12.0	305.9	0.97	1.07	29.1
4R	R	1	4.8	0.831	17.6	LOS B	12.0	305.9	0.97	1.06	28.9
Approach		690	2.8	0.831	19.2	LOS B	12.0	305.9	0.97	1.07	28.0
West: Glick Rd											
5L	L	6	0.0	0.121	23.2	LOS C	0.7	18.1	0.86	0.93	27.0
2T	T	16	6.1	0.121	17.0	LOS B	0.7	18.1	0.86	0.89	29.1
2R	R	21	3.5	0.121	18.0	LOS B	0.7	18.1	0.86	0.90	28.9
Approach		42	4.0	0.121	18.3	LOS B	0.7	18.1	0.86	0.90	28.7
All Vehicles		1898	3.0	0.831	14.6	LOS B	12.0	305.9	0.83	0.90	28.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 AM Full Build w/o HCSD

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	7	0.0	0.529	16.7	LOS B	3.9	99.9	0.69	0.89	30.7
8T	T	238	3.7	0.529	10.3	LOS B	3.9	99.9	0.69	0.77	32.8
8R	R	191	5.4	0.529	11.6	LOS B	3.9	99.9	0.69	0.81	32.9
Approach		436	4.4	0.529	11.0	LOS B	3.9	99.9	0.69	0.79	32.8
East: Glick Rd											
1L	L	370	3.0	0.756	15.0	LOS B	9.0	230.1	0.80	0.87	25.7
6T	T	4	8.1	0.756	9.6	LOS A	9.0	230.1	0.80	0.80	27.7
6R	R	362	1.4	0.756	10.0	LOS A	9.0	230.1	0.80	0.81	27.4
Approach		737	2.2	0.756	12.5	LOS B	9.0	230.1	0.80	0.84	26.4
North: Manley Rd											
7L	L	313	2.3	0.834	22.4	LOS C	12.2	310.9	0.98	1.08	26.7
4T	T	378	3.2	0.834	16.8	LOS B	12.2	310.9	0.98	1.07	29.0
4R	R	1	4.8	0.834	17.8	LOS B	12.2	310.9	0.98	1.07	28.8
Approach		692	2.8	0.834	19.3	LOS B	12.2	310.9	0.98	1.08	27.9
West: Glick Rd											
5L	L	6	0.0	0.121	23.3	LOS C	0.7	18.3	0.86	0.93	27.0
2T	T	16	6.1	0.121	17.0	LOS B	0.7	18.3	0.86	0.90	29.0
2R	R	21	3.5	0.121	18.1	LOS B	0.7	18.3	0.86	0.90	28.8
Approach		42	4.0	0.121	18.4	LOS B	0.7	18.3	0.86	0.91	28.6
All Vehicles		1907	3.0	0.834	14.7	LOS B	12.2	310.9	0.84	0.91	28.3

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2014 PM Background

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	13	0.0	0.314	14.8	LOS B	1.6	42.3	0.40	0.81	31.5
8T	T	119	3.7	0.314	8.5	LOS A	1.6	42.3	0.40	0.58	34.3
8R	R	177	5.4	0.314	9.7	LOS A	1.6	42.3	0.40	0.65	33.9
Approach		309	4.5	0.314	9.4	LOS A	1.6	42.3	0.40	0.63	33.9
East: Glick Rd											
1L	L	189	3.0	0.338	11.2	LOS B	1.8	46.7	0.35	0.71	27.2
6T	T	18	8.1	0.338	5.8	LOS A	1.8	46.7	0.35	0.46	29.9
6R	R	159	1.4	0.338	6.2	LOS A	1.8	46.7	0.35	0.52	29.1
Approach		366	2.6	0.338	8.8	LOS A	1.8	46.7	0.35	0.62	28.1
North: Manley Rd											
7L	L	172	2.3	0.359	14.3	LOS B	1.9	49.2	0.44	0.80	30.9
4T	T	167	3.2	0.359	8.7	LOS A	1.9	49.2	0.44	0.60	33.9
4R	R	12	4.8	0.359	9.9	LOS A	1.9	49.2	0.44	0.66	33.6
Approach		351	2.8	0.359	11.5	LOS B	1.9	49.2	0.44	0.70	32.4
West: Glick Rd											
5L	L	3	0.0	0.041	16.4	LOS B	0.2	4.7	0.53	0.82	30.6
2T	T	13	6.1	0.041	10.2	LOS B	0.2	4.7	0.53	0.64	33.6
2R	R	13	3.5	0.041	11.2	LOS B	0.2	4.7	0.53	0.69	33.4
Approach		30	4.3	0.041	11.3	LOS B	0.2	4.7	0.53	0.68	33.1
All Vehicles		1056	3.3	0.359	9.9	LOS A	1.9	49.2	0.40	0.65	31.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2014 PM Full Build w/ HCSD

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	13	0.0	0.340	14.8	LOS B	1.8	47.5	0.42	0.81	31.5
8T	T	132	3.7	0.340	8.5	LOS A	1.8	47.5	0.42	0.58	34.2
8R	R	191	5.4	0.340	9.7	LOS A	1.8	47.5	0.42	0.65	33.9
Approach		337	4.5	0.340	9.4	LOS A	1.8	47.5	0.42	0.63	33.9
East: Glick Rd											
1L	L	214	3.0	0.367	11.4	LOS B	2.0	52.3	0.38	0.72	27.1
6T	T	18	8.1	0.367	6.0	LOS A	2.0	52.3	0.38	0.48	29.7
6R	R	159	1.4	0.367	6.4	LOS A	2.0	52.3	0.38	0.53	29.0
Approach		391	2.6	0.367	9.1	LOS A	2.0	52.3	0.38	0.63	27.9
North: Manley Rd											
7L	L	172	2.3	0.392	14.5	LOS B	2.2	55.7	0.49	0.81	30.8
4T	T	189	3.2	0.392	8.9	LOS A	2.2	55.7	0.49	0.62	33.7
4R	R	12	4.8	0.392	10.1	LOS B	2.2	55.7	0.49	0.68	33.5
Approach		373	2.8	0.392	11.5	LOS B	2.2	55.7	0.49	0.71	32.3
West: Glick Rd											
5L	L	3	0.0	0.043	16.8	LOS B	0.2	5.0	0.56	0.82	30.4
2T	T	13	6.1	0.043	10.5	LOS B	0.2	5.0	0.56	0.66	33.4
2R	R	13	3.5	0.043	11.6	LOS B	0.2	5.0	0.56	0.70	33.2
Approach		30	4.3	0.043	11.7	LOS B	0.2	5.0	0.56	0.70	32.9
All Vehicles		1131	3.3	0.392	10.1	LOS B	2.2	55.7	0.43	0.66	31.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2014 PM Full Build w/o HCSD

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	13	0.0	0.342	14.8	LOS B	1.8	47.7	0.42	0.81	31.5
8T	T	133	3.7	0.342	8.5	LOS A	1.8	47.7	0.42	0.58	34.2
8R	R	191	5.4	0.342	9.7	LOS A	1.8	47.7	0.42	0.65	33.9
Approach		338	4.5	0.342	9.4	LOS A	1.8	47.7	0.42	0.63	33.9
East: Glick Rd											
1L	L	214	3.0	0.368	11.4	LOS B	2.1	52.4	0.38	0.72	27.1
6T	T	18	8.1	0.368	6.0	LOS A	2.1	52.4	0.38	0.48	29.7
6R	R	159	1.4	0.368	6.4	LOS A	2.1	52.4	0.38	0.53	29.0
Approach		391	2.6	0.368	9.1	LOS A	2.1	52.4	0.38	0.63	27.9
North: Manley Rd											
7L	L	172	2.3	0.397	14.5	LOS B	2.2	56.6	0.49	0.81	30.8
4T	T	193	3.2	0.397	8.9	LOS A	2.2	56.6	0.49	0.62	33.7
4R	R	12	4.8	0.397	10.1	LOS B	2.2	56.6	0.49	0.68	33.5
Approach		378	2.8	0.397	11.5	LOS B	2.2	56.6	0.49	0.71	32.3
West: Glick Rd											
5L	L	3	0.0	0.043	16.8	LOS B	0.2	5.0	0.56	0.82	30.4
2T	T	13	6.1	0.043	10.6	LOS B	0.2	5.0	0.56	0.66	33.4
2R	R	13	3.5	0.043	11.6	LOS B	0.2	5.0	0.56	0.70	33.2
Approach		30	4.3	0.043	11.7	LOS B	0.2	5.0	0.56	0.70	32.9
All Vehicles		1137	3.3	0.397	10.1	LOS B	2.2	56.6	0.43	0.66	31.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Background

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	13	0.0	0.707	19.7	LOS B	7.4	190.3	0.85	0.99	29.0
8T	T	296	3.7	0.707	13.3	LOS B	7.4	190.3	0.85	0.93	31.5
8R	R	254	5.4	0.707	14.6	LOS B	7.4	190.3	0.85	0.95	31.3
Approach		563	4.4	0.707	14.0	LOS B	7.4	190.3	0.85	0.94	31.3
East: Glick Rd											
1L	L	269	3.0	0.718	15.4	LOS B	7.8	198.2	0.82	0.93	25.5
6T	T	18	8.1	0.718	10.0	LOS B	7.8	198.2	0.82	0.86	27.7
6R	R	348	1.4	0.718	10.4	LOS B	7.8	198.2	0.82	0.87	27.1
Approach		634	2.3	0.718	12.5	LOS B	7.8	198.2	0.82	0.89	26.4
North: Manley Rd											
7L	L	364	2.3	0.804	19.5	LOS B	11.1	283.0	0.91	0.96	28.1
4T	T	361	3.2	0.804	13.9	LOS B	11.1	283.0	0.91	0.92	30.7
4R	R	12	4.8	0.804	15.1	LOS B	11.1	283.0	0.91	0.94	30.6
Approach		738	2.8	0.804	16.7	LOS B	11.1	283.0	0.91	0.94	29.3
West: Glick Rd											
5L	L	3	0.0	0.079	21.7	LOS C	0.5	11.7	0.83	0.90	27.8
2T	T	13	6.1	0.079	15.5	LOS B	0.5	11.7	0.83	0.84	30.0
2R	R	13	3.5	0.079	16.5	LOS B	0.5	11.7	0.83	0.85	29.8
Approach		30	4.3	0.079	16.6	LOS B	0.5	11.7	0.83	0.85	29.7
All Vehicles		1966	3.1	0.804	14.6	LOS B	11.1	283.0	0.86	0.92	28.9

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Full Build w/ HCSD

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	13	0.0	0.746	20.5	LOS C	8.5	220.3	0.89	1.01	28.6
8T	T	309	3.7	0.746	14.1	LOS B	8.5	220.3	0.89	0.97	30.9
8R	R	269	5.4	0.746	15.4	LOS B	8.5	220.3	0.89	0.99	30.7
Approach		591	4.4	0.746	14.8	LOS B	8.5	220.3	0.89	0.98	30.8
East: Glick Rd											
1L	L	294	3.0	0.760	16.5	LOS B	9.1	232.8	0.87	0.97	25.0
6T	T	18	8.1	0.760	11.1	LOS B	9.1	232.8	0.87	0.93	27.1
6R	R	348	1.4	0.760	11.5	LOS B	9.1	232.8	0.87	0.93	26.5
Approach		660	2.3	0.760	13.7	LOS B	9.1	232.8	0.87	0.95	25.8
North: Manley Rd											
7L	L	364	2.3	0.856	22.0	LOS C	13.8	353.3	1.00	1.04	26.8
4T	T	383	3.2	0.856	16.4	LOS B	13.8	353.3	1.00	1.04	29.1
4R	R	12	4.8	0.856	17.7	LOS B	13.8	353.3	1.00	1.04	29.0
Approach		760	2.8	0.856	19.1	LOS B	13.8	353.3	1.00	1.04	28.0
West: Glick Rd											
5L	L	3	0.0	0.088	22.7	LOS C	0.5	13.3	0.86	0.91	27.4
2T	T	13	6.1	0.088	16.5	LOS B	0.5	13.3	0.86	0.87	29.4
2R	R	13	3.5	0.088	17.5	LOS B	0.5	13.3	0.86	0.88	29.2
Approach		30	4.3	0.088	17.6	LOS B	0.5	13.3	0.86	0.88	29.1
All Vehicles		2041	3.1	0.856	16.1	LOS B	13.8	353.3	0.92	0.99	28.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2024 PM Full Build w/o HCSD

Roundabout with 1-lane approaches and circulating road

Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Avery Rd											
3L	L	13	0.0	0.748	20.5	LOS C	8.6	221.8	0.89	1.01	28.6
8T	T	310	3.7	0.748	14.2	LOS B	8.6	221.8	0.89	0.97	30.9
8R	R	269	5.4	0.748	15.4	LOS B	8.6	221.8	0.89	0.99	30.7
Approach		592	4.4	0.748	14.9	LOS B	8.6	221.8	0.89	0.98	30.8
East: Glick Rd											
1L	L	294	3.0	0.761	16.6	LOS B	9.2	233.8	0.88	0.97	25.0
6T	T	18	8.1	0.761	11.2	LOS B	9.2	233.8	0.88	0.94	27.1
6R	R	348	1.4	0.761	11.6	LOS B	9.2	233.8	0.88	0.93	26.5
Approach		660	2.3	0.761	13.8	LOS B	9.2	233.8	0.88	0.95	25.8
North: Manley Rd											
7L	L	364	2.3	0.861	22.3	LOS C	14.1	361.5	1.00	1.04	26.7
4T	T	388	3.2	0.861	16.7	LOS B	14.1	361.5	1.00	1.04	29.0
4R	R	12	4.8	0.861	17.9	LOS B	14.1	361.5	1.00	1.05	28.9
Approach		764	2.8	0.861	19.4	LOS B	14.1	361.5	1.00	1.04	27.8
West: Glick Rd											
5L	L	3	0.0	0.089	22.8	LOS C	0.5	13.4	0.86	0.91	27.3
2T	T	13	6.1	0.089	16.6	LOS B	0.5	13.4	0.86	0.87	29.4
2R	R	13	3.5	0.089	17.6	LOS B	0.5	13.4	0.86	0.88	29.2
Approach		30	4.3	0.089	17.7	LOS B	0.5	13.4	0.86	0.88	29.0
All Vehicles		2047	3.1	0.861	16.2	LOS B	14.1	361.5	0.93	0.99	28.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model used.

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JEROME ROAD / McKITRICK ROAD

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Jerome/McKitrick
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2014 Background
Analysis Time Period	AM Peak		

Project Description 20131358

East/West Street: McKitrick Rd | North/South Street: Jerome Rd

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	50	105			168	93
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	55	116	0	0	186	103
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	36		38			
Peak-Hour Factor, PHF	0.90	0.90	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	40	0	42	0	0	0
Percent Heavy Vehicles	2	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	55						82	
C (m) (veh/h)	1284						644	
v/c	0.04						0.13	
95% queue length	0.13						0.44	
Control Delay (s/veh)	7.9						11.4	
LOS	A						B	
Approach Delay (s/veh)	--	--				11.4		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Jerome/McKitrick
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2014 Full Build
Analysis Time Period	AM Peak		

Project Description 20131358

East/West Street: McKitrick Rd | North/South Street: Jerome Rd

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	51	121			174	93
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	56	134	0	0	193	103
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	36		38			
Peak-Hour Factor, PHF	0.90	0.90	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	40	0	42	0	0	0
Percent Heavy Vehicles	2	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	56						82	
C (m) (veh/h)	1277						628	
v/c	0.04						0.13	
95% queue length	0.14						0.45	
Control Delay (s/veh)	7.9						11.6	
LOS	A						B	
Approach Delay (s/veh)	--	--	11.6					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Jerome/McKitrick
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2014 Full Build w/o HCSD
Analysis Time Period	AM Peak		

Project Description 20131358

East/West Street: McKitrick Rd | North/South Street: Jerome Rd

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	57	121			174	93
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	63	134	0	0	193	103
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	36		40			
Peak-Hour Factor, PHF	0.90	0.90	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	40	0	44	0	0	0
Percent Heavy Vehicles	2	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	63						84	
C (m) (veh/h)	1277						624	
v/c	0.05						0.13	
95% queue length	0.16						0.46	
Control Delay (s/veh)	8.0						11.7	
LOS	A						B	
Approach Delay (s/veh)	--	--	11.7					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Jerome/McKitrick
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2024 Background
Analysis Time Period	AM Peak		

Project Description 20131358	
East/West Street: McKitrick Rd	North/South Street: Jerome Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	79	325			423	137
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	87	361	0	0	470	152
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	56		59			
Peak-Hour Factor, PHF	0.90	0.90	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	62	0	65	0	0	0
Percent Heavy Vehicles	2	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	87						127	
C (m) (veh/h)	969						315	
v/c	0.09						0.40	
95% queue length	0.30						1.88	
Control Delay (s/veh)	9.1						23.9	
LOS	A						C	
Approach Delay (s/veh)	--	--	23.9					
Approach LOS	--	--	C					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Jerome/McKitrick
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2024 Full Build
Analysis Time Period	AM Peak		

Project Description 20131358	
East/West Street: McKitrick Rd	North/South Street: Jerome Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	80	341			429	137
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	88	378	0	0	476	152
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	56		59			
Peak-Hour Factor, PHF	0.90	0.90	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	62	0	65	0	0	0
Percent Heavy Vehicles	2	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	88						127	
C (m) (veh/h)	964						307	
v/c	0.09						0.41	
95% queue length	0.30						1.95	
Control Delay (s/veh)	9.1						24.8	
LOS	A						C	
Approach Delay (s/veh)	--	--	24.8					
Approach LOS	--	--	C					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Jerome/McKitrick
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2024 Full Build w/o HCSD
Analysis Time Period	AM Peak		

Project Description 20131358

East/West Street: McKitrick Rd | North/South Street: Jerome Rd

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	86	341			429	137
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	95	378	0	0	476	152
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	56		61			
Peak-Hour Factor, PHF	0.90	0.90	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	62	0	67	0	0	0
Percent Heavy Vehicles	2	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	95						129	
C (m) (veh/h)	964						303	
v/c	0.10						0.43	
95% queue length	0.33						2.03	
Control Delay (s/veh)	9.1						25.4	
LOS	A						D	
Approach Delay (s/veh)	--	--	25.4					
Approach LOS	--	--	D					

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/29/2014
Analysis Time Period	AM Peak

Site Information

Intersection	Jerome/McKitrick
Jurisdiction	Dublin
Analysis Year	2024 Background

Project ID 2013-1358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Jerome Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	56	0	59	0	0	0
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	79	325	0	0	423	137
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LR				LT		TR	
PHF	0.90				0.90		0.90	
Flow Rate (veh/h)	127				448		622	
% Heavy Vehicles	1				0		0	
No. Lanes	1		0		1		1	
Geometry Group	1				1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.5				0.2		0.0	
Prop. Right-Turns	0.5				0.0		0.2	
Prop. Heavy Vehicle	0.0				0.0		0.0	
hLT-adj	0.2	0.2			0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6			-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7			1.7	1.7	1.7	1.7
hadj, computed	-0.2				0.0		-0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20				3.20		3.20	
x, initial	0.11				0.40		0.55	
hd, final value (s)	6.18				5.13		4.77	
x, final value	0.22				0.64		0.82	
Move-up time, m (s)	2.0				2.0		2.0	
Service Time, t_s (s)	4.2				3.1		2.8	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	377				688		748	
Delay (s/veh)	10.90				16.71		25.92	
LOS	B				C		D	
Approach: Delay (s/veh)	10.90				16.71		25.92	
LOS	B				C		D	
Intersection Delay (s/veh)	20.88							
Intersection LOS	C							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/29/2014
Analysis Time Period	AM Peak

Site Information

Intersection	Jerome/McKitrick
Jurisdiction	Dublin
Analysis Year	2024 Full Build

Project ID 2013-1358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Jerome Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	56	0	59	0	0	0
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	80	341	0	0	429	137
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LR				LT		TR	
PHF	0.90				0.90		0.90	
Flow Rate (veh/h)	127				466		628	
% Heavy Vehicles	1				0		0	
No. Lanes	1		0		1		1	
Geometry Group	1				1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.5				0.2		0.0	
Prop. Right-Turns	0.5				0.0		0.2	
Prop. Heavy Vehicle	0.0				0.0		0.0	
hLT-adj	0.2	0.2			0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6			-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7			1.7	1.7	1.7	1.7
hadj, computed	-0.2				0.0		-0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20				3.20		3.20	
x, initial	0.11				0.41		0.56	
hd, final value (s)	6.24				5.14		4.80	
x, final value	0.22				0.67		0.84	
Move-up time, m (s)	2.0				2.0		2.0	
Service Time, t_s (s)	4.2				3.1		2.8	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	377				687		744	
Delay (s/veh)	11.00				17.78		27.32	
LOS	B				C		D	
Approach: Delay (s/veh)	11.00				17.78		27.32	
LOS	B				C		D	
Intersection Delay (s/veh)	21.98							
Intersection LOS	C							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/29/2014
Analysis Time Period	AM Peak

Site Information

Intersection	Jerome/McKitrick
Jurisdiction	Dublin
Analysis Year	2024 Full Build w/o HCSD

Project ID 2013-1358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Jerome Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	56	0	61	0	0	0
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	86	341	0	0	429	137
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LR				LT		TR	
PHF	0.90				0.90		0.90	
Flow Rate (veh/h)	129				473		628	
% Heavy Vehicles	1				0		0	
No. Lanes	1		0		1		1	
Geometry Group	1				1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.5				0.2		0.0	
Prop. Right-Turns	0.5				0.0		0.2	
Prop. Heavy Vehicle	0.0				0.0		0.0	
hLT-adj	0.2	0.2			0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6			-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7			1.7	1.7	1.7	1.7
hadj, computed	-0.2				0.0		-0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20				3.20		3.20	
x, initial	0.11				0.42		0.56	
hd, final value (s)	6.26				5.16		4.82	
x, final value	0.22				0.68		0.84	
Move-up time, m (s)	2.0				2.0		2.0	
Service Time, t_s (s)	4.3				3.2		2.8	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	379				685		741	
Delay (s/veh)	11.06				18.30		27.75	
LOS	B				C		D	
Approach: Delay (s/veh)	11.06				18.30		27.75	
LOS	B				C		D	
Intersection Delay (s/veh)	22.37							
Intersection LOS	C							

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Jerome/McKitrick
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2014 Background
Analysis Time Period	PM Peak		

Project Description 20131358	
East/West Street: McKitrick Rd	North/South Street: Jerome Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	46	146			147	35
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	51	162	0	0	163	38
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	59		55			
Peak-Hour Factor, PHF	0.90	0.90	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	65	0	61	0	0	0
Percent Heavy Vehicles	0	0	1	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	51						126	
C (m) (veh/h)	1383						669	
v/c	0.04						0.19	
95% queue length	0.11						0.69	
Control Delay (s/veh)	7.7						11.6	
LOS	A						B	
Approach Delay (s/veh)	--	--				11.6		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Jerome/McKitrick
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2014 Full Build
Analysis Time Period	PM Peak		

Project Description 20131358

East/West Street: McKitrick Rd | North/South Street: Jerome Rd

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	47	157			165	35
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	52	174	0	0	183	38
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	59		57			
Peak-Hour Factor, PHF	0.90	0.90	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	65	0	63	0	0	0
Percent Heavy Vehicles	0	0	1	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	52						128	
C (m) (veh/h)	1360						646	
v/c	0.04						0.20	
95% queue length	0.12						0.73	
Control Delay (s/veh)	7.8						11.9	
LOS	A						B	
Approach Delay (s/veh)	--	--	11.9					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Jerome/McKitrick
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2014 Full Build w/o HCSD
Analysis Time Period	PM Peak		

Project Description 20131358	
East/West Street: McKitrick Rd	North/South Street: Jerome Rd
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	48	157			165	35
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	53	174	0	0	183	38
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	59		61			
Peak-Hour Factor, PHF	0.90	0.90	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	65	0	67	0	0	0
Percent Heavy Vehicles	0	0	1	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	53						132	
C (m) (veh/h)	1360						649	
v/c	0.04						0.20	
95% queue length	0.12						0.76	
Control Delay (s/veh)	7.8						12.0	
LOS	A						B	
Approach Delay (s/veh)	--	--	12.0					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Jerome/McKitrick
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2024 Background
Analysis Time Period	PM Peak		

Project Description 20131358

East/West Street: McKitrick Rd | North/South Street: Jerome Rd

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	80	419			407	56
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	88	465	0	0	452	62
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	91		99			
Peak-Hour Factor, PHF	0.90	0.90	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	101	0	110	0	0	0
Percent Heavy Vehicles	0	0	1	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	88						211	
C (m) (veh/h)	1062						316	
v/c	0.08						0.67	
95% queue length	0.27						4.49	
Control Delay (s/veh)	8.7						36.6	
LOS	A						E	
Approach Delay (s/veh)	--	--	36.6					
Approach LOS	--	--	E					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Jerome/McKitrick
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2024 Full Build
Analysis Time Period	PM Peak		

Project Description 20131358

East/West Street: McKitrick Rd | North/South Street: Jerome Rd

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	81	430			425	56
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	90	477	0	0	472	62
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	91		101			
Peak-Hour Factor, PHF	0.90	0.90	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	101	0	112	0	0	0
Percent Heavy Vehicles	0	0	1	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	90						213	
C (m) (veh/h)	1044						303	
v/c	0.09						0.70	
95% queue length	0.28						4.94	
Control Delay (s/veh)	8.8						40.7	
LOS	A						E	
Approach Delay (s/veh)	--	--				40.7		
Approach LOS	--	--				E		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	JMH	Intersection	Jerome/McKitrick
Agency/Co.	EMHT	Jurisdiction	Dublin
Date Performed	1/9/2014	Analysis Year	2024 Full Build w/o HCSD
Analysis Time Period	PM Peak		

Project Description 20131358

East/West Street: McKitrick Rd | North/South Street: Jerome Rd

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	82	430			425	56
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	91	477	0	0	472	62
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	91		105			
Peak-Hour Factor, PHF	0.90	0.90	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	101	0	116	0	0	0
Percent Heavy Vehicles	0	0	1	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	91						217	
C (m) (veh/h)	1044						305	
v/c	0.09						0.71	
95% queue length	0.29						5.07	
Control Delay (s/veh)	8.8						41.3	
LOS	A						E	
Approach Delay (s/veh)	--	--	41.3					
Approach LOS	--	--	E					

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/29/2014
Analysis Time Period	PM Peak

Site Information

Intersection	Jerome/McKitrick
Jurisdiction	Dublin
Analysis Year	2024 Background

Project ID 2013-1358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Jerome Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	91	0	99	0	0	0
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	80	419	0	0	407	56
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LR				LT		TR	
PHF	0.90				0.90		0.90	
Flow Rate (veh/h)	211				553		514	
% Heavy Vehicles	1				0		2	
No. Lanes	1		0		1		1	
Geometry Group	1				1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.5				0.2		0.0	
Prop. Right-Turns	0.5				0.0		0.1	
Prop. Heavy Vehicle	0.0				0.0		0.0	
hLT-adj	0.2	0.2			0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6			-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7			1.7	1.7	1.7	1.7
hadj, computed	-0.2				0.0		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20				3.20		3.20	
x, initial	0.19				0.49		0.46	
hd, final value (s)	6.38				5.43		5.42	
x, final value	0.37				0.83		0.77	
Move-up time, m (s)	2.0				2.0		2.0	
Service Time, t_s (s)	4.4				3.4		3.4	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	461				655		653	
Delay (s/veh)	13.15				29.77		24.49	
LOS	B				D		C	
Approach: Delay (s/veh)	13.15				29.77		24.49	
LOS	B				D		C	
Intersection Delay (s/veh)	24.90							
Intersection LOS	C							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/29/2014
Analysis Time Period	PM Peak

Site Information

Intersection	Jerome/McKitrick
Jurisdiction	Dublin
Analysis Year	2024 Full Build

Project ID 2013-1358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Jerome Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	91	0	101	0	0	0
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	81	430	0	0	425	56
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LR				LT		TR	
PHF	0.90				0.90		0.90	
Flow Rate (veh/h)	213				567		534	
% Heavy Vehicles	1				0		2	
No. Lanes	1		0		1		1	
Geometry Group	1				1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.5				0.2		0.0	
Prop. Right-Turns	0.5				0.0		0.1	
Prop. Heavy Vehicle	0.0				0.0		0.0	
hLT-adj	0.2	0.2			0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6			-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7			1.7	1.7	1.7	1.7
hadj, computed	-0.2				0.0		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20				3.20		3.20	
x, initial	0.19				0.50		0.47	
hd, final value (s)	6.47				5.49		5.48	
x, final value	0.38				0.87		0.81	
Move-up time, m (s)	2.0				2.0		2.0	
Service Time, t_s (s)	4.5				3.5		3.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	463				649		648	
Delay (s/veh)	13.44				33.46		27.79	
LOS	B				D		D	
Approach: Delay (s/veh)	13.44				33.46		27.79	
LOS	B				D		D	
Intersection Delay (s/veh)	27.91							
Intersection LOS	D							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	JMH
Agency/Co.	EMHT
Date Performed	1/29/2014
Analysis Time Period	PM Peak

Site Information

Intersection	Jerome/McKitrick
Jurisdiction	Dublin
Analysis Year	2024 Full Build w/o HCSD

Project ID 2013-1358 Riviera TIS

East/West Street: McKitrick Rd

North/South Street: Jerome Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	91	0	105	0	0	0
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	82	430	0	0	425	56
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LR				LT		TR	
PHF	0.90				0.90		0.90	
Flow Rate (veh/h)	217				568		534	
% Heavy Vehicles	1				0		2	
No. Lanes	1		0		1		1	
Geometry Group	1				1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.5				0.2		0.0	
Prop. Right-Turns	0.5				0.0		0.1	
Prop. Heavy Vehicle	0.0				0.0		0.0	
hLT-adj	0.2	0.2			0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6			-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7			1.7	1.7	1.7	1.7
hadj, computed	-0.2				0.0		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20				3.20		3.20	
x, initial	0.19				0.50		0.47	
hd, final value (s)	6.48				5.51		5.50	
x, final value	0.39				0.87		0.82	
Move-up time, m (s)	2.0				2.0		2.0	
Service Time, t_s (s)	4.5				3.5		3.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	467				647		646	
Delay (s/veh)	13.57				34.16		28.18	
LOS	B				D		D	
Approach: Delay (s/veh)	13.57				34.16		28.18	
LOS	B				D		D	
Intersection Delay (s/veh)	28.35							
Intersection LOS	D							

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APPENDIX F
TURN LANE SIZING CALCULATIONS

Riviera
Traffic Impact Study
Turn Lane Length Calculations

AM Peak Hour
2014 Full Build (w/ Hyland-Croy Site Dr)

Avery Rd & Site Dr		
Movement	**NBLT**	
Design Speed	40	mph
Cycle Length	60	seconds
Control (Stop or Signal)	Stop	
Through Volume	241	vph
Number of Through Lanes	1	
Turning Volume	16	vph
Number of Turning Lanes	1	
Design Condition	B	A, B, or C
Turning Percentage	6%	
Vehicles Per Cycle	0.3	
Storage Length	50	feet
Deceleration/Taper	125	feet
Calculated Turn Lane Length	125	feet
No Block Distance	N.A.	feet
No Block Turn Lane Length	N.A.	feet

PM Peak Hour
2014 Full Build (w/ Hyland-Croy Site Dr)

Avery Rd & Site Dr		
Movement	**NBLT**	
Design Speed	40	mph
Cycle Length	60	seconds
Control (Stop or Signal)	Stop	
Through Volume	402	vph
Number of Through Lanes	1	
Turning Volume	53	vph
Number of Turning Lanes	1	
Design Condition	C	A, B, or C
Turning Percentage	12%	
Vehicles Per Cycle	0.9	
Storage Length	50	feet
Deceleration/Taper	111	feet
Calculated Turn Lane Length	161	feet
No Block Distance	N.A.	feet
No Block Turn Lane Length	N.A.	feet

Riviera
Traffic Impact Study
Turn Lane Length Calculations

AM Peak Hour

2024 Full Build (w/ Hyland-Croy Site Dr)

Avery Rd & Site Dr		
Movement	**NBLT**	
Design Speed	40	mph
Cycle Length	60	seconds
Control (Stop or Signal)	Stop	
Through Volume	430	vph
Number of Through Lanes	1	
Turning Volume	16	vph
Number of Turning Lanes	1	
Design Condition	B	A, B, or C
Turning Percentage	4%	
Vehicles Per Cycle	0.3	
Storage Length	50	feet
Deceleration/Taper	125	feet
Calculated Turn Lane Length	125	feet
No Block Distance	N.A.	feet
No Block Turn Lane Length	N.A.	feet

PM Peak Hour

2024 Full Build (w/ Hyland-Croy Site Dr)

Avery Rd & Site Dr		
Movement	**NBLT**	
Design Speed	40	mph
Cycle Length	60	seconds
Control (Stop or Signal)	Stop	
Through Volume	671	vph
Number of Through Lanes	1	
Turning Volume	53	vph
Number of Turning Lanes	1	
Design Condition	B	A, B, or C
Turning Percentage	7%	
Vehicles Per Cycle	0.9	
Storage Length	50	feet
Deceleration/Taper	125	feet
Calculated Turn Lane Length	125	feet
No Block Distance	N.A.	feet
No Block Turn Lane Length	N.A.	feet

Riviera
Traffic Impact Study
Turn Lane Length Calculations

AM Peak Hour
2014 Full Build (w/o Hyland-Croy Site Dr)

Avery Rd & Site Dr		
Movement	**NBLT**	
Design Speed	40	mph
Cycle Length	60	seconds
Control (Stop or Signal)	Stop	
Through Volume	241	vph
Number of Through Lanes	1	
Turning Volume	22	vph
Number of Turning Lanes	1	
Design Condition	B	A, B, or C
Turning Percentage	8%	
Vehicles Per Cycle	0.4	
Storage Length	50	feet
Deceleration/Taper	125	feet
Calculated Turn Lane Length	125	feet
No Block Distance	N.A.	feet
No Block Turn Lane Length	N.A.	feet

PM Peak Hour
2014 Full Build (w/o Hyland-Croy Site Dr)

Avery Rd & Site Dr		
Movement	**NBLT**	
Design Speed	40	mph
Cycle Length	60	seconds
Control (Stop or Signal)	Stop	
Through Volume	402	vph
Number of Through Lanes	1	
Turning Volume	71	vph
Number of Turning Lanes	1	
Design Condition	C	A, B, or C
Turning Percentage	15%	
Vehicles Per Cycle	1.2	
Storage Length	50	feet
Deceleration/Taper	111	feet
Calculated Turn Lane Length	161	feet
No Block Distance	N.A.	feet
No Block Turn Lane Length	N.A.	feet

Riviera
Traffic Impact Study
Turn Lane Length Calculations

AM Peak Hour
2024 Full Build (w/o Hyland-Croy Site Dr)

Avery Rd & Site Dr		
Movement	**NBLT**	
Design Speed	40	mph
Cycle Length	60	seconds
Control (Stop or Signal)	Stop	
Through Volume	430	vph
Number of Through Lanes	1	
Turning Volume	22	vph
Number of Turning Lanes	1	
Design Condition	B	A, B, or C
Turning Percentage	5%	
Vehicles Per Cycle	0.4	
Storage Length	50	feet
Deceleration/Taper	125	feet
Calculated Turn Lane Length	125	feet
No Block Distance	N.A.	feet
No Block Turn Lane Length	N.A.	feet

PM Peak Hour
2024 Full Build (w/o Hyland-Croy Site Dr)

Avery Rd & Site Dr		
Movement	**NBLT**	
Design Speed	40	mph
Cycle Length	60	seconds
Control (Stop or Signal)	Stop	
Through Volume	671	vph
Number of Through Lanes	1	
Turning Volume	71	vph
Number of Turning Lanes	1	
Design Condition	B	A, B, or C
Turning Percentage	10%	
Vehicles Per Cycle	1.2	
Storage Length	50	feet
Deceleration/Taper	125	feet
Calculated Turn Lane Length	125	feet
No Block Distance	N.A.	feet
No Block Turn Lane Length	N.A.	feet

Riviera
Traffic Impact Study
Turn Lane Length Calculations

AM Peak Hour

2024 Full Build

Hyland-Croy Rd & Site Dr		
Movement	**SBLT**	
Design Speed	50	mph
Cycle Length	60	seconds
Control (Stop or Signal)	Stop	
Through Volume	842	vph
Number of Through Lanes	1	
Turning Volume	3	vph
Number of Turning Lanes	1	
Design Condition	B	A, B, or C
Turning Percentage	0%	
Vehicles Per Cycle	0.1	
Storage Length	50	feet
Deceleration/Taper	225	feet
Calculated Turn Lane Length	225	feet
No Block Distance	N.A.	feet
No Block Turn Lane Length	N.A.	feet

PM Peak Hour

2024 Full Build

Hyland-Croy Rd & Site Dr		
Movement	**SBLT**	
Design Speed	50	mph
Cycle Length	60	seconds
Control (Stop or Signal)	Stop	
Through Volume	584	vph
Number of Through Lanes	1	
Turning Volume	8	vph
Number of Turning Lanes	1	
Design Condition	B	A, B, or C
Turning Percentage	1%	
Vehicles Per Cycle	0.1	
Storage Length	50	feet
Deceleration/Taper	225	feet
Calculated Turn Lane Length	225	feet
No Block Distance	N.A.	feet
No Block Turn Lane Length	N.A.	feet

Riviera
Traffic Impact Study
Turn Lane Length Calculations

AM Peak Hour

2024 Full Build

Hyland-Croy Rd & Site Dr		
Movement	**NBRT**	
Design Speed	50	mph
Cycle Length	60	seconds
Control (Stop or Signal)	Stop	
Through Volume	507	vph
Number of Through Lanes	1	
Turning Volume	10	vph
Number of Turning Lanes	1	
Design Condition	B	A, B, or C
Turning Percentage	2%	
Vehicles Per Cycle	0.2	
Storage Length	50	feet
Deceleration/Taper	225	feet
Calculated Turn Lane Length	225	feet
No Block Distance	N.A.	feet
No Block Turn Lane Length	N.A.	feet

PM Peak Hour

2024 Full Build

Hyland-Croy Rd & Site Dr		
Movement	**NBRT**	
Design Speed	50	mph
Cycle Length	60	seconds
Control (Stop or Signal)	Stop	
Through Volume	807	vph
Number of Through Lanes	1	
Turning Volume	31	vph
Number of Turning Lanes	1	
Design Condition	B	A, B, or C
Turning Percentage	4%	
Vehicles Per Cycle	0.5	
Storage Length	50	feet
Deceleration/Taper	225	feet
Calculated Turn Lane Length	225	feet
No Block Distance	N.A.	feet
No Block Turn Lane Length	N.A.	feet

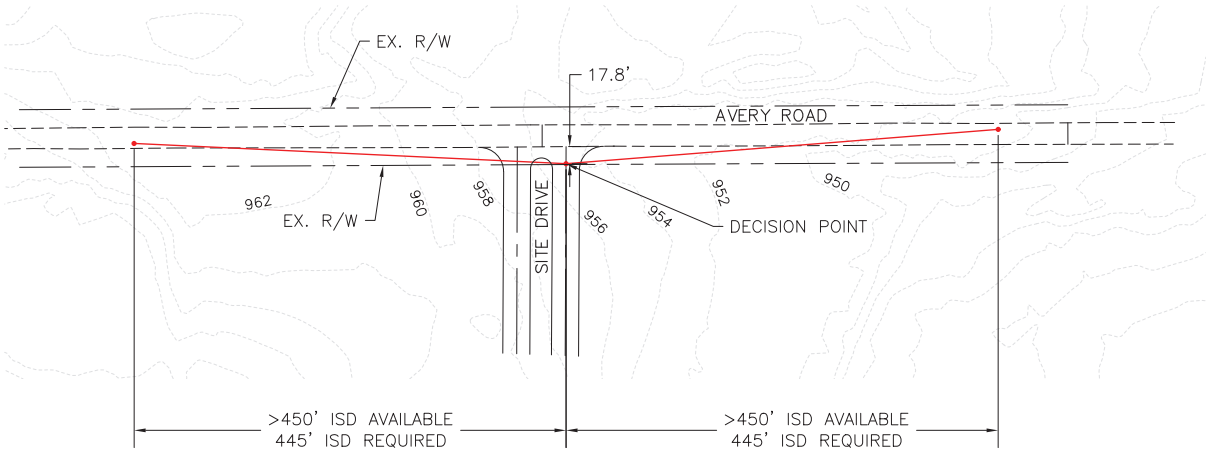
APPENDIX G
SIGHT DISTANCE EXHIBITS

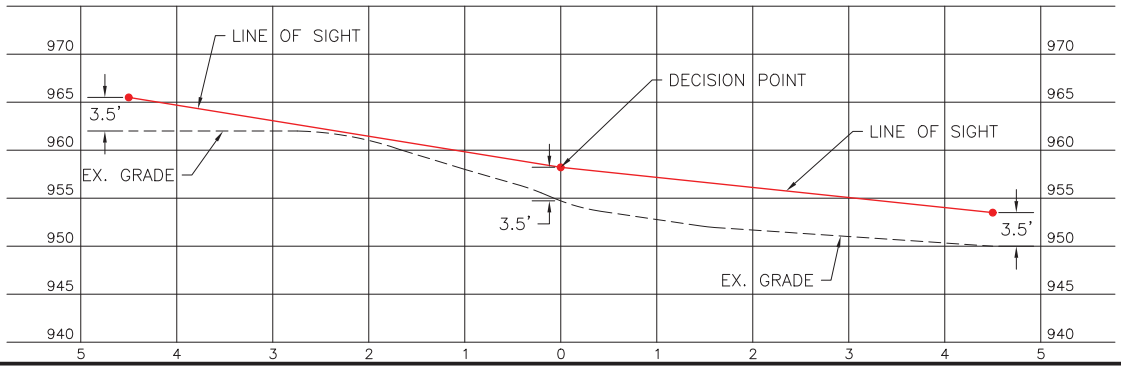
GRAPHIC SCALE

100 0 50 100

1 inch = 100 ft

Note: Design Speed = 40 Mph
Posted Speed = 35 Mph





ISD Drawing: 1 of 2

Job No: 2013-1358

City of Dublin, Ohio

RIVIERA

SITE DRIVE AT AVERY ROAD

INTERSECTION SIGHT DISTANCE EXHIBIT

PROPOSED FULL MOVEMENT ACCESS POINT

EMH&T

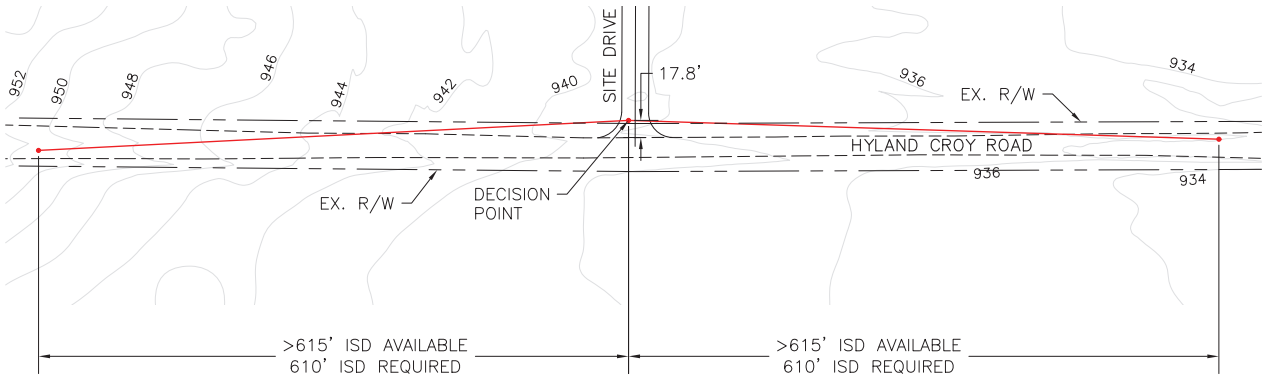
Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, OH 43054
Phone: 614.775.4500 Toll Free: 888.775.3648
emht.com

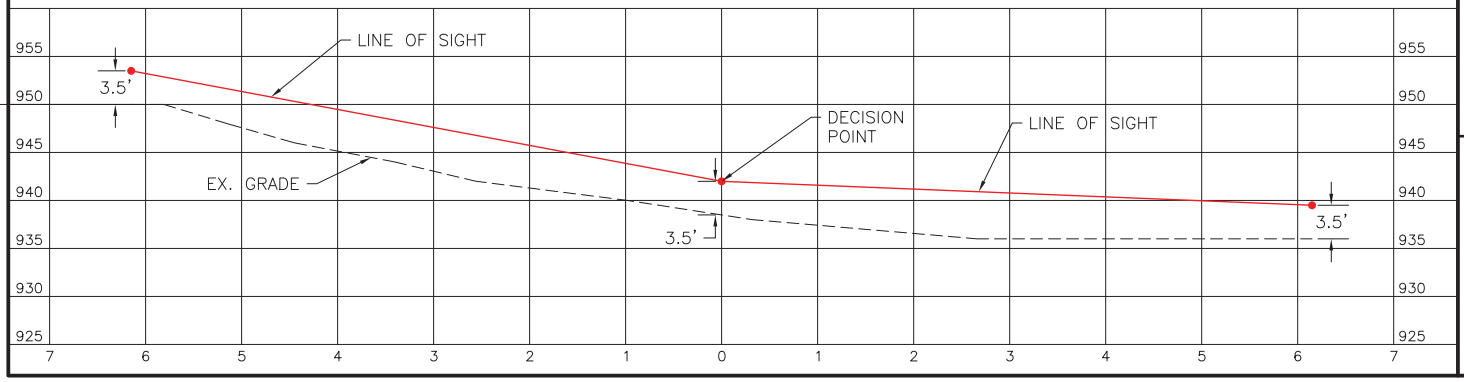
GRAPHIC SCALE

100 0 50 100

1 inch = 100 ft

Note: Design Speed = 50 Mph
Posted Speed = 45 Mph





ISD Drawing: 2 of 2

Job No: 2013-1358

City of Dublin, Ohio

RIVIERA

SITE DRIVE AT HYLAND CROY ROAD

INTERSECTION SIGHT DISTANCE EXHIBIT

PROPOSED FULL MOVEMENT ACCESS POINT

EMH&T

Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, OH 43054
Phone: 614.775.4500 Toll Free: 888.775.3648
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