

**Thames Crest Farms
Subdivision
Traffic Impact Study
*St Marys, Ontario***

Prepared for

M. J. Davenport & Associates Ltd.



Prepared by

Tranplan Associates

June, 2004



CONTENTS

<i>Section</i>	<i>Page</i>
1.0 Background and Principal Findings	1
2.0 Existing Conditions	8
3.0 The Proposed Development	16
4.0 Future Conditions	22
5.0 Traffic Mitigation Measures	36
6.0 Conclusions and Recommendations	41

TABLES

<i>Table</i>	<i>Page</i>
2.1 Intersection Capacity Analyses - 2004 Peak Hour Periods	15
3.1 Thames Crest Farms Phase I Trip Generation (2011)	17
3.2 Thames Crest Farms Phase II Trip Generation (2021)	17
3.3 Site Trip Distribution	18
4.1 Intersection Capacity Analyses - 2011 Peak Hour Periods	34
4.2 Intersection Capacity Analyses - 2021 Peak Hour Periods	35

EXHIBITS

<i>Exhibit</i>	<i>After page</i>
1.1	Key Map 1
2.1	Site Plan 3
2.2	Location of Counting Stations and ATRs 10
2.3	Balanced Observed Peak Hour Turning Movement Counts 10
2.4	Intersections Lane Configuration used for HCM Analyses 10
2.5	2004 Critical Movement LoS 10
3.1	Commercial Site Generated Peak Hour Volumes 18
3.2	Gateway Locations 18
3.3	Gateways, Nodes and Assignment Network 22
4.1	2011 Forecast Total Background Peak Hour Traffic Volume 24
4.2	2021 Forecast Total Background Peak Hour Traffic Volume 24
4.3	2011 Forecast Total AM Peak Hour Traffic Volume 24
4.4	2011 Forecast Total PM Peak Hour Traffic Volume 24
4.5	2021 Forecast Total AM Peak Hour Traffic Volume 24
4.6	2021 Forecast Total PM Peak Hour Traffic Volume 24
4.7	2011 Critical Movement LoS 24
4.8	2021 Critical Movement LoS 32

APPENDICES

Appendix

- Appendix A: Definitions of Levels of Service
- Appendix B: Intersection Capacity Analyses

1.0 BACKGROUND AND PRINCIPAL FINDINGS

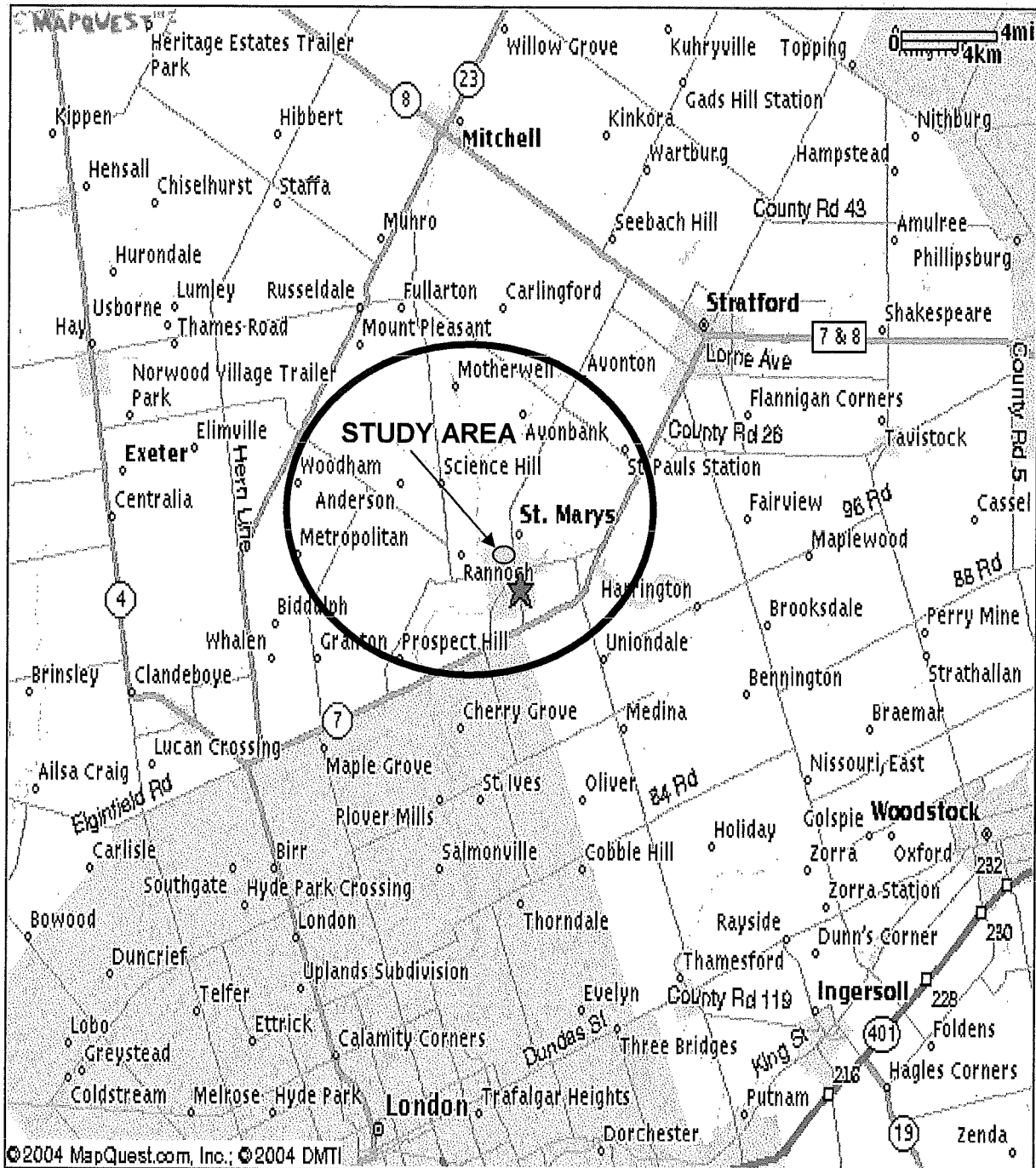
Tranplan Associates was retained by M.J. Davenport & Associates Ltd to carry out a traffic impact study for the proposed *Thames Crest Farms Subdivision* development located in the Town of St. Marys (see *Exhibit 1.1: Key Map*). Tranplan Associates is pleased to present the findings in this report.

The proposed development will be constructed on the current site of *Thames Crest Farms*, located mainly north of the *Grand Trunk Trail*, bounded by Emily Street to the west and James Street North on the east. The northern boundary will be located along the future southerly extension of Glass Street to be completed by a 2021 planning horizon (see *Exhibit 2.1 - Site Plan*). This traffic study has been prepared in support of the proposed rezoning application submitted to the Town of St. Marys to allow for development of the above subdivision. The study lands total about 150 acres. The full build out subdivision will include about 375 residential units. They will consist of 315 single family dwelling units and 60 medium density low rise condominium units (see *Exhibit 2.1: Site Plan*). The study has also included an additional 40 residential units that represent future development that will take place immediately east of the study site. A full build-out of the development is expected to take place over about 17 to 20 years to a 2021 planning horizon. .

This traffic study was divided into two principal activities: data collection and traffic analysis. During the data collection phase, the historical traffic data was assembled from the Town of St. Marys. This traffic information included through intersection turning movement counts during peak hours supported with 24 hour Automatic Traffic Recorder (ATR) at key street locations (see *Exhibit 2.2*). As part of the study process, meetings were held with the client staff and the Town of St. Marys staff to review study issues and requirements. In addition, input was received from public meetings organized by the Town staff as part of the planning approval process. Several site visits have been carried out to assess current traffic operations during peak hour periods. These site visits have also included a review of adjacent land uses and the geometric configurations of study intersections.

The study analyses have been based on the two major development phases: *Phase I* development that will take place by 2011 and full build-out of the development that will take place by 2021 (*Phase II*). The *Phase I* traffic analyses has focused on site development along Emily Street and along the area just north of the *Grand Trunk Trail*

Exhibit 1.1: Key Map



off Wellington Street North (see *Exhibit 2.1: Site Plan*). The Glass Street extension as well as the Wellington Street North extension will be completed during *Phase II*. This study examined the traffic impacts of each of the two phases of development on the principal intersections within the overall study area.

Traffic analyses for the study included intersection capacity analyses, auxiliary lane warrant analyses on James Street at Glass Street, evaluation of current geometrics for each of the study intersections and capacity evaluation of the three bridges over *Trout Creek*. These analyses were based on an assessment of 2004 peak hour traffic volumes, forecast 2011 peak hour traffic representing *Phase I* development and forecast 2021 peak hour traffic representing full build out of the complete subdivision. Capacity analyses for 2004 peak hour conditions determined that all traffic movements at all study intersections (both signalized and unsignalized) presently operate at a Level of Service "B"¹ or better during peak hour periods.

1.1 Phase I - 2011 Planning Horizon

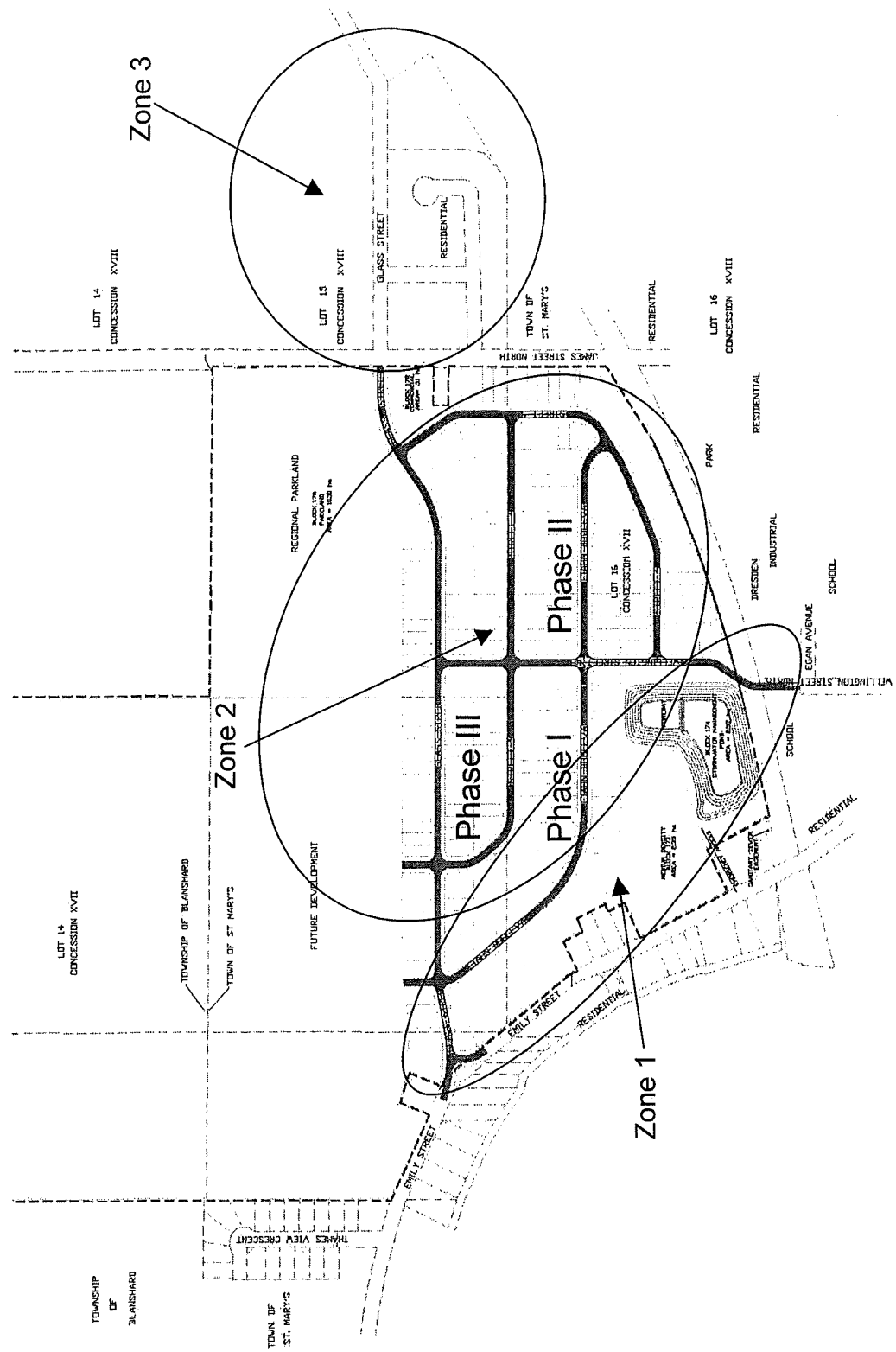
The *Phase I* development will include a total of about 175 units comprising of 115 single family dwelling units and 60 medium density condominiums units as proposed by *Thames Crest Farms Subdivisions*. Also included in this phase of development is 40 single family dwelling units located east of James Street North between Trailside Court and Glass Street (see *Exhibit 2.1: Site Plan*). These homes represent future development east of the study site.

Traffic assignments were carried out for the AM and PM peak hours. Traffic assigned to the study road network included forecast 2011 background traffic as well as all traffic generated by *Phase I* development in the study area. Detailed capacity analyses were then completed for the study intersections to assess the ability of current road/intersection geometry and the capacity to accommodate total 2011 traffic demands. Conclusions drawn from these analyses are as follows:

¹

Level of Service (LOS) is commonly used in traffic engineering to describe the level of congestion along a roadway or at an intersection. Levels from "A" to "F" denote increasing amounts of congestion with "F" representing a complete breakdown in traffic flow. Level of Service "C" and "D" are commonly used as design standards. The Highway Capacity Manual software for signalized intersections was used to calculate the Levels of Service. See Appendix "A" for definition of Level of Service for Signalized and Unsignalized intersections

Exhibit 2.1: Site Plan



1.1.1 Signalized Intersections

- The three signalized intersections along Queen Street East, at Water Street, Wellington Street and Church Street, will operate at an overall intersection LoS "B" for all three intersections. All critical movements at signalized intersections are forecast to operate at LoS "C" or better.
- Further examination of the three signalized intersections reveals that all the critical movements within the intersections relate to north/south traffic flows, as indicated by the southbound (north approach) on Wellington Street having a LoS "C" during the morning peak hour period.
- Traffic movements and associated LoS show a slight increase in delay over 2004 peak hour conditions (see *Table 2.1* and *Table 4.1*). This is a result of increase in the volume of background traffic as well as the addition of site-generated traffic.
- Signal timing should be adjusted from present settings to accommodate the 2011 approach volumes. With these adjustments, the existing signalized intersections will support all *Phase I* site-generated traffic with the current intersection geometry. No other specific improvements/adjustments will be required at these intersections to support *Phase I* site traffic. Furthermore, the intersections will have residual peak hour capacity to support future growth in traffic beyond the 2011 planning horizon.

1.1.2 Unsignalized Intersections

- Ten unsignalized intersections were selected as representative of all unsignalized intersections in the overall study area (*Exhibit 2.1*).
- The impact on the road network of the proposed site development to 2011 is minimal. The critical movements at all these intersections should continue to operate at LoS "B" or better during AM and PM peak hours
- All the critical movements associated with unsignalized intersections appear on the east/west traffic movements, as most of the two way stop

signs are located on the east/west corridor within the study area. Even then, the LoS for the east/west traffic operates at "B" or better. This is mainly due to the relatively low peak hour traffic volume on the present road network which in turn provides a sufficient number of gaps in the through traffic stream for minor street movements.

- All existing unsignalized intersections will support all *Phase I* site-generated traffic with current intersection geometry. No specific improvements will be required at these intersections to support *Phase I* site traffic. These intersections will have residual peak hour capacity to support future growth in traffic beyond the 2011 planning horizon.

1.1.3 The Wellington Street North Corridor

- Initial improvements will have to be made to the Wellington Street North corridor to provide a connection to local road(s) in the study lands.
- Appropriate pedestrian facilities will have to be developed over the extension of Wellington Street North where it intersects the *Grand Trunk Trail*.

1.2 Phase II - 2021 Planning Horizon

The *Phase II* traffic scenario was developed based on full build-out of all development in the study area. *Phase II* represents site development from 2011 to site build-out expected to occur by the 2021 planning horizon. The road network in the study lands will be expanded to accommodate *Phase II* development. It will include the extension of Glass Street from Emily Street to James Street North to provide an east/west connection to the development to the north side of the *Thames Crest Farms Subdivision*. The *Phase II* analyses also included a neighbourhood commercial development that will be located on the southwest corner of James Street North and Glass Street.

Traffic assignments were carried out for both sets of peak hours that correspond to the peak hours used in the *Phase I* of the traffic analyses. Detailed capacity analyses were carried out for the study roads, intersections and the three bridges over *Trout*

Creek. Conclusions from these analyses are as follows:

1.2.1 Signalized Intersections

- By 2021, the growth in background traffic (2% per year) from 2004 combined with site-generated traffic will result in increased east/west traffic volumes along Queen Street. Some of the north/south corridor traffic volumes containing site-generated traffic will grow well beyond the present 2004 peak hour volumes.
- The increase in traffic for the 2021 planning horizon will require modifications to the signal timing at the three signalized intersections. The cycle length will probably have to be extended to provide additional green time to accommodate the increase in forecast traffic.
- Optional intersection improvements could be made by adding a right turn lane to eastbound and westbound approaches to all three intersections. This could likely be done by removing some of the parking stalls immediately adjacent to the intersection approaches. This increase in road capacity during the peak hours will reduce the delay associated with turning movements at the intersections.
- All signalized intersections will support all *Phase II* build-out site-generated and background traffic with modifications to current intersection signal timing. The improvements will provide the intersections with some residual peak hour capacity to support future growth in traffic beyond the 2021 planning horizon.

1.2.2 Unsignalized Intersections

- For the ten representative unsignalized intersections considered in the study analysis, growth in the background traffic at 2% per year from 2004 and site-generated traffic to the 2021 planning horizon will result in a slight increase in delay at the intersections. The unsignalized intersection approaches will continue to operate at a LoS "B" with the exception of westbound traffic on James Street at Church Street, which is forecast to operate at LoS "C".

- All existing unsignalized intersections will support all 2021 *Phase II* site-generated and background traffic with the current intersection geometry. No specific improvements will be required at these intersections to support total 2021 peak hour traffic. These intersections will have sufficient residual peak hour capacity to support future growth in traffic beyond the 2021 planning horizon. As in the case of the *Phase I* (2011) analyses, critical movements associated with unsignalized intersections appear on the east/west traffic movements.

1.2.3 The Wellington Street North Corridor

- Any improvements to the Wellington Street North corridor, north of Station Street, will have to be completed by 2021. These improvements will include the upgrades necessary to complete its transition to a collector road.

2.0 EXISTING CONDITIONS

2.1 The Study Site

The proposed *Thames Crest Farm Subdivision* site is located on the northern edge of the Town of St Marys. The study lands lie north of the *Grand Trunk Trail* between Emily Street to the west and James Street North to the east. The development will be located to the south of Glass Street, which will be extended from its present location to connect to Emily Street by 2021. The study site is comprised of about 150 acres of vacant land, which is presently in some form of agricultural use. All of the study site is included within the jurisdiction of the Town of St. Marys. It currently is not zoned for residential use and needs an Official Plan Amendment to change the land use zoning to residential.

Development on the site is expected to take place in three construction phases. For the purposes of this traffic study, these three construction phases have been aggregated into two planning horizons (2011 and 2021). The first planning horizon 2011, will include all development along Emily Street and along the southern boundary of the subdivision north of *Grand Trunk Trail*. *Phase II* development will include all

development east of Wellington Street North and the future developments south of Glass Street to be completed around 2021. The *Exhibit 2.1: Site Plan* illustrates each of the development phases.

2.2 Adjacent Land Uses

The study site is bounded on the east by a mix of an older established residential development as well as new residential development taking place north and south of Glass Street just east of James Street North. A similar land use is found west and northwest of the study lands. There are new single family dwelling units being built on Thames View Crescent and there are established residential developments along the banks of the Thames river on the west side of Emily Street. Land to the south of the proposed development is a well established area with mixed land use, including light industry, two schools, churches and older established single dwelling homes. Land to the north is in agricultural use and it is not contained in any approved urban land use designation and is not zoned for urban development.

2.3 Access to the Study Site

The main corridor providing direct access to the development in the study lands will be Wellington Street North. This is an existing street which will extend north to provide the principal north-south access to both *Phase I* and *Phase II* of the study development. Wellington Street North will eventually connect to Glass Street near the north boundary of the study lands which in turn will provide the east-west connectivity to James Street North and Emily Street. Since the *Phase I* development will begin along the east side of Emily Street, there will be limited access to the development facing Emily Street. Wellington Street North will continue to be used as the main access point for *Phase I*, as it provides the connectivity from the study lands to the main road network to the south.

2.4 Present Traffic Conditions

Historic traffic data was available from the Town of St. Marys that includes turning movement counts for selected intersections and ATR counts for selected locations throughout the Town including the bridge crossings. A detailed examination of these data indicated that the traffic counts were collected for a range of planning purposes. A detailed peak hour traffic count program was designed by Tranplan Associates (see

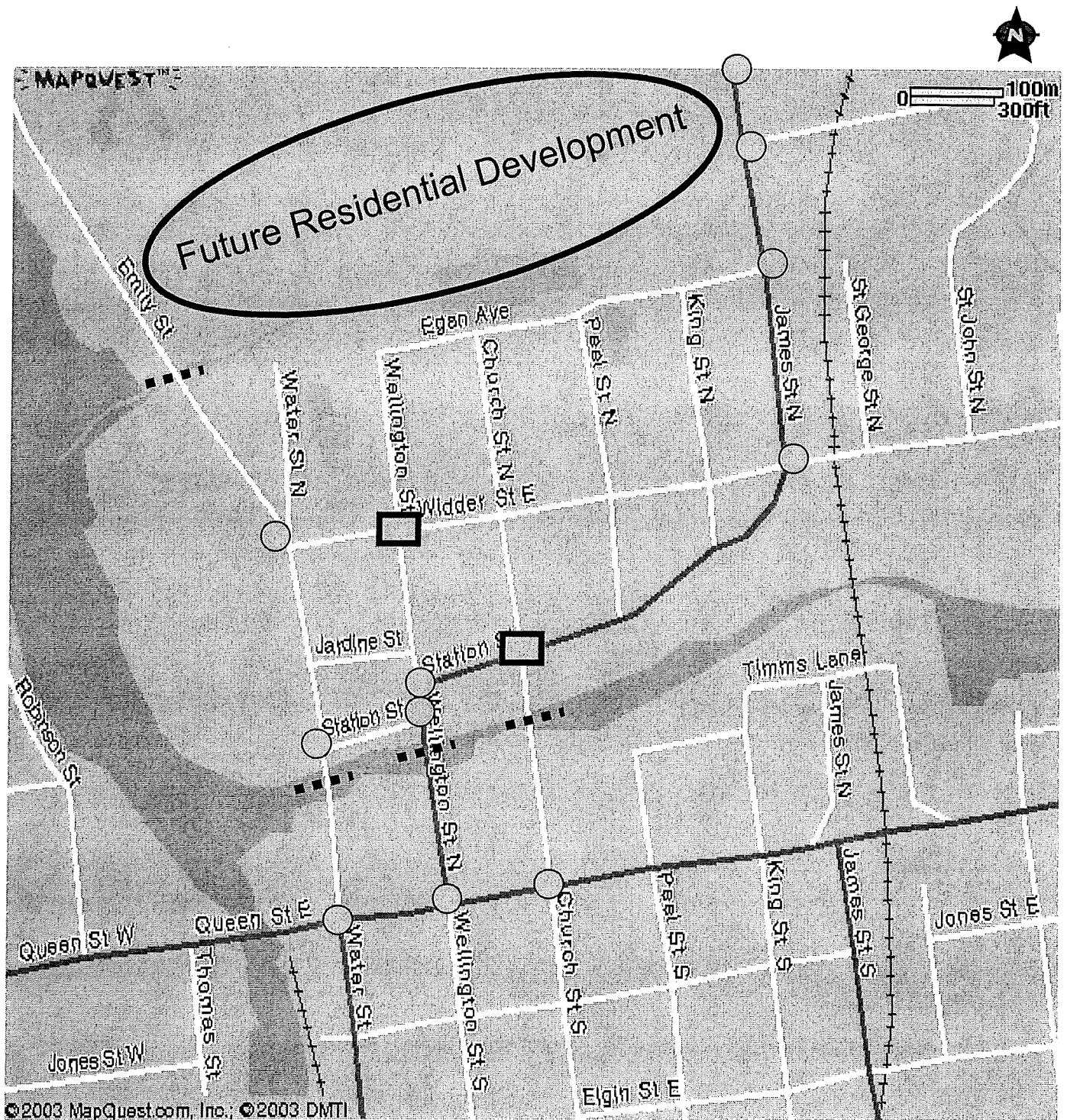
Exhibit 2.2) to obtain AM and PM peak hour traffic volumes on the study road network. The count program was carried out in February of 2004. This count program provided current traffic data on streets and intersections for the study area. The count program consisted of the following components:

- Weekday AM and PM peak hour counts carried out on Wednesday, February 18th and Thursday, February 19th.
- Automatic traffic recorder counts (ATR) were carried out at the south end of all three bridge crossings, on Water Street, Wellington Street and on Church Street. The ATR count was also carried out on Emily Street under the *Grand Trunk Trail Foot Bridge*. All ATRs were conducted for 24 hours between February 18th and February 19th. The peak hour data obtained from the count program are shown in *Exhibit 2.3*.
- *Exhibit 2.3* illustrates the observed volumes adjusted for minor variations between individual intersections. These minor adjustments assure that the through traffic volumes are more consistent for forecasting purposes.

Highway Capacity analyses were carried out for the study intersections based on the balanced 2004 peak hour volumes. *Exhibit 2.4* illustrates the present 2004 lane configuration used in the capacity analyses and the summary of these analyses is included in *Exhibit 2.5 and Table 2.1*.

In reviewing *Table 2.1*, it will be noted that all intersections were found to be operating at a good LoS. The individual traffic movements at the unsignalized intersections are presently operating at a LoS "B" or better during normal peak hour conditions. There is a significant residual capacity at these intersections to accommodate future growth in traffic. The signalized intersections along Queen Street East also operate at a good LoS "C" or better during AM and PM peak hours. More detailed information including the volume to capacity (v/c) ratios for the critical traffic movements and the printouts from the HCM analyses are contained in *Appendix B - Intersection Capacity Analyses*.

Exhibit 2.2: Location of Counting Stations and ATRs



©2003 MapQuest.com, Inc.; ©2003 DMTI

- Full Turning Movement Counting Stations
- ATR Stations
- Additional Study Intersection



Exhibit 2.3: Balanced Observed Peak Hour Turning Movement Counts AM (PM)

AM - Feb 19, PM - Feb, 18, 2004

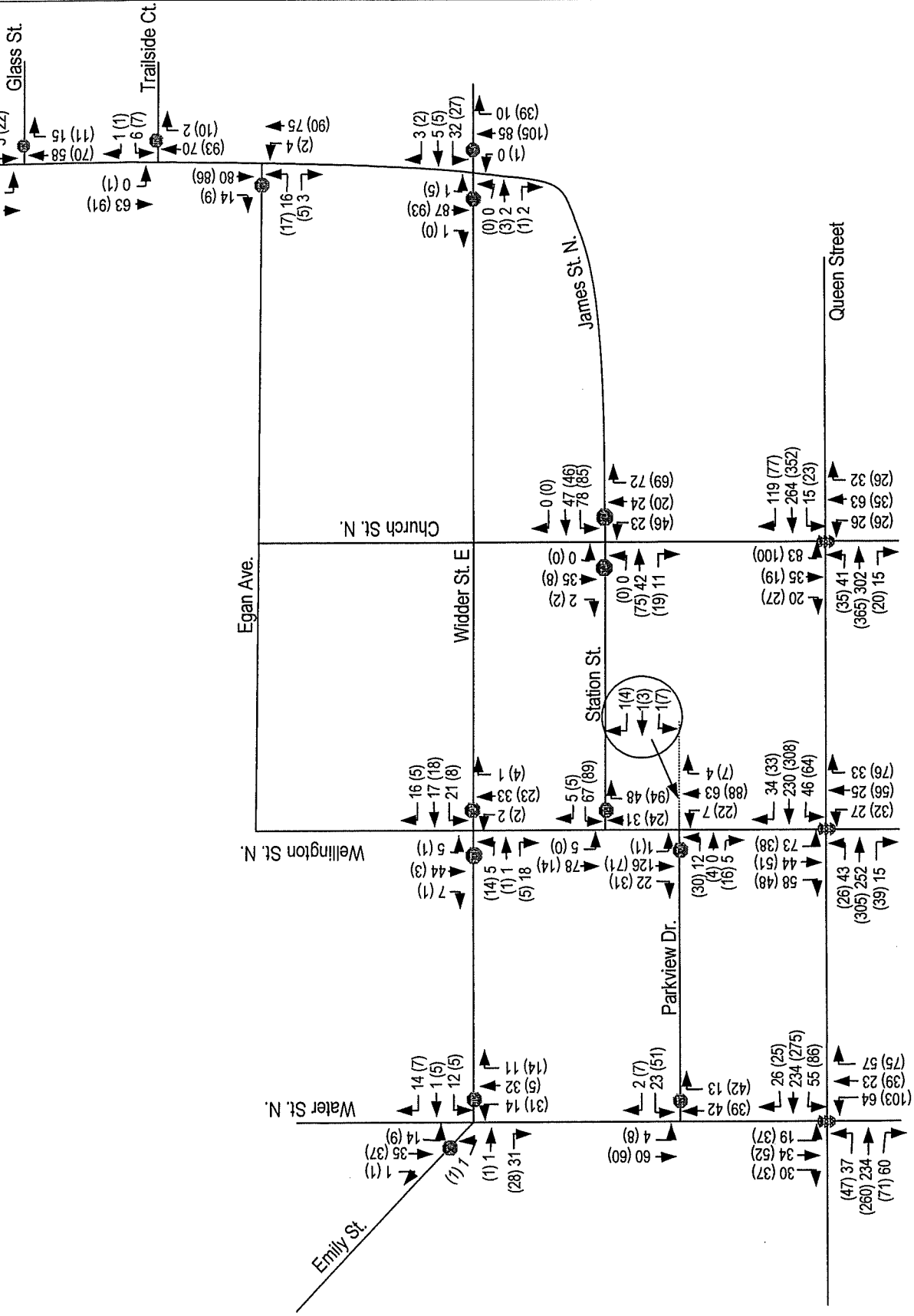


Exhibit 2.4: Intersections Lane Configuration used for HCM Analyses

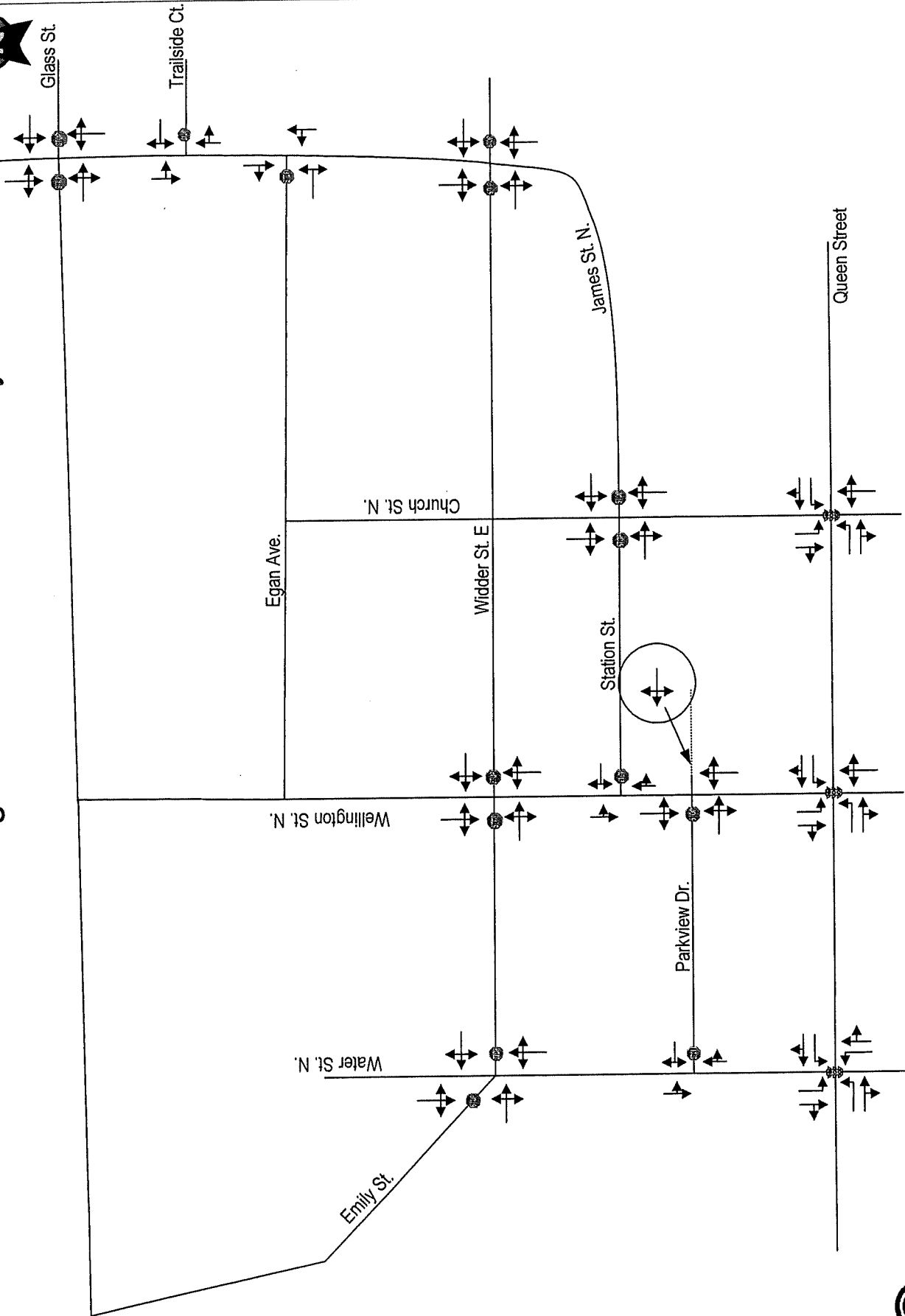


Exhibit 2.5: 2004 Critical Movement LoS AM (PM)

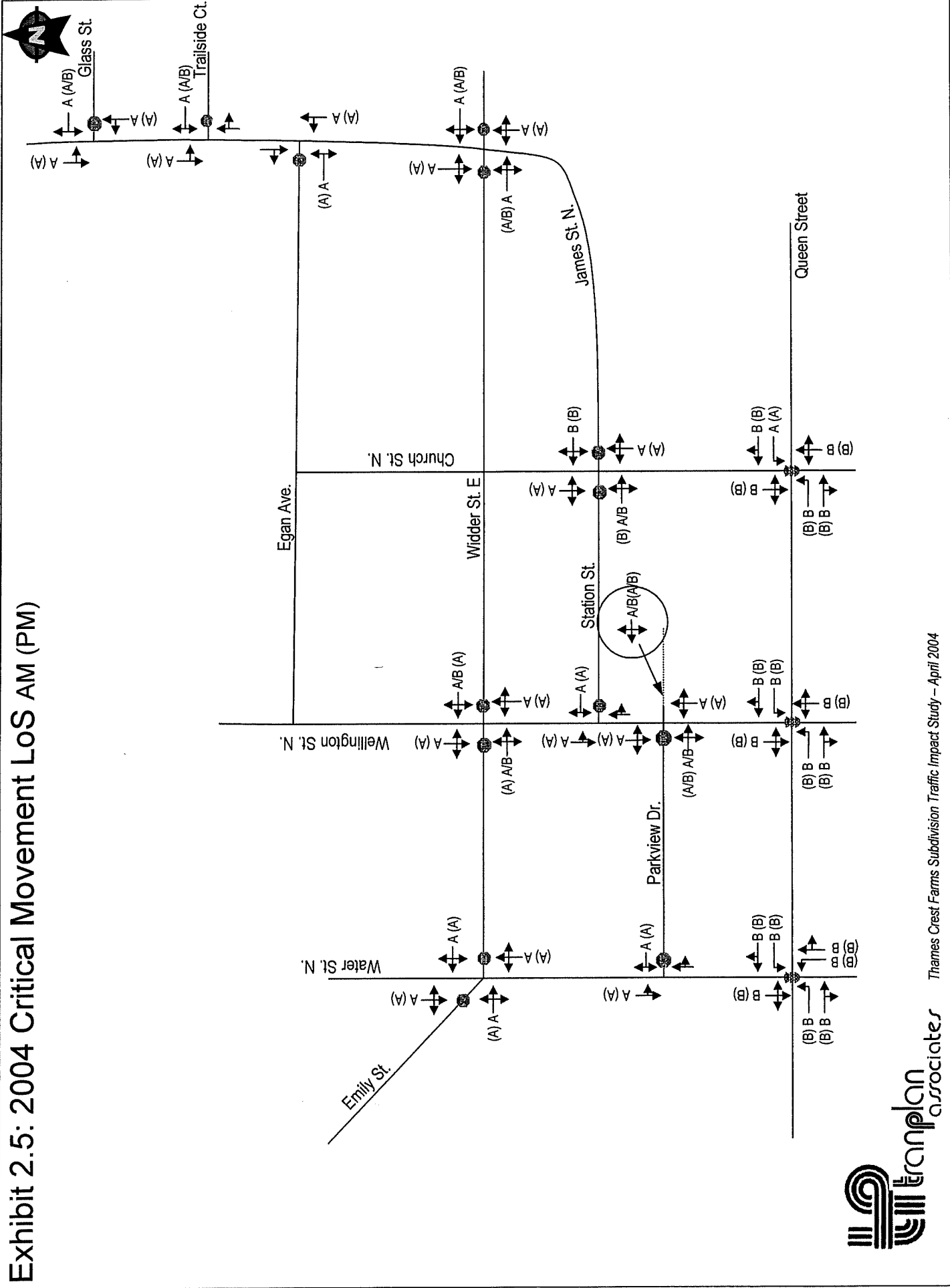


Table 2.1
Intersection Capacity Analyses - 2004 Peak Hour Periods

Intersection	Control	Weekday AM Peak		Weekday PM Peak	
		Int LoS	Crit Move	Int LoS	Crit Move
Queen St & Water St	SIGNAL	B 15 Sec	NB LT - B 15 Sec	B 16 Sec	NB LT - B 17 Sec
Queen St & Wellington St	SIGNAL	B 15 Sec	SB - B 18 Sec	B 17 Sec	NB - B 17 Sec
Queen St & Church	SIGNAL	B 15 Sec	SB - B 16 Sec	B 15 Sec	SB - B 17 Sec
Water St. & Emily St	TWSC	N/A	WB - A - 9 Sec EB - A - 9 Sec	N/A	WB - A - 9 Sec EB - A - 9 Sec
Water St & Parkview Dr	TWSC	N/A	WB - A - 9 Sec	N/A	WB - A - 9 Sec
Wellington St & Widder St	TWSC	N/A	WB - A/B - 10s EB - A/B - 10s	N/A	WB - A - 9 Sec EB - A - 9 Sec
Wellington St & Station St	TWSC	N/A	WB - A - 9 Sec	N/A	WB - A - 9 Sec
Wellington St & Parkview Dr	TWSC	N/A	WB - A/B - 10s EB - A/B - 10s	N/A	WB - A/B - 10s EB - A/B - 10s
James St & Glass St	TWSC	N/A	WB - A - 9 Sec	N/A	WB - A/B - 10s
James St & Trailside Ct	TWSC	N/A	WB - A - 9 Sec	N/A	WB - A/B - 10s
James St & Egan Ave	TWSC	N/A	EB - A - 9 Sec	N/A	EB - A - 9 Sec
James St & Widder St	TWSC	N/A	WB - A - 9 Sec EB - A - 9 Sec	N/A	WB - A/B - 10s EB - A/B - 10s
James St & Church St	TWSC	N/A	WB - B - 11 Sec EB - A/B - 10s	N/A	WB - B - 12 Sec EB - B - 11 Sec

3.0 THE PROPOSED DEVELOPMENT

3.1 Site Trip Generation

Study lands development is planned to take place in three construction phases as illustrated in *Exhibit 2.1*. These blocks of development have been aggregated into two planning horizons; 2011 and 2021. Construction to (2011) will be comprised of the development bounded by Emily Street to the west and development along the southern portion of the proposed development. Construction from 2011 to 2021 will be comprised of all remaining development in the study lands including east of Wellington Street, all developments south of Glass Street and the commercial development on the southwest corner of Glass Street and James Street

Two types of residential development are planned for construction on the study lands. The majority of homes will be detached single family dwelling units. The second type (60 units), will be upscale low rise medium density condominium units. These units will be aimed at the growing "empty nester" market. The trip generation rates for each type of development were taken from the current edition (7th Edition) of the Institute of Transportation Engineers (ITE) Trip Generation Manual.

3.1.1 Single Family Dwelling Units

Single family dwelling units will make up the majority of the development planned for the study area. This form of residential development will consist of single detached homes with one and two car garages. The ITE land use *Single Family Detached* (LU 210) was used to compute peak hour trip generation. The study assumed that in *Phase 1*, 20 residential units will be constructed in Zone 1 (along Emily Street) and 95 units will be constructed in Zone 2. The remaining 200 of these dwelling units, all located in Zone 2, will be constructed by full build-out at 2021. Outside the study lands, in Zone 3, 40 new residential units have been assigned to lands on the eastside of James Street North, between Glass Street and Trailside Court. *Tables 3.1* and *3.2* summarize the total trip generation by the type of residential development and by the development phase for each of the AM and PM peak hour periods.

Table 3.1
Thames Crest Farms - Phase I Residential Trip Generation (2011)

Zone	Units	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
1	20	4	11	15	13	8	21
2a	95	18	54	72	62	36	98
2b	60	6	28	34	26	14	40
3	40	8	23	31	26	15	41
Total	215	36	116	152	127	73	200

Table 3.2
Thames Crest Farms - Phase II Residential Trip Generation (2021)

Zone	Units	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
1	20	4	11	15	12	7	19
2a	295	54	161	215	175	103	278
2b	60	6	28	34	26	14	40
3	40	7	22	29	24	14	38
Total	415	71	222	293	237	138	375

3.1.2 Low Rise Medium Density Condominium Units

The planned 60 low rise medium density condominium units located in Zone 2 will be completed during *Phase I* of the development. The ITE land use *Residential Condominium/Town homes* (LU 230) was used to compute the trip generation for this land use. The ITE trip rates for this land use are higher than the trip rates observed by Tranplan Associates in field studies completed for "empty-nester" condominium developments in other studies. Therefore, the ITE

rates used in this study will likely overstate the peak hour trip generation of the 60 condominium units in Zone 2. This is mostly because “empty nesters” and independent seniors will generally have lower rates of car ownership and will not have the same propensity to travel as a family with children making daily work trips and other travel associated with children in the family.

3.1.3 Neighbourhood Commercial

A neighbourhood plaza (approximately 6,000 ft²) will be built at the southwest corner of James Street North and Glass Street. The trip generation for the plaza was based on the ITE Shopping Centre (LU 820) Trip Generation Manual (7th Edition). It was assumed that there would be a 60% pass-by rate of capture from the adjacent traffic stream. As a result, only 40% of the traffic generated by the plaza will be new traffic on the adjacent streets. Only this new traffic has been assigned to the study road network (see *Exhibit 3.1*).

3.2 Site Trip Distribution

Site trip distribution was based on the assumption that the majority of the commuter traffic will be destined to either City of London or Stratford. Future travel patterns from the study site were reviewed with municipal staff to include their input and local knowledge. Trips to/from the study site were distributed to four “gateways”. *Exhibit 3.2* illustrates the location of these gateways and the road intersections “nodes” used for the distribution and assignment of site-generated trips to the study road network. The overall trip distribution is summarized in the *Table 3.2*.

Table 3.3 - Site Trip Distribution

Origin	Gateway 1 (Queen St West)	Gateway 2 (Wellington St South)	Gateway 3 (Queen St East)	Gateway 4 (James St North)
Zone 1	10%	40%	40%	10%
Zone 2	10%	40%	40%	10%
Zone 3	10%	40%	40%	10%

Exhibit 3.1: Commercial Site Generated Peak Hour Volumes AM(PM)



Map Not to Scale

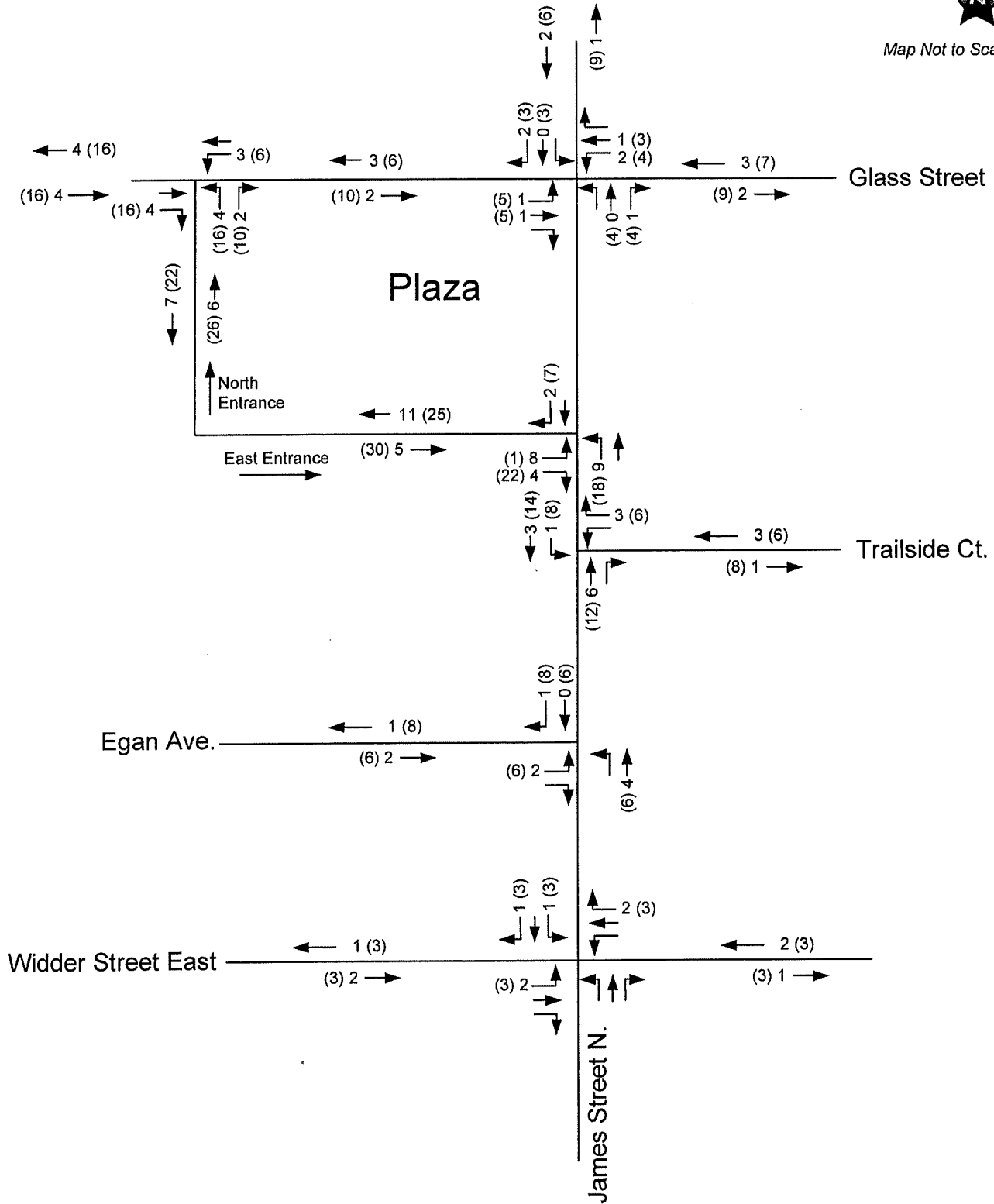
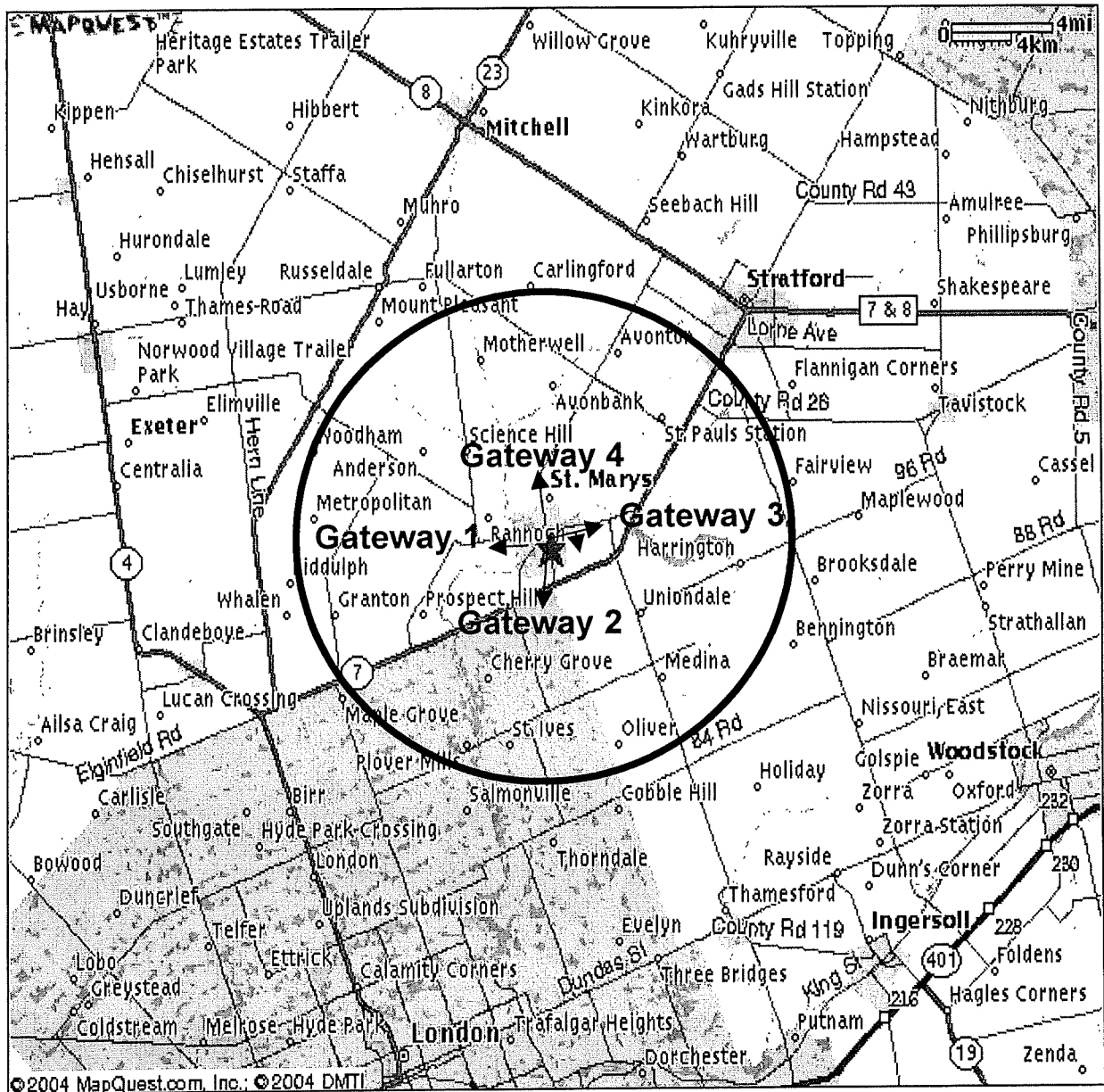


Exhibit 3.2: Gateway Locations



The trip distribution assumptions were as follows:

3.2.1 West Gateway

West Gateway represents all trips to/from the study lands traveling west along Queen Street past Water Street. Although the City of London is accessible via Perth Road 139, it is not a direct route. As a result, only 10% of the trips from the study area are designated to this gateway. The main destination for trips to this gateway will be the hospital and an industrial park located on Queen Street West.

3.2.2 South Gateway

All trips leading to downtown St. Marys and most of the trips to the City of London from the study area are channeled through South Gateway and represents 40% of site-generated travel. South Gateway provides direct access to Highway 7 and to the City of London via Water Street and Wellington Street. Furthermore, the local post office, police station, Centennial Park and the Canadian Baseball Hall of Fame and Museum can be accessed through this gateway.

3.2.3 East Gateway

Most of these trips are destined for the City of Stratford and some to the City of London. Travel through this gateway also includes trips to the industrial park located along Industrial Road and James Street South, trips to St. Marys District Collegiate and Vocational Institute, and the St. Marys Arena and Community Centre, located on James Street South. These trips represent 40% of site-generated travel from the study lands.

3.2.4 North Gateway

Ten percent of the site-generated trips were assigned to North Gateway. Although the City of Stratford is accessible through James Street North, this gateway is not on a direct route. Because the Town of St. Marys' boundary ends just north of Glass Street, travel to the rural areas to the north through this gateway is limited.

3.3 Traffic Assignment

The assignment of site-generated traffic was carried out using a spreadsheet-based sub-area traffic assignment model. The study area was subdivided into 3 traffic zones that correspond approximately to the two development blocks as illustrated in *Exhibit 2.1* along with an external zone for future subdivision development east of James Street North.

The traffic assignment was based on the assumption that site-generated traffic will travel from its respective development block within the study area to each gateway via the shortest route comprised of collector and arterial streets on the adjacent street network. Based on the above trip distribution and the assignment assumptions, site-generated traffic was distributed and assigned to adjacent streets and intersections. The gateways and the street network nodes used for assignment and the individual links are illustrated in *Exhibit 3.3*. Individual assignments were carried out for each peak hour period and each study planning horizon.

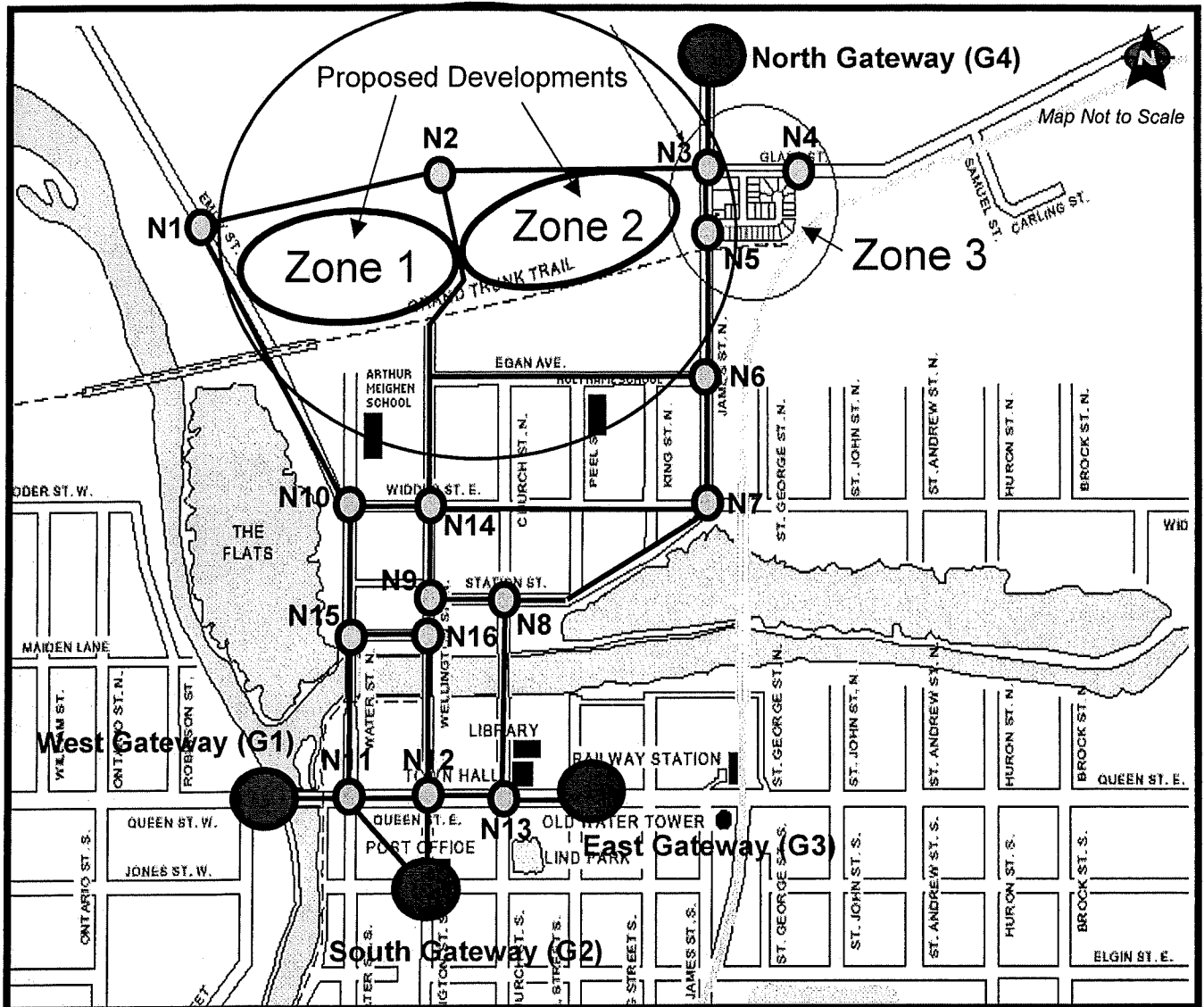
4.0 FUTURE CONDITIONS

4.1 Future Background Traffic

A detailed review of available historic traffic data was carried out by Tranplan Associates to determine long term growth rates for St Marys traffic. Based on this review, a growth rate of 2% per year was selected for use in forecasting future background traffic volumes. This growth rate was reviewed and confirmed with Town staff. The assumed 2% per year growth rate is considerably higher than the historic rate of growth and will account for any new development that may occur in the areas surrounding the study site, as well as allowing potential growth in the downtown core.

Future background traffic for the 2011 planning horizon was computed by applying a factor of 1.15 (2% per year for 7 years) to the observed 2004 peak hour traffic volumes. This provided a forecast of the 2011 background traffic for each of the two peak hour periods. The resulting 2011 background traffic volumes are illustrated in

Exhibit 3.3: Gateways, Nodes and Assignment Network



Tranplan
associates

Thames Crest Farms Subdivision Traffic Impact Study – April 2004

Exhibit 4.1. Similarly, the forecast 2021 background traffic was computed by applying a factor of 1.40 (2% per year for 17 years) to the observed 2004 traffic volumes for each of the two peak hour periods. The resulting 2021 background traffic volumes are illustrated in *Exhibit 4.2.*

4.2 Future Total Traffic

Phase I future total traffic was obtained using the traffic assignment model previously described in *Section 3.3* by adding the forecast *Phase I* peak hour site traffic to the forecast 2011 background traffic. *Exhibits 4.3 and 4.4* illustrate the 2011 site generated traffic volumes and total traffic volumes for the AM and PM peak hours, respectively.

Similarly, *Phase II* total traffic was obtained using the same methodology by adding the full build out site traffic to forecast 2021 background traffic. *Exhibits 4.5 and 4.6* illustrate the 2021 site generated traffic volumes and total traffic volumes for AM and PM peak hours, respectively. *Phase II* traffic assignment assumes completion of the Glass Street extension from James Street North to Emily Street. The 2011 traffic assignment was modified for 2021 Zone 2 travel to the gateways. The modified 2021 assignment was based on the improved connectivity resulting from the new internal road connections that will be available by 2021.

4.3 Phase I Site Traffic Impacts - 2011

Detailed intersection capacity analyses were carried out for the intersections adjacent to the study site based on the 2011 total traffic volumes. These capacity analyses were based on *HCM 2000 (version 4.1d)* methodologies and procedures. A summary of these capacity analyses is contained in *Exhibit 4.7*. *Table 4.1* summarizes the results for the study intersections and their critical movements. It will be noted that all traffic movements are forecast to operate at a LoS "C" or better. This is considered to be a good LoS and indicates that there is considerable residual capacity for future growth in site and background traffic beyond the 2011 planning horizon.

A more detailed summary of the capacity analyses, including the volume to capacity (v/c) ratio for the critical traffic movements will be found in the printouts from the HCM capacity analyses. These printouts are contained in *Appendix B*.

Exhibit 4.1: 2011 Forecast Total Background Peak Hour Traffic Volume AM (PM)

(Map Not to Scale)

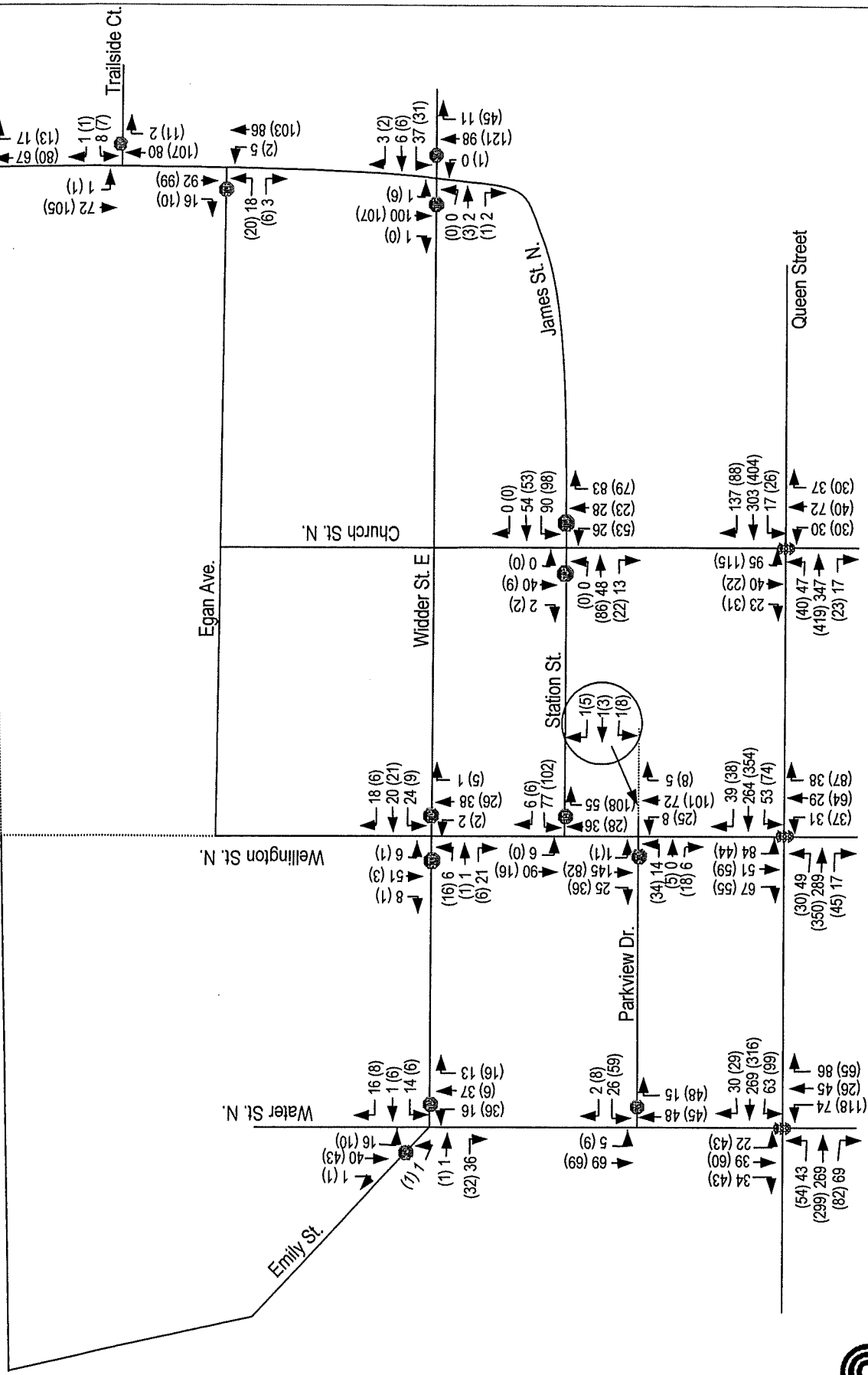


Exhibit: 4.4: 2011 Forecast Total PM Peak Hour Traffic Volume PM (Site) (Map Not to Scale)

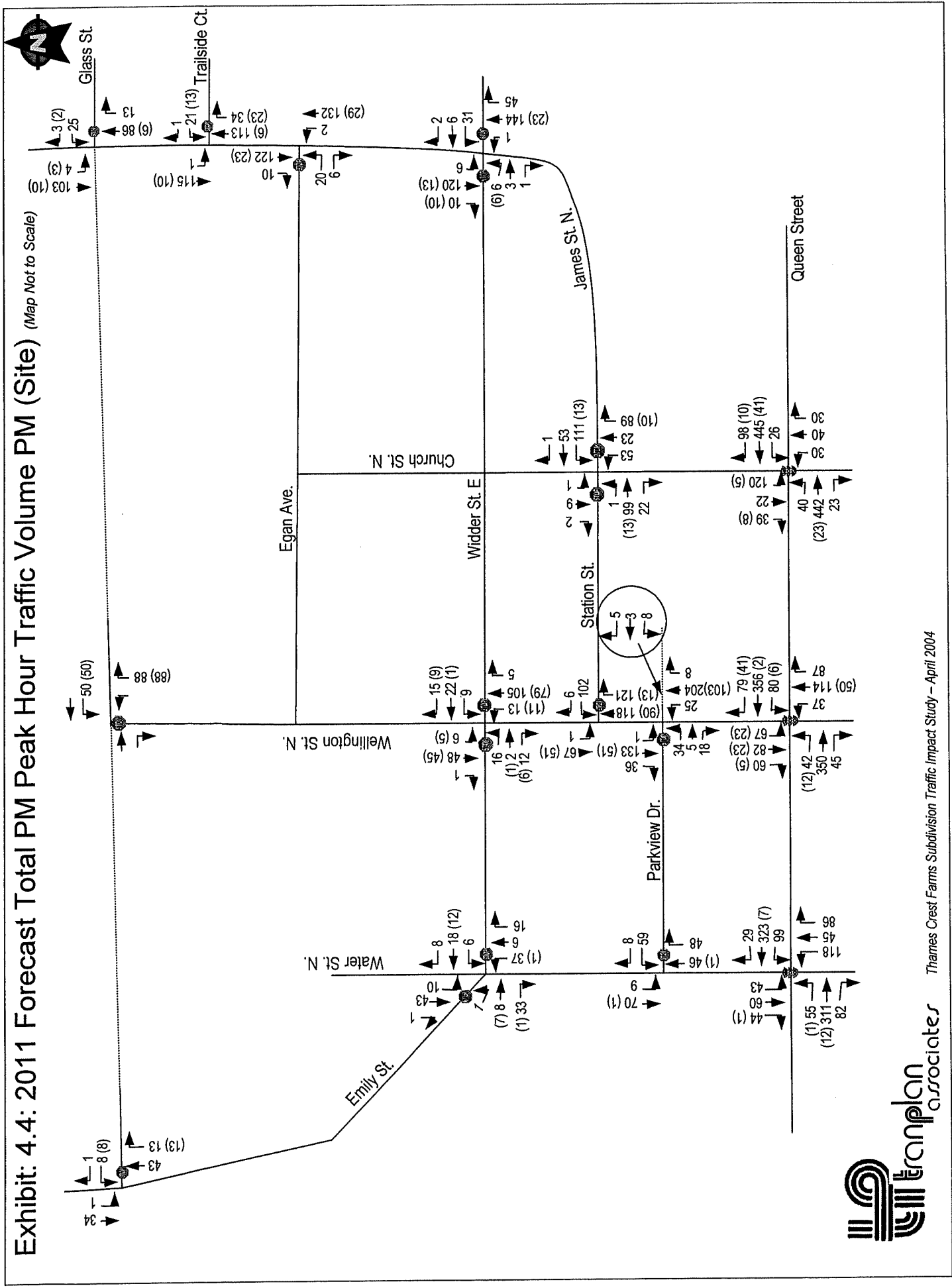


Exhibit 4.6: 2021 Forecast Total PM Peak Hour Traffic Volume PM (Site) (Map Not to Scale)

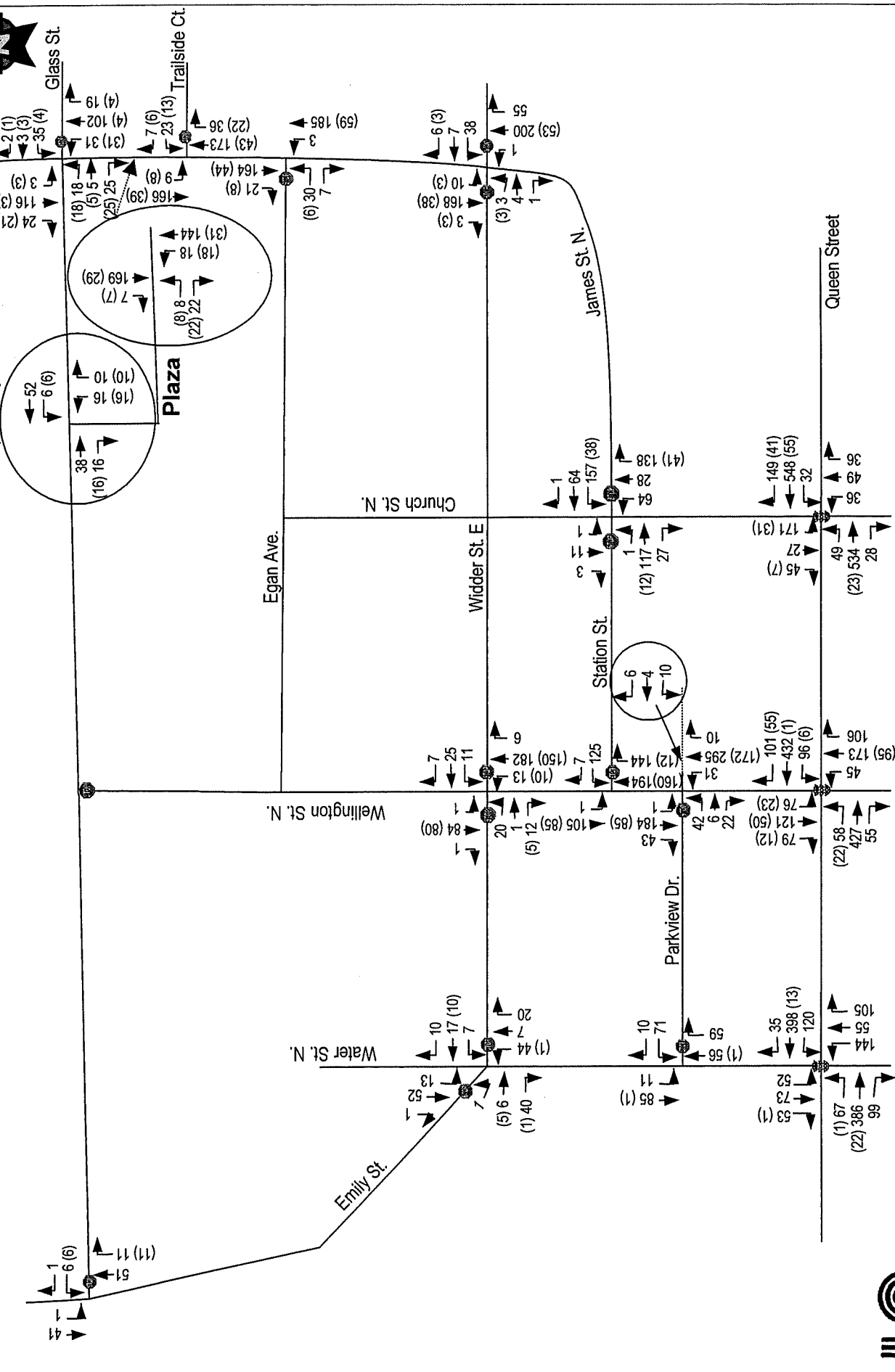
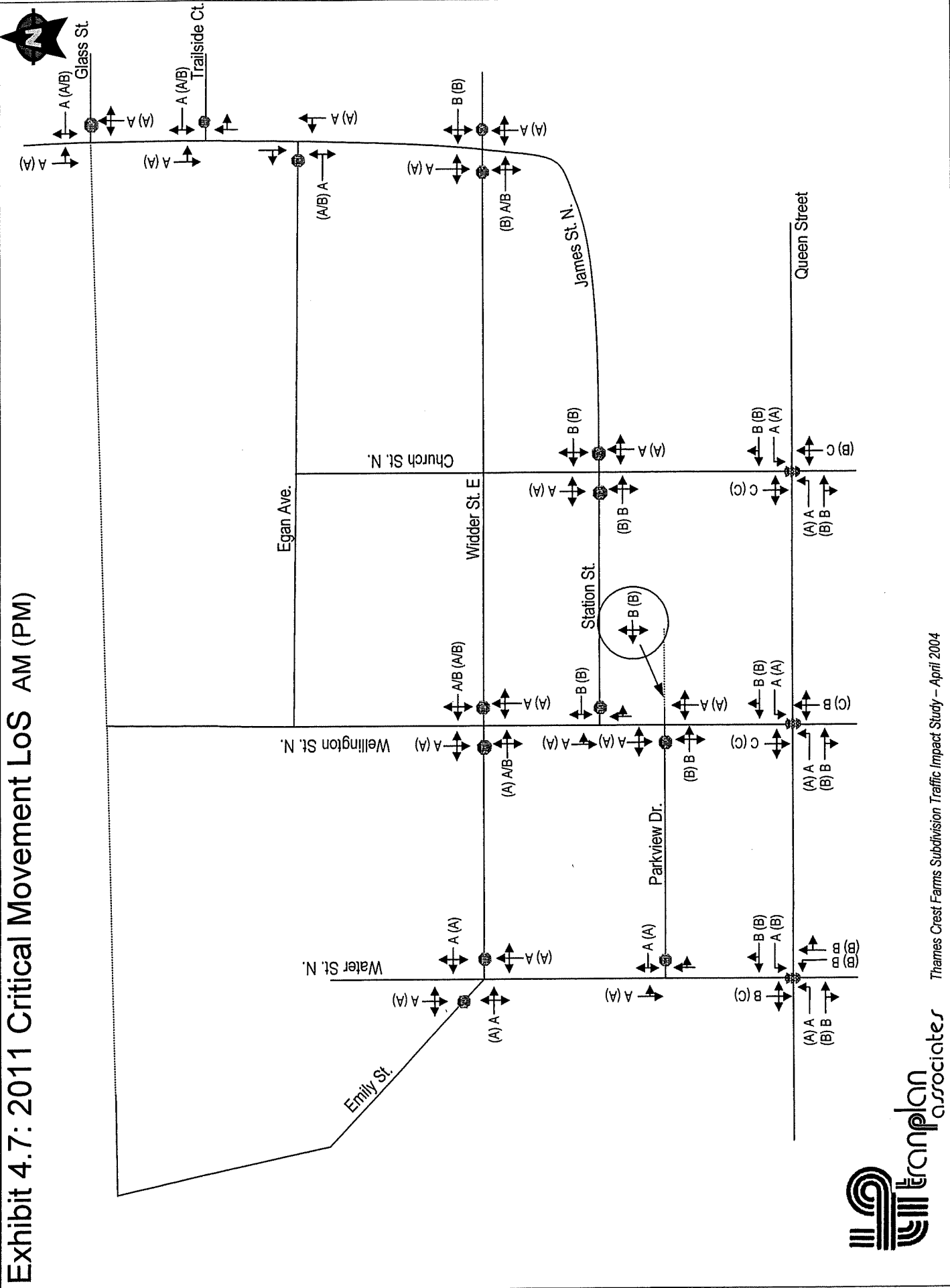


Exhibit 4.7: 2011 Critical Movement LoS AM (PM)



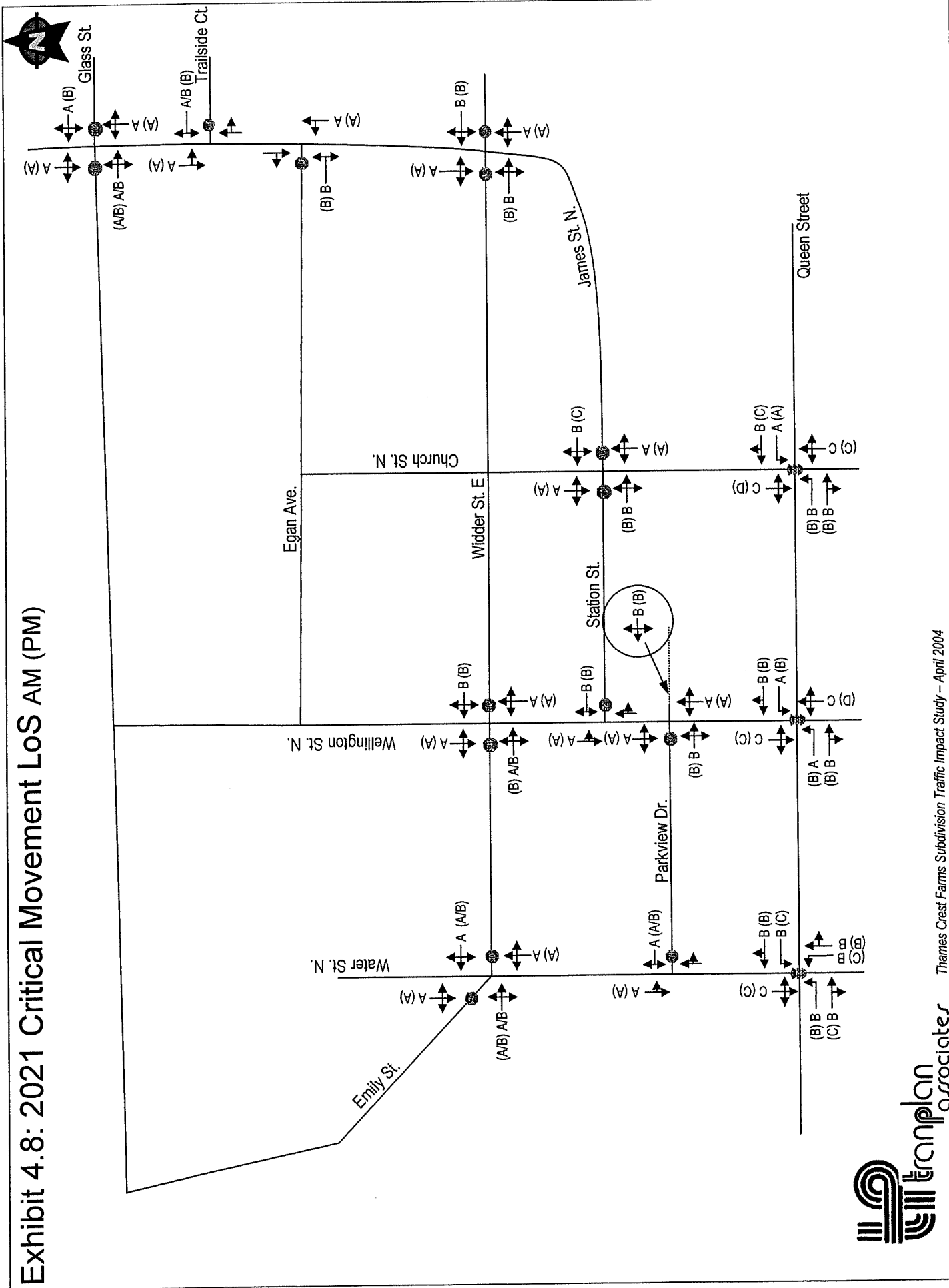
4.4 Phase II Site Traffic Impacts - 2021

Traffic impact analyses for the 2021 planning horizon were done in broader planning terms. This longer term planning is based on more generalized assumptions about overall community development, the effects of future economic conditions and the potential impact of new development in areas surrounding the study site. For these longer term planning horizons, the value of detailed traffic operations analyses are limited. However, these analyses do identify potential locations of future capacity shortfalls. This in turn guides the planning road infrastructure that will be required to support future traffic demands. This information can then be used to protect rights-of-way requirements and planning options for the development of new road infrastructure in the future.

In this context, 2021 total traffic assignments were carried out for each of the two peak hour periods based on full build out of the study site to occur by 2021. HCM capacity analyses were completed for the study intersections based on total traffic volumes. The capacity analyses were based on present intersection geometry and modified signal timing plans (70 to 80 sec cycles) for the 2021 peak hour volumes. A summary of the 2021 traffic analyses (intersection LoS) are illustrated in *Exhibit 4.8. Table 4.2* highlights selected intersections and the critical traffic movements. It will be noted that all critical movements at the unsignalized intersections will operate at a LoS "C" or better. The critical movements at the signalized intersections along Queen Street will operate at a LoS "D" or better for both peak hour periods. All study intersections will have sufficient capacity to accommodate growth in site-generated and background traffic beyond 2021.

A more detailed summary of the capacity analyses, including the volume to capacity (v/c) ratio for the critical traffic movements listed on the printouts from the HCM analyses for each intersection, are contained in *Appendix B*.

Exhibit 4.8: 2021 Critical Movement LoS AM (PM)



**Table 4.1
Intersection Capacity Analyses - 2011 Peak Hour Periods**

Intersection	Control	Weekday AM Peak		Weekday PM Peak	
		Int LoS	Crit Move	Int LoS	Crit Move
Queen St & Water St	SIGNAL	B 14 Sec	NB LT - B 19 Sec	B 16 Sec	NB LT - B 18 Sec
Queen St & Wellington St	SIGNAL	B 18 Sec	SB - C 27 Sec	B 18 Sec	NB - C 22 Sec
Queen St & Church	SIGNAL	B 16 Sec	SB - C 24 Sec	B 18 Sec	SB - C 25 Sec
Water St. & Emily St	TWSC	N/A	WB - A - 9 Sec EB - A - 9 Sec	N/A	WB - A - 9 Sec EB - A - 9 Sec
Water St & Parkview Dr	TWSC	N/A	WB - A - 9 Sec	N/A	WB - A - 9 Sec
Wellington St & Widder St	TWSC	N/A	WB - A/B - 10s EB - A/B - 10s	N/A	WB - A/B - 10s EB - A - 9 Sec
Wellington St & Station St	TWSC	N/A	WB - B - 11 Sec	N/A	WB - B - 11 Sec
Wellington St & Parkview Dr	TWSC	N/A	WB - B - 11 Sec EB - B - 11 Sec	N/A	WB - B - 12 Sec EB - B - 12 Sec
James St & Glass St	TWSC	N/A	WB - A - 9 Sec	N/A	WB - A/B - 10s
James St & Trailside Ct	TWSC	N/A	WB - A - 9 Sec	N/A	WB - A/B - 10s
James St & Egan Ave	TWSC	N/A	EB - A - 9 Sec	N/A	EB - A/B - 10s
James St & Widder St	TWSC	N/A	WB - B - 11 Sec EB - A/B - 10s	N/A	WB - B - 11 Sec EB - B - 11 Sec
James St & Church St	TWSC	N/A	WB - B - 12 Sec EB - B - 11 Sec	N/A	WB - B - 13 Sec EB - B - 12 Sec

Table 4.2
Intersection Capacity Analyses - 2021 Peak Hour Periods

Intersection	Control	Weekday AM Peak		Weekday PM Peak	
		Int LoS	Crit Move	Int LoS	Crit Move
Queen St & Water St	SIGNAL	B 16 Sec	NB LT - B 19 Sec	B 19 Sec	NB LT - C 22 Sec
Queen St & Wellington St	SIGNAL	C 25 Sec	SB - C 30 Sec	C 24 Sec	SB - C 35 Sec
Queen St & Church	SIGNAL	C 21 Sec	SB - C 34 Sec	C 27 Sec	SB - D - 38 sec
Water St. & Emily St	TWSC	N/A	WB - A/B - 10s EB - A/B - 10s	N/A	WB - A/B - 10s EB - A - 9 Sec
Water St & Parkview Dr	TWSC	N/A	WB - A - 9 Sec	N/A	WB - A/B - 10s
Wellington St & Widder St	TWSC	N/A	WB - B - 11 Sec EB - A/B - 10s	N/A	WB - B - 11 Sec EB - B - 11 Sec
Wellington St & Station St	TWSC	N/A	WB - B - 12 Sec	N/A	WB - B - 13 Sec
Wellington St & Parkview Dr	TWSC	N/A	WB - B - 12 Sec EB - B - 13 Sec	N/A	WB - B - 14 Sec EB - B - 14 Sec
James St & Glass St	TWSC	N/A	WB - A - 9 Sec EB - A/B 10s	N/A	WB - B - 12 Sec EB - A/B- 10s
James St & Trailside Ct	TWSC	N/A	WB - B - 10 Sec	N/A	WB - B - 11 Sec
James St & Egan Ave	TWSC	N/A	EB - B - 11 Sec	N/A	EB - B - 11 Sec
James St & Widder St	TWSC	N/A	WB - B - 11 Sec EB - B - 11 Sec	N/A	WB - B - 13 Sec EB - B - 12 Sec
James St & Church St	TWSC	N/A	WB - B - 14 Sec EB - B - 12 Sec	N/A	WB - C - 18 Sec EB - B - 13 Sec

5.0 TRAFFIC MITIGATION MEASURES

5.1 Phase I Mitigation Measures - 2011

As described in the traffic analyses in the previous section, the existing road and intersections adjacent to the study site can accommodate site-generated and future background traffic to the 2011 planning horizon. No new auxiliary turning lanes will be required at any of the intersections. The present signal timing will have to be modified to accommodate the growth in approach volumes at each of the three signalized intersections. Given the available capacity at these intersections, the changes in cycle length should be less than 10 seconds. In comparing the results of the capacity analyses for present peak hour conditions (*Table 2.1*) to the forecast 2011 conditions (*Table 4.1*), it will be noted that there are no significant changes in the LoS at any of the study intersections. This is primarily because there is presently (2004) considerable residual capacity in the existing road network. In addition, the 2011 capacity analyses indicates that there will continue to be residual road and intersection capacity beyond the 2011 planning horizon to accommodate post-2011 site-generated and future background traffic.

Principal access to the *Phase I* development will be Wellington Street North. It will be extended north and connected to the proposed new Liahn Boulevard. This intersection can be constructed to current municipal standards for collector/local road intersections. The intersection will only require single lane approaches. However, sufficient rights-of-way (ROW) should be protected for possible long term future expansion. The proposed intersection will provide sufficient capacity to accommodate the forecast 2021 total traffic and future traffic beyond 2021. There are less than 20 homes proposed to front onto Emily Street. Therefore, Emily Street will not require any improvements to accommodate the *Phase I* development.

5.2 Phase II Mitigation Measures - 2021

5.2.1 Intersections

The unsignalized study intersections examined in these analyses for the 2021 planning horizon will accommodate the forecast site-generated and background traffic utilizing existing geometric and intersection controls. However, the signalized intersections

along Queen Street will require re-timing of the signals to extend the existing cycle length for up to 10 seconds to provide more green time for the future additional traffic volumes. The extended cycle length should provide sufficient residual capacity at the signalized intersections to accommodate some future growth in traffic beyond the 2021 planning horizon (see *Table 4.2*)

By 2021 the existing signal hardware will likely have to be replaced. It is suggested that any new signal hardware have the capability to be interconnected and accommodate multiple, traffic actuated phases. Additional capacity at the study intersections could be provided with eastbound and westbound right turn lanes on Queen Street and left turn lanes on the north and south approaches. If these auxiliary lanes could be added during other intersection road improvements before the 2021 planning horizon, they should be considered. The addition of these auxiliary lanes may involve eliminating some adjacent on-street parking and re-stripping the existing roadway. These improvements could add considerable capacity to the three signalized intersections and would provide good peak hour LoS well beyond the 2021 planning horizon.

5.2.2 Road Corridor Requirements

5.2.2.1 Wellington Street

Wellington Street from Queen Street north to Station Street will have the capacity to accommodate future volumes to the 2021 planning horizon. It is estimated to have a 2021 average annual daily (AADT) traffic volume of about 5,500 to 6,000 vehicles per day (vpd). North of Station Street the role of Wellington Street will change from one of providing local access to a residential collector road. Here it is estimated that it will have a 2021 AADT of about 3,000 to 3,500 vpd. There will have to be appropriate upgrades to selected sections of Wellington Street North, north of Station Street to accommodate this new role. Based on the phasing program for new site development, Wellington Street North will have to be extended north into the study lands as part of the initial site development process. As part of this extension, appropriate pedestrian facilities for the *Grand Trunk Trail* crossing will have to be included in this section of the new Wellington Street North.

5.2.2.2 Emily Street

Emily Street will carry a minimum amount of new site traffic (see *Exhibit 4.5*). It is estimated that the 2021 AADT will be less than 1,000 vpd. The area it serves is well established and it will carry limited traffic from the new development. Therefore, this corridor will not require any road improvements. This assumption is further re-enforced by the fact that the focus of access to new site development will be Wellington Street North particularly in the early phases of development.

5.2.2.3 Water Street

Water Street will carry little of the new site traffic (see *Exhibit 4.5*). It is estimated that it will have a 2021 AADT of about 2,200 vpd. It serves a well established area and is not likely to see significant new traffic volumes. Therefore, this corridor will not require any road improvements to support development in the study lands. The single lane bridge over *Trout Creek* further limits the amount of new traffic in this corridor.

5.2.2.4 Church Street

Church Street can be expected to carry an increasing share of new site traffic with the completion of Glass Street to James Street and the build-out of Phase 2. It is forecast to have a 2021 AADT of about 4,000 to 4,500 vpd. The study analyses have shown that the Church Street corridor and its intersections have the capacity to carry this new traffic. No specific road improvements are required in this corridor to support new site traffic.

5.2.2.5 James Street

James Street will play an increasingly more important role in carrying north/south traffic in this section of the St Marys community. It will provide access to the study lands as well as new residential development to the east. It will also carry through traffic to rural areas north of St Marys and traffic travelling to Stratford. By 2021 it is expected to be carrying an AADT of about 3,500 to 4,000 vpd. While there may have to be upgrades to the existing road to support its future major collector/arterial road function, much of this future traffic will be non-site

traffic. Based on the study analyses, no specific improvements will be required for James Street to the 2021 planning horizon to support development in the study lands.

5.2.2.6 Glass Street

Glass Street is a new minor collector road that will be constructed across the north end of the study site to provide local access and connectivity to the Emily Street, Wellington Street North and James Street corridors. By full build-out of the study lands it is expected that it will be carrying an AADT of about 1,500 to 2,000 vpd. This road should be constructed to current municipal standards for a minor collector road.

5.3 Bridge Capacity Requirements

5.3.1 Background

Smaller established communities in Ontario often have older bridge and rail subway facilities with lanes that are narrower than those constructed to current standards. As part of the *Thames Crest Farms Subdivision* traffic study, an assessment was carried out of the capacity for future traffic for the Emily Street subway under the *Grand Trunk Trail* and the three bridges over *Trout Creek*. Tranplan Associates has completed assessments and field observations of similar facilities for traffic studies in other municipalities in Ontario. Based on the analyses and field data collected in these other studies, Tranplan Associates completed an evaluation of the St Marys facilities to assure that they would be able to accommodate future background and site traffic.

5.3.2 Emily Street Rail Subway

Emily Street narrows from about 8 m to 6.1 m as it passes through the subway of a former rail line that is now the *Grand Trunk Trail* recreational facility. Observations indicate that it can operate as a single lane or two lane facility depending on the given driver(s) approaching the subway. On occasion, because of the 6.1 m lane width at the subway, some drivers will wait until the opposing vehicle has passed. In this case it is operating as a single lane facility. Tranplan Associates completed an operational analysis of single lane subway

that passes under the Trent Canal at the Peterborough, Ontario Liftlocks (Hunter Street East). This part of Hunter Street East functions as a collector road and even carries one of the City bus transit lines. As part of the analysis, Tranplan Associates completed a peak hour traffic count at the Liftlock subway to determine the potential capacity of the subway as a single lane facility. Based on these observations, it was determined that the subway was carrying over 300 vehicles per hour (vph) with 190 vph travelling in the peak direction. The maximum projected volume for Emily Street at full build out of the *Thames Crest Farms* subdivision is forecast to be between 75 to 110 vph during peak hour periods. Therefore, the existing Emily Street subway should be capable of carrying forecast future traffic volumes to the 2021 planning horizon, even when it operates as a single lane facility accommodating contra-flow traffic streams.

5.3.3 The Trout Creek Bridges

Three bridges cross Trout Creek in the immediate study area. They include; Water Street North, Wellington Street North and Church Street North. The capacity of most urban streets is generally controlled by the capacity of adjacent intersections. Given the close proximity of adjacent intersections to each of the bridges, this will likely be the case for the capacity of these bridges as well. Individual lanes on urban collector streets, not accounting for intersection capacity, will have capacities ranging from 700 vph to 1200 vph. The exact capacity of an individual roadway depends on a number of factors including specific lane width restrictions, type of curbing or shoulders and numbers of driveways accessing the road. During future peak hour periods, peak directional volumes on the bridges are expected to range from just under 200 vph (PM peak) on the Water Street single lane bridge to 500 vph (PM peak) on the Wellington Street Bridge. These volumes are below the capacity of the bridges. Therefore, there should be sufficient road capacity in each of the three bridges to accommodate future site and background traffic.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the capacity analyses for 2004 peak hour conditions, all traffic movements at study intersections presently operate at LoS "C" or better during peak periods. In addition, the analyses have shown that current streets and intersections in the study area can accommodate the peak hour traffic that will be generated by the proposed *Phase I* 2011 study site development. Specific conclusions from *Phase I* analyses include the following:

- All 2011 traffic movements at study intersections will operate at a LoS "C" or better during peak hour conditions. The unsignalized intersections are not significantly affected by the *Phase I* development. Critical movements at these intersections will operate at a LoS "B" or better. This good LoS indicates that there will be considerable residual capacity for growth in future traffic in the immediate road network surrounding the study site. The signalized intersections along Queen Street will operate at an overall LoS "B" with residual capacity for future growth to the 2021 planning horizon.
- Wellington Street North will carry much of the new traffic to and from the study site. It will likely require some improvements to the existing road to bring it up to municipal standards for a residential collector roadway. The existing road will have to be constructed north into the study lands. This new extension will have to include pedestrian crossing facilities at the intersection with the *Grand Trunk Trail*.
- The three bridge crossings over *Trout Creek* and the Emily Street subway under the *Grand Trunk Trail* will have enough road capacity to support the *Phase I* development and future growth in traffic beyond the 2011 planning horizon.

With full build-out of the study site by the Phase II 2021 planning horizon, some improvements will be required to the study road network infrastructure. These improvements will consist of the following:

- The signal cycle lengths and phasing for the three Queen Street intersections will have to be modified to accommodate additional increases in peak hour approach volumes.

- The Wellington Street North corridor will have to be completed north to future the Glass Street alignment.
- Glass Street will have to be completed from Emily Street east to James Street. It should be constructed to municipal standards for a residential collector road.
- The Glass Street west approach to the James Street North intersection will have to be constructed to provide the necessary connectivity from the study lands to the James Street corridor.

It is suggested that when traffic signal hardware is upgraded or replaced on Queen Street, the feasibility be investigated of using signal hardware that can be interconnected and has traffic actuated phasing options. The possibility of adding eastbound and westbound right turn lanes on Queen Street at these intersections should be considered if they can be inserted by removing parking and/or pavement re-stripping. Similarly it would be beneficial if northbound and southbound left turn lanes could be inserted at these intersections by removing some adjacent parking stalls and/or re-stripping the roadway. While these improvements are not specifically required to support forecast 2021 peak hour traffic, they would allow for better peak hour LoS and provide considerable residual capacity for the period beyond the 2021 planning horizon.

Applying the mitigation measures as detailed in *Section 5* above, study area roads, bridges and intersections will accommodate the peak hour traffic generated by the full site build-out planned for the 2021 planning horizon. In addition, these improvements will provide sufficient residual capacity to support peak hour traffic demands beyond the 2021 planning horizon.

APPENDIX A

DEFINITION OF LEVELS OF SERVICE

DEFINITION OF LEVELS OF SERVICE

SIGNALIZED INTERSECTIONS

Analysis of the Level of Service for signalized intersections is based on the *Highway Capacity Manual (HCM 2000)* procedures using the *Highway Capacity Software Release 4.1d* for signalized intersections. The Level of Service for intersections is based on *Control Delay*. At signalized intersections, *Control Delay* is the total delay attributed to traffic signal operation at a signalized intersection. *Control Delay* includes initial deceleration delay, queue move-up time, stopped delay and final acceleration delay. Level of Service definitions for signalized intersections as defined by the *Highway Capacity Manual* are summarized in the table below.

Definition of Level of Service for Signalized Intersections

Level of Service	Average Delay (seconds)
A	Less than 10
B	10 - 20
C	20 - 35
D	35 - 55
E	55 - 80
F	More than 80

Level of Service (LoS) for a signalized intersection is determined by the computed or measured *Control Delay* and is defined for each lane/movement at the intersection. LoS is also defined for the intersection as a whole. LoS "F" is considered to be undesirable for design or planning purposes with LoS "E" the upper limit of acceptable service. However, many individual turning movements at signalized intersections along urban arterial corridors in larger urban areas operate at LoS "E" and "F" during peak hour periods.

The analysis of individual movements at signalized intersections also includes the ratio of volume or demand to available capacity for the movements. This is commonly known as the (v/c) ratio. The v/c ratio provides some indication of how well these individual intersection movements will function during peak hour periods.

APPENDIX B

INTERSECTION CAPACITY ANALYSES

2004

INTERSECTION CAPACITY ANALYSES

SIGNALIZED INTERSECTIONS

HCS2000™ DETAILED REPORT

General Information				Site Information			
Analyst	Swan IM	Intersection	Queen & Water				
Agency or Co.	Tranplan Associates	Area Type	CBD or Similar				
Date Performed	01/04/2004	Jurisdiction	St Marys				
Time Period	AM Peak	Analysis Year	2004				
		Project ID	Thames Crest Farms Subdivision				

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N _i	1	1	0	1	1	0	1	1	0	0	1	0
Lane group	L	TR		L	TR		L	TR			LTR	
Volume, V (vph)	37	234	60	55	234	26	64	23	57	19	34	30
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, l _i	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Arrival type, AT	3	3		3	3		3	3			3	
Unit extension, UE	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000		1.000	1.000			1.000	
Initial unmet demand, Q _b	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Ped / Bike / RTOR volumes	5	5	0	5	5	0	5	5	0	5	5	0
Lane width	11.0	12.0		11.0	12.0		12.0	12.0			12.0	
Parking / Grade / Parking	N	1	N	N	1	N	N	1	N	N	1	N
Parking maneuvers, N _m												
Buses stopping, N _B	0	0		0	0		0	0			0	
Min. time for pedestrians, G _p	3.2			3.2			3.2			3.2		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 35.0	G =	G =	G =	G = 30.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 75.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	41	327		61	289		71	89			92	
Lane group capacity, c	385	715		358	729		441	556			563	
v/c ratio, X	0.11	0.46		0.17	0.40		0.16	0.16			0.16	
Total green ratio, g/C	0.47	0.47		0.47	0.47		0.40	0.40			0.40	
Uniform delay, d ₁	11.2	13.6		11.6	13.1		14.4	14.4			14.4	
Progression factor, PF	1.000	1.000		1.000	1.000		1.000	1.000			1.000	
Delay calibration, k	0.50	0.50		0.50	0.50		0.50	0.50			0.50	
Incremental delay, d ₂	0.6	2.1		1.0	1.6		0.8	0.6			0.6	
Initial queue delay, d ₃												
Control delay	11.8	15.7		12.6	14.7		15.2	15.0			15.1	
Lane group LOS	B	B		B	B		B	B			B	
Approach delay	15.2			14.3			15.1			15.1		
Approach LOS	B			B			B			B		
Intersection delay	14.9			X _c = 0.32			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information				Site Information			
Analyst	Swan IM			Intersection	Queen & Water		
Agency or Co.	Tranplan Associates			Area Type	CBD or Similar		
Date Performed	01/04/2004			Jurisdiction	St Marys		
Time Period	PM Peak			Analysis Year	2004		
				Project ID	Thames Creek Farms Subdivision		

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N _i	1	1	0	1	1	0	1	1	0	0	1	0
Lane group	L	TR		L	TR		L	TR			LTR	
Volume, V (vph)	47	260	71	86	275	25	103	39	75	37	52	37
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, I _s	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Arrival type, AT	3	3		3	3		3	3			3	
Unit extension, UE	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000		1.000	1.000			1.000	
Initial unmet demand, Q _b	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Ped / Bike / RTOR volumes	5	5	0	5	5	0	5	5	0	5	5	0
Lane width	11.0	12.0		11.0	12.0		12.0	12.0			12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking maneuvers, N _m												
Buses stopping, N _B	0	0		0	0		0	0			0	
Min. time for pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm		02	03	04	NS Perm	06	07	08			
Timing	G = 35.0		G =	G =	G =	G = 30.0	G =	G =	G =			
	Y = 5		Y =	Y =	Y =	Y = 5	Y =	Y =	Y =			
Duration of Analysis, T = 0.25							Cycle Length, C = 75.0					

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	52	368		96	334		114	126			140	
Lane group capacity, c	355	717		331	735		435	564			546	
v/c ratio, X	0.15	0.51		0.29	0.45		0.26	0.22			0.26	
Total green ratio, g/C	0.47	0.47		0.47	0.47		0.40	0.40			0.40	
Uniform delay, d ₁	11.4	14.0		12.3	13.5		15.1	14.8			15.0	
Progression factor, PF	1.000	1.000		1.000	1.000		1.000	1.000			1.000	
Delay calibration, k	0.50	0.50		0.50	0.50		0.50	0.50			0.50	
Incremental delay, d ₂	0.9	2.6		2.2	2.0		1.5	0.9			1.1	
Initial queue delay, d ₃												
Control delay	12.3	16.6		14.5	15.6		16.5	15.7			16.2	
Lane group LOS	B	B		B	B		B	B			B	
Approach delay	16.1			15.3			16.1			16.2		
Approach LOS	B			B			B			B		
Intersection delay	15.8			X _c = 0.40			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information				Site Information			
Analyst	Swan IM	Intersection	Queen & Wellington				
Agency or Co.	Tranplan Associates	Area Type	CBD or Similar				
Date Performed	01/04/2004	Jurisdiction	St Marys				
Time Period	AM Peak	Analysis Year	2004				
		Project ID	Thames Crest Farms Subdivision				

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N _i	1	1	0	1	1	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume, V (vph)	43	252	15	46	230	34	27	25	33	73	44	58
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, I _s	2.0	2.0		2.0	2.0			2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type, AT	3	3		3	3			3			3	
Unit extension, UE	3.0	3.0		3.0	3.0			3.0			3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000			1.000			1.000	
Initial unmet demand, Q _b	0.0	0.0		0.0	0.0			0.0			0.0	
Ped / Bike / RTOR volumes	5	5	0	5	5	0	5	5	0	5	5	0
Lane width	11.0	12.0		11.0	12.0			12.0			12.0	
Parking / Grade / Parking	N	1	N	N	1	N	N	1	N	N	1	N
Parking maneuvers, N _m												
Buses stopping, N _B	0	0		0	0			0			0	
Min. time for pedestrians, G _p	3.2			3.2			3.2			3.2		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 35.0	G =	G =	G =	G = 30.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 75.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	48	297		51	294			95			194	
Lane group capacity, c	382	735		379	725			527			508	
v/c ratio, X	0.13	0.40		0.13	0.41			0.18			0.38	
Total green ratio, g/C	0.47	0.47		0.47	0.47			0.40			0.40	
Uniform delay, d ₁	11.3	13.1		11.4	13.2			14.5			15.9	
Progression factor, PF	1.000	1.000		1.000	1.000			1.000			1.000	
Delay calibration, k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental delay, d ₂	0.7	1.7		0.7	1.7			0.7			2.2	
Initial queue delay, d ₃												
Control delay	12.0	14.8		12.1	14.8			15.3			18.1	
Lane group LOS	B	B		B	B			B			B	
Approach delay	14.4			14.4			15.3			18.1		
Approach LOS	B			B			B			B		
Intersection delay	15.2			X _c = 0.39			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information				Site Information			
Analyst	Swan IM			Intersection	Queen & Wellington		
Agency or Co.	Tranplan Associates			Area Type	CBD or Similar		
Date Performed	01/04/2004			Jurisdiction	St Marys		
Time Period	PM Peak			Analysis Year	2004		
				Project ID	Thames Crest Farms Subdivision		

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N _i	1	1	0	1	1	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume, V (vph)	26	305	39	64	308	33	32	56	76	38	51	48 ✓
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, I ₁	2.0	2.0		2.0	2.0			2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type, AT	3	3		3	3			3			3	
Unit extension, UE	3.0	3.0		3.0	3.0			3.0			3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000			1.000			1.000	
Initial unmet demand, Q _b	0.0	0.0		0.0	0.0			0.0			0.0	
Ped / Bike / RTOR volumes	5	5	0	5	5	0	5	5	0	5	5	0
Lane width	11.0	12.0		11.0	12.0			12.0			12.0	
Parking / Grade / Parking	N	1	N	N	1	N	N	1	N	N	1	N
Parking maneuvers, N _m												
Buses stopping, N _B	0	0		0	0			0			0	
Min. time for pedestrians, G _p	3.2			3.2			3.2			3.2		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 35.0	G =	G =	G =	G = 30.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 75.0 ✓		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	29	382		71	379			182			152	
Lane group capacity, c	322	727		320	729			544			532	
v/c ratio, X	0.09	0.53		0.22	0.52			0.33			0.29	
Total green ratio, g/C	0.47	0.47		0.47	0.47			0.40			0.40	
Uniform delay, d ₁	11.1	14.1		11.9	14.1			15.6			15.2	
Progression factor, PF	1.000	1.000		1.000	1.000			1.000			1.000	
Delay calibration, k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental delay, d ₂	0.6	2.7		1.6	2.6			1.7			1.3	
Initial queue delay, d ₃												
Control delay	11.7	16.8		13.5	16.7			17.2			16.6	
Lane group LOS	B	B		B	B			B			B	
Approach delay	16.5			16.2			17.2			16.6		
Approach LOS	B			B			B			B		
Intersection delay	16.5			X _c = 0.44			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information				Site Information			
Analyst	Swan IM			Intersection	Queen & Church		
Agency or Co.	Tranplan Associates			Area Type	CBD or Similar		
Date Performed	01/04/2004			Jurisdiction	St Marys		
Time Period	AM Peak			Analysis Year	2004		
				Project ID	Thames Crest Farms Subdivision		

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N _i	1	1	0	1	1	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume, V (vph)	41	302	15	15	264	119	26	63	32	83	35	20
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, I ₁	2.0	2.0		2.0	2.0			2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type, AT	3	3		3	3			3			3	
Unit extension, UE	3.0	3.0		3.0	3.0			3.0			3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000			1.000			1.000	
Initial unmet demand, Q _b	0.0	0.0		0.0	0.0			0.0			0.0	
Ped / Bike / RTOR volumes	5	5	0	5	5	0	5	5	0	5	5	0
Lane width	11.0	12.0		11.0	12.0			12.0			12.0	
Parking / Grade / Parking	N	1	N	N	1	N	N	1	N	N	1	N
Parking maneuvers, N _m												
Buses stopping, N _B	0	0		0	0			0			0	
Min. time for pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 28.0	G =	G =	G =	G = 22.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis, T = 0.25							Cycle Length, C = 60.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	46	353		17	425			135			153	
Lane group capacity, c	304	735		354	701			514			434	
v/c ratio, X	0.15	0.48		0.05	0.61			0.26			0.35	
Total green ratio, g/C	0.47	0.47		0.47	0.47			0.37			0.37	
Uniform delay, d ₁	9.2	11.0		8.7	11.9			13.3			13.8	
Progression factor, PF	1.000	1.000		1.000	1.000			1.000			1.000	
Delay calibration, k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental delay, d ₂	1.1	2.2		0.3	3.9			1.2			2.2	
Initial queue delay, d ₃												
Control delay	10.2	13.2		9.0	15.8			14.6			16.1	
Lane group LOS	B	B		A	B			B			B	
Approach delay	12.9			15.5			14.6			16.1		
Approach LOS	B			B			B			B		
Intersection delay	14.5			X _c = 0.49			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information				Site Information			
Analyst	Swan IM			Intersection	Queen & Church		
Agency or Co.	Tranplan Associates			Area Type	CBD or Similar		
Date Performed	01/04/2004			Jurisdiction	St Marys		
Time Period	PM Peak			Analysis Year	2004		
				Project ID	Thames Crest Farms Subdivision		

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_1	1	1	0	1	1	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume, V (vph)	35	365	20	23	352	77	26	35	26	100	19	27 ✓
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	A	A	A	P	P	P	P	P	P
Start-up lost time, l_1	2.0	2.0		2.0	2.0			2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type, AT	3	3		3	3			3			3	
Unit extension, UE	3.0	3.0		3.0	3.0			3.0			3.0	
Filtering/metering, l	1.000	1.000		1.000	1.000			1.000			1.000	
Initial unmet demand, Q_b	0.0	0.0		0.0	0.0			0.0			0.0	
Ped / Bike / RTOR volumes	5		0	5		0	5		0	5		0
Lane width	11.0	12.0		11.0	12.0			12.0			12.0	
Parking / Grade / Parking	N	1	N	N	1	N	N	1	N	N	1	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0		0	0			0			0	
Min. time for pedestrians, G_p	3.2			3.2			3.2			3.2		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 28.0	G =	G =	G =	G = 22.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, $T = 0.25$						Cycle Length, $C = 60.0$		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	39	428		26	477			97			162	
Lane group capacity, c	270	736		302	722			502			426	
v/c ratio, X	0.14	0.58		0.09	0.66			0.19			0.38	
Total green ratio, g/C	0.47	0.47		0.47	0.47			0.37			0.37	
Uniform delay, d_1	9.2	11.7		8.9	12.3			13.0			14.0	
Progression factor, PF	1.000	1.000		1.000	1.000			1.000			1.000	
Delay calibration, k	0.50	0.50		0.11	0.24			0.50			0.50	
Incremental delay, d_2	1.1	3.3		0.1	2.3			0.9			2.6	
Initial queue delay, d_3												
Control delay	10.3	15.1		9.0	14.6			13.8			16.6	
Lane group LOS	B	B		A	B			B			B	
Approach delay	14.7			14.3			13.8			16.6		
Approach LOS	B			B			B			B		
Intersection delay	14.7			$X_c = 0.54$			Intersection LOS			B		

UNSIGNALIZED INTERSECTIONS

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Water St N & Emily St
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2004
Analysis Time Period	AM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Emily St</i>		North/South Street: <i>Water Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	14	32	11	14	35	1
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	14	33	11	14	36	1
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	12	1	14	1	1	31
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	12	1	14	1	1	32
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>	<i>LTR</i>			<i>LTR</i>		
v (vph)	14	14	27			34		
C (m) (vph)	1554	1545	887			1008		
v/c	0.01	0.01	0.03			0.03		
95% queue length	0.03	0.03	0.09			0.10		
Control Delay	7.3	7.4	9.2			8.7		
LOS	A	A	A			A		
Approach Delay	--	--	9.2			8.7		
Approach LOS	--	--	A			A		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information				
Analyst	Swan IM		Intersection	Water St N & Emily St			
Agency/Co.	Tranplan Associates		Jurisdiction	St Marys			
Date Performed	01/04/2004		Analysis Year	2004			
Analysis Time Period	PM Peak Hour						
Project Description <i>Thames Crest Farms Subdivision</i>							
East/West Street: <i>Emily St</i>			North/South Street: <i>Water Street North</i>				
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume	31	5	14	9	37	1	
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR	32	5	14	9	38	1	
Percent Heavy Vehicles	5	--	--	5	--	--	
Median Type	<i>Undivided</i>						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	<i>LTR</i>			<i>LTR</i>			
Upstream Signal		0			0		
Minor Street	Westbound			Eastbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume	5	5	7	1	1	28	
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR	5	5	7	1	1	29	
Percent Heavy Vehicles	5	5	5	5	5	5	
Percent Grade (%)	2			2			
Flared Approach		<i>N</i>			<i>N</i>		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		<i>LTR</i>			<i>LTR</i>		
Delay, Queue Length, and Level of Service							
Approach	NB	SB	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	<i>LTR</i>	<i>LTR</i>	<i>LTR</i>			<i>LTR</i>	
v (vph)	32	9	17			31	
C (m) (vph)	1552	1578	854			1003	
v/c	0.02	0.01	0.02			0.03	
95% queue length	0.06	0.02	0.06			0.10	
Control Delay	7.4	7.3	9.3			8.7	
LOS	<i>A</i>	<i>A</i>	<i>A</i>			<i>A</i>	
Approach Delay	--	--	9.3			8.7	
Approach LOS	--	--	<i>A</i>			<i>A</i>	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Water St N & Parkview Dr
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2004
Analysis Time Period	AM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Parkview Dr</i>		North/South Street: <i>Water Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	7	42	13	4	60	22
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	44	13	4	63	0
Percent Heavy Vehicles	0	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	23	0	2	12	0	5
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	24	0	2	0	0	0
Percent Heavy Vehicles	5	5	5	0	0	0
Percent Grade (%)	2			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	0	0
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LTR				
v (vph)		4		26				
C (m) (vph)		1528		875				
v/c		0.00		0.03				
95% queue length		0.01		0.09				
Control Delay		7.4		9.2				
LOS		A		A				
Approach Delay	--	--	9.2					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Water St N & Parkview Dr
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2004
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Creek Farms Subdivision</i>			
East/West Street: <i>Parkview Dr</i>		North/South Street: <i>Water Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound			
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		7	39	42	8	60	22
Peak-Hour Factor, PHF		0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR		0	41	44	8	63	0
Percent Heavy Vehicles		0	--	--	5	--	--
Median Type	<i>Undivided</i>						
RT Channelized				0			0
Lanes		0	1	0	0	1	0
Configuration				TR	LT		
Upstream Signal			0			0	

Minor Street	Westbound			Eastbound			
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		51	0	7	12	0	5
Peak-Hour Factor, PHF		0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR		53	0	7	0	0	0
Percent Heavy Vehicles		5	5	5	0	0	0
Percent Grade (%)		2			0		
Flared Approach			N			N	
Storage			0			0	
RT Channelized				0			0
Lanes		0	1	0	0	0	0
Configuration			LTR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
			7	8	9	10	11	12
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LTR				
v (vph)		8		60				
C (m) (vph)		1493		854				
v/c		0.01		0.07				
95% queue length		0.02		0.23				
Control Delay		7.4		9.5				
LOS		A		A				
Approach Delay	--	--	9.5					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Wellington St N & Widder St E
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2004
Analysis Time Period	AM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Widder St East</i>		North/South Street: <i>Wellington Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	2	33	1	7	44	5
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	2	34	1	7	46	5
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	16	17	21	5	1	18
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	16	17	22	5	1	18
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>	<i>LTR</i>			<i>LTR</i>		
v (vph)	2	7	55			24		
C (m) (vph)	1536	1557	883			951		
v/c	0.00	0.00	0.06			0.03		
95% queue length	0.00	0.01	0.20			0.08		
Control Delay	7.3	7.3	9.3			8.9		
LOS	A	A	A			A		
Approach Delay	--	--	9.3			8.9		
Approach LOS	--	--	A			A		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Wellington St N & Widder St E
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2004
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Widder St East</i>		North/South Street: <i>Wellington Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	2	23	4	1	3	1
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	2	24	4	1	3	1
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5	18	8	14	1	5
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	5	18	8	14	1	5
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>	
v (vph)	2	1		31			20	
C (m) (vph)	1598	1566		907			949	
v/c	0.00	0.00		0.03			0.02	
95% queue length	0.00	0.00		0.11			0.06	
Control Delay	7.3	7.3		9.1			8.9	
LOS	<i>A</i>	<i>A</i>		<i>A</i>			<i>A</i>	
Approach Delay	--	--		9.1			8.9	
Approach LOS	--	--		<i>A</i>			<i>A</i>	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>Swan IM</i>	Intersection	<i>Wellington St N & Station St</i>
Agency/Co.	<i>Tranplan Associates</i>	Jurisdiction	<i>St Marys</i>
Date Performed	<i>01/04/2004</i>	Analysis Year	<i>2004</i>
Analysis Time Period	<i>AM Peak Hour</i>		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Station St</i>		North/South Street: <i>Wellington Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound			
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		7	31	48	5	78	22
Peak-Hour Factor, PHF		0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR		0	32	50	5	82	0
Percent Heavy Vehicles		0	--	--	5	--	--
Median Type	<i>Undivided</i>						
RT Channelized				0			0
Lanes		0	1	0	0	1	0
Configuration				TR	LT		
Upstream Signal			0			0	
Minor Street	Westbound			Eastbound			
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		67	0	5	12	0	5
Peak-Hour Factor, PHF		0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR		70	0	5	0	0	0
Percent Heavy Vehicles		5	5	0	0	0	0
Percent Grade (%)		2			0		
Flared Approach			N			N	
Storage			0			0	
RT Channelized				0			0
Lanes		0	1	0	0	0	0
Configuration			LTR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
			7	8	9	10	11	12
Movement	1	4						
Lane Configuration		LT		LTR				
v (vph)		5		75				
C (m) (vph)		1497		843				
v/c		0.00		0.09				
95% queue length		0.01		0.29				
Control Delay		7.4		9.7				
LOS		A		A				
Approach Delay	--	--		9.7				
Approach LOS	--	--		A				

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	Swan IM	Intersection	Wellington St N & Station St					
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys					
Date Performed	01/04/2004	Analysis Year	2004					
Analysis Time Period	PM Peak Hour							
Project Description <i>Thames Crest Farms Subdivision</i>								
East/West Street: <i>Station St</i>			North/South Street: <i>Wellington Street North</i>					
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>					
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	7	24	94	0	14	22		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR	0	25	98	0	14	0		
Percent Heavy Vehicles	0	--	--	5	--	--		
Median Type	<i>Undivided</i>							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			<i>TR</i>	<i>LT</i>				
Upstream Signal		0			0			
Minor Street	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	89	0	5	12	0	5		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR	93	0	5	0	0	0		
Percent Heavy Vehicles	5	5	5	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		<i>N</i>			<i>N</i>			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	0	0		
Configuration		<i>LTR</i>						
Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		<i>LT</i>		<i>LTR</i>				
v (vph)		0	98					
C (m) (vph)		1446	909					
v/c		0.00	0.11					
95% queue length		0.00	0.36					
Control Delay		7.5	9.4					
LOS		A	A					
Approach Delay	--	--	9.4					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Wellington St N & Parkview Dr
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2004
Analysis Time Period	AM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Parkview Dr</i>		North/South Street: <i>Wellington Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	7	63	4	1	126	22
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	7	66	4	1	132	23
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	1	1	1	12	0	5
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	1	1	1	12	0	5
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>	<i>LTR</i>			<i>LTR</i>		
v (vph)	7	1	3			17		
C (m) (vph)	1407	1512	760			760		
v/c	0.00	0.00	0.00			0.02		
95% queue length	0.01	0.00	0.01			0.07		
Control Delay	7.6	7.4	9.8			9.8		
LOS	A	A	A			A		
Approach Delay	--	--	9.8			9.8		
Approach LOS	--	--	A			A		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Wellington St N & Parkview Dr
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2004
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Parkview Dr</i>		North/South Street: <i>Wellington Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	22	88	7	1	71	31
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	23	92	7	1	74	32
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	7	3	4	30	4	16
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	7	3	4	31	4	16
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>	
v (vph)	23	1		14			51	
C (m) (vph)	1467	1475		728			757	
v/c	0.02	0.00		0.02			0.07	
95% queue length	0.05	0.00		0.06			0.22	
Control Delay	7.5	7.4		10.0			10.1	
LOS	A	A		B			B	
Approach Delay	--	--		10.0			10.1	
Approach LOS	--	--		B			B	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>Swan IM</i>	Intersection	<i>Church St N & James St N</i>
Agency/Co.	<i>Tranplan Associates</i>	Jurisdiction	<i>St Marys</i>
Date Performed	<i>01/04/2004</i>	Analysis Year	<i>2004</i>
Analysis Time Period	<i>AM Peak Hour</i>		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>James Street North</i>		North/South Street: <i>Church Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	23	24	72	0	35	2
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	24	25	75	0	36	2
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	78	47	0	0	42	11
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	82	49	0	0	44	11
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>	<i>LTR</i>			<i>LTR</i>		
v (vph)	24	0	131			55		
C (m) (vph)	1553	1474	727			740		
v/c	0.02	0.00	0.18			0.07		
95% queue length	0.05	0.00	0.65			0.24		
Control Delay	7.4	7.4	11.0			10.3		
LOS	A	A	B			B		
Approach Delay	--	--	11.0			10.3		
Approach LOS	--	--	B			B		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Church St N & James St N
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2004
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>James Street North</i>		North/South Street: <i>Church Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	46	20	69	0	8	2
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	48	21	72	0	8	2
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	85	46	0	0	75	19
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	89	48	0	0	78	20
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>		
v (vph)	48	0		137			98	
C (m) (vph)	1590	1483		664			725	
v/c	0.03	0.00		0.21			0.14	
95% queue length	0.09	0.00		0.77			0.47	
Control Delay	7.3	7.4		11.8			10.7	
LOS	<i>A</i>	<i>A</i>		<i>B</i>			<i>B</i>	
Approach Delay	--	--	11.8			10.7		
Approach LOS	--	--	<i>B</i>			<i>B</i>		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	James Street & Glass
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2004
Analysis Time Period	AM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Glass Street</i>		North/South Street: <i>James Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	58	15	1	58	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	61	15	1	61	0
Percent Heavy Vehicles	0	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5	0	1	0	0	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	5	0	1	0	0	0
Percent Heavy Vehicles	5	5	5	0	0	0
Percent Grade (%)	2			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	0	0
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LTR				
v (vph)		1		6				
C (m) (vph)		1504		874				
v/c		0.00		0.01				
95% queue length		0.00		0.02				
Control Delay		7.4		9.1				
LOS		A		A				
Approach Delay	--	--	9.1					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	James Street & Glass
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2004
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Glass Street</i>		North/South Street: <i>James Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	70	11	1	81	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	73	11	1	85	0
Percent Heavy Vehicles	0	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	22	0	1	0	0	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	23	0	1	0	0	0
Percent Heavy Vehicles	5	5	5	0	0	0
Percent Grade (%)	2			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	0	0
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LTR				
v (vph)		1		24				
C (m) (vph)		1494		823				
v/c		0.00		0.03				
95% queue length		0.00		0.09				
Control Delay		7.4		9.5				
LOS		A		A				
Approach Delay	--	--	9.5					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>Swan IM</i>	Intersection	<i>James Street & Trailside</i>
Agency/Co.	<i>Tranplan Associates</i>	Jurisdiction	<i>St Marys</i>
Date Performed	<i>01/04/2004</i>	Analysis Year	<i>2004</i>
Analysis Time Period	<i>AM Peak Hour</i>		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Trailside Ct</i>		North/South Street: <i>James Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	70	2	0	63	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	73	2	0	66	0
Percent Heavy Vehicles	0	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	6	0	1	0	0	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	6	0	1	0	0	0
Percent Heavy Vehicles	5	5	5	0	0	0
Percent Grade (%)	2			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	0	0
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LTR				
v (vph)		0		7				
C (m) (vph)		1505		863				
v/c		0.00		0.01				
95% queue length		0.00		0.02				
Control Delay		7.4		9.2				
LOS		A		A				
Approach Delay	--	--	9.2					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	Swan IM		Intersection	James Street & Trailside				
Agency/Co.	Tranplan Associates		Jurisdiction	St Marys				
Date Performed	01/04/2004		Analysis Year	2004				
Analysis Time Period	PM Peak Hour							
Project Description <i>Thames Crest Farms Subdivision</i>								
East/West Street: <i>Trailside Ct</i>			North/South Street: <i>James Street North</i>					
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>					
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	0	93	10	1	91	0		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR	0	97	10	1	95	0		
Percent Heavy Vehicles	0	--	--	5	--	--		
Median Type	<i>Undivided</i>							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			<i>TR</i>	<i>LT</i>				
Upstream Signal		0			0			
Minor Street	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	7	0	1	0	0	0		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR	7	0	1	0	0	0		
Percent Heavy Vehicles	5	5	5	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		<i>N</i>			<i>N</i>			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	0	0		
Configuration		<i>LTR</i>						
Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		<i>LT</i>		<i>LTR</i>				
v (vph)		1		8				
C (m) (vph)		1465		799				
v/c		0.00		0.01				
95% queue length		0.00		0.03				
Control Delay		7.5		9.6				
LOS		A		A				
Approach Delay	--	--	9.6					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	James Street & Egan Ave.
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2004
Analysis Time Period	AM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Egan Ave.</i>		North/South Street: <i>James Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	4	75	2	0	80	14
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	4	78	0	0	84	14
Percent Heavy Vehicles	5	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LT</i>					<i>TR</i>
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	6	0	1	16	0	3
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	16	0	3
Percent Heavy Vehicles	0	0	0	5	5	5
Percent Grade (%)	0			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	1	0
Configuration					<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LT</i>						<i>LTR</i>	
v (vph)	4						19	
C (m) (vph)	1476						825	
v/c	0.00						0.02	
95% queue length	0.01						0.07	
Control Delay	7.4						9.5	
LOS	<i>A</i>						<i>A</i>	
Approach Delay	--	--					9.5	
Approach LOS	--	--					<i>A</i>	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	James Street & Egan Ave.
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2004
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Egan Ave.</i>		North/South Street: <i>James Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	2	90	2	0	86	9
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	2	94	0	0	90	9
Percent Heavy Vehicles	5	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LT</i>					<i>TR</i>
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	6	0	1	17	0	5
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	17	0	5
Percent Heavy Vehicles	0	0	0	5	5	5
Percent Grade (%)	0			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	1	0
Configuration					<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LT</i>						<i>LTR</i>	
v (vph)	2						22	
C (m) (vph)	1475						821	
v/c	0.00						0.03	
95% queue length	0.00						0.08	
Control Delay	7.4						9.5	
LOS	<i>A</i>						<i>A</i>	
Approach Delay	--	--					9.5	
Approach LOS	--	--					<i>A</i>	

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information			
Analyst	Swan IM			Intersection	James Street & Widder St		
Agency/Co.	Tranplan Associates			Jurisdiction	St Marys		
Date Performed	01/04/2004			Analysis Year	2004		
Analysis Time Period	AM Peak Hour						
Project Description							
East/West Street: Widder Street East				North/South Street: James Street North			
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	0	85	10	1	87	1	
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR	0	89	10	1	91	1	
Percent Heavy Vehicles	5	--	--	5	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
Minor Street	Westbound			Eastbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume	32	5	3	0	2	2	
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR	33	5	3	0	2	2	
Percent Heavy Vehicles	5	5	5	5	5	5	
Percent Grade (%)	2			2			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	NB	SB	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
						12	
Lane Configuration	LTR	LTR	LTR			LTR	
v (vph)	0	1	41			4	
C (m) (vph)	1484	1475	763			807	
v/c	0.00	0.00	0.05			0.00	
95% queue length	0.00	0.00	0.17			0.01	
Control Delay	7.4	7.4	10.0			9.5	
LOS	A	A	A			A	
Approach Delay	--	--	10.0			9.5	
Approach LOS	--	--	A			A	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	James Street & Widder St
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2004
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Widder Street East</i>		North/South Street: <i>James Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	1	105	39	5	93	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	1	110	41	5	97	0
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	27	5	2	0	3	1
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	28	5	2	0	3	1
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>	<i>LTR</i>			<i>LTR</i>		
v (vph)	1	5	35			4		
C (m) (vph)	1478	1412	703			693		
v/c	0.00	0.00	0.05			0.01		
95% queue length	0.00	0.01	0.16			0.02		
Control Delay	7.4	7.6	10.4			10.2		
LOS	A	A	B			B		
Approach Delay	--	--	10.4			10.2		
Approach LOS	--	--	B			B		

2011

INTERSECTION CAPACITY ANALYSES

SIGNALIZED INTERSECTIONS

HCS2000™ DETAILED REPORT

General Information				Site Information			
Analyst	Swan IM	Intersection	Queen & Water	Area Type	CBD or Similar	Jurisdiction	St Marys
Agency or Co.	Tranplan Associates	Analysis Year	2011	Project ID	Thames Crest Farms Subdivision		
Date Performed	01/04/2004						
Time Period	AM Peak						

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N _i	1	1	0	1	1	0	1	1	0	0	1	0
Lane group	L	TR		L	TR		L	TR			LTR	
Volume, V (vph)	43	272	69	63	279	30	74	26	65	22	39	35
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, I ₁	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Arrival type, AT	3	3		3	3		3	3			3	
Unit extension, UE	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000		1.000	1.000			1.000	
Initial unmet demand, Q _b	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Ped / Bike / RTOR volumes	50	5	0	50	5	0	50	5	0	50	5	0
Lane width	11.0	12.0		11.0	12.0		12.0	12.0			12.0	
Parking / Grade / Parking	N	1	N	N	1	N	N	2	N	N	2	N
Parking maneuvers, N _m												
Buses stopping, N _B	0	0		0	0		0	0			0	
Min. time for pedestrians, G _p	3.5			3.5			3.5			3.5		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 37.0	G =	G =	G =	G = 23.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis, T = 0.25							Cycle Length, C = 70.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	48	379		70	343		82	101			106	
Lane group capacity, c	405	803		381	823		339	431			438	
v/c ratio, X	0.12	0.47		0.18	0.42		0.24	0.23			0.24	
Total green ratio, g/C	0.53	0.53		0.53	0.53		0.33	0.33			0.33	
Uniform delay, d ₁	8.3	10.4		8.6	10.0		17.1	17.1			17.1	
Progression factor, PF	1.000	1.000		1.000	1.000		1.000	1.000			1.000	
Delay calibration, k	0.50	0.50		0.50	0.50		0.50	0.50			0.50	
Incremental delay, d ₂	0.6	2.0		1.1	1.6		1.7	1.3			1.3	
Initial queue delay, d ₃												
Control delay	8.9	12.4		9.7	11.5		18.8	18.4			18.4	
Lane group LOS	A	B		A	B		B	B			B	
Approach delay	12.0			11.2			18.6			18.4		
Approach LOS	B			B			B			B		
Intersection delay	13.4			X _c = 0.38			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information				Site Information			
Analyst	Swan IM			Intersection	Queen & Water		
Agency or Co.	Tranplan Associates			Area Type	CBD or Similar		
Date Performed	01/04/2004			Jurisdiction	St Marys		
Time Period	PM Peak			Analysis Year	2011		
				Project ID	Thames Crest Farms Subdivision		

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N _i	1	1	0	1	1	0	1	1	0	0	1	0
Lane group	L	TR		L	TR		L	TR			LTR	
Volume, V (vph)	55	311	82	99	323	29	118	45	86	43	60	44
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, I _s	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Arrival type, AT	3	3		3	3		3	3			3	
Unit extension, UE	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000		1.000	1.000			1.000	
Initial unmet demand, Q _b	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Ped / Bike / RTOR volumes	50	5	0	50	5	0	50	5	0	50	5	0
Lane width	11.0	12.0		11.0	12.0		12.0	12.0			12.0	
Parking / Grade / Parking	N	1	N	N	1	N	N	2	N	N	2	N
Parking maneuvers, N _m												
Buses stopping, N _B	0	0		0	0		0	0			0	
Min. time for pedestrians, G _p	3.5			3.5			3.5			3.5		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 34.0	G =	G =	G =	G = 26.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis, T = 0.25							Cycle Length, C = 70.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	61	437		110	391		131	146			164	
Lane group capacity, c	329	737		299	758		376	498			478	
v/c ratio, X	0.19	0.59		0.37	0.52		0.35	0.29			0.34	
Total green ratio, g/C	0.49	0.49		0.49	0.49		0.37	0.37			0.37	
Uniform delay, d ₁	10.2	13.0		11.3	12.4		15.9	15.5			15.8	
Progression factor, PF	1.000	1.000		1.000	1.000		1.000	1.000			1.000	
Delay calibration, k	0.50	0.50		0.50	0.50		0.50	0.50			0.50	
Incremental delay, d ₂	1.2	3.5		3.5	2.5		2.5	1.5			2.0	
Initial queue delay, d ₃												
Control delay	11.4	16.5		14.7	14.9		18.4	17.0			17.8	
Lane group LOS	B	B		B	B		B	B			B	
Approach delay	15.9			14.8			17.7			17.8		
Approach LOS	B			B			B			B		
Intersection delay	16.1			X _c = 0.49			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information				Site Information			
Analyst	Swan IM			Intersection	Queen & Wellington		
Agency or Co.	Tranplan Associates			Area Type	CBD or Similar		
Date Performed	01/04/2004			Jurisdiction	St Marys		
Time Period	AM Peak			Analysis Year	2011		
				Project ID	Thames Crest Farms Subdivision - Ext Cycle		

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N _i	1	1	0	1	1	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume, V (vph)	52	289	17	62	266	51	31	44	38	122	88	75
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, I ₁	2.0	2.0		2.0	2.0			2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type, AT	3	3		3	3			3			3	
Unit extension, UE	3.0	3.0		3.0	3.0			3.0			3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000			1.000			1.000	
Initial unmet demand, Q _b	0.0	0.0		0.0	0.0			0.0			0.0	
Ped / Bike / RTOR volumes	50	5	0	50	5	0	50	5	0	50	5	0
Lane width	12.0	12.0		12.0	12.0			12.0			12.0	
Parking / Grade / Parking	N	1	N	N	1	N	N	2	N	N	2	N
Parking maneuvers, N _m												
Buses stopping, N _B	0	0		0	0			0			0	
Min. time for pedestrians, G _p	3.5			3.5			3.5			3.5		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 33.0	G =	G =	G =	G = 27.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis, T = 0.25							Cycle Length, C = 70.0					

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	58	340		69	353			125			317	
Lane group capacity, c	351	740		360	723			485			455	
v/c ratio, X	0.17	0.46		0.19	0.49			0.26			0.70	
Total green ratio, g/C	0.47	0.47		0.47	0.47			0.39			0.39	
Uniform delay, d ₁	10.6	12.5		10.7	12.7			14.7			18.1	
Progression factor, PF	1.000	1.000		1.000	1.000			1.000			1.000	
Delay calibration, k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental delay, d ₂	1.0	2.1		1.2	2.4			1.3			8.6	
Initial queue delay, d ₃												
Control delay	11.6	14.5		11.9	15.1			15.9			26.6	
Lane group LOS	B	B		B	B			B			C	
Approach delay	14.1			14.5			15.9			26.6		
Approach LOS	B			B			B			C		
Intersection delay	17.6			X _c = 0.58			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information				Site Information			
Analyst	Swan IM			Intersection	Queen & Wellington		
Agency or Co.	Tranplan Associates			Area Type	CBD or Similar		
Date Performed	01/04/2004			Jurisdiction	St Marys		
Time Period	PM Peak			Analysis Year	2011		
				Project ID	Thames Crest Farms Subdivision		

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N _i	1	1	0	1	1	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume, V (vph)	42	350	45	80	356	79	37	114	87	67	82	60
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, l _i	2.0	2.0		2.0	2.0			2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type, AT	3	3		3	3			3			3	
Unit extension, UE	3.0	3.0		3.0	3.0			3.0			3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000			1.000			1.000	
Initial unmet demand, Q _b	0.0	0.0		0.0	0.0			0.0			0.0	
Ped / Bike / RTOR volumes	50	5	0	50	5	0	50	5	0	50	5	0
Lane width	11.0	12.0		11.0	12.0			12.0			12.0	
Parking / Grade / Parking	N	1	N	N	1	N	N	2	N	N	2	N
Parking maneuvers, N _m												
Buses stopping, N _B	0	0		0	0			0			0	
Min. time for pedestrians, G _p	3.5			3.5			3.5			3.5		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 34.0	G =	G =	G =	G = 26.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 70.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	47	439		89	484			265			232	
Lane group capacity, c	270	753		298	741			496			455	
v/c ratio, X	0.17	0.58		0.30	0.65			0.53			0.51	
Total green ratio, g/C	0.49	0.49		0.49	0.49			0.37			0.37	
Uniform delay, d ₁	10.1	12.9		10.8	13.6			17.3			17.1	
Progression factor, PF	1.000	1.000		1.000	1.000			1.000			1.000	
Delay calibration, k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental delay, d ₂	1.4	3.3		2.6	4.4			4.1			4.0	
Initial queue delay, d ₃												
Control delay	11.5	16.2		13.4	18.0			21.3			21.1	
Lane group LOS	B	B		B	B			C			C	
Approach delay	15.7			17.3			21.3			21.1		
Approach LOS	B			B			C			C		
Intersection delay	18.1			X _c = 0.60			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information				Site Information			
Analyst	Swan IM			Intersection	Queen & Church		
Agency or Co.	Tranplan Associates			Area Type	CBD or Similar		
Date Performed	01/04/2004			Jurisdiction	St Marys		
Time Period	AM Peak			Analysis Year	2021		
				Project ID	Thames Crest Farms Subdivision - Exist Geo		

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N _i	1	1	0	1	1	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume, V (vph)	47	385	17	17	315	140	30	72	37	105	40	34
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, I ₁	2.0	2.0		2.0	2.0			2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type, AT	3	3		3	3			3			3	
Unit extension, UE	3.0	3.0		3.0	3.0			3.0			3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000			1.000			1.000	
Initial unmet demand, Q _b	0.0	0.0		0.0	0.0			0.0			0.0	
Ped / Bike / RTOR volumes	50		0	50		0	50		0	50		0
Lane width	11.0	12.0		11.0	12.0			12.0			12.0	
Parking / Grade / Parking	N	1	N	N	1	N	N	2	N	N	2	N
Parking maneuvers, N _m												
Buses stopping, N _B	0	0		0	0			0			0	
Min. time for pedestrians, G _p	3.5			3.5			3.5			3.5		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 37.0	G =	G =	G =	G = 23.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis, T = 0.25							Cycle Length, C = 70.0					

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	52	447		19	506			154			199	
Lane group capacity, c	305	835		344	802			456			385	
v/c ratio, X	0.17	0.54		0.06	0.63			0.34			0.52	
Total green ratio, g/C	0.53	0.53		0.53	0.53			0.33			0.33	
Uniform delay, d ₁	8.5	10.8		8.0	11.7			17.7			19.0	
Progression factor, PF	1.000	1.000		1.000	1.000			1.000			1.000	
Delay calibration, k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental delay, d ₂	1.2	2.5		0.3	3.8			2.0			4.9	
Initial queue delay, d ₃												
Control delay	9.8	13.3		8.3	15.4			19.7			23.9	
Lane group LOS	A	B		A	B			B			C	
Approach delay	12.9			15.2			19.7			23.9		
Approach LOS	B			B			B			C		
Intersection delay	16.1			X _c = 0.59			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information				Site Information			
Analyst	Swan IM			Intersection	Queen & Church		
Agency or Co.	Tranplan Associates			Area Type	CBD or Similar		
Date Performed	01/04/2004			Jurisdiction	St Marys		
Time Period	PM Peak			Analysis Year	2011		
				Project ID	Thames Creek Farms Subdivision - Extend Cycle		

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N_i	1	1	0	1	1	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume, V (vph)	40	442	23	26	445	98	30	40	30	120	22	39
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, l_i	2.0	2.0		2.0	2.0			2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type, AT	3	3		3	3			3			3	
Unit extension, UE	3.0	3.0		3.0	3.0			3.0			3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000			1.000			1.000	
Initial unmet demand, Q_b	0.0	0.0		0.0	0.0			0.0			0.0	
Ped / Bike / RTOR volumes	50	5	0	50	5	30	50	5	0	50	5	0
Lane width	11.0	12.0		11.0	12.0			12.0			12.0	
Parking / Grade / Parking	N	1	N	N	1	N	N	2	N	N	2	N
Parking maneuvers, N_m												
Buses stopping, N_B	0	0		0	0			0			0	
Min. time for pedestrians, G_p	3.5			3.5			3.5			3.5		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 36.0	G =	G =	G =	G = 24.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis, T = 0.25							Cycle Length, C = 70.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	44	517		29	570			110			200	
Lane group capacity, c	245	809		278	794			439			367	
v/c ratio, X	0.18	0.64		0.10	0.72			0.25			0.54	
Total green ratio, g/C	0.51	0.51		0.51	0.51			0.34			0.34	
Uniform delay, d_1	9.1	12.3		8.7	13.1			16.5			18.6	
Progression factor, PF	1.000	1.000		1.000	1.000			1.000			1.000	
Delay calibration, k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental delay, d_2	1.6	3.8		0.8	5.5			1.4			5.7	
Initial queue delay, d_3												
Control delay	10.7	16.1		9.5	18.6			17.9			24.3	
Lane group LOS	B	B		A	B			B			C	
Approach delay	15.7			18.2			17.9			24.3		
Approach LOS	B			B			B			C		
Intersection delay	18.1			$X_c = 0.65$			Intersection LOS			B		

UNSIGNALIZED INTERSECTIONS

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>Swan IM</i>	Intersection	<i>Water St N & Emily St</i>
Agency/Co.	<i>Tranplan Associates</i>	Jurisdiction	<i>St Marys</i>
Date Performed	<i>01/04/2004</i>	Analysis Year	<i>2011</i>
Analysis Time Period	<i>AM Peak Hour</i>		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Emily St</i>		North/South Street: <i>Water Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	16	37	13	16	40	1
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	16	38	13	16	42	1
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	14	5	16	1	11	37
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	14	5	16	1	11	38
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>	
v (vph)	16	16		35			50	
C (m) (vph)	1547	1536		837			927	
v/c	0.01	0.01		0.04			0.05	
95% queue length	0.03	0.03		0.13			0.17	
Control Delay	7.4	7.4		9.5			9.1	
LOS	A	A		A			A	
Approach Delay	--	--		9.5			9.1	
Approach LOS	--	--		A			A	

Rights Reserved

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Water St N & Emily St
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2011
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Emily St</i>		North/South Street: <i>Water Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	37	6	16	10	43	1
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	38	6	16	10	45	1
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	6	18	8	1	8	33
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	6	18	8	1	8	34
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>	
v (vph)	38	10		32			43	
C (m) (vph)	1543	1574		776			930	
v/c	0.02	0.01		0.04			0.05	
95% queue length	0.08	0.02		0.13			0.15	
Control Delay	7.4	7.3		9.8			9.1	
LOS	A	A		A			A	
Approach Delay	--	--		9.8			9.1	
Approach LOS	--	--		A			A	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Water St N & Parkview Dr
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2011
Analysis Time Period	AM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Parkview Dr</i>		North/South Street: <i>Water Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound			
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		7	48	15	5	70	22
Peak-Hour Factor, PHF		0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR		0	50	15	5	73	0
Percent Heavy Vehicles		0	--	--	5	--	--
Median Type	<i>Undivided</i>						
RT Channelized				0			0
Lanes		0	1	0	0	1	0
Configuration				TR	LT		
Upstream Signal			0			0	

Minor Street	Westbound			Eastbound			
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		26	0	2	12	0	5
Peak-Hour Factor, PHF		0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR		27	0	2	0	0	0
Percent Heavy Vehicles		5	5	5	0	0	0
Percent Grade (%)			2			0	
Flared Approach			N			N	
Storage			0			0	
RT Channelized				0			0
Lanes		0	1	0	0	0	0
Configuration			LTR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
			7	8	9	10	11	12
Movement	1	4						
Lane Configuration		LT		LTR				
v (vph)		5		29				
C (m) (vph)		1518		851				
v/c		0.00		0.03				
95% queue length		0.01		0.11				
Control Delay		7.4		9.4				
LOS		A		A				
Approach Delay	--	--		9.4				
Approach LOS	--	--		A				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Water St N & Parkview Dr
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2011
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Parkview Dr</i>		North/South Street: <i>Water Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	7	46	48	9	70	22
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	48	50	9	73	0
Percent Heavy Vehicles	0	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	59	0	8	12	0	5
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	62	0	8	0	0	0
Percent Heavy Vehicles	5	5	5	0	0	0
Percent Grade (%)	2			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	0	0
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LTR				
v (vph)		9		70				
C (m) (vph)		1476		831				
v/c		0.01		0.08				
95% queue length		0.02		0.28				
Control Delay		7.5		9.7				
LOS		A		A				
Approach Delay	--	--	9.7					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information			
Analyst	Swan IM			Intersection	Wellington St N & Widder St E		
Agency/Co.	Tranplan Associates			Jurisdiction	St Marys		
Date Performed	01/04/2004			Analysis Year	2011		
Analysis Time Period	AM Peak Hour						
Project Description <i>Thames Crest Farms Subdivision</i>							
East/West Street: <i>Widder St East</i>				North/South Street: <i>Wellington Street North</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume	6	60	1	14	125	8	
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR	6	63	1	14	131	8	
Percent Heavy Vehicles	5	--	--	5	--	--	
Median Type	<i>Undivided</i>						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	<i>LTR</i>			<i>LTR</i>			
Upstream Signal		0			0		
Minor Street	Westbound			Eastbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume	24	20	20	6	2	30	
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR	25	21	21	6	2	31	
Percent Heavy Vehicles	5	5	5	5	5	5	
Percent Grade (%)	2			2			
Flared Approach		<i>N</i>			<i>N</i>		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		<i>LTR</i>			<i>LTR</i>		
Delay, Queue Length, and Level of Service							
Approach	NB	SB	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	<i>LTR</i>			<i>LTR</i>			<i>LTR</i>
v (vph)	6	14		67			39
C (m) (vph)	1426	1519		730			838
v/c	0.00	0.01		0.09			0.05
95% queue length	0.01	0.03		0.30			0.15
Control Delay	7.5	7.4		10.4			9.5
LOS	A	A		B			A
Approach Delay	--	--		10.4			9.5
Approach LOS	--	--		B			A

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Wellington St N & Widder St E
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2011
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Widder St East</i>		North/South Street: <i>Wellington Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	13	105	5	6	48	1
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	13	110	5	6	50	1
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	9	22	15	16	2	12
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	9	23	15	16	2	12
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>		
v (vph)	13	6	47			30		
C (m) (vph)	1536	1455	755			791		
v/c	0.01	0.00	0.06			0.04		
95% queue length	0.03	0.01	0.20			0.12		
Control Delay	7.4	7.5	10.1			9.7		
LOS	<i>A</i>		<i>B</i>			<i>A</i>		
Approach Delay	--	--	10.1			9.7		
Approach LOS	--	--	<i>B</i>			<i>A</i>		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Wellington St N & Station St
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2011
Analysis Time Period	AM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Station St</i>		North/South Street: <i>Wellington Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	7	62	59	6	173	22
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	65	62	6	182	0
Percent Heavy Vehicles	0	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	77	0	6	12	0	5
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	81	0	6	0	0	0
Percent Heavy Vehicles	5	5	5	0	0	0
Percent Grade (%)	2			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	0	0
Configuration		LTR				

Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LTR				
v (vph)		6		87				
C (m) (vph)		1441		704				
v/c		0.00		0.12				
95% queue length		0.01		0.42				
Control Delay		7.5		10.8				
LOS		A		B				
Approach Delay	--	--	10.8					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Wellington St N & Station St
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2011
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Station St</i>		North/South Street: <i>Wellington Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	7	118	121	1	67	22
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	124	127	1	70	0
Percent Heavy Vehicles	0	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	102	0	6	12	0	5
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	107	0	6	0	0	0
Percent Heavy Vehicles	5	5	5	0	0	0
Percent Grade (%)	2			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	0	0
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LTR				
v (vph)		1		113				
C (m) (vph)		1297		727				
v/c		0.00		0.16				
95% queue length		0.00		0.55				
Control Delay		7.8		10.9				
LOS		A		B				
Approach Delay	--	--	10.9					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	Swan IM	Intersection	Wellington St N & Parkview Dr					
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys					
Date Performed	01/04/2004	Analysis Year	2011					
Analysis Time Period	AM Peak Hour							
Project Description <i>Thames Crest Farms Subdivision</i>								
East/West Street: <i>Parkview Dr</i>			North/South Street: <i>Wellington Street North</i>					
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>					
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	8	102	5	1	228	25		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR	8	107	5	1	240	26		
Percent Heavy Vehicles	5	--	--	5	--	--		
Median Type	<i>Undivided</i>							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	<i>LTR</i>			<i>LTR</i>				
Upstream Signal		0			0			
Minor Street	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	1	1	1	14	1	6		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR	1	1	1	14	1	6		
Percent Heavy Vehicles	5	5	5	5	5	5		
Percent Grade (%)	2			2				
Flared Approach		<i>N</i>			<i>N</i>			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		<i>LTR</i>			<i>LTR</i>			
Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>	
v (vph)	8	1		3			21	
C (m) (vph)	1281	1459		635			612	
v/c	0.01	0.00		0.00			0.03	
95% queue length	0.02	0.00		0.01			0.11	
Control Delay	7.8	7.5		10.7			11.1	
LOS	A	A		B			B	
Approach Delay	--	--		10.7			11.1	
Approach LOS	--	--		B			B	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Wellington St N & Parkview Dr
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2011
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Parkview Dr</i>		North/South Street: <i>Wellington Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	25	204	8	1	133	36
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	26	214	8	1	140	37
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	8	3	5	34	5	18
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	8	3	5	35	5	18
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>		
v (vph)	26	1	16			58		
C (m) (vph)	1381	1329	564			587		
v/c	0.02	0.00	0.03			0.10		
95% queue length	0.06	0.00	0.09			0.33		
Control Delay	7.7	7.7	11.6			11.8		
LOS	A	A	B			B		
Approach Delay	--	--	11.6			11.8		
Approach LOS	--	--	B			B		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Church St N & James St N
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2011
Analysis Time Period	AM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>James Street North</i>		North/South Street: <i>Church Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	26	28	86	1	40	2
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	27	29	90	1	42	2
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	111	54	1	1	52	13
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	116	56	1	1	54	13
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>	
v (vph)	27	1		173			68	
C (m) (vph)	1545	1451		687			710	
v/c	0.02	0.00		0.25			0.10	
95% queue length	0.05	0.00		0.99			0.32	
Control Delay	7.4	7.5		12.0			10.6	
LOS	<i>A</i>	<i>A</i>		<i>B</i>			<i>B</i>	
Approach Delay	--	--		12.0			10.6	
Approach LOS	--	--		<i>B</i>			<i>B</i>	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Church St N & James St N
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2011
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>James Street North</i>		North/South Street: <i>Church Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	53	23	89	1	9	2
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	55	24	93	1	9	2
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	111	53	1	1	99	22
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	116	55	1	1	104	23
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>	
v (vph)	55	1		172			128	
C (m) (vph)	1589	1453		603			682	
v/c	0.03	0.00		0.29			0.19	
95% queue length	0.11	0.00		1.17			0.69	
Control Delay	7.3	7.5		13.3			11.5	
LOS	<i>A</i>	<i>A</i>		<i>B</i>			<i>B</i>	
Approach Delay	--	--	13.3			11.5		
Approach LOS	--	--	<i>B</i>			<i>B</i>		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	James Street & Glass
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2011
Analysis Time Period	AM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Glass Street</i>		North/South Street: <i>James Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	76	17	2	69	8
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	80	17	2	72	0
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			<i>TR</i>	<i>LT</i>		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	6	0	3	21	1	1
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	6	0	3	0	0	0
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	0	0
Configuration		<i>LTR</i>				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		<i>LT</i>		<i>LTR</i>				
v (vph)		2		9				
C (m) (vph)		1478		862				
v/c		0.00		0.01				
95% queue length		0.00		0.03				
Control Delay		7.4		9.2				
LOS		A		A				
Approach Delay	--	--	9.2					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information				
Analyst	Swan IM		Intersection	James Street & Glass			
Agency/Co.	Tranplan Associates		Jurisdiction	St Marys			
Date Performed	01/04/2004		Analysis Year	2011			
Analysis Time Period	PM Peak Hour						
Project Description <i>Thames Crest Farms Subdivision</i>							
East/West Street: <i>Glass Street</i>			North/South Street: <i>James Street North</i>				
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>				
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume	0	86	13	4	103	0	
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR	0	90	13	4	108	0	
Percent Heavy Vehicles	5	--	--	5	--	--	
Median Type	<i>Undivided</i>						
RT Channelized			0			0	
Lanes		1	0		1	0	
Configuration	<i>LTR</i>			<i>LTR</i>			
Upstream Signal		0			0		
Minor Street	Westbound			Eastbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume	25	0	3	18	5	25	
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR	26	0	3	0	0	0	
Percent Heavy Vehicles	5	5	5	5	5	5	
Percent Grade (%)	2			2			
Flared Approach		<i>N</i>			<i>N</i>		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	0	0	
Configuration		<i>LTR</i>					
Delay, Queue Length, and Level of Service							
Approach	NB	SB	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	<i>LTR</i>		<i>LTR</i>				
v (vph)	0	4	29				
C (m) (vph)	1464	1470	783				
v/c	0.00	0.00	0.04				
95% queue length	0.00	0.01	0.12				
Control Delay	7.5	7.5	9.8				
LOS	A		A				
Approach Delay	--	--	9.8				
Approach LOS	--		A				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	James Street & Trailside
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2011
Analysis Time Period	AM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Trailside Ct</i>		North/South Street: <i>James Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound			
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume	0	89	9	1	74	0	
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	93	9	1	77	0	
Percent Heavy Vehicles	0	--	--	5	--	--	
Median Type	<i>Undivided</i>						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Westbound			Eastbound			
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume	28	0	1	0	0	0	
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	29	0	1	0	0	0	
Percent Heavy Vehicles	5	5	5	0	0	0	
Percent Grade (%)		2			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	0	0	
Configuration		LTR					

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
			7	8	9	10	11	12
Movement	1	4						
Lane Configuration		LT		LTR				
v (vph)		1		30				
C (m) (vph)		1471		809				
v/c		0.00		0.04				
95% queue length		0.00		0.12				
Control Delay		7.4		9.6				
LOS		A		A				
Approach Delay	--	--		9.6				
Approach LOS	--	--		A				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>Swan IM</i>	Intersection	<i>James Street & Trailside</i>
Agency/Co.	<i>Tranplan Associates</i>	Jurisdiction	<i>St Marys</i>
Date Performed	<i>01/04/2004</i>	Analysis Year	<i>2011</i>
Analysis Time Period	<i>PM Peak Hour</i>		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Trailside Ct</i>		North/South Street: <i>James Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	113	34	1	115	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	118	35	1	121	0
Percent Heavy Vehicles	0	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			<i>TR</i>	<i>LT</i>		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	21	0	1	0	0	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	22	0	1	0	0	0
Percent Heavy Vehicles	5	5	5	0	0	0
Percent Grade (%)	2			0		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	0	0
Configuration		<i>LTR</i>				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		<i>LT</i>		<i>LTR</i>				
v (vph)		1		23				
C (m) (vph)		1409		728				
v/c		0.00		0.03				
95% queue length		0.00		0.10				
Control Delay		7.6		10.1				
LOS		<i>A</i>		<i>B</i>				
Approach Delay	--	--	10.1					
Approach LOS	--	--	<i>B</i>					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>Swan IM</i>	Intersection	<i>James Street & Egan Ave.</i>
Agency/Co.	<i>Tranplan Associates</i>	Jurisdiction	<i>St Marys</i>
Date Performed	<i>01/04/2004</i>	Analysis Year	<i>2011</i>
Analysis Time Period	<i>AM Peak Hour</i>		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Egan Ave.</i>		North/South Street: <i>James Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound			
	Movement	1	2	3	4	5	6
	L	T	R	L	T	R	
Volume	5	102	2	0	115	16	
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR	5	107	0	0	121	16	
Percent Heavy Vehicles	5	--	--	0	--	--	
Median Type	<i>Undivided</i>						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	<i>LT</i>			<i>TR</i>			
Upstream Signal		0			0		

Minor Street	Westbound			Eastbound			
	Movement	7	8	9	10	11	12
	L	T	R	L	T	R	
Volume	6	0	1	18	0	3	
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR	0	0	0	18	0	3	
Percent Heavy Vehicles	0	0	0	5	5	5	
Percent Grade (%)	0			2			
Flared Approach		<i>N</i>			<i>N</i>		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	1	0	
Configuration					<i>LTR</i>		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound			
	Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LT</i>						<i>LTR</i>		
v (vph)	5						21		
C (m) (vph)	1429						754		
v/c	0.00						0.03		
95% queue length	0.01						0.09		
Control Delay	7.5						9.9		
LOS	<i>A</i>						<i>A</i>		
Approach Delay	--	--					9.9		
Approach LOS	--	--					<i>A</i>		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	James Street & Egan Ave.
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2011
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Egan Ave.</i>		North/South Street: <i>James Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
	1	2	3	4	5	6
Movement						
	L	T	R	L	T	R
Volume	2	132	2	0	122	10
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	2	138	0	0	128	10
Percent Heavy Vehicles	5	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
	7	8	9	10	11	12
Movement						
	L	T	R	L	T	R
Volume	6	0	1	20	0	6
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	21	0	6
Percent Heavy Vehicles	0	0	0	5	5	5
Percent Grade (%)	0			2		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
	1	4	7	8	9	10	11	12
Movement								
Lane Configuration	LT						LTR	
v (vph)	2						27	
C (m) (vph)	1427						744	
v/c	0.00						0.04	
95% queue length	0.00						0.11	
Control Delay	7.5						10.0	
LOS	A						B	
Approach Delay	--	--					10.0	
Approach LOS	--	--					B	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	<i>Swan IM</i>	Intersection	<i>James Street & Widder St</i>
Agency/Co.	<i>Tranplan Associates</i>	Jurisdiction	<i>St Marys</i>
Date Performed	<i>01/04/2004</i>	Analysis Year	<i>2011</i>
Analysis Time Period	<i>AM Peak Hour</i>		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Widder Street East</i>		North/South Street: <i>James Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	1	105	11	1	121	3
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	1	110	11	1	127	3
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	37	6	3	9	2	2
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	38	6	3	9	2	2
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>	
v (vph)	1	1		47			13	
C (m) (vph)	1437	1448		698			707	
v/c	0.00	0.00		0.07			0.02	
95% queue length	0.00	0.00		0.22			0.06	
Control Delay	7.5	7.5		10.5			10.2	
LOS	A	A		B			B	
Approach Delay	--	--		10.5			10.2	
Approach LOS	--	--		B			B	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	James Street & Widder St
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2011
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Widder Street East</i>		North/South Street: <i>James Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	1	144	45	6	120	10
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	1	151	47	6	126	10
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	31	6	2	6	3	1
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	32	6	2	6	3	1
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>	
v (vph)	1	6		40			10	
C (m) (vph)	1430	1357		623			621	
v/c	0.00	0.00		0.06			0.02	
95% queue length	0.00	0.01		0.21			0.05	
Control Delay	7.5	7.7		11.2			10.9	
LOS	A	A		B			B	
Approach Delay	--	--		11.2			10.9	
Approach LOS	--	--		B			B	

2021

INTERSECTION CAPACITY ANALYSES

SIGNALIZED INTERSECTIONS

HCS2000™ DETAILED REPORT

General Information				Site Information			
Analyst	Swan IM			Intersection	Queen & Water		
Agency or Co.	Tranplan Associates			Area Type	CBD or Similar		
Date Performed	01/04/2004			Jurisdiction	St Marys		
Time Period	AM Peak			Analysis Year	2021		
				Project ID	Thames Crest Farms Subdivision		

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N _i	1	1	0	1	1	0	1	1	0	0	1	0
Lane group	L	TR		L	TR		L	TR			LTR	
Volume, V (vph)	52	335	84	77	349	36	90	32	80	27	48	43
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, l _i	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Arrival type, AT	3	3		3	3		3	3			3	
Unit extension, UE	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000		1.000	1.000			1.000	
Initial unmet demand, Q _b	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Ped / Bike / RTOR volumes	50	5	0	50	5	0	50	5	0	50	5	0
Lane width	11.0	12.0		11.0	12.0		12.0	12.0			12.0	
Parking / Grade / Parking	N	1	N	N	1	N	N	2	N	N	2	N
Parking maneuvers, N _m												
Buses stopping, N _B	0	0		0	0		0	0			0	
Min. time for pedestrians, G _p	3.5			3.5			3.5			3.5		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 36.0	G =	G =	G =	G = 24.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis, T = 0.25							Cycle Length, C = 70.0					

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	58	465		86	428		100	125			131	
Lane group capacity, c	334	782		310	801		354	451			453	
v/c ratio, X	0.17	0.59		0.28	0.53		0.28	0.28			0.29	
Total green ratio, g/C	0.51	0.51		0.51	0.51		0.34	0.34			0.34	
Uniform delay, d ₁	9.1	11.9		9.6	11.4		16.7	16.7			16.8	
Progression factor, PF	1.000	1.000		1.000	1.000		1.000	1.000			1.000	
Delay calibration, k	0.50	0.50		0.50	0.50		0.50	0.50			0.50	
Incremental delay, d ₂	1.1	3.3		2.2	2.5		2.0	1.5			1.6	
Initial queue delay, d ₃												
Control delay	10.2	15.2		11.8	13.9		18.7	18.2			18.4	
Lane group LOS	B	B		B	B		B	B			B	
Approach delay	14.7			13.6			18.4			18.4		
Approach LOS	B			B			B			B		
Intersection delay	15.2			X _c = 0.47			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information				Site Information			
Analyst	Swan IM	Intersection	Queen & Water				
Agency or Co.	Tranplan Associates	Area Type	CBD or Similar				
Date Performed	01/04/2004	Jurisdiction	St Marys				
Time Period	PM Peak	Analysis Year	2021				
		Project ID	Thames Crest Farms Subdivision				

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N _i	1	1	0	1	1	0	1	1	0	0	1	0
Lane group	L	TR		L	TR		L	TR			LTR	
Volume, V (vph)	67	386	99	120	398	35	144	55	105	52	73	53
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, I ₁	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Arrival type, AT	3	3		3	3		3	3			3	
Unit extension, UE	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000		1.000	1.000			1.000	
Initial unmet demand, Q _b	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Ped / Bike / RTOR volumes	50	5	0	50	5	0	50	5	0	50	5	0
Lane width	11.0	12.0		11.0	12.0		12.0	12.0			12.0	
Parking / Grade / Parking	N	1	N	N	1	N	N	2	N	N	2	N
Parking maneuvers, N _m												
Buses stopping, N _B	0	0		0	0		0	0			0	
Min. time for pedestrians, G _p	3.5			3.5			3.5			3.5		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 35.0	G =	G =	G =	G = 26.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis, T = 0.25							Cycle Length, C = 71.0					

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	74	539		133	481		160	178			198	
Lane group capacity, c	278	748		242	770		349	491			463	
v/c ratio, X	0.27	0.72		0.55	0.62		0.46	0.36			0.43	
Total green ratio, g/C	0.49	0.49		0.49	0.49		0.37	0.37			0.37	
Uniform delay, d ₁	10.5	14.2		12.5	13.2		17.1	16.4			16.9	
Progression factor, PF	1.000	1.000		1.000	1.000		1.000	1.000			1.000	
Delay calibration, k	0.50	0.50		0.50	0.50		0.50	0.50			0.50	
Incremental delay, d ₂	2.3	5.9		8.7	3.8		4.3	2.1			2.9	
Initial queue delay, d ₃												
Control delay	12.8	20.1		21.2	17.0		21.4	18.5			19.8	
Lane group LOS	B	C		C	B		C	B			B	
Approach delay	19.2			17.9			19.9			19.8		
Approach LOS	B			B			B			B		
Intersection delay	19.0			X _c = 0.61			Intersection LOS			B		

HCS2000™ DETAILED REPORT

General Information

Analyst *Swan IM*
 Agency or Co. *Tranplan Associates*
 Date Performed *01/04/2004*
 Time Period *AM Peak*

Site Information

Intersection *Queen & Wellington*
 Area Type *CBD or Similar*
 Jurisdiction *St Marys*
 Analysis Year *2021*
 Project ID *Thames Crest Farms
 Subdivision - Ext Cycle*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N _i	1	1	0	1	1	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume, V (vph)	67	353	21	73	324	64	38	64	46	157	142	100
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, l _i	2.0	2.0		2.0	2.0			2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type, AT	3	3		3	3			3			3	
Unit extension, UE	3.0	3.0		3.0	3.0			3.0			3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000			1.000			1.000	
Initial unmet demand, Q _b	0.0	0.0		0.0	0.0			0.0			0.0	
Ped / Bike / RTOR volumes	50	5	0	50	5	0	50	5	0	50	5	0
Lane width	12.0	12.0		12.0	12.0			12.0			12.0	
Parking / Grade / Parking	N	1	N	N	1	N	N	2	N	N	2	N
Parking maneuvers, N _m												
Buses stopping, N _B	0	0		0	0			0			0	
Min. time for pedestrians, G _p	3.5			3.5			3.5			3.5		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 32.0	G =	G =	G =	G = 36.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis, T = 0.25							Cycle Length, C = 78.0					

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	74	415		81	431			164			443	
Lane group capacity, c	228	644		239	628			570			551	
v/c ratio, X	0.32	0.64		0.34	0.69			0.29			0.80	
Total green ratio, g/C	0.41	0.41		0.41	0.41			0.46			0.46	
Uniform delay, d ₁	15.6	18.4		15.8	18.9			13.0			18.0	
Progression factor, PF	1.000	1.000		1.000	1.000			1.000			1.000	
Delay calibration, k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental delay, d ₂	3.7	4.9		3.8	6.0			1.3			11.8	
Initial queue delay, d ₃												
Control delay	19.4	23.4		19.6	24.9			14.3			29.8	
Lane group LOS	B	C		B	C			B			C	
Approach delay	22.8			24.1			14.3			29.8		
Approach LOS	C			C			B			C		
Intersection delay	24.2			X _c = 0.75			Intersection LOS			C		

HCS2000™ DETAILED REPORT

General Information				Site Information			
Analyst	Swan IM	Intersection	Queen & Wellington	Area Type	CBD or Similar		
Agency or Co.	Tranplan Associates	Jurisdiction	St Marys	Analysis Year	2021		
Date Performed	01/04/2004	Project ID	Thames Crest Farms Subdivision				
Time Period	PM Peak						

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N _i	1	1	0	1	1	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume, V (vph)	58	427	55	96	432	101	45	173	106	76	121	79
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, l ₁	2.0	2.0		2.0	2.0			2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type, AT	3	3		3	3			3			3	
Unit extension, UE	3.0	3.0		3.0	3.0			3.0			3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000			1.000			1.000	
Initial unmet demand, Q _b	0.0	0.0		0.0	0.0			0.0			0.0	
Ped / Bike / RTOR volumes	50	5	0	50	5	0	50	5	0	50	5	0
Lane width	11.0	12.0		11.0	12.0			12.0			12.0	
Parking / Grade / Parking	N	1	N	N	1	N	N	2	N	N	2	N
Parking maneuvers, N _m												
Buses stopping, N _B	0	0		0	0			0			0	
Min. time for pedestrians, G _p	3.5			3.5			3.5			3.5		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 38.0	G =	G =	G =	G = 26.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis, T = 0.25							Cycle Length, C = 74.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	64	535		107	592			360			306	
Lane group capacity, c	228	796		263	783			472			400	
v/c ratio, X	0.28	0.67		0.41	0.76			0.76			0.76	
Total green ratio, g/C	0.51	0.51		0.51	0.51			0.35			0.35	
Uniform delay, d ₁	10.2	13.4		11.1	14.3			21.3			21.3	
Progression factor, PF	1.000	1.000		1.000	1.000			1.000			1.000	
Delay calibration, k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental delay, d ₂	3.1	4.5		4.6	6.7			11.1			13.0	
Initial queue delay, d ₃												
Control delay	13.3	17.9		15.7	21.0			32.4			34.3	
Lane group LOS	B	B		B	C			C			C	
Approach delay	17.4			20.2			32.4			34.3		
Approach LOS	B			C			C			C		
Intersection delay	23.8			X _c = 0.76			Intersection LOS			C		

HCS2000™ DETAILED REPORT

General Information				Site Information			
Analyst	Swan IM			Intersection	Queen & Church		
Agency or Co.	Tranplan Associates			Area Type	CBD or Similar		
Date Performed	01/04/2004			Jurisdiction	St Marys		
Time Period	AM Peak			Analysis Year	2021		
				Project ID	Thames Crest Farms Subdivision - Exist Geo		

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N _i	1	1	0	1	1	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume, V (vph)	57	478	21	21	386	179	36	88	45	150	49	39
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, I ₁	2.0	2.0		2.0	2.0			2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type, AT	3	3		3	3			3			3	
Unit extension, UE	3.0	3.0		3.0	3.0			3.0			3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000			1.000			1.000	
Initial unmet demand, Q _b	0.0	0.0		0.0	0.0			0.0			0.0	
Ped / Bike / RTOR volumes	50		0	50		0	50		0	50		0
Lane width	11.0	12.0		11.0	12.0			12.0			12.0	
Parking / Grade / Parking	N	1	N	N	1	N	N	2	N	N	2	N
Parking maneuvers, N _m												
Buses stopping, N _B	0	0		0	0			0			0	
Min. time for pedestrians, G _p	3.5			3.5			3.5			3.5		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 37.0	G =	G =	G =	G = 23.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis, T = 0.25							Cycle Length, C = 70.0					

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	63	554		23	628			188			264	
Lane group capacity, c	228	835		274	801			448			356	
v/c ratio, X	0.28	0.66		0.08	0.78			0.42			0.74	
Total green ratio, g/C	0.53	0.53		0.53	0.53			0.33			0.33	
Uniform delay, d ₁	9.1	12.0		8.1	13.3			18.3			20.9	
Progression factor, PF	1.000	1.000		1.000	1.000			1.000			1.000	
Delay calibration, k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental delay, d ₂	3.0	4.1		0.6	7.6			2.9			13.0	
Initial queue delay, d ₃												
Control delay	12.1	16.1		8.7	20.9			21.2			33.9	
Lane group LOS	B	B		A	C			C			C	
Approach delay	15.7			20.4			21.2			33.9		
Approach LOS	B			C			C			C		
Intersection delay	20.9			X _c = 0.77			Intersection LOS			C		



HCS2000™ DETAILED REPORT

General Information				Site Information			
Analyst	Swan IM			Intersection	Queen & Church		
Agency or Co.	Tranplan Associates			Area Type	CBD or Similar		
Date Performed	01/04/2004			Jurisdiction	St Marys		
Time Period	PM Peak			Analysis Year	2021		
				Project ID	Thames Creek Farms Subdivision - Extend Cycle		

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N _i	1	1	0	1	1	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume, V (vph)	49	534	28	32	548	149	36	49	36	171	27	45
% Heavy vehicles, %HV	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost time, I _s	2.0	2.0		2.0	2.0			2.0			2.0	
Extension of effective green, e	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type, AT	3	3		3	3			3			3	
Unit extension, UE	3.0	3.0		3.0	3.0			3.0			3.0	
Filtering/metering, I	1.000	1.000		1.000	1.000			1.000			1.000	
Initial unmet demand, Q _b	0.0	0.0		0.0	0.0			0.0			0.0	
Ped / Bike / RTOR volumes	50	5	0	50	5	30	50	5	0	50	5	0
Lane width	11.0	12.0		11.0	12.0			12.0			12.0	
Parking / Grade / Parking	N	1	N	N	1	N	N	2	N	N	2	N
Parking maneuvers, N _m												
Buses stopping, N _B	0	0		0	0			0			0	
Min. time for pedestrians, G _p	3.5			3.5			3.5			3.5		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 42.0	G =	G =	G =	G = 26.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis, T = 0.25							Cycle Length, C = 78.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted flow rate, v	54	624		36	741			134			270	
Lane group capacity, c	163	847		232	823			416			352	
v/c ratio, X	0.33	0.74		0.16	0.90			0.32			0.77	
Total green ratio, g/C	0.54	0.54		0.54	0.54			0.33			0.33	
Uniform delay, d ₁	10.1	13.8		9.1	16.1			19.4			23.3	
Progression factor, PF	1.000	1.000		1.000	1.000			1.000			1.000	
Delay calibration, k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental delay, d ₂	5.4	5.7		1.4	14.8			2.0			14.8	
Initial queue delay, d ₃												
Control delay	15.5	19.4		10.5	31.0			21.5			38.0	
Lane group LOS	B	B		B	C			C			D	
Approach delay	19.1			30.0			21.5			38.0		
Approach LOS	B			C			C			D		
Intersection delay	26.6			X _c = 0.85			Intersection LOS			C		

yfl

UNSIGNALIZED INTERSECTIONS

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information		
Analyst	Swan IM		Intersection	Water St N & Emily St	
Agency/Co.	Tranplan Associates		Jurisdiction	St Marys	
Date Performed	01/04/2004		Analysis Year	2021	
Analysis Time Period	AM Peak Hour				
Project Description <i>Thames Crest Farms Subdivision</i>					
East/West Street: <i>Emily St</i>			North/South Street: <i>Water Street North</i>		
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>		

Vehicle Volumes and Adjustments

Major Street Movement	Northbound			Southbound		
	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	20	45	15	20	49	1
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	21	47	15	21	51	1
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street Movement	Westbound			Eastbound		
	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	17	5	20	1	10	44
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	17	5	21	1	10	46
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
	1	4	7	8	9	10	11	12
Movement								
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>	
v (vph)	21	21		43			57	
C (m) (vph)	1522	1510		784			901	
v/c	0.01	0.01		0.05			0.06	
95% queue length	0.04	0.04		0.17			0.20	
Control Delay	7.4	7.4		9.9			9.3	
LOS	A	A		A			A	
Approach Delay	--	--		9.9			9.3	
Approach LOS	--	--		A			A	

Rights Reserved

HCS2000™

Version 4.1d

Copyright © 2003 University of Florida, All Rights Reserved

Version 4.1d

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Water St N & Emily St
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2021
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Emily St</i>		North/South Street: <i>Water Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	44	7	20	13	52	1
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	46	7	21	13	54	1
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	7	17	10	1	6	40
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	7	17	10	1	6	42
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>		
v (vph)	46	13	34			49		
C (m) (vph)	1519	1554	736			918		
v/c	0.03	0.01	0.05			0.05		
95% queue length	0.09	0.03	0.15			0.17		
Control Delay	7.4	7.3	10.1			9.1		
LOS	<i>A</i>		<i>B</i>			<i>A</i>		
Approach Delay	--	--	10.1			9.1		
Approach LOS	--	--	<i>B</i>			<i>A</i>		

Rights Reserved

HCS2000™

Version 4.1d

Copyright © 2003 University of Florida, All Rights Reserved

Version 4.1d

TWO-WAY STOP CONTROL SUMMARY

General Information				Site Information			
Analyst	Swan IM			Intersection	Water St N & Parkview Dr		
Agency/Co.	Tranplan Associates			Jurisdiction	St Marys		
Date Performed	01/04/2004			Analysis Year	2021		
Analysis Time Period	AM Peak Hour						
Project Description <i>Thames Crest Farms Subdivision</i>							
East/West Street: <i>Parkview Dr</i>				North/South Street: <i>Water Street North</i>			
Intersection Orientation: <i>North-South</i>				Study Period (hrs): <i>0.25</i>			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume	7	59	18	6	85	22	
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR	0	62	18	6	89	0	
Percent Heavy Vehicles	0	--	--	5	--	--	
Median Type	<i>Undivided</i>						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
Minor Street	Westbound			Eastbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume	32	0	3	12	0	5	
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR	33	0	3	0	0	0	
Percent Heavy Vehicles	5	5	5	0	0	0	
Percent Grade (%)	2			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	0	0	
Configuration		LTR					
Delay, Queue Length, and Level of Service							
Approach	NB	SB	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LTR			
v (vph)		6		36			
C (m) (vph)		1499		820			
v/c		0.00		0.04			
95% queue length		0.01		0.14			
Control Delay		7.4		9.6			
LOS		A		A			
Approach Delay	--	--	9.6				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	Swan IM		Intersection	Water St N & Parkview Dr				
Agency/Co.	Tranplan Associates		Jurisdiction	St Marys				
Date Performed	01/04/2004		Analysis Year	2021				
Analysis Time Period	PM Peak Hour							
Project Description <i>Thames Crest Farms Subdivision</i>								
East/West Street: <i>Parkview Dr</i>			North/South Street: <i>Water Street North</i>					
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>					
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	7	56	59	11	85	22		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR	0	58	62	11	89	0		
Percent Heavy Vehicles	0	--	--	5	--	--		
Median Type	<i>Undivided</i>							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	71	0	10	12	0	5		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR	74	0	10	0	0	0		
Percent Heavy Vehicles	5	5	5	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	0	0		
Configuration		LTR						
Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LTR				
v (vph)		11		84				
C (m) (vph)		1449		794				
v/c		0.01		0.11				
95% queue length		0.02		0.35				
Control Delay		7.5		10.1				
LOS		A		B				
Approach Delay	--	--	10.1					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Wellington St N & Widder St E
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2021
Analysis Time Period	AM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Widder St East</i>		North/South Street: <i>Wellington Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	7	90	1	7	207	10
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	7	94	1	7	217	10
Percent Heavy Vehicles	5	-	-	5	-	-
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	29	24	22	7	1	34
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	30	25	23	7	1	35
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		

Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>	<i>LTR</i>			<i>LTR</i>		
v (vph)	7	7	78			43		
C (m) (vph)	1324	1480	638			744		
v/c	0.01	0.00	0.12			0.06		
95% queue length	0.02	0.01	0.42			0.18		
Control Delay	7.7	7.4	11.4			10.1		
LOS	A	A	B			B		
Approach Delay	--	--	11.4			10.1		
Approach LOS	--	--	B			B		

Rights Reserved

HCS2000™

Version 4.1d

Copyright © 2003 University of Florida, All Rights Reserved

Version 4.1d

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Wellington St N & Widder St E
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2021
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Widder St East</i>		North/South Street: <i>Wellington Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	13	182	6	1	84	1
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	13	191	6	1	88	1
Percent Heavy Vehicles	5	-	-	5	-	-
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	11	25	7	20	1	12
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	11	26	7	21	1	12
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>	<i>LTR</i>			<i>LTR</i>		
v (vph)	13	1	44			34		
C (m) (vph)	1488	1358	628			683		
v/c	0.01	0.00	0.07			0.05		
95% queue length	0.03	0.00	0.23			0.16		
Control Delay	7.4	7.7	11.2			10.5		
LOS	A	A	B			B		
Approach Delay	-	-	11.2			10.5		
Approach LOS	-	-	B			B		

Rights Reserved

HCS2000™

Version 4.1d

Copyright © 2003 University of Florida, All Rights Reserved

Version 4.1d

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Wellington St N & Station St
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2021
Analysis Time Period	AM Peak Hour		
Project Description <i>Thames Creek Farms Subdivision</i>			
East/West Street: <i>Station St</i>		North/South Street: <i>Wellington Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		91	71	7	263	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	95	74	7	276	0
Percent Heavy Vehicles	0	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	94	0	7			
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	98	0	7	0	0	0
Percent Heavy Vehicles	5	5	5	0	0	0
Percent Grade (%)	2			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	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (vph)		7		105				
C (m) (vph)		1379		581				
v/c		0.01		0.18				
95% queue length		0.02		0.65				
Control Delay		7.6		12.6				
LOS		A		B				
Approach Delay	--	--	12.6					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	Swan IM	Intersection	Wellington St N & Station St					
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys					
Date Performed	01/04/2004	Analysis Year	2021					
Analysis Time Period	PM Peak Hour							
Project Description <i>Thames Crest Farms Subdivision</i>								
East/West Street: <i>Station St</i>			North/South Street: <i>Wellington Street North</i>					
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>					
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume		194	144	1	105	0		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR	0	204	151	1	110	0		
Percent Heavy Vehicles	0	--	--	5	--	--		
Median Type	<i>Undivided</i>							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			<i>TR</i>	<i>LT</i>				
Upstream Signal		0			0			
Minor Street	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	125	0	7					
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR	131	0	7	0	0	0		
Percent Heavy Vehicles	5	5	5	0	0	0		
Percent Grade (%)		2			0			
Flared Approach		<i>N</i>			<i>N</i>			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		<i>LR</i>						
Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		<i>LT</i>		<i>LR</i>				
v (vph)		1		138				
C (m) (vph)		1177		600				
v/c		0.00		0.23				
95% queue length		0.00		0.88				
Control Delay		8.1		12.8				
LOS		<i>A</i>		<i>B</i>				
Approach Delay	--	--	12.8					
Approach LOS	--	--	<i>B</i>					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information		
Analyst	Swan IM		Intersection	Wellington St N & Parkview Dr	
Agency/Co.	Tranplan Associates		Jurisdiction	St Marys	
Date Performed	01/04/2004		Analysis Year	2004	
Analysis Time Period	AM Peak Hour				
Project Description <i>Thames Creek Farms Subdivision</i>					
East/West Street: <i>Parkview Dr</i>			North/South Street: <i>Wellington Street North</i>		
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>		

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	140	6	1	330	31 ✓
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	10	147	6	1	347	32
Percent Heavy Vehicles	5	-	-	5	-	-
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	1	1	1 ✓	17	1	7 ✓
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	1	1	1	17	1	7
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>		
v (vph)	10	1		3			25	
C (m) (vph)	1163	1409		525			492	
v/c	0.01	0.00		0.01			0.05	
95% queue length	0.03	0.00		0.02			0.16	
Control Delay	8.1	7.6		11.9			12.7	
LOS	A	A		B			B	
Approach Delay	-	-		11.9			12.7	
Approach LOS	-	-		B			B	

Rights Reserved

HCS2000™

Version 4.1d

Copyright © 2003 University of Florida, All Rights Reserved

Version 4.1d

07-05-00

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Wellington St N & Parkview Dr
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2021
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Parkview Dr</i>		North/South Street: <i>Wellington Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	31	295	10	1	184	43
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	32	310	10	1	193	45
Percent Heavy Vehicles	5	-	-	5	-	-
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	4	6	42	6	22
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	10	4	6	44	6	23
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR	LTR			LTR		
v (vph)	32	1	20			73		
C (m) (vph)	1311	1223	442			468		
v/c	0.02	0.00	0.05			0.16		
95% queue length	0.08	0.00	0.14			0.55		
Control Delay	7.8	7.9	13.5			14.1		
LOS	A	A	B			B		
Approach Delay	-	-	13.5			14.1		
Approach LOS	-	-	B			B		

pl

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	Church St N & James St N
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2021
Analysis Time Period	AM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>James Street North</i>		North/South Street: <i>Church Street North</i>	
Intersection Orientation: <i>North-South</i> ✓		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	32	34	113	1	49	3
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	33	35	118	1	51	3
Percent Heavy Vehicles	5	-	-	5	-	-
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	154	66	1	1	63	15
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	162	69	1	1	66	15
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR	LTR			LTR		
v (vph)	33	1	232			82		
C (m) (vph)	1532	1409	628			661		
v/c	0.02	0.00	0.37			0.12		
95% queue length	0.07	0.00	1.70			0.42		
Control Delay	7.4	7.6	14.1			11.2		
LOS	A	A	B			B		
Approach Delay	-	-	14.1			11.2		
Approach LOS	-	-	B			B		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information		
Analyst	Swan IM		Intersection	Church St N & James St N	
Agency/Co.	Tranplan Associates		Jurisdiction	St Marys	
Date Performed	01/04/2004		Analysis Year	2021	
Analysis Time Period	PM Peak Hour				
Project Description <i>Thames Crest Farms Subdivision</i>					
East/West Street: <i>James Street North</i>			North/South Street: <i>Church Street North</i>		
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>		

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	64	28	138	1	11	3 ✓
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	67	29	145	1	11	3
Percent Heavy Vehicles	5	-	-	5	-	-
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	157	64	1	1	117	27 ✓
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	165	67	1	1	123	28
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (vph)	67	1		233			152	
C (m) (vph)	1585	1385		518			615	
v/c	0.04	0.00		0.45			0.25	
95% queue length	0.13	0.00		2.30			0.97	
Control Delay	7.4	7.6		17.5			12.8	
LOS	A	A		C			B	
Approach Delay	-	-		17.5			12.8	
Approach LOS	-	-		C			B	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	James Street & Glass
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2021
Analysis Time Period	AM Peak Hour		

Project Description <i>Thames Crest Farms Subdivision</i>	
East/West Street: <i>Glass Street</i>	North/South Street: <i>James Street North</i>
Intersection Orientation: <i>North-South</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound			
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		10	81	22	1	81	8
Peak-Hour Factor, PHF		0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR		10	85	23	1	85	8
Percent Heavy Vehicles		5	--	--	5	--	--
Median Type	<i>Undivided</i>						
RT Channelized				0			0
Lanes		0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>		
Upstream Signal			0			0	

Minor Street	Westbound			Eastbound			
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		2	1	2	21	1	25
Peak-Hour Factor, PHF		0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR		2	1	2	22	1	26
Percent Heavy Vehicles		5	5	5	5	5	5
Percent Grade (%)		2			2		
Flared Approach			<i>N</i>			<i>N</i>	
Storage			0			0	
RT Channelized				0			0
Lanes		0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound			
	Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>		
v (vph)	10	1		5			49		
C (m) (vph)	1483	1464		779			838		
v/c	0.01	0.00		0.01			0.06		
95% queue length	0.02	0.00		0.02			0.19		
Control Delay	7.4	7.5		9.7			9.6		
LOS	A	A		A			A		
Approach Delay	--	--		9.7			9.6		
Approach LOS	--	--		A			A		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	Swan IM		Intersection	James Street & Glass				
Agency/Co.	Tranplan Associates		Jurisdiction	St Marys				
Date Performed	01/04/2004		Analysis Year	2021				
Analysis Time Period	PM Peak Hour							
Project Description <i>Thames Crest Farms Subdivision</i>								
East/West Street: <i>Glass Street</i>			North/South Street: <i>James Street North</i>					
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>					
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	31	102	19	3	116	24		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR	32	107	20	3	122	25		
Percent Heavy Vehicles	5	--	--	5	--	--		
Median Type	<i>Undivided</i>							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	<i>LTR</i>			<i>LTR</i>				
Upstream Signal		0			0			
Minor Street	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	35	3	2	18	5	25		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR	36	3	2	18	5	26		
Percent Heavy Vehicles	5	5	5	5	5	5		
Percent Grade (%)	2			2				
Flared Approach		<i>N</i>			<i>N</i>			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		<i>LTR</i>			<i>LTR</i>			
Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>	
v (vph)	32	3		41			49	
C (m) (vph)	1417	1441		588			730	
v/c	0.02	0.00		0.07			0.07	
95% queue length	0.07	0.01		0.22			0.22	
Control Delay	7.6	7.5		11.6			10.3	
LOS	A	A		B			B	
Approach Delay	--	--		11.6			10.3	
Approach LOS	--	--		B			B	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	James Street & Trailside
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2021
Analysis Time Period	AM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Trailside Ct</i>		North/South Street: <i>James Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	114	9	1	116	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	120	9	1	122	0
Percent Heavy Vehicles	0	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	28	0	4	0	0	0
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	29	0	4	0	0	0
Percent Heavy Vehicles	5	5	5	0	0	0
Percent Grade (%)	2			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	0	0
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LTR				
v (vph)		1		33				
C (m) (vph)		1438		751				
v/c		0.00		0.04				
95% queue length		0.00		0.14				
Control Delay		7.5		10.0				
LOS		A		B				
Approach Delay	--	--	10.0					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information						
Analyst	Swan IM	Intersection	James Street & Trailside					
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys					
Date Performed	01/04/2004	Analysis Year	2021					
Analysis Time Period	PM Peak Hour							
Project Description						Thames Crest Farms Subdivision		
East/West Street:			Trailside Ct			North/South Street:	James Street North	
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	0	173	36	9	166	0		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR	0	182	37	9	174	0		
Percent Heavy Vehicles	0	--	--	5	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	23	0	7	0	0	0		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR	24	0	7	0	0	0		
Percent Heavy Vehicles	5	5	5	0	0	0		
Percent Grade (%)	2			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	0	0		
Configuration		LTR						
Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LTR				
v (vph)		9		31				
C (m) (vph)		1333		642				
v/c		0.01		0.05				
95% queue length		0.02		0.15				
Control Delay		7.7		10.9				
LOS		A		B				
Approach Delay	--	--	10.9					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information					
Analyst	Swan IM	Intersection	James Street & Egan Ave.					
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys					
Date Performed	01/04/2004	Analysis Year	2021					
Analysis Time Period	AM Peak Hour							
Project Description <i>Thames Crest Farms Subdivision</i>								
East/West Street: <i>Egan Ave.</i>			North/South Street: <i>James Street North</i>					
Intersection Orientation: <i>North-South</i> ✓			Study Period (hrs): <i>0.25</i>					
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	6	125	2	0	157	21		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR	6	131	0	0	165	22		
Percent Heavy Vehicles	5	-	-	0	-	-		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	6	0	1	24	0	4		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR	0	0	0	25	0	4		
Percent Heavy Vehicles	0	0	0	5	5	5		
Percent Grade (%)	0			2				
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	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (vph)	6						29	
C (m) (vph)	1369						686	
v/c	0.00						0.04	
95% queue length	0.01						0.13	
Control Delay	7.6						10.5	
LOS	A						B	
Approach Delay	-	--					10.5	
Approach LOS	-	--					B	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	James Street & Egan Ave.
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2021
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Egan Ave.</i>		North/South Street: <i>James Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
	1	2	3	4	5	6
Movement	L	T	R	L	T	R
Volume	3	185	2	0	164	21
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	3	194	0	0	172	22
Percent Heavy Vehicles	5	-	-	0	-	-
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LT</i>					<i>TR</i>
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
	7	8	9	10	11	12
Movement	L	T	R	L	T	R
Volume	6	0	1	30	0	7
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	0	0	0	31	0	7
Percent Heavy Vehicles	0	0	0	5	5	5
Percent Grade (%)	0			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration				<i>LR</i>		

Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
			7	8	9	10	11	12
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LT</i>						<i>LR</i>	
v (vph)	3						38	
C (m) (vph)	1361						645	
v/c	0.00						0.06	
95% queue length	0.01						0.19	
Control Delay	7.7						10.9	
LOS	A						B	
Approach Delay	-	-					10.9	
Approach LOS	-	-					B	



TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information		
Analyst	Swan IM		Intersection	James Street & Widder St	
Agency/Co.	Tranplan Associates		Jurisdiction	St Marys	
Date Performed	01/04/2004		Analysis Year	2021	
Analysis Time Period	AM Peak Hour				
Project Description <i>Thames Crest Farms Subdivision</i>					
East/West Street: <i>Widder Street East</i>			North/South Street: <i>James Street North</i>		
Intersection Orientation: <i>North-South</i>			Study Period (hrs): <i>0.25</i>		

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	1	135	14	2	167	2 ✓
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	1	142	14	2	175	2
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	45	7	6	2	3	3 ✓
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	47	7	6	2	3	3
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>	
v (vph)	1	2		60			8	
C (m) (vph)	1369	1394		607			650	
v/c	0.00	0.00		0.10			0.01	
95% queue length	0.00	0.00		0.33			0.04	
Control Delay	7.6	7.6		11.6			10.6	
LOS	A	A		B			B	
Approach Delay	--	--		11.6			10.6	
Approach LOS	--	--		B			B	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	Swan IM	Intersection	James Street & Widder St
Agency/Co.	Tranplan Associates	Jurisdiction	St Marys
Date Performed	01/04/2004	Analysis Year	2021
Analysis Time Period	PM Peak Hour		
Project Description <i>Thames Crest Farms Subdivision</i>			
East/West Street: <i>Widder Street East</i>		North/South Street: <i>James Street North</i>	
Intersection Orientation: <i>North-South</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments						
Major Street	Northbound			Southbound		
	1	2	3	4	5	6
Movement	L	T	R	L	T	R
Volume	1	200	55	10	168	3 ✓
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	1	210	57	10	176	3
Percent Heavy Vehicles	5	--	--	5	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal		0			0	
Minor Street						
Minor Street	Westbound			Eastbound		
	7	8	9	10	11	12
Movement	L	T	R	L	T	R
Volume	38	7	6	3	4	1 ✓
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	40	7	6	3	4	1
Percent Heavy Vehicles	5	5	5	5	5	5
Percent Grade (%)	2			2		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
	1	4	7	8	9	10	11	12
Movement	LTR	LTR		LTR			LTR	
Lane Configuration	LTR	LTR		LTR			LTR	
v (vph)	1	10		53			8	
C (m) (vph)	1367	1269		518			508	
v/c	0.00	0.01		0.10			0.02	
95% queue length	0.00	0.02		0.34			0.05	
Control Delay	7.6	7.9		12.7			12.2	
LOS	A	A		B			B	
Approach Delay	--	--		12.7			12.2	
Approach LOS	--	--		B			B	

Rights Reserved

HCS2000™

Version 4.1d

Copyright © 2003 University of Florida, All Rights Reserved

Version 4.1d