Thames Crest Farms Subdivision Traffic Impact Study St Marys, Ontario

Prepared for

M. J. Davenport & Associates Ltd.

Prepared by **Tranplan Associates**

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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



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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" or better during peak hour periods.

1.1 Phase I - 2011 Planning Horizon

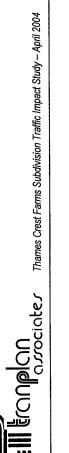
The *Phase I* development will include a total of about 175 units comprising of 115 single family dwelling units and 60 medium density condominiums units as proposed by *Thames Crest Farms Subdivisions*. Also included in this phase of development is 40 single family dwelling units located east of James 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 sitegenerated 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* sitegenerated 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



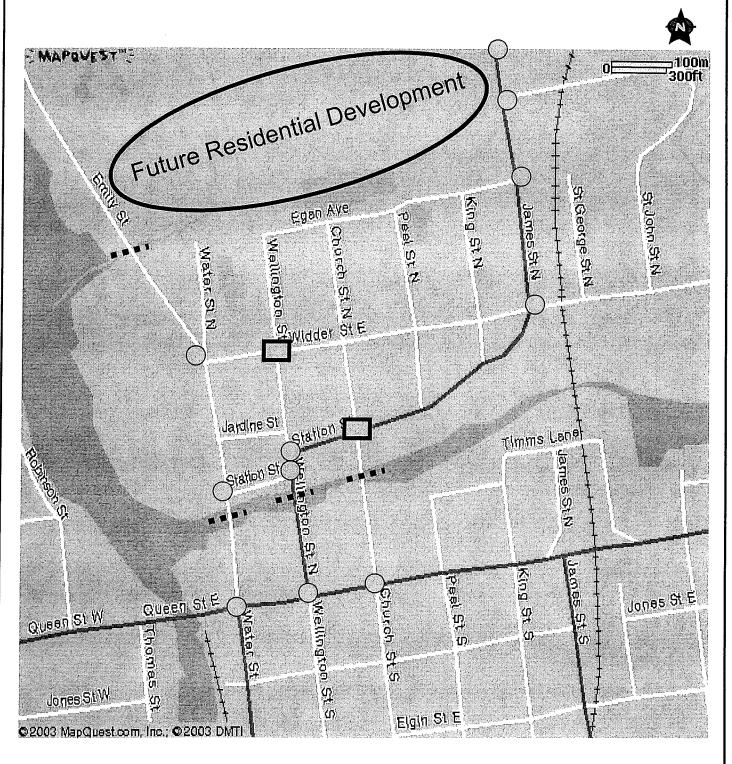
Exhibit 2.2) to obtain AM and PM peak hour traffic volumes on the study road network. The count program was carried out in February of 2004. This count program provided current traffic data on streets and intersections for the study area. The count program consisted of the following components:

- 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



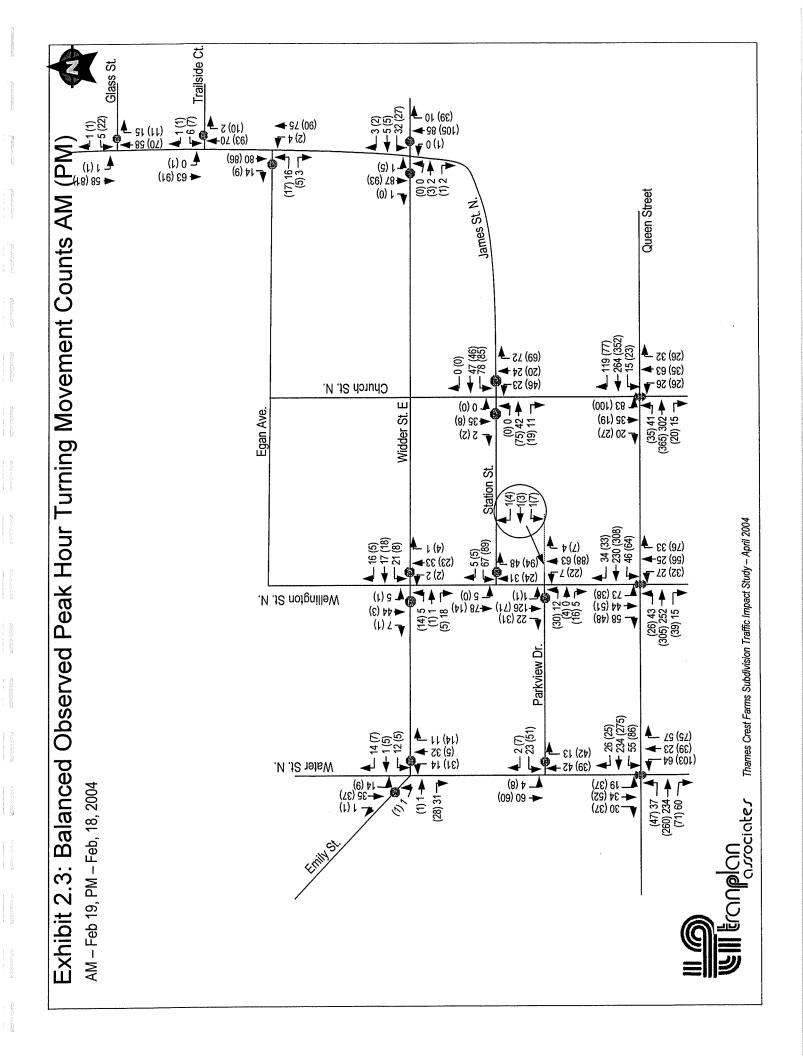


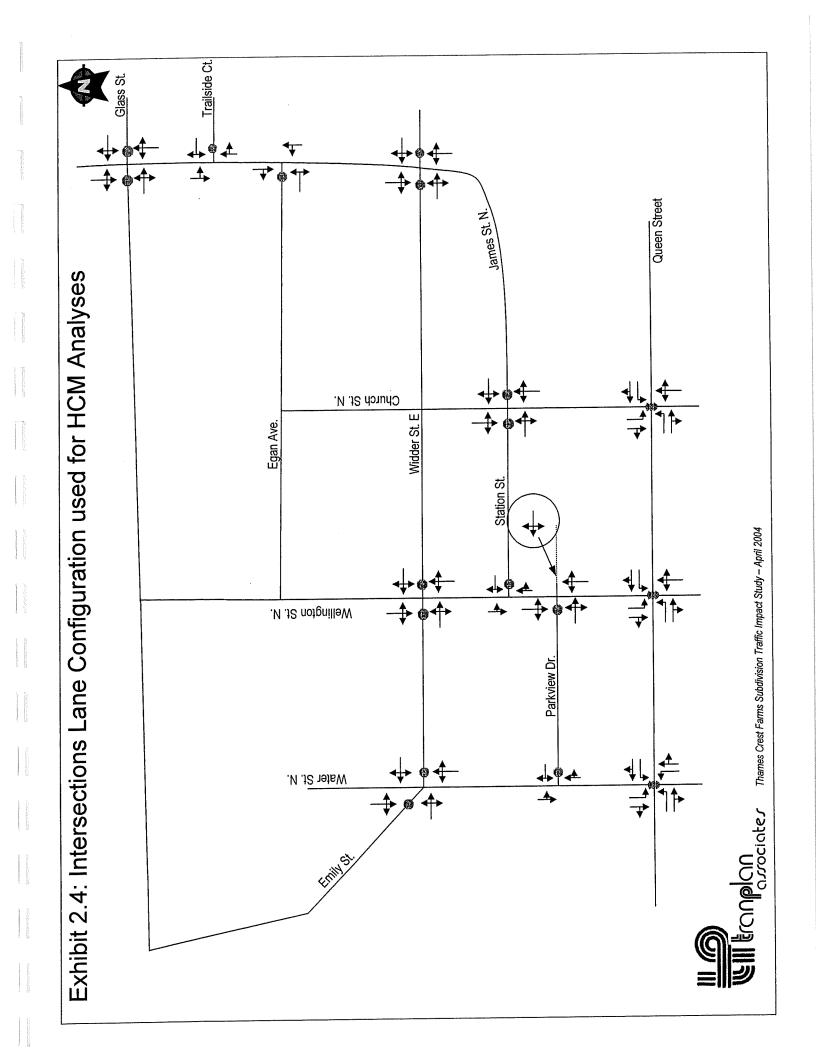


Additional Study Intersection



Thames Crest Subdivision Traffic Impact Study - April 2004





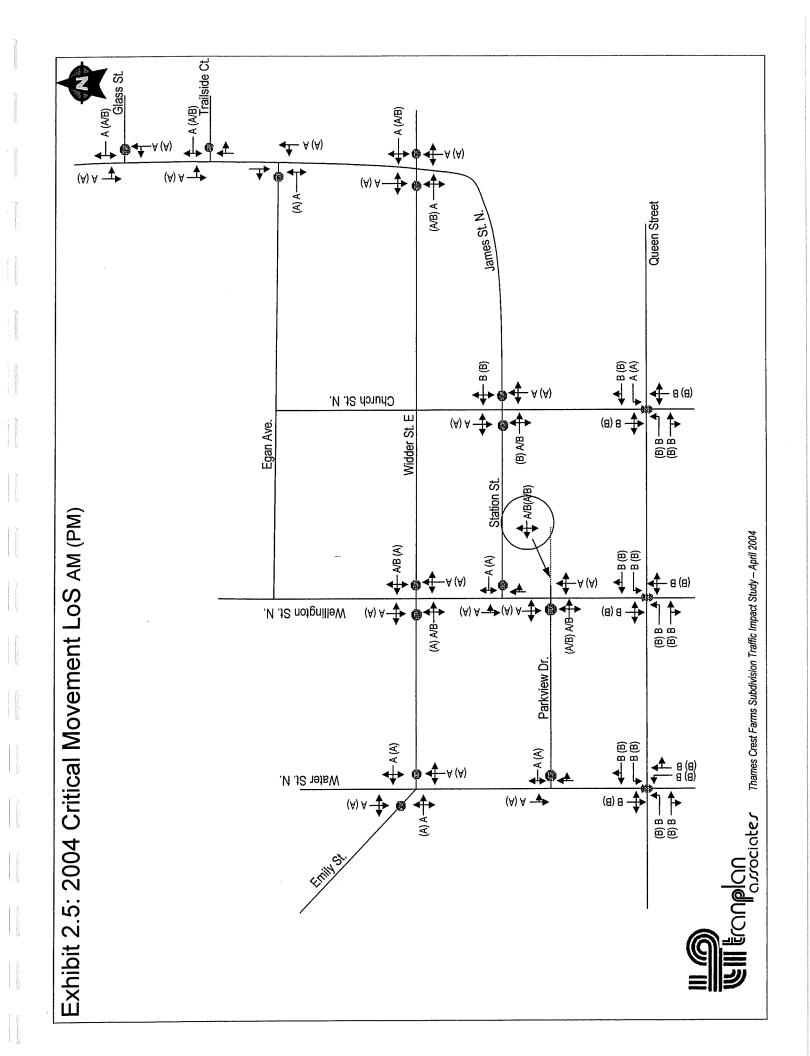




Table 2.1
Intersection Capacity Analyses - 2004 Peak Hour Periods

		Weekda	ay AM Peak	Weekda	y PM Peak
Intersection	Control	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		
		ln	Out	Total	ln	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		
		ln	Out	Total	ln	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" condominum 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%

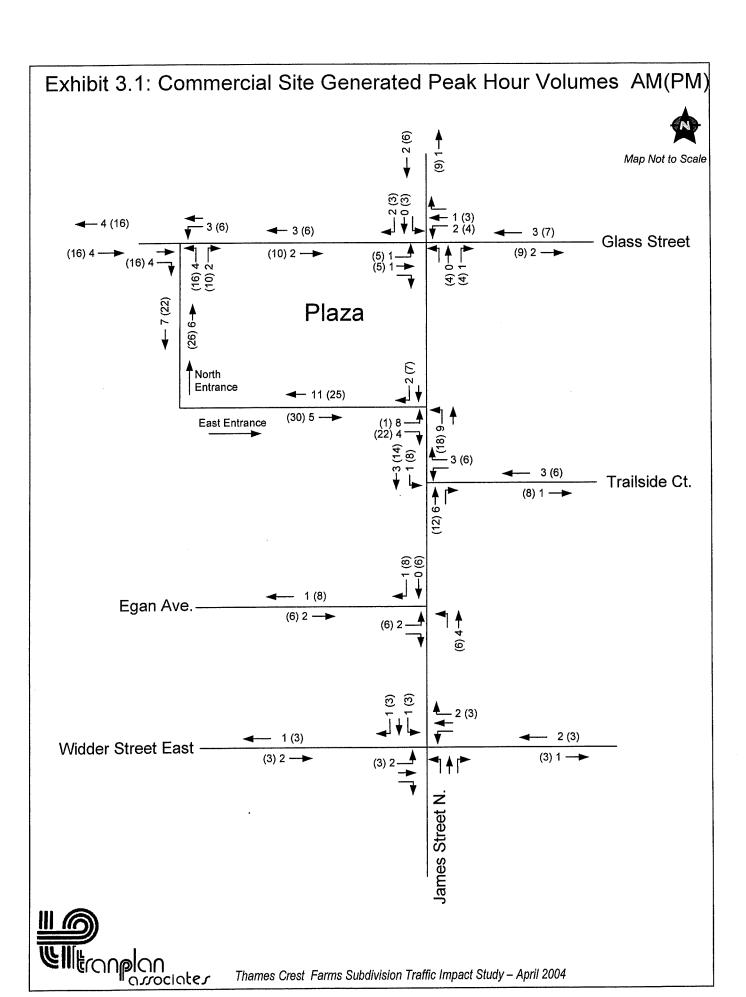
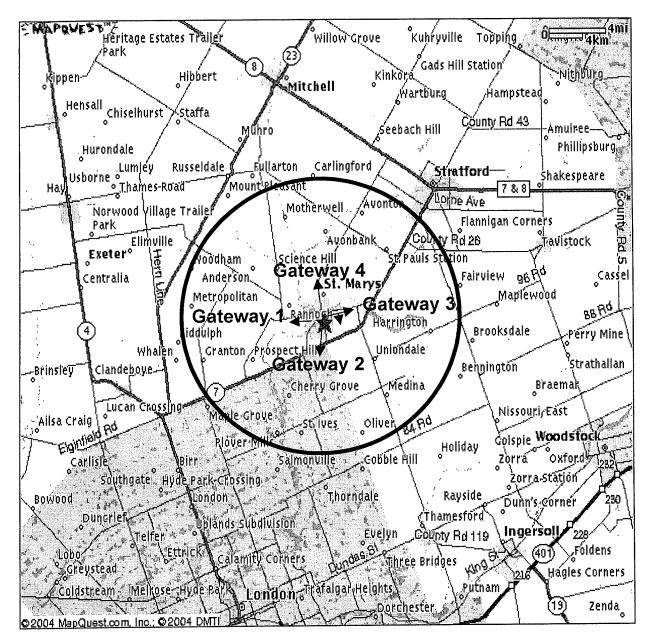


Exhibit 3.2: Gateway Locations









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 sitegenerated 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

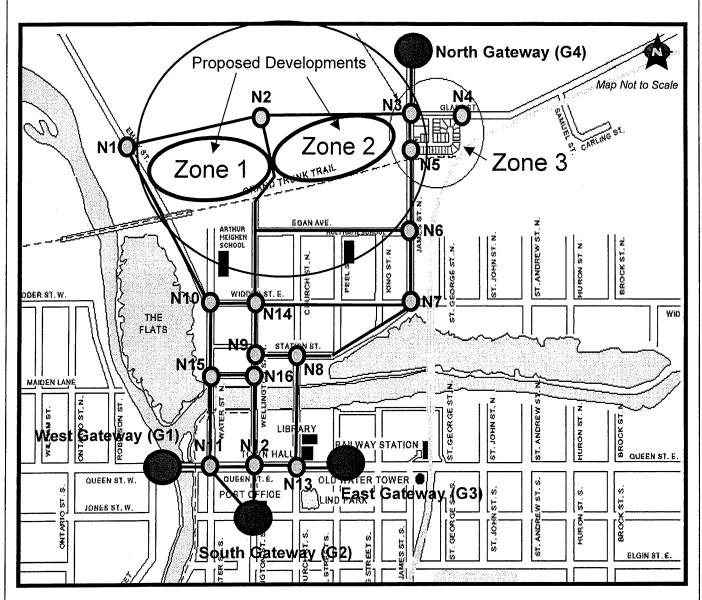




Exhibit 4.1. Similarly, the forecast 2021 background traffic was computed by applying a factor of 1.40 (2% per year for 17 years) to the observed 2004 traffic volumes for each of the two peak hour periods. The resulting 2021 background traffic volumes are illustrated in Exhibit 4.2.

4.2 Future Total Traffic

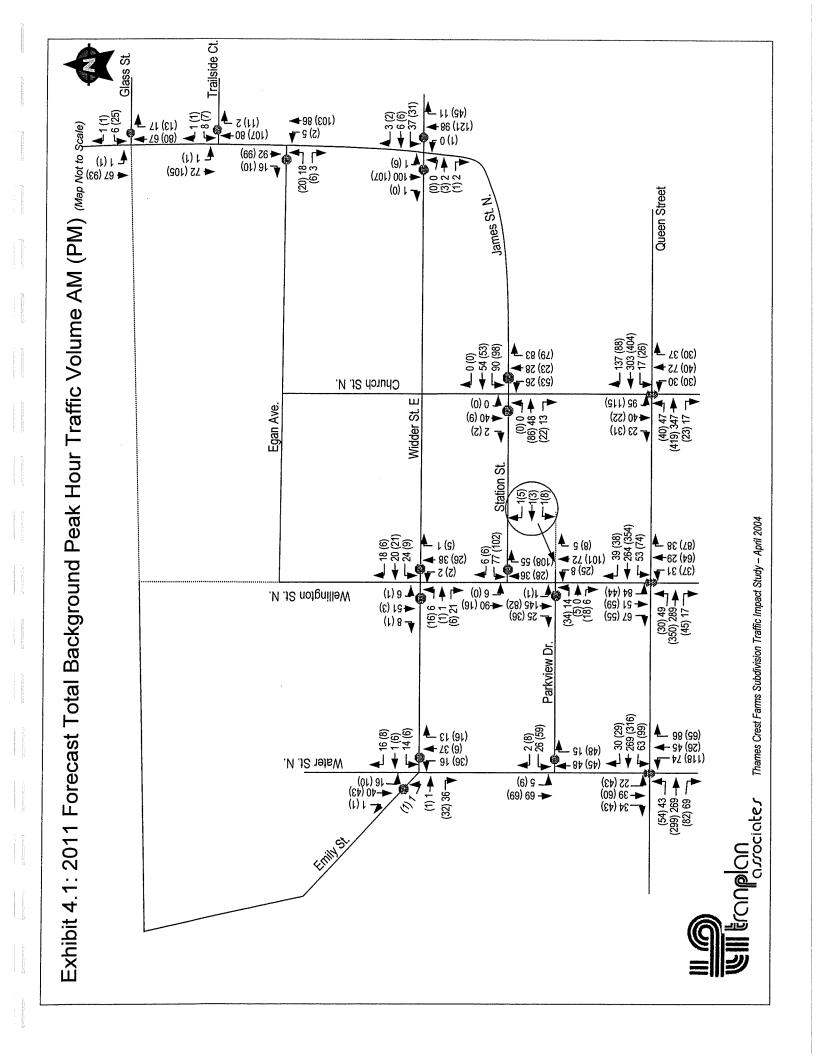
Phase I future total traffic was obtained using the traffic assignment model previously described in Section 3.3 by adding the forecast Phase I peak hour site traffic to the forecast 2011 background traffic. Exhibits 4.3 and 4.4 illustrate the 2011 site generated traffic volumes and total traffic volumes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

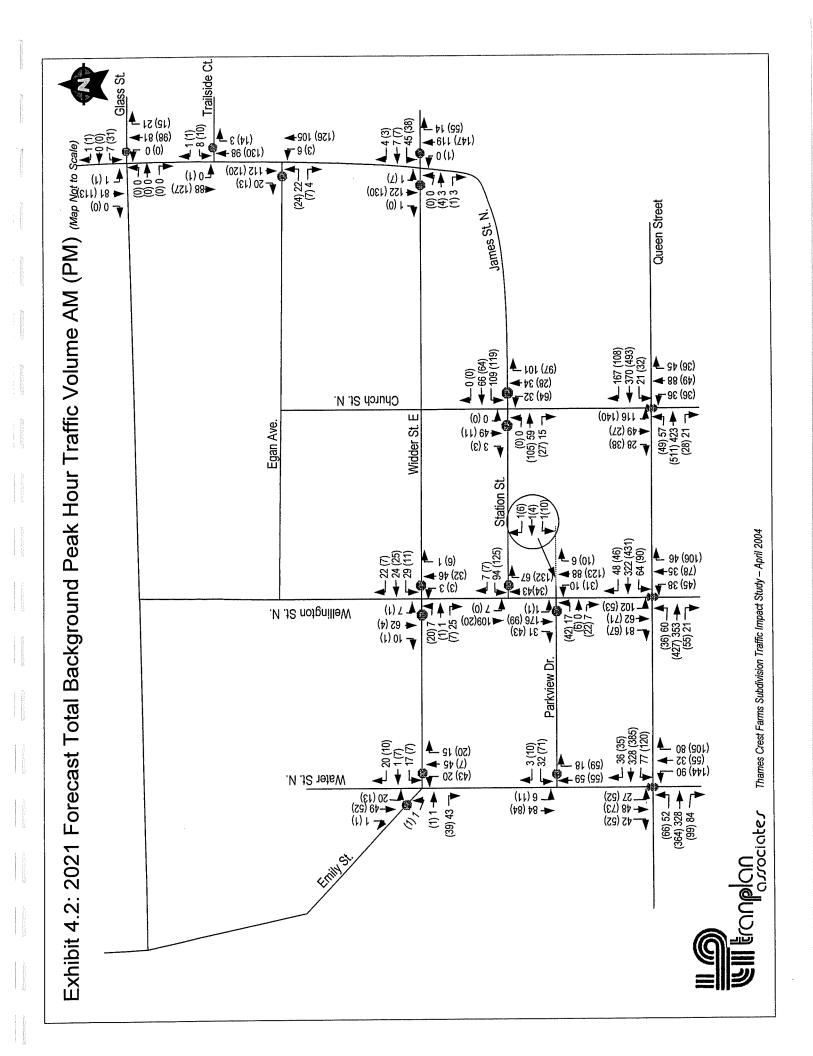
Similarly, *Phase II* total traffic was obtained using the same methodology by adding the full build out site traffic to forecast 2021 background traffic. *Exhibits 4.5 and 4.6* illustrate the 2021 site generated traffic volumes and total traffic volumes for AM and PM peak hours, respectively. *Phase 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.

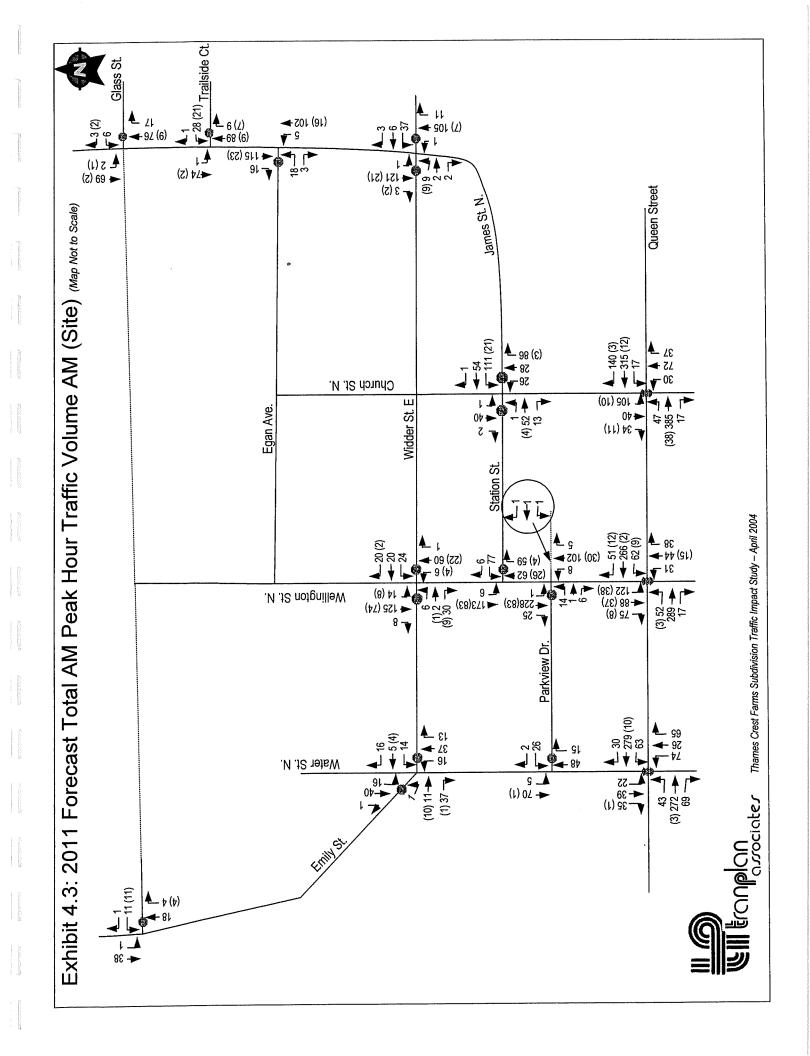
4.3 Phase I Site Traffic Impacts - 2011

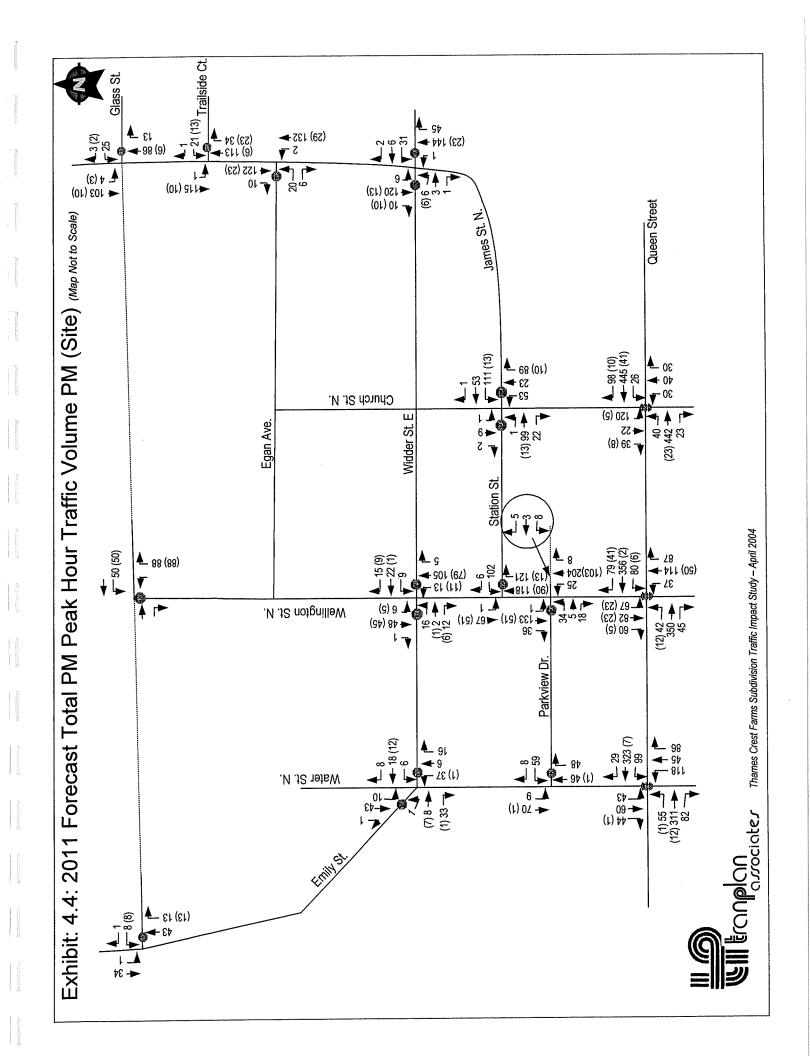
Detailed intersection capacity analyses were carried out for the intersections adjacent to the study site based on the 2011 total traffic volumes. These capacity analyses were based on *HCM 2000 (version 4.1d)* methodologies and procedures. A summary of these capacity analyses is contained in *Exhibit 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.

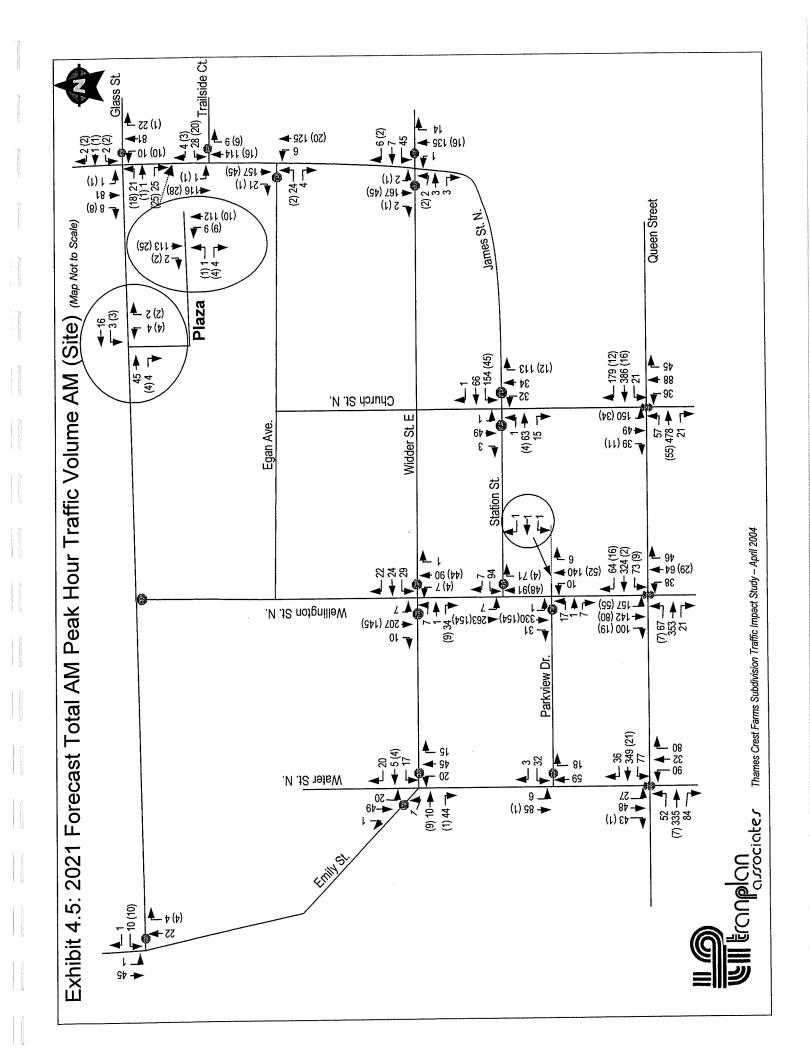
A more detailed summary of the capacity analyses, including the volume to capacity (v/c) ratio for the critical traffic movements will be found in the printouts from the HCM capacity analyses. These printouts are contained in *Appendix B*.

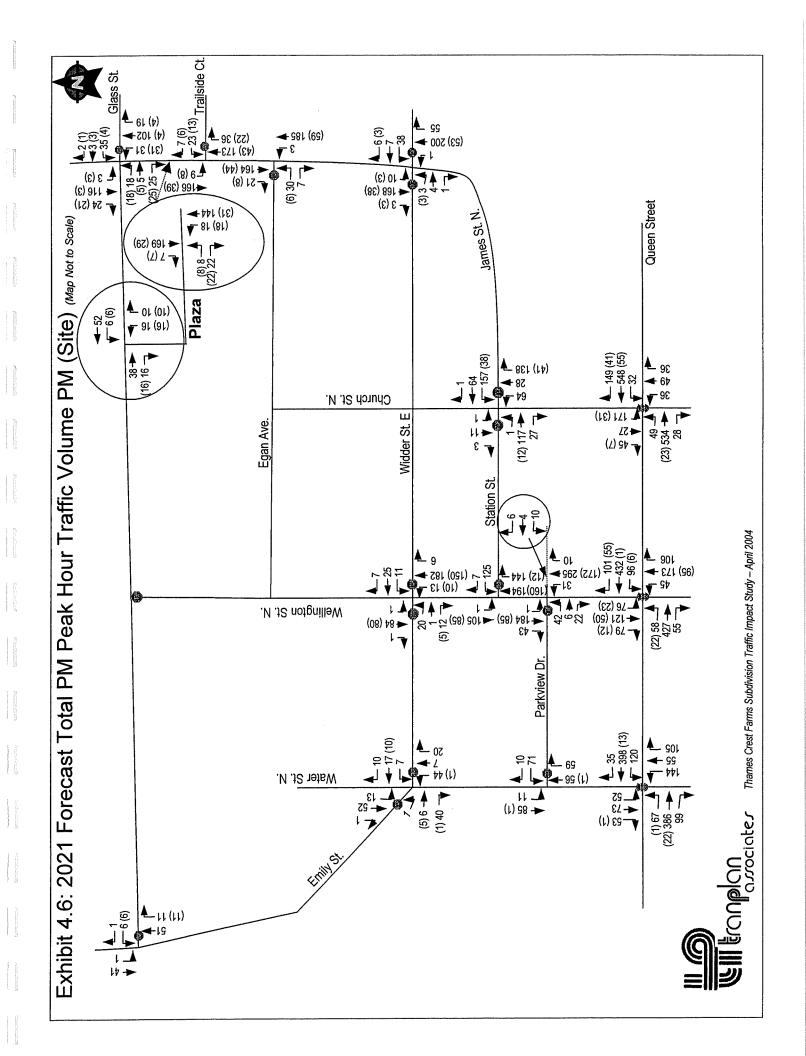


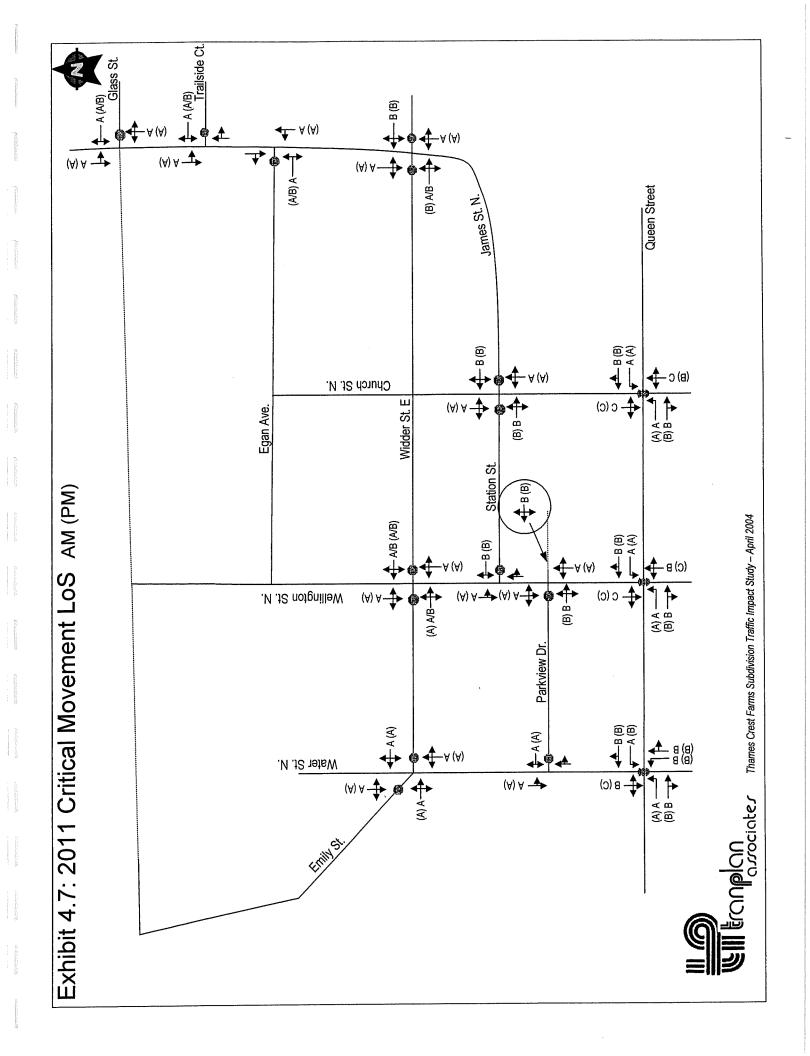














4.4 Phase // Site Traffic Impacts - 2021

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*.

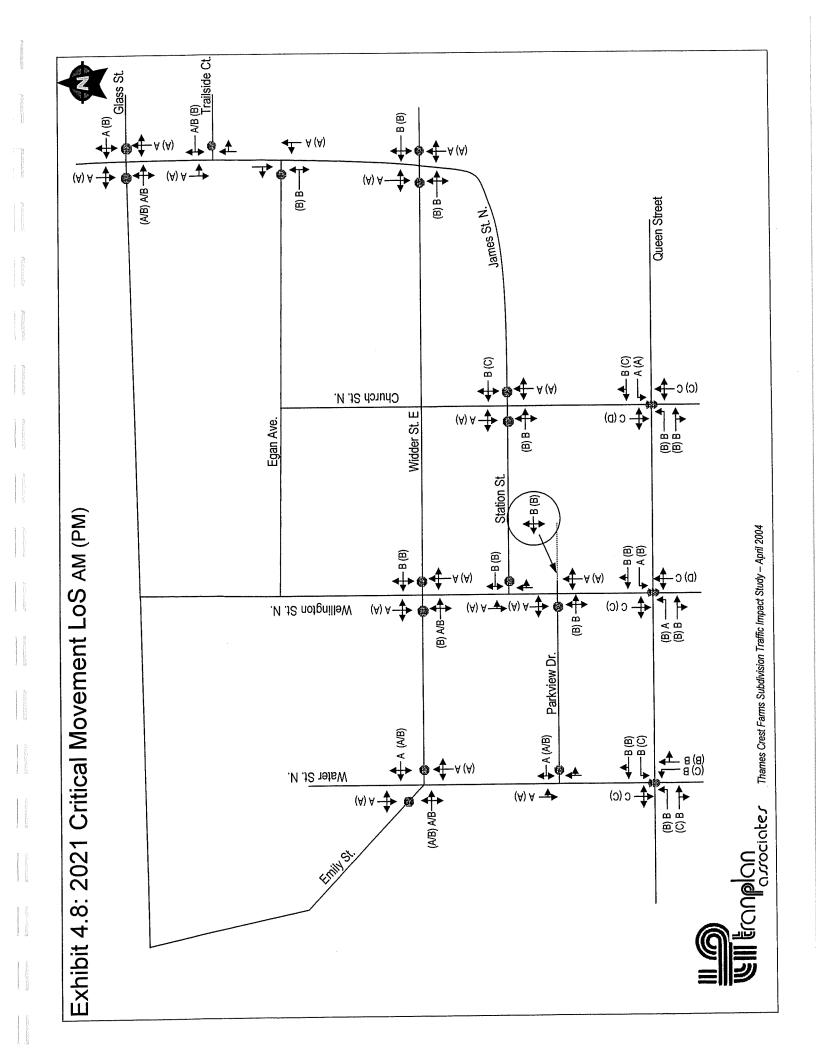




Table 4.1 Intersection Capacity Analyses - 2011 Peak Hour Periods

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



Table 4.2 Intersection Capacity Analyses - 2021 Peak Hour Periods

		Weekda	y AM Peak	Weekda	y PM Peak
Intersection	Control	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 / 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 // 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 Truck 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 restripping. 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)
А	Less than 10
В	10 - 20
С	20 - 35
D	35 - 55
Е	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 know 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 Site Information

General Information

Analyst

Swan IM

Agency or Co.

Tranplan Associates

Date Performed 01/04/2004 Time Period AM Peak Intersection

Area Type Jurisdiction Analysis Year Queen & Water CBD or Similar

St Marys 2004

Project ID Thames Crest Farms Subdivision

Volume and	Timing Inpu	t:	:		1		11.			7 Lag (1 12 La	40.76	14,600,000	7.	4,850,
				<u>EB</u>	,		, WB		ļ	NB			SB	
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT_	TH	RT
Number of la	nes, N ₁		1	1	0	1	1	0	1	1	0	0	1	0
Lane group			L	TR		L	TR		L	TR			LTR	
Volume, V (v	ph)		37	234	60	55	234	26	64	23	57	19	34	30
% Heavy veh	icles, %HV		7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour fa	ctor, 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 (/	4)	P	P	Р	P	P	P	P	P	P	P	P	P
Start-up lost	time, I₁		2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Extension of	effective gree	n, 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 extensio	n, UE		3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Filtering/mete	ering, 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 / F	RTOR volume	s	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 / Gra	de / Parking		N	1	Ν	N	1	N	N	1	N	N	1	N
Parking mane	euvers, N _m													
Buses stoppi	ng, N _B		0	0		0	0		0	0			0	
Min. time for	pedestrians, (3 _p		3.2			3.2			3.2			3.2	
Phasing	EW Perm		02] o	3	04		NS Per	m	06		07		08
T::	G = 35.0	G =		G =		G =		G = 30.	0 G	=	G =		G =	
Timing	Y = 5	Y =		Y =		Y =		Y = 5	Υ	=	Y =		Y =	
Duration of A	uration of Analysis, T = 0.25								С	ycle Len	gth, C =	75.0		

Lane Group Capacity, Co.	ntrol De	lay, and	LOS D	etermina	ation					.54		
		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	В	В		В	В		В	В			В	
Approach delay	1	5.2		•	14.3			15.1			15.1	
Approach LOS		В			В			В			В	
Intersection delay	1	14.9		$X_c = 0.32$			Intersection LOS			В		

General Information

Swan IM

Agency or Co.

Analyst

Tranplan Associates

Date Performed 01/04/2004 Time Period

PM Peak

Site Information Intersection

Area Type Jurisdiction Analysis Year

Queen & Water CBD or Similar St Marys

2004

Thames Creek Farms Project ID

Subdivision

Volume and	Timing Input								1. 7.1	160		pri Li		
				EB	· · · · · · · · · · · · · · · · · · ·	ļ	WB			NB	T		SB	T
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of la	ines, N ₁		1	1	0	1	1	0	1	1	0	0	1	0
Lane group			L	TR		L	TR		L	TR			LTR	
Volume, V (v	ph)		47	260	71	86	275	25	103	39	75	37	52	37
% Heavy veh	nicles, %HV		7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour fa	ctor, 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	4)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up lost	time, l₁		2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Extension of	effective gree	n, 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	on, UE		3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Filtering/mete	ering, 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 / F	RTOR volume:	3	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 / Gra	ide / Parking		N	0	Ν	N	0	N	N	0	N	N	0	N
Parking man	euvers, N _m													
Buses stoppi	ng, 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	0	3	04		NS Per	m	06		07	(08
Timing	G = 35.0	G =		G =		G =		G = 30.0		=	G =		G =	
riiliiig	Y = 5	Y =		Y =		Y =		Y = 5	Y		Y =		Y =	
Duration of A	nalysis, T = <i>0</i> .	25							С	ycle Leng	gth, C =			

Lane Group Capacity, Co	ntrol De	lay, and	LOS D	etermin	ation							
		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							<u> </u>					
Control delay	12.3	16.6		14.5	15.6		16.5	15.7			16.2	
Lane group LOS	В	В		В	В		В	В			В	
Approach delay	1	6.1			15.3			16.1			16.2	
Approach LOS		В			В			В			В	
Intersection delay	1	5.8		X _c :	= 0.40		Interse	ction LOS	3		В	

General Information

Analyst

Swan IM

Agency or Co.

Tranplan Associates

Date Performed Time Period

01/04/2004 AM Peak

Site Information Intersection

Area Type

Queen & Wellington CBD or Similar

Jurisdiction Analysis Year St Marys 2004

Thames Crest Farms

Project ID Subdivision

Volume and	Timing Input					79-11	11	A P	-17,21	10000			T (1)	7	
				EB			WE				NB	,		SB	,
	į		LT	TH	RT	LT	TH	_	RT	LT	TH	RT	LT	TH_	RT
Number of la	nes, N ₁		1	1	0	1	1		0	0	1	0	0	1	0
Lane group			L	TR		L	TR				LTR			LTR	
Volume, V (v	ph)		43	252	15	46	230		34	27	25	33	73	44	58 ×
% Heavy veh	nicles, %HV	•	7	7	7	7	7		7	7	7	7	7	7	7
Peak-hour fa	ctor, 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 (/	4)	Р	P	P	P	P		Р	Р	Р	P	Р	P	P
Start-up lost	time, l₁		2.0	2.0		2.0	2.0				2.0			2.0	
Extension of	effective gree	n, e	2.0	2.0		2.0	2.0			١	2.0			2.0	
Arrival type,	AT		3	3		3	3				3			3	
Unit extension	n, UE		3.0	3.0		3.0	3.0				3.0			3.0	
Filtering/met	ering, I		1.000	1.000		1.000	1.00	0			1.000			1.000	
Initial unmet	demand, Q _b		0.0	0.0		0.0	0.0				0.0			0.0	
Ped / Bike / F	RTOR volume	S	5	5	0	5	5		0	5	5	0	5	5	0
Lane width			11.0	12.0		11.0	12.0				12.0	<u> </u>		12.0	
Parking / Gra	de / Parking		Ν	1	N	N	1		N	N	1	N	N	1	N
Parking man	euvers, N _m														
Buses stoppi	ng, N _B		0	0		0	0				0	<u></u>		0	
Min. time for	pedestrians, (β _p		3.2			3.2				3.2			3.2	
Phasing	EW Perm		02	0	3	04			S Perr		06		07		08
Timing	G = 35.0	G =		G =		G =			= 30.0		=	G =		G =	
Timing	Y = 5	Y =		Y =		Y =		Υ:	= 5	Y		Y =		Y =	
Duration of A	nalysis, $T = 0$	25								C	ycle Len	gth, C =	75.0		

Lane Group Capacity, Co	ntrol Del	ay, and	LOS De	etermina	ition '-			11.0				
		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	<u> </u>
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	В	В		В	В			В			В	
Approach delay	1	4.4			14.4			15.3			18.1	
Approach LOS		В			В			В			В	
Intersection delay	1	5.2		X _c :	= 0.39		Interse	ection LO	s		В	

General Information

Swan IM

Analyst Tranplan Associates Agency or Co.

Date Performed 01/04/2004

PM Peak Time Period

Site Information

Queen & Wellington CBD or Similar Intersection Area Type
Jurisdiction

Analysis Year

St Marys 2004

Thames Crest Farms Project ID

Subdivision

Volume an	d Timing Inpu	t 👑		15.00		(10 kg	11.					400			1,21
				EB	r		WE		٠,		NB	T 5=		SB	
			LT	TH	RT	LT	TH		_	<u>.T</u>	TH	RT	LT	TH	RT
Number of I	anes, N ₁		1	1	0	1	1	0	<u> </u>)	1	0	0	1	0
Lane group			L	TR		L	TR				LTR			LTR	
Volume, V (vph)		26	305	39	64	308	33	3	2	56	76	38	51	48 ×
% Heavy ve	hicles, %HV		7	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour f	actor, 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	Р	P	P	F	>	P	P	P	P	P
Start-up los	t time, l₁		2.0	2.0		2.0	2.0				2.0			2.0	
Extension o	f effective gree	n, e	2.0	2.0		2.0	2.0				2.0			2.0	
Arrival type,	AT		3	3		3	3				3			3	
Unit extensi	on, UE		3.0	3.0		3.0	3.0				3.0			3.0	
Filtering/me	tering, I		1.000	1.000		1.000	1.00	0			1.000			1.000	
Initial unmet	demand, Q _b		0.0	0.0		0.0	0.0				0.0			0.0	
Ped / Bike /	RTOR volume	s	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 / Gr	ade / Parking		N	1	N	N	1	N	1	J	1	N	N	1	N
Parking mar	neuvers, N _m														
Buses stopp	oing, N _B		0	0		0	0				0			0	
Min. time for	r pedestrians, (G _p		3.2			3.2				3.2			3.2	
Phasing	EW Perm		02	0	3	04		NS Pe	rm		06		07		08
	G = 35.0	G =		G =		G =		G = 30	.0	G:	=	G =		G =	
Timing	Y = 5	Y =		Y =		Y =		Y = 5		Υ =	=	Y =		Y =	
Duration of	Analysis, T = 0	.25								Су	cle Len	gth, C =	75.0	v	

Lane Group Capacity, Co.	ntrol Del	ay, and i	LOS De	etermina	ition							
		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												ļ
Control delay	11.7	16.8		13.5	16.7			17.2			16.6	
Lane group LOS	В	В		В	В			В			В	
Approach delay	1	6.5			16.2			17.2			16.6	
Approach LOS		В			В			В			В	
Intersection delay	1	6.5		X _c =	= 0.44		Interse	ction LO	s		В	

General Information

Analyst

Swan IM

Agency or Co.

Tranplan Associates

Date Performed 01/04/2004 Time Period

AM Peak

Site Information Intersection

Area Type Jurisdiction

Queen & Church CBD or Similar

St Marys Analysis Year 2004

Thames Crest Farms Project ID Subdivision

Volume and Timing II	nput	1000			V	100		ili de de la composition della		1000	T	0.0	3 .1. =
			EB	,_,		WB			NB		<u> </u>	SB	БТ
		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)		41	302	15	15	264	119	26	63	32	83	35	20
% Heavy vehicles, %H	IV	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 actuate	ed (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 vol	umes	5	5	0	5	5	0	5	5	0	5	5	0
Lane width		11.0	12.0		11.0	12.0		<u> </u>	12.0			12.0	
Parking / Grade / Park	ing	N	1	N	N	1	N	N	1	N	N	1	N
Parking maneuvers, N	m							ļ				ļ	ļ
Buses stopping, N _B		0	0		0	0			0			0	
Min. time for pedestria	ns, G _p		3.2			3.2			3.2			3.2	
Phasing EW Per	rm	02	0	3	04		NS Per		06		07		08
G = 28.0	0 G=		G =		G =		G = 22.0		=	G =		G =	
Timing $Y = 5$	Y =		Y =		Y =		Y = 5	Y		Y =		Y =	
Duration of Analysis, T	r = 0.25								ycle Len	gth, C =			

Duration of Attalyolo, 1			entrage internal studies	and the second second			organis (Carella	Section 12 and 1	the company of the	T. 1	10.00	- 13 S.
Lane Group Capacity, Co	ntrol Del	ay, and i	LOS De	etermina	tion 🗀			17,22-7			1,45	
		EB			WB	,		NB_	1		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		ļ	0.35	
Total green ratio, g/C	0.47	0.47		0.47	0.47			0.37			0.37	
Uniform delay, d₁	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												<u> </u>
Control delay	10.2	13.2		9.0	15.8			14.6			16.1	
Lane group LOS	В	В		Α	В			В			В	
Approach delay	1	2.9			15.5			14.6			16.1	
Approach LOS		В			В			В			В	
Intersection delay	1	4.5		X _c	= 0.49		Interse	ection LC	S		В	

General Information

Analyst

Swan IM

Agency or Co.

Time Period

Tranplan Associates

Date Performed 01/04/2004 PM Peak

Site Information Intersection

Queen & Church CBD or Similar

Area Type Jurisdiction Analysis Year

St Marys 2004

Thames Crest Farms Project ID Subdivision

									Gab	uivisioii				
Volume and	l Timing Inpu	t .				100					24 (1) (1)			
				EB			WB		<u> </u>	NB	,		SB	
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of la	anes, N ₁		1	1	0	1	1	0	0	1	0	0	1	0
Lane group			L	TR		L	TR			LTR			LTR	
Volume, V (v	/ph)		35	365	20	23	352	77	26	35	26	100	19	27 L
% Heavy vel	nicles, %HV		7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour fa	actor, 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	Α	Α	Α	P	P	P	P	P	P
Start-up lost	time, I₁		2.0	2.0		2.0	2.0			2.0			2.0	
Extension of	effective gree	en, e	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type,	AT		3	3		3	3			3			3	
Unit extension	on, UE		3.0	3.0		3.0	3.0			3.0			3.0	
Filtering/met	ering, 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 volume	s	5		0	5		0	5		0	5		0
Lane width			11.0	12.0		11.0	12.0			12.0			12.0	
Parking / Gra	ade / Parking		N	1	N	N	1	N	N	1	N	N	1	N
Parking man	euvers, N _m													
Buses stopp	ing, 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	0	3	04		NS Per	m	06		07		08
	G = 28.0	G =		G =		= G		G = 22.0) G	=	G =		G =	
Timing	Y = 5	Y =		Y =		Y =		Y = 5	Y	=	Y =			
Duration of A	nalysis, T = 0	.25							С	ycle Len	gth, C =	60.0		

						10.444.157	Paris 76	A-AMARA	A CONTRACT		
ntrol Del		LUS DE	etermina T			1	ND		i .	00	11.2
	-,	1 57	 		DT	1-		DT			RT
		RI	 	 	RI	L!		KI			
39	428		26	477			97			162	
270	736		302	722			502			426	
0.14	0.58		0.09	0.66			0.19			0.38	
0.47	0.47		0.47	0.47			0.37			0.37	
9.2	11.7		8.9	12.3			13.0			14.0	
1.000	1.000		1.000	1.000			1.000			1.000	
0.50	0.50		0.11	0.24			0.50			0.50	
1.1	3.3		0.1	2.3			0.9			2.6	
									ļ		<u> </u>
10.3	15.1		9.0	14.6			13.8		<u></u>	16.6	
В	В		Α	В			В			В	
1	4.7			14.3			13.8			16.6	
	В			В			В			В	
1	4.7		X _c :	= 0.54		Interse	ection LO	S		В	
	LT 39 270 0.14 0.47 9.2 1.000 0.50 1.1 10.3 B	EB LT TH 39 428 270 736 0.14 0.58 0.47 0.47 9.2 11.7 1.000 1.000 0.50 0.50 1.1 3.3 10.3 15.1 B B 14.7 B 14.7	EB LT TH RT 39 428 270 736 0.14 0.58 0.47 0.47 9.2 11.7 1.000 1.000 0.50 0.50 1.1 3.3 10.3 15.1 B B 14.7 B 14.7	EB	LT TH RT LT TH 39 428 26 477 270 736 302 722 0.14 0.58 0.09 0.66 0.47 0.47 0.47 0.47 9.2 11.7 8.9 12.3 1.000 1.000 1.000 1.000 0.50 0.50 0.11 0.24 1.1 3.3 0.1 2.3 10.3 15.1 9.0 14.6 B B A B 14.7 14.3 B 14.7 X _c = 0.54	EB WB LT TH RT LT TH RT 39 428 26 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 477 <	EB WB LT TH RT LT TH RT LT 39 428 26 477 477 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 478 <td>LT TH RT LT LT SO2 CO2 CO2</td> <td>LT TH RT LT TH RT LT TH RT LT TH RT LT TH RT 39 428 26 477 97 97 270 736 302 722 502 0.14 0.58 0.09 0.66 0.19 0.47 0.47 0.47 0.37 9.2 11.7 8.9 12.3 13.0 1.000 1.000 1.000 1.000 0.50 0.50 0.11 0.24 0.50 1.1 3.3 0.1 2.3 0.9 10.3 15.1 9.0 14.6 13.8 B B A B B B B B B B 14.7 14.3 13.8 B B B Intersection LOS</td> <td>EB WB NB LT TH RT LT TH RT LT TH RT LT TH RT LT 39 428 26 477 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97</td> <td>EB WB NB SB LT TH RT L26 0.38 0.37 0.37 0.37 0.37 0.37 0.37 0.37 0.37 0.50 0.5</td>	LT TH RT LT LT SO2 CO2 CO2	LT TH RT 39 428 26 477 97 97 270 736 302 722 502 0.14 0.58 0.09 0.66 0.19 0.47 0.47 0.47 0.37 9.2 11.7 8.9 12.3 13.0 1.000 1.000 1.000 1.000 0.50 0.50 0.11 0.24 0.50 1.1 3.3 0.1 2.3 0.9 10.3 15.1 9.0 14.6 13.8 B B A B B B B B B B 14.7 14.3 13.8 B B B Intersection LOS	EB WB NB LT TH RT LT TH RT LT TH RT LT TH RT LT 39 428 26 477 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97 97	EB WB NB SB LT TH RT L26 0.38 0.37 0.37 0.37 0.37 0.37 0.37 0.37 0.37 0.50 0.5



UNSIGNALIZED INTERSECTIONS

	TWO	-WAY STOP	CONTR	OL SL	IMN	/IARY				
General Information	n		Site I	nform	atio	on				
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan 01/04/200 AM Peak	Hour					Water St St Marys 2004	N & E	Emily \$	St
		-arms Subdivisi								
East/West Street: Emil							Street No	rth		
Intersection Orientation:	North-Sout	h	Study	Period (hrs)	: 0.25				
Vehicle Volumes a	nd Adjustn									
Major Street		Northbound	T .			<u> </u>	Southbou	und T		c
Movement	1 1	2	3	·		4	5 T			6 R
*****	<u>L</u>	T	R			L 14	35			1
Volume	14	32	11			14 0.95	0.95			95
Peak-Hour Factor, PHF	0.95	0.95	0.95			.95 14	36			90 1
Hourly Flow Rate, HFR	14	33	11			5				<u>'</u>
Percent Heavy Vehicles	5			Undivi	dc d	J				
Median Type	<u> </u>			Unaivi	aea			— т		0
RT Channelized			0 0 1						0	
Lanes	0	1	0			.TR				U
Configuration	LTR					.IK	0			
Upstream Signal		0								
Minor Street		Westbound	1 0			40	Eastbou	<u>na</u>		12
Movement	7	8	9			10	11 T			R
	L	Т	R			L				31
Volume	12	1	14		1 1 0.95 0.95				95	
Peak-Hour Factor, PHF	0.95	0.95	0.95			1			33 32	
Hourly Flow Rate, HFR	12	1	14			5	5			5
Percent Heavy Vehicles	5	5	5			0	2			U
Percent Grade (%)		2								
Flared Approach		N					N			
Storage		0					0			
RT Channelized			0							0
Lanes	0	1	0			0	1			0
Configuration		LTR					LTR			<u> </u>
Delay, Queue Length,	and Level of	Service								
Approach	NB	SB	1	Westbo	und			Eastb	ound	
Movement	1	4	7	8		9	10	1	1	12
Lane Configuration	LTR	LTR		LTR				L7	TR	
v (vph)	14	14		27				3	4	
C (m) (vph)	1554	1545		887					08	
v/c	0.01	0.01		0.03				0.0	03	
95% queue length	0.03	0.03		0.09				0.	10	
Control Delay	7.3	7.4		9.2					.7	
LOS	Α	А		Α					4	
Approach Delay				9.2				8.		
Approach LOS				Α				A		

	TWC		CONTR	OL S	UM	IMARY			
General Informati	on		Site	nforn	nat	ion			
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan 01/04/20 PM Peal	Associates 104 K Hour	Interse Jurisd Analys	ection			Water St St Marys 2004		nily St
		Farms Subdivis							
East/West Street: Em							r Street No	rth	
Intersection Orientation	n: North-Sou	th	Study	Period	(hr	s): 0.25			*
Vehicle Volumes a	and Adjusti								
Major Street		Northbound					Southbo	und	
Movement	1 1	2	3			4	5		6
	L	T	R			L	T 37		R 1
Volume	31	5 0.95	14 0.95			9 0.95	0.95		0.95
Peak-Hour Factor, PHF Hourly Flow Rate, HFR		5	14	<u>'</u>		9	38		1
Percent Heavy Vehicles			1			5			
Median Type	5 0	<u> </u>	Undivided					<u> </u>	
RT Channelized			1 0	0 I				0	
Lanes	0	1	0			0	1		0
Configuration	LTR	·				LTR	1		
Upstream Signal	1	0					0		
Minor Street		Westbound	d İ			Eastbou	nd		
Movement	7	8	9	-		10	11		12
Moromone	L	Т	R			L	Т		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	7		1		1		29
Percent Heavy Vehicles	s 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	1	Vestbo	ounc	1	E	Eastbou	ınd
Movement	1	4	7	8		9	10	11	12
Lane Configuration	LTR	LTR		LTR	?			LTR	
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	Α	A		A				Α	
Approach Delay				9.3				8.7	
Approach LOS				Α				Α	

	TWO	-WAY STOP	CONTR	OL SU	MMARY			
General Information	on		Site I	nforma	ation			
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan 01/04/200 AM Peak	Hour				Water St St Marys 2004		view Dr
		Farms Subdivisi						
East/West Street: Par						er Street No	orth	
Intersection Orientation	: North-Sout	h	Study	Period (h	nrs): 0.25			
Vehicle Volumes a	ınd Adjustn							
Major Street		Northbound				Southbo	und	
Movement	1	2	3		4	5 T		6
	<u> </u>	T	R		L	60		22
Volume	7	42	13 0.95		0.95	0.95		0.95
Peak-Hour Factor, PHF		0.95	13	<u> </u>	4	63		0.93
Hourly Flow Rate, HFR		44			5			
Percent Heavy Vehicles	3 0							
Median Type			1 0	Undivid	eu	1	T	0
RT Channelized			0 0 1					0
Lanes	0	1	0 0 1					U
Configuration	.		I IR	TR LT				
Upstream Signal		0				0		
Minor Street		Westbound			4.0	Eastbou	ınd	-10
Movement	7	8	9		10	11		12
	L	Т	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
Hourly Flow Rate, HFR		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	,	Vestbou	nd		Eastboun	d
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		Α		Α				
Approach Delay				9.2				
Approach LOS				Α				

	TWO	-WAY STOP	CONTR	OL SI	UM	MARY	,		
General Informati	ion		Site I	nform	nati	ion			
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan 01/04/20 PM Peak	Associates 04 Hour	Interse Jurisdi Analys	ection			Water St St Marys 2004		kview Dr
Project Description	Thames Creek	Farms Subdivis							
East/West Street: Pa							r Street No	orth	
Intersection Orientatio	n: North-Sout	'h	Study	Period	(hrs	s): 0.25			
Vehicle Volumes	and Adjustn	nents							
Major Street		Northbound				Southbound			
Movement	1	2	3			4	5		6
	<u> </u>	T	R			<u> </u>	T		R
Volume	7	39	42			8	60		22
Peak-Hour Factor, PH		0.95			0.95	0.95		0.95	
Hourly Flow Rate, HFF		41	44			8	63		0
Percent Heavy Vehicle	es 0			1.10 -11	! al = :	5	<u></u>		
Median Type				Undiv	iaec	7	1		
RT Channelized			0 0				1		0
Lanes	0	1	TR LT			1		U	
Configuration			IR LI		 				
Upstream Signal		0			0				
Minor Street		Westbound				40	Eastbou	ind	40
Movement	7	8 -	9			10	11		12
	L	Т	R			<u> </u>	T		R
Volume	51	0	7		12		0		5
Peak-Hour Factor, PH		0.95	0.95	-		0.95	0.95		0.95
Hourly Flow Rate, HFF		0	7			0	0		0
Percent Heavy Vehicle	es 5	5	5			0	0		U
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	1	Vestbo	unc	i		Eastbou	nd
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		Α		Α					
Approach Delay			9.5						
Approach LOS		••		Α					

	TWO	-WAY STOP	CONTR	OL S	UM	MARY			
General Information	on		Site I	nforn	nati	on			
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM		Interse Jurisdio Analys	ction	r		Wellingtor St E St Marys 2004	n St N & V	Vidder
Project Description 7	hames Crest F	arms Subdivisi							
East/West Street: Wid	lder St East		North/S	South S	Stree	et: <i>Wellin</i>	gton Stree	t North	
Intersection Orientation	: North-Souti	h	Study I	² eriod	(hrs): <i>0.25</i>			
Vehicle Volumes a	ınd Adjustn	nents							
Major Street		Northbound					Southbou	ınd	,
Movement	1	2	3			4	5		6
	L	Т	R			<u> L</u>	Ţ		R
Volume	2	33	1			7	0.05		5
Peak-Hour Factor, PHF		0.95	0.95			0.95	0.95).95 5
Hourly Flow Rate, HFR		34	1			7 46			5
Percent Heavy Vehicles	5		undivided						
Median Type				Undiv	rided				^
RT Channelized			0						0
Lanes	0	1	0 0		1		0		
Configuration	LTR					LTR			
Upstream Signal		0					0		
Minor Street		Westbound					Eastbou	<u>nd</u>	
Movement	7	8	9			10	11		12
	L	Т	R			L	Т		R
Volume	16	17	21			5	1		18
Peak-Hour Factor, PHF		0.95	0.95			0.95	0.95	().95
Hourly Flow Rate, HFR		17	22			5	1		18
Percent Heavy Vehicles	s 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	ł	0
Configuration		LTR					LTR		
Delay, Queue Length,	and Level of	Service							
Approach	NB	SB	1	Nestb	ound	ŀ	E	Eastbound	
Movement	1	4	7	8		9	10	11	12
Lane Configuration	LTR	LTR		LTF	₹			LTR	
v (vph)	2	7		55				24	
C (m) (vph)	1536	1557		883	3			951	
v/c	0.00	0.00		0.0	6			0.03	
95% queue length	0.00	0.01		0.2	0			0.08	
Control Delay	7.3	7.3		9.3	}			8.9	
LOS	A	Α		Α				Α	
Approach Delay				9.3	}			8.9	
Approach LOS				Α				Α	

	TWO	-WAY STOP	CONTR	OL S	SUN	MARY				
General Information	on		Site	Infori	mat	ion	· · · · · · · · · · · · · · · · · · ·			
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM	Associates 04	Interse Jurisd Analys	ection iction			Wellingto St E St Marys 2004	on St N &	Widder	
Project Description	Thames Crest	Farms Subdivis	ion							
East/West Street: Wid	lder St East		North/	South	Stre	et: Wellir	ngton Stre	et North		
Intersection Orientation	n: North-Sout	h	Study	Period	d (hr	s): <i>0.25</i>				
Vehicle Volumes a	and Adjustn	nents								
Major Street		Northbound					Southbound			
Movement	1	2	3			4	5		6	
	L.	T	R			<u> </u>	T		R	
Volume	2	23	4			1	3		1	
Peak-Hour Factor, PHF		0.95	0.95)		0.95			0.95	
Hourly Flow Rate, HFR		24	4				1 3		1	
Percent Heavy Vehicles	s 5			5 Undivided						
Median Type				Undi	vide	d				
RT Channelized				0					0	
Lanes	0	1	0			0	1		0	
Configuration	LTR				LTR					
Upstream Signal		0					0			
Minor Street		Westbound					Eastbou	ınd		
Movement	7	8	9			10	11		12	
	L	Т	R			L			R	
Volume	5	18	8		14		1		5	
Peak-Hour Factor, PHF		0.95	0.95	5		0.95	0.95		0.95	
Hourly Flow Rate, HFR		18	8			14	1		5	
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 I evel of	Service								
Approach	NB I	SB	,	Westb	ound	d		Eastboun	d	
Movement	1	4	7	8		9	10	11	12	
		LTR		LTF			10	LTR	1-1-	
Lane Configuration	LTR			31				20		
v (vph)	2	1								
C (m) (vph)	1598	1566		907				949		
v/c	0.00	0.00		0.0				0.02		
95% queue length	0.00	0.00		0.1				0.06	ļ	
Control Delay	7.3	7.3		9.1				8.9		
LOS	Α	Α		Α				Α		
Approach Delay				9.1				8.9		
Approach LOS				Α				Α		
, ipprodort 200							Version 4.1			

O 1 f 4!	TWO		0:4-	l 10 f c	-4i			·	
General Informati	on		Site	Inform	ation	IA/ollin ad	C4 A1 0	Diadia:	
Analyst	<u>S</u> wan IM		Inters	ection		Wellingto St	DII SUN A	Station	
Agency/Co.	Tranplan 01/04/20	Associates	Jurisd	liction		St Marys	;		
Date Performed Analysis Time Period	AM Peak		Analys	sis Year		2004			
Project Description 7 East/West Street: Sta		Farms Subdivisi		Courth C	troot: Mol	ington Street North			
East/vvest Street: Sta		·h		Period (et North		
			Study	renou	1118). 0.20		<u></u>		
Vehicle Volumes a	ina Aajustn	Northbound		· · · · · · · · · · · · · · · · · · ·		Southbo	und		
Major Street Movement	1	2	3		4	5	unu	6	
Movement	<u> </u>	 	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	
Hourly Flow Rate, HFR		32	50		5			0	
Percent Heavy Vehicles	s 0				5				
Median Type				Undivi	ded				
RT Channelized			0					0	
Lanes	0	1	0		0	1 0			
Configuration			TR		LT				
Upstream Signal		0				0			
Minor Street		Westbound				Eastbou	ınd		
Movement	7	8	9		10	11		12	
	<u> </u>	Т	R		L	T		R	
Volume	67	0	5		12	0		5	
Peak-Hour Factor, PHF		0.95	0.95 5	<u> </u>	0.95 0	0.95		0.95 0	
Hourly Flow Rate, HFR		5	0		0	1 0		0	
Percent Heavy Vehicles	3	2	1 0		U	0		U	
Percent Grade (%)		T N	T			T N			
Flared Approach									
Storage		0	 			0			
RT Channelized		<u> </u>	0					0	
Lanes	0	1 1 70	0		0	0		0	
Configuration		LTR							
Delay, Queue Length,				\A		<u> </u>			
Approach	NB	SB		Westbou			Eastboun		
Movement	1	4	7	8	9	10	11	12	
Lane Configuration		LT		LTR					
v (vph)		5		75					
C (m) (vph)		1497		843					
//c		0.00		0.09					
95% queue length		0.01		0.29					
Control Delay		7.4		9.7			1		
_OS		Α		A					
Approach Delay				9.7			<u> </u>		
Approach LOS				——————————————————————————————————————					
3100UMULLUU 1		, ,							

	TWO	-WAY STOP	CONTR	ROL S	SUN	MARY				
General Informat	on		Site	Infor	mat	ion				
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM		Inters Jurisd	ection			Wellington St St Marys 2004		N & 3	Station
Project Description	Thames Crest	Farms Subdivis	ion							
East/West Street: Sta	ation St		North/	'South	Stre	et: <i>Wellii</i>	ngton Stre	et No	rth	
Intersection Orientatio	n: <i>North-Sou</i> i	h	Study	Period	d (hr	s): 0.25				
Vehicle Volumes	and Adjustr									
Major Street		Northbound					Southbo	und		
Movement	1	2	3			4	5			6
	<u>L</u>	T	R			<u>L</u>	T			R
Volume	7	24	94	_		0	14			22
Peak-Hour Factor, PH		0.95	0.98 98)	0.95 0.95 0 0 14				0.95	
Hourly Flow Rate, HFF Percent Heavy Vehicle		25	5					0		
	S 0									
Median Type RT Channelized		T	Undivided					·····	0	
Lanes	0	1	0			0	1			0
Configuration	+ -	1	TR	0 0 TR LT			'	-		0
Upstream Signal		1 0	1 //			L1	0			
Minor Street		Westbound					Eastbou	ınd		
Movement	7	Westboaria 8	9	-		10	11			12
Wovernerit		 	R			L	Т			R
Volume	89	1 0	5			12	0			5
Peak-Hour Factor, PHI		0.95	0.95)		0.95	0.95		(0.95
Hourly Flow Rate, HFR		0	5			0	0			0
Percent Heavy Vehicle		5	5			0	0			0
Percent Grade (%)		2					0			
Flared Approach		N	1				N	T		
Storage		0					0			
RT Channelized			0					t		0
Lanes	0	1	0			0	0			0
Configuration		LTR							······································	
Delay, Queue Length,	and Level of									
Approach	NB	SB	,	Vestb	ound	1		Eastb	ound	
Movement	1	4	7	8	<i>-</i>	9	10	1		12
Lane Configuration		LT	r	LTF	?		10	 	•	1 544
		0		98						
v (vph)		1446		909				-		
C (m) (vph)		0.00		0.1						
V/C				0.1				 		
95% queue length		0.00						 		
Control Delay		7.5		9.4				 		
LOS		Α		A				<u> </u>		L
Approach Delay				9.4						
Approach LOS				<u> </u>						

,	TWO	-WAY STOP	CONTR	OL SU	JMMARY									
General Information	n		Site	Site Information										
Analyst Agency/Co. Date Performed Analysis Time Period	Associates)4 Hour	Jurisd	Intersection Jurisdiction Analysis Year			Wellington St N & Parkviev Dr St Marys 2004								
Project Description T	hames Crest I	arms Subdivisi	on											
East/West Street: Parl	East/West Street: Parkview Dr					North/South Street: Wellington Street North								
Intersection Orientation	: North-Sout	h	Study	Period (hrs): 0.25									
Vehicle Volumes a	nd Adjustn	nents												
Major Street	T T	Northbound					Southbound							
Movement	1	2	3		4	5		6						
	L	Т	R		<u> </u>	Т		R						
Volume	7	63	4		1	126		22						
Peak-Hour Factor, PHF		0.95	0.98	5	0.95	0.95	(0.95 23						
Hourly Flow Rate, HFR	7	66	4		1	132	132							
Percent Heavy Vehicles	5	5 5												
Median Type				Undivid	ded	₁		^						
RT Channelized				0 0				0						
Lanes	0	1	1 0	0		1		U						
Configuration	LTR				LTR									
Upstream Signal		1 0			0									
Minor Street	<u> </u>	Westbound	1			Eastbou	ina T	10						
Movement	7	8	9		10	11 T		12						
	L	Т		R L				R 5						
Volume	1	1		1		12 0 .95 0.95		0.95						
Peak-Hour Factor, PHF		0.95	0.98	<u> </u>	0.95 12	0.95		5.90						
Hourly Flow Rate, HFR	1	1 1	5		5	5		5						
Percent Heavy Vehicles	5	5) 3		J	2		-						
Percent Grade (%)		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		Westbo	und		Eastbound	1						
Movement	1	4	7	8	9	10	11	12						
Lane Configuration	LTR	LTR		LTR			LTR							
v (vph)	7	1		3			17							
	1407	1512		760			760							
C (m) (vph)	0.00	0.00		0.00			0.02							
V/C		0.00		0.00			0.07							
95% queue length	0.01						9.8							
Control Delay	7.6	7.4		9.8				 						
LOS	Α	Α		A			A	<u></u>						
Approach Delay				9.8			9.8							
Approach LOS				Α		I	Α							

	TWO	WAY STOP	CONTR	OL S	UMM	ARY					
General Information	n		Site Information								
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM		Interse Jurisd	Intersection Jurisdiction Analysis Year			Wellington St N & Dr St Marys 2004			arkview	
Project Description T	hames Crest F	arms Subdivisi	ion	on							
East/West Street: Park	view Dr		North/South Street: Wellington Street North								
Intersection Orientation	North-Souti	North-South Study Period (hrs): 0.25									
Vehicle Volumes a	nd Adjustm	ients									
Major Street		Northbound		2 4 1		Southbo					
Movement	1	2	3			4	5			6	
	L	T	R			<u>L</u>	T			R	
Volume	22	88	7			<u> </u>	71		3		
Peak-Hour Factor, PHF	0.95	0.95	0.95	}	0.		0.95		0.		
Hourly Flow Rate, HFR	23	92	7				74		3	2	
Percent Heavy Vehicles	5			5 1					-	-	
Median Type		· · · · · · · · · · · · · · · · · · ·		Undivided							
RT Channelized		<u> </u>	0				<u> </u>			2	
Lanes	0	1	0	-	(1)	
Configuration	LTR			<u> </u>	LTR		1				
Upstream Signal		0			0						
Minor Street		Westbound			40		Eastbou	ınd T	12		
Movement	7	8 -	9			0	11				
	<u> </u>	T	R			L	Ţ Ţ			۲	
Volume	7	3	4		3	·	<i>4</i> 0.95		16 0.95		
Peak-Hour Factor, PHF	0.95	0.95	0.95	<u> </u>	<u>0.8</u> 3		0.95		16		
Hourly Flow Rate, HFR	7	3 -	5				5		5		
Percent Heavy Vehicles	5	5	5		·	,	2			,	
Percent Grade (%)		2									
Flared Approach		N					N				
Storage		0					0				
RT Channelized			0						0		
Lanes	0	1	0		0		1		0		
Configuration		LTR	1				LTR				
Delay, Queue Length, a	and Level of S	Service									
Approach	NB	SB	1	Westbo	und		Easti		bound		
Movement	1	4	7	8		9	10	1	1	12	
Lane Configuration	LTR	LTR		LTR				LT	R		
v (vph)	23	1		14				5	1		
C (m) (vph)	1467	1475		728				75	7		
v/c	0.02	0.00		0.02				0.0)7		
95% queue length	0.05	0.00		0.06				0.2	22		
Control Delay	7.5	7.4		10.0					10.1		
LOS	A	A		В				B			
Approach Delay				10.0	I		10.1		1		
Approach LOS				В			В				
Approach LOC	1_		ritu of Florida				L			Version 4 1	

	TWO	O-WAY STOR	CONT	ROL S	UMN	MARY						
General Informat				Inforn	natio	on						
Analyst Agency/Co. Date Performed Analysis Time Period	01/04/20	n Associates 104	Juriso	Intersection Jurisdiction Analysis Year				Church St N & James St N St Marys 2004				
		Farms Subdivis	sion									
East/West Street: Ja	mes Street No	rth	North	North/South Street: Church Street North								
Intersection Orientatio	n: North-Sou	th	Study	Study Period (hrs): 0.25								
Vehicle Volumes	and Adiusti	ments						•				
Major Street		Northbound	d				Southboo	und				
Movement	1	2	3			4	5		6			
	L	T	R			L	Т		R			
Volume	23	24	72			0	35		2			
Peak-Hour Factor, PH		0.95	0.9			0.95	0.95		0.95			
Hourly Flow Rate, HFF		25	75			<u>0</u>	36		2			
Percent Heavy Vehicle	es 5			Undiv	الممما	5		<u> </u>				
Median Type		<u> </u>	1 0	Unalv	nued			ı	0			
RT Channelized	0	1	1 0			0	1		0			
Lanes	LTR		 '		1	.TR	 		<u> </u>			
Configuration Upstream Signal	LIN	0				. / / \	0					
		Westbound	<u> </u>			Eastbound						
Minor Street Movement	7	Westboard 8	9			10	11 1:					
Movement	<u> </u>	Ť	R			L	Т		R			
Volume	78	47	0			0	42 1		11			
Peak-Hour Factor, PH		0.95	0.9	5	C	.95	0.95	-	0.95			
Hourly Flow Rate, HFF		49	0			0	44		11			
Percent Heavy Vehicle		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											
Approach	NB	SB	1	Westbo	ound			Eastbound	1			
Movement	1	4	7	T 8	T	9	10	11	12			
Lane Configuration	LTR	LTR	1	LTF	7		1	LTR				
	24	0		131				55				
v (vph)	1553	1474		727				740	 			
C (m) (vph)				0.18				0.07				
v/c	0.02	0.00	 					0.07	 			
95% queue length	0.05	0.00	<u> </u>	0.65				<u> </u>	 			
Control Delay	7.4	7.4	<u> </u>	11.0	<u> </u>			10.3	_			
LOS	Α	Α		В				В				
Approach Delay				11.0)			10.3				
Approach LOS		 ppyright © 2003 Unive		В				В				

n		Site	Inform	ation						
01/04/200 PM Peak I	4 Hour	Jurisd Analy:	iction			Church St N & James St St Marys 2004				
		North/South Street: Church Street North								
		Study	Period	(hrs): 0	.25					
ıd Adjustm										
						Southbound				
								6		
								R		
								2		
		1	·			**		0.95		
	+					ď		2		
5	<u> </u>	<u> </u>	11, 11, 11, 1				L			
			Unaivi	aea		 				
								0		
	1 1	0				1		0		
LTR			LIR							
	<u> </u>	<u> </u>								
							nd			
7								12		
L	1							R		
	<u> </u>							19		
	 							0.95		
								20		
5		5		5				5		
	2									
	N					N				
	0					0				
		0						0		
0	1	0		0		1		0		
	LTR					LTR				
nd Level of S	ervice			······································						
NB	SB	1	Westbo	und		E	Eastbound	1		
1	4	7	8	9		10	11	12		
			LTR				LTR			
	0		137				98			
	1483		664				725			
0.03	0.00	:	0.21				0.14	<u> </u>		
0.09	0.00		0.77				0.47			
			11.8				10.7			
	A		В				В			
			11.8			10.7				
		B				В				
	Swan IM Tranplan / O1/04/200 PM Peak in the search of the	Swan IM	Swan IM	Swan IM	Intersection	Intersection	Intersection Jurisdiction St Marys	Intersection		

	TWO-	WAY STOP	CONTR	OL S	UM	MARY					
General Informatio	n		Site I	nform	nati	on					
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM		Jurisdi	Intersection Jurisdiction Analysis Year			James Street & Gi St Marys 2004			SS	
Project Description To		arms Subdivisi	ion					-			
East/West Street: Glas		armo caparno.	North/South Street: James Street North								
Intersection Orientation:		7): 0.25					
Vehicle Volumes a											
	Tu Aujustiii	Northbound	· · · · · · · · · · · · · · · · · · ·				Southbo	und	-		
Major Street Movement	1 1	2	3			4	5			6	
Movement	<u> </u>	T	R			Ĺ	T			R	
Volume	0	58	15			1	58			0	
Peak-Hour Factor, PHF	0.95	0.95	0.95	,		0.95	0.95		C).95	
Hourly Flow Rate, HFR	0	61	15			1	61			0	
Percent Heavy Vehicles	0					5					
Median Type			•	Undiv	ided	1					
RT Channelized			0						0		
Lanes	0	1	0			0	1		0		
Configuration			TR		LT						
Upstream Signal		0					0		0		
Minor Street		Westbound					Eastbou	und			
Movement	7	8	9	9 10		11		12			
Movement	L	Т	R		L		Τ		R		
Volume	5	0	1			0		0			
Peak-Hour Factor, PHF	0.95	0.95	0.95	5		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		
	0	1	1 0		0		0		0		
Lanes	<u> </u>	LTR	·								
Configuration	11 1 1										
Delay, Queue Length,		SB		Westbo	NID.	ł	T	Fasth	ound		
Approach	NB			8	June	9	10		11	12	
Movement	1	44	7			ש	10	-	ı I	12	
Lane Configuration		LT		LTR	`		ļ	-			
v (vph)	<u></u> [1		6			ļ	-			
C (m) (vph)		1504		874	!					<u></u>	
v/c		0.00		0.01	1						
95% queue length		0.00		0.02	2						
Control Delay		7.4		9.1							
				A				1			
LOS				9.1			<u> </u>	1		L	
Approach Delay			<u> </u>				 				
Approach LOS			I	A ty of Florida, All Rights Reserved						Version 4.	

	TW	O-WAY STO	CONTR	ROL SUI	MMARY						
General Informati	on		Site	Site Information							
Analyst Agency/Co. Date Performed Analysis Time Period	01/04/2 PM Pea	n Associates 004 k Hour	Jurisd Analy	ection liction sis Year		James Street & Glass St Marys 2004					
		t Farms Subdivi					-				
East/West Street: Gla			North/South Street: James Street North								
Intersection Orientatior	ı: North-Sou	<u>uth</u>	Study Period (hrs): 0.25								
Vehicle Volumes a	and Adjust	ments									
Major Street		Northbound					ound				
Movement	1	2	3		4	5		6			
	L.	Т	R		L	T		R			
Volume	0	70	11		1	81		0			
Peak-Hour Factor, PHF		0.95	0.98	5	0.95	0.95		0.95			
Hourly Flow Rate, HFR		73	11		1	85		0			
Percent Heavy Vehicles	s 0				5						
Median Type				Undivide	ed						
RT Channelized			0					0			
Lanes	0	1	0			1		0			
Configuration			TR	R LT							
Upstream Signal		0				0					
Minor Street		Westbound				Eastbou	und				
Movement	7	8	9		10	11		12			
	L	T	R		L	Т		R			
Volume	22	0	1		0	0		0			
Peak-Hour Factor, PHF	0.95	0.95	0.95	5	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			Eastbou	nd			
Movement	1	4	7	8	9	10	11	12			
ane Configuration	•	LT	·	LTR		1	 ''	1			
(vph)		1		24							
C (m) (vph)		1494		823				1			
//c		0.00		0.03			<u> </u>				
95% queue length		0.00		0.09							
Control Delay		7.4		9.5							
OS		A		A							
Approach Delay				9.5	<u> </u>		I				
Approach LOS				A							
ippiodoli EOO	l	-									

	TWO	-WAY STOP	CONTR	OL S	UM	MARY				
General Informat	ion		Site I	nforn	nat	ion				
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan 01/04/20 AM Peak	Hour			r		James S St Marys 2004		Tra	ilside
]		Farms Subdivis								
East/West Street: Tra							s Street N	orth		
Intersection Orientatio	n: North-Sout	<u>h</u>	Study	Period	(hr	s): 0.25				
Vehicle Volumes	and Adjustn		ţ							
Major Street		Northbound					Southbo	und		
Movement	1	22	3			4	5			6
	<u> </u>	T	R			L	T			R
Volume	0	70	2			0	63			0
Peak-Hour Factor, PH		0.95	0.95			0.95	0.95			0.95
Hourly Flow Rate, HFF		. 73	2			0	66			0
Percent Heavy Vehicle	es 0					5				
Median Type				Undiv	ided	d				
RT Channelized			0				<u> </u>			0
Lanes	0	1	0			0	1			0
Configuration			TR		LT					
Upstream Signal		0					0			
Minor Street		Westbound					Eastbou	ınd		
Movement	7	8	9			10	11			12
	L	T	R		L		T			R
Volume	6	0	1			0	0			0
Peak-Hour Factor, PH		0.95	0.95		0.95		0.95		0	.95
Hourly Flow Rate, HFF		0	1		0		0			0
Percent Heavy Vehicle	s 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	1	Nestbo	ound	t	l i	Eastbo	und	
Movement	1	4	7	8		9	10	11		12
Lane Configuration		LT	•	LTR			· · · · · · · · · · · · · · · · · · ·			
		0		7						
v (vph)		1505		863		*****				
C (m) (vph)		0.00		0.01				 		
V/C		0.00		0.02						
95% queue length		7.4		9.2	-					
Control Delay	9.2 A									
LOS	9.2					1				
Approach Delay		A A								
Approach LOS		L,				<u></u>				

	TW	O-WAY STO	CONTR	OL S	SUN	MARY			
General Informat	ion		Site	Infor	mat	tion			
Analyst Agency/Co. Date Performed Analysis Time Period	Swan II Tranpla 01/04/20 PM Pea	n Associates 004 k Hour	Inters Jurisd Analys	ection			James S St Marys 2004		Trailside
Project Description		Farms Subdivi							
East/West Street: <i>Tr</i>							es Street N	orth	
Intersection Orientation			Study	Period	d (hr	s): 0.25			
<u>Vehicle Volumes</u>	and Adjust				,				
Major Street		Northbound			<u> </u>		Southbo	und	
Movement	1	2	3			4	5 T		6
Valumas	L0	93	10			<u> </u>	91		R 0
Volume Peak-Hour Factor, PH		0.95	0.95			0.95	0.95		0.95
Hourly Flow Rate, HF		97	10			1	95		0.95
Percent Heavy Vehicle						5			
Median Type			<u>.</u>	Undi	vide	d			
RT Channelized			0						0
anes	0	1	0			0	1		0
Configuration			TR			LT			
Upstream Signal		0					0		
Minor Street	or Street		j				Eastbou	ınd	
Movement	7	8	9			10	11		12
	L	Т	R			L,	Т		R
Volume	7	0	1			0	0		0
Peak-Hour Factor, PH		0.95	0.95	5		0.95	0.95		0.95
Hourly Flow Rate, HFI		0	1			0	0		0
Percent Heavy Vehicle	es 5	5	5		0		0	<u> </u>	0
Percent Grade (%)		2					0		
Flared Approach		N					N		
Storage		0					0		
RT Channelized			0						0
anes	0	1	0			0	0		0
Configuration		LTR							
Delay, Queue Length	, and Level of	Service							
Approach	NB	SB	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Westb	ound	d	1	Eastbou	nd
Movement	1	4	7	8		9	10	11	12
ane Configuration		LT		LTF	₹				
/ (vph)		1		8					
C (m) (vph)		1465		799)				
//c		0.00		0.0	1				
95% queue length		0.00		0.03					
Control Delay		7.5		9.6				 	
		7.5 A		3.0 A					
OS						t		<u> </u>	<u> </u>
Approach Delay	==		9.6 A						
Approach LOS			Α						

	TWO-	WAY STOP	CONTR	OL SL	MMARY			
General Informati	on		Site I	nform	ation			
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan / 01/04/200 AM Peak I	Hour	Interse Jurisdi Analys	ction		James St St Marys 2004	reet & Ega	an Ave.
Project Description	Thames Crest F	arms Subdivisi						
East/West Street: Ega	an Ave.					es Street No	orth	
Intersection Orientation	n: <i>North-South</i>	7	Study	Period (hrs): 0.25			
Vehicle Volumes a	and Adjustm	ents						
Major Street		Northbound				Southbou	ınd	
Movement	1	2	3		4	5		6
	L	T	R		L	Т		R
Volume	4	75	2		0	80		14
Peak-Hour Factor, PHF		0.95	0.95		0.95	0.95		0.95
Hourly Flow Rate, HFR		78	0		0	84		14
Percent Heavy Vehicle	s 5		<u> </u>	<u>l</u> ,	0			
Median Type				Undivi	ded			
RT Channelized			0					0
Lanes	0	1	0		0	11		<u>0</u>
Configuration	LT							TR
Upstream Signal	1000000	0				0		
Minor Street		Westbound				Eastbou	<u>nd</u>	40
Movement	7	8	9		10	11		12
	L	Т	R		L	Т		R
Volume	6	0	1		16	0		3
Peak-Hour Factor, PHI		0.95	0.95		0.95	0.95		0.95
Hourly Flow Rate, HFF		0	0		16	0		3
Percent Heavy Vehicle	s 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 S	Service						
Approach	NB	SB	١	Vestbo	und	1	Eastbound	
	1	4	7	8	9	10	11	12
Movement		7			-	1	LTR	-
Lane Configuration	LT						19	
v (vph)	4							
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	Α						Α	
Approach Delay				L			9.5	
							Α	
Approach LOS		yright © 2003 Univer	sity of Florida	All Right	s Reserved			Version 4.

	TWO	-WAY STOP	CONTR	ROL S	UMMARY		·	
General Informati	ion		Site	Inform	nation			
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan 01/04/200 PM Peak	Hour	Inters Juriso Analy	ection liction sis Yea		James S St Marys 2004		Egan Ave.
	Thames Crest F	arms Subdivisi						
East/West Street: Eg					Street: <i>Jam</i>		lorth	
Intersection Orientation			Study	Period	(hrs): 0.25			
Vehicle Volumes	<u>and Adjustm</u>							·····
Major Street		Northbound				Southbo	und	
Movement	1 1	2	3		4	5		6
V-1		T	R		<u> </u>	T		R
Volume	2 F 0.95	90	0.9	_	0 0.95	86 0.95		9 0.95
Peak-Hour Factor, PHI		94	0.9	2	0.95	90		9
Hourly Flow Rate, HFF						_		
Percent Heavy Vehicle	s 5	<u></u>		Undiv	0 idad		1	
Median Type			1 0	Unai	/laea			_
RT Channelized	1 0		0			- 		0
Lanes	0	1	0		0	1		0
Configuration	LT	1	<u> </u>			+		TR
Upstream Signal		0	<u> </u>			0		
Minor Street		Westbound	Ť a			Eastbou	und	
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	0.98	2	0.95 17	0.95		0.95 5
Hourly Flow Rate, HFR		0	0			5		5
Percent Heavy Vehicle	s <i>u</i>		1 0		3	2		0
Percent Grade (%)		- 0						
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 S	Service						
Approach	NB	SB		Westbo	ound		Eastbou	ınd
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LTR	
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	A					1	A	
Approach Delay				1			9.5	
Approach LOS						1	A	
Approach LOG	L							

	TWO	-WAY STOP	CONTR	OL SU	JMMARY			
General Informat	ion		Site	Inform	ation		1	
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan 01/04/200 AM Peak		Interse Jurisd Analys			James S St Marys 2004	itreet & W	idder St
Project Description	: dala :: 04:: 4 = -	.1		O41- C		C4== -4 A4	14L	
East/West Street: Wi					treet: Jam	es Street IV	οπη	
Intersection Orientatio			Study	Period	(hrs): 0.25			
Vehicle Volumes	and Adjustn	70000						
Major Street		Northbound				Southbo	und	
Movement	1	2	3		4	5		6
	<u> </u>	T	R		<u> </u>	T		R
Volume	0	85	10		1	87		1
Peak-Hour Factor, PH		0.95	0.95	' 	0.95	0.95		0.95
Hourly Flow Rate, HFF		89	10		1	91		1
Percent Heavy Vehicle	es 5			I Im all of	5		<u> </u>	
Median Type				Undivi	uea			
RT Channelized			0			 		0
Lanes	0 (75)	1	0		0	11		0
Configuration	LTR				LTR	<u> </u>		
Upstream Signal		0				0		
Minor Street		Westbound			1.0	Eastbou	ind	,
Movement	7	8	9	<u> </u>	10	11		12
	L	Т	R		L	Т		R
Volume	32	5	3		0	2		2
Peak-Hour Factor, PH		0.95	0.95		0.95	0.95		0.95
Hourly Flow Rate, HFF		5	3		0	2		2
Percent Heavy Vehicle	es 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	1	Vestbo	und		Eastbound	1
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR	•	LTR			LTR	1
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	
Approach EOG						1		

	TWO	-WAY STOP	CONTR	OL SUI	MARY			
General Information	n		Site I	nforma	tion			
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan 01/04/200 PM Peak	Hour	Interse Jurisdi Analys	ection		James S St Marys 2004	treet & Wi	dder St
Project Description 7	hames Crest F	arms Subdivisi						
East/West Street: Wid	der Street Eas	t			eet: Jame	s Street N	orth	
Intersection Orientation	: North-Sout	h	Study	Period (h	rs): 0.25			
Vehicle Volumes a	nd Adjustn	nents						
Major Street		Northbound				Southbo	und	
Movement	11	2	3		4	5		6
	L	Т	R		L	Т		R
Volume	1	105	39		5	93		0
Peak-Hour Factor, PHF		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	'	i	
Median Type				Undivide	∍d			
RT Channelized			0					0
Lanes	0	1	0		0	1		0
Configuration	LTR				LTR			
Upstream Signal		0				0		
Minor Street		Westbound				Eastbou	ınd	40
Movement	7	8	9		10	11		12
	L	T	R		L	Т		R
Volume	27	5	2		0	3		1
Peak-Hour Factor, PHF		0.95	0.95		0.95	0.95		0.95
Hourly Flow Rate, HFR	28	5	2		<u> </u>	3 5		<u>1</u> 5
Percent Heavy Vehicles	5	5	5		5			3
Percent Grade (%)		2				2	·	
Flared Approach		Ν				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		Westbou	nd		Eastbound	<u></u>
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
	1	5		35			4	
v (vph)		1412		703			693	
C (m) (vph)	1478			0.05			0.01	1
v/c	0.00	0.00					0.02	
95% queue length	0.00	0.01		0.16				_
Control Delay	7.4	7.6		10.4			10.2	
LOS	Α	Α		В			В	1
Approach Delay				10.4			10.2	
Approach LOS				В			В	
p ipproduit 200		auriaht @ 2002 Liniva						Version 4.

2011

INTERSECTION CAPACITY ANALYSES

			į.	
•				

SIGNALIZED INTERSECTIONS

	:		

HCS2000™ DETAILED REPORT Site Information General Information Queen & Water Intersection Swan IM Analyst Area Type CBD or Similar Tranplan Associates Agency or Co. Jurisdiction St Marys Date Performed 01/04/2004 Analysis Year 2011 AM Peak Time Period Thames Crest Farms Drainet ID

Time Period	AIVI T GUI	•						F	Project	ID				ies Cres ivision	t ran	ms			
Volume and	I Timina Inpul				Y.,-													1.1	
VOIUINE AND	i i i i i i i i i i i i i i i i i i i			Е	3			30,000	WB					NB				SB	
			LT	TH	1	RT	LT	\Box	TH	_	RT	<u>L</u>		TH	RT	_	LT	TH	RT
Number of la	anes, N ₁		1	1		0	1		1	_	0	1		1	0	_	0	1	0
Lane group	mber of lanes, N ₁ ne group lume, V (vph) Heavy vehicles, %HV ak-hour factor, PHF etimed (P) or actuated (art-up lost time, I ₁ tension of effective greetival type, AT it extension, UE ering/metering, I ial unmet demand, Q _b d / Bike / RTOR volume ne width rking / Grade / Parking rking maneuvers, N _m ses stopping, N _B n. time for pedestrians, asing			TR			L		TR	_		L		TR		_		LTR	
Volume, V (v	mber of lanes, N ₁ ne group lume, V (vph) Heavy vehicles, %HV ak-hour factor, PHF etimed (P) or actuated (Art-up lost time, I ₁ tension of effective greetival type, AT it extension, UE ering/metering, I ial unmet demand, Q _b d / Bike / RTOR volume he width rking / Grade / Parking rking maneuvers, N _m ses stopping, N _B n. time for pedestrians, asing EW Perm G = 37.0 Y = 5 ration of Analysis, T = 0 reform Capacity, Compared to the compared to t			27.	2	69	63		279	_	30	74	!	26	65		22	39	35
% Heavy vel	mber of lanes, N, ne group lume, V (vph) Heavy vehicles, %HV ak-hour factor, PHF etimed (P) or actuated (A art-up lost time, I, tension of effective gree rival type, AT it extension, UE tering/metering, I ial unmet demand, Q _b d / Bike / RTOR volume ne width rking / Grade / Parking rking maneuvers, N _m ses stopping, N _B n. time for pedestrians, a asing EW Perm print			7		7	7		7		7	7		7	7		7	7	7
Peak-hour fa	actor, PHF		0.90	0.9	0 (0.90	0.90)	0.90		0.90	0.9	0	0.90	0.90	2	0.90	0.90	0.90
Pretimed (P)	or actuated (A	4)	P	P		Р	P		P	\perp	Р	P		Р	P		_P	P	P
			2.0	2.0)		2.0		2.0	_		2.0		2.0				2.0	
Extension of	effective gree	n, e	2.0	2.0)		2.0		2.0	_		2.0		2.0				2.0	
Arrival type,	AT		3	3			3		3	\perp		3		3				3	
Unit extension	on, UE		3.0	3.0)		3.0		3.0			3.	0	3.0				3.0	<u> </u>
Filtering/met	tering, I		1.00	0 1.00	00		1.00	0	1.000	<u> </u>		1.0	00	1.000				1.000	
Initial unmet	demand, Q _b		0.0	0.0			0.0		0.0			0.0	0	0.0				0.0	
Ped / Bike /	RTOR volume	s	50	5		0	50		5		0	50		5	0		50	5	0
Lane width			11.0	12.	0		11.0	.0 12.0				12.	0	12.0				12.0	ļ
Parking / Gra	ade / Parking		N	1		N	N		1		N	٨		2	N		N	2	N
Parking man	neuvers, N _m																		
Buses stopp	Buses stopping, N _B			0			0		0			1)	0				0	
Min. time for	pedestrians, (Э _р		3.	5				3.5					3.5				3.5	
Phasing	EW Perm		02		03			04			IS Pe			06			07		08
Timeling	G = 37.0	G =		G	=		G =				= 23.	.0	G			} =		G =	
		Y =		<u> </u>	=		Y =			Υ:	= 5		Y			<u></u>	70.0	Y =	
						and the second second		STATE OF THE PARTY			•		Cy	cle Len	gth, C	; = 	70.0		
Lane Group	Capacity, Co	ntrol	Dela		LOS	Det	ermina			T.	; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;			ND			i i	SB	, · · · · ·
		-	- 1	_EB_ TH	R	-	LT		WB TH	F	र	LT		NB TH	R	Γ	LT	TH	RT
Adjusted flox	w rate v	48		379	'`	-	70		343	ٔ	ì	82		101				106	
		40		803		1	381	-	323			339		431				438	
	oapaony, o	0.1		0.47			0.18	┥—	.42			0.24		0.23				0.24	
	ratio d/C	0.5		0.53	 		0.53		.53	_		0.33		0.33	<u> </u>			0.33	
		8.		10.4	┼─		8.6		0.0			17.1		17.1				17.1	
		1.0	-	1.000			.000	_	000			1.000	,	1.000				1.000	
		0.5		0.50	_		0.50		.50			0.50		0.50				0.50	
		0.		2.0	 		1.1	-	1.6		\neg	1.7		1.3				1.3	
		+-	-		\vdash	+		T											
		8.	9	12.4	<u> </u>		9.7	1	1.5	Γ		18.8		18.4				18.4	
Lane group LOS A B				\dashv	Α		В			В		В				В			
Lane group					十		 11.:	2	1	7		1	3.6				18.4		
	, le E					\dashv		В			$\neg \uparrow$			В			В		
Whiteach	Approach LOS			}													1		

Intersection delay

13.4

Intersection LOS

В

General Information

Swan IM Analyst

Agency or Co.

Tranplan Associates

Date Performed 01/04/2004 Time Period

PM Peak

Site Information

Intersection

Queen & Water

Area Type Jurisdiction CBD or Similar

Analysis Year

St Marys 2011

Project ID

Thames Crest Farms Subdivision

Volume and	l Timing Inpu	t .				(10.00	1000		: A. 17			100			hadila.
				EB	.,		WE				NB_	7		SB	,
			LT	TH	RT	LT	TH		RT	LT	TH	RT	<u>LT</u>	TH	RT
Number of la	anes, N ₁		1	1	0	1	1		0	1	1	0	0	1	0
Lane group			L	TR		L	TR			L	TR			LTR	
Volume, V (\	/ph)		55	311	82	99	323		29	118	45	86	43	60	44
% Heavy vel	hicles, %HV		7	7	7	7	7		7	7	7	7	7	7	7
Peak-hour fa	actor, 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	Р	P
Start-up lost	time, I,		2.0	2.0		2.0	2.0			2.0	2.0			2.0	
Extension of	effective gree	n, e	2.0	2.0		2.0	2.0			2.0	2.0			2.0	
Arrival type,	AT		3	3		3	3			3	3				
Unit extension	on, UE		3.0	3.0		3.0	3.0			3.0	3.0				
Filtering/met	ering, I		1.000	1.000		1.000	1.00	0		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 volume	s	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 / Gra	ade / Parking		N	1	N	N	1		N	N	2	N	N	2	N
Parking man	euvers, N _m														<u> </u>
Buses stopp	ing, 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	0	3	04		N	IS Peri	m	06		07		08
- ::	G = 34.0	G =		G =		G =		G =	= 26.0) G	=	G =		G =	
Timing	Y = 5	Y =		Y =		Y =		Y =	= 5		=	Y =		Y =	
Duration of A	Analysis, $T = 0$.25					Cycle Length, C = 70.0								

Lane Group Capacity, Co	ontrol De	lay, and	LOS D	etermin	ation		#1:04 NW					
•		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	<u> </u>		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	ļ
Initial queue delay, d ₃												
Control delay	11.4	16.5		14.7	14.9		18.4	17.0			17.8	<u></u>
Lane group LOS	В	В		В	В		В	В			В	
Approach delay	1	5.9			14.8			17.7			17.8	
Approach LOS		В			В			В			В	
Intersection delay	1	6.1		X _c :	0.49		Interse	ction LOS	3		В	

General Information

Analyst

Swan IM

Agency or Co.

Tranplan Associates

Time Period

Date Performed 01/04/2004 AM Peak

Site Information

Intersection

Queen & Wellington

Area Type

CBD or Similar

Jurisdiction Analysis Year St Marys 2011

Project ID

Thames Crest Farms Subdivision - Ext Cycle

Volume and Tim	ning Input					11, 114		971	T						
				FB			WB		 	NB	l ot	1.7	SB TH	БТ	
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT		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)			52	289	17	62	266	51	31	44	38	122	88	75 L	
% Heavy vehicle:	s, %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 a	actuated (A	۱)	P	P	P	P	P	P	P	P	P	P	Р	P	
Start-up lost time), I ₁		2.0	2.0		2.0	2.0			2.0			2.0		
Extension of effe	ctive greei	1, e	2.0	2.0		2.0	2.0		<u> </u>	2.0			2.0		
Arrival type, AT			3	3		3	3			3			3		
Unit extension, U	JE		3.0	3.0		3.0	3.0			3.0			3.0		
Filtering/metering	g, I		1.000	1.000		1.000	1.000)		1.000			1.000		
Initial unmet dem	and, Q _b		0.0	0.0		0.0	0.0			0.0			0.0		
Ped / Bike / RTO	R volumes	3	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 maneuve	ers, N _m														
Buses stopping,	N _B		0	0		0	0			0			0		
Min. time for ped	estrians, G	} _p		3.5			3.5			3.5		3.5			
Phasing E\	W Perm		02	0	3	04		NS Per	m	06		07 08			
G=	= 33.0	G =		G =		G =		G = 27.6	0	G =	G =	•	G =		
Timing Y =	= 5	Y =		Y =		Y =		Y = 5		Y =	Y =				
Duration of Analy	/sis, T = 0.	25								Cycle Len		, C = 70.0			

Lane Group Capacity, Co	ontrol De	lay, and	LOS De	etermina	ition							
		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		ļ	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, d₁	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											ļ	
Control delay	11.6	14.5		11.9	15.1			15.9			26.6	
Lane group LOS	В	В		В	В			В			С	<u> </u>
Approach delay	1	14.1			14.5			15.9			26.6	
Approach LOS		В			В			В			С	
Intersection delay	1	7.6		X _c	= 0.58		Interse	ection LO	S		В	

General Information

Analyst

Swan IM

Agency or Co.

Tranplan Associates

Date Performed 01/04/2004 Time Period PM Peak Site Information
Intersection Queen & Wellingt

ection Queen & Wellington Type CBD or Similar

Area Type Jurisdiction Analysis Year

St Marys 2011

Project ID Thames Crest Farms Subdivision

										ubu	17101011				
Volume and	/olume and Timing Input											100			
				EB	.,		WE				NB			SB	
			LT	TH	RT	LT	TH			Τ	TH	RT	LT_	TH	RT
Number of la	anes, N ₁		1	1	0	1	1	0	()	1	0	0	1	0
Lane group			L	TR		L	TR				LTR			LTR	
Volume, V (vph)		42	350	45	80	356	79	3	7	114	87	67	82	60 r
% Heavy ve	hicles, %HV		7	7	7	7	7	7	7	,	7	7	7	7	7
Peak-hour fa	•		0.90	0.90	0.90	0.90	0.90	0.90	0.9	90	0.90	0.90	0.90	0.90	0.90
Pretimed (P) or actuated (A)		P	P	P	P	P	P	F	•	P	P	P	P	P	
Start-up lost	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		n, e	2.0	2.0		2.0	2.0				2.0			2.0	
Arrival type,	Arrival type, AT		3	3		3	3				3			3	
Unit extension	on, UE		3.0	3.0		3.0	3.0				3.0			3.0	
Filtering/met	ering, I		1.000	1.000		1.000	1.00	0			1.000			1.000	
Initial unmet	demand, Q _b		0.0	0.0		0.0	0.0				0.0			0.0	
Ped / Bike /	RTOR volume	s	50	5	0	50	5	0	5	0	5	0	50	5	0
Lane width			11.0	12.0		11.0	12.0				12.0			12.0	
Parking / Gra	ade / Parking		N	1	N	N	1	N	^	/	2	N	N	2	N
Parking man	euvers, N _m														
Buses stopp	ing, N _B		0	0		0	0				0			0	
Min. time for	Min. time for pedestrians, G _p			3.5			3.5				3.5			3.5	
Phasing	EW Perm		02	0	3	04		NS Pe	rm		06		07		08
Timing	G = 34.0	G =		G =		G =		G = 26.	0	G :	=	G =		G =	
Timing	Y = 5	Y =		Y =		Y =		Y = 5		Y =	:	Y =		Y =	

Lane Group Capacity, C	ontrol De	lay, and	LOS De	etermina	ation 🗀	Mary Say						1.0
		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	В	В		В	В			С			С	
Approach delay	1	5. <i>7</i>	1		17.3			21.3			21.1	

В

 $X_c = 0.60$

C

Intersection LOS

Cycle Length, C = 70.0

С

В

Approach LOS

Intersection delay

В

18.1

Duration of Analysis, T = 0.25

General Information

Analyst

Swan IM

Agency or Co.

Tranplan Associates

Date Performed Time Period

01/04/2004 AM Peak

Site Information

Intersection

Area Type

Queen & Church CBD or Similar

Jurisdiction

St Marys

Analysis Year

Project ID

20**11** Thames Crest Farms Subdivision - Exist Geo

Volume and	l Timing Inpu	, .	1	j.					- E	1417	17.	7-3		77	
				EB	T	ļ <u>.</u>	WE				NB		ļ <u>. </u>	SB	
			LT	TH	RT	LT	TH	_	<u> </u>	LT	TH	RT	LT	TH	RT
Number of la	anes, N ₁		1	1	0	1	1	0		0	1	0	0	1	0
Lane group			L	TR		L	TR				LTR			LTR	
Volume, V (/ph)		47	385	17	17	315	14) .	30	72	37	105	40	34 +
% Heavy ve	hicles, %HV		7	7	7	7	7	7		7	7	7	7	7	7
Peak-hour fa	actor, PHF		0.90	0.90	0.90	0.90	0.90	0.9	0 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	Р	P	P
Start-up lost	time, l₁		2.0	2.0		2.0	2.0				2.0			2.0	
Extension of	xtension of effective green, e 2.0		2.0	2.0		2.0	2.0				2.0			2.0	
Arrival type,	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/met	ering, I		1.000	1.000		1.000	1.00	0			1.000			1.000	
Initial unmet	demand, Q _b		0.0	0.0		0.0	0.0				0.0			0.0	
Ped / Bike /	RTOR volume	s	50		0	50		0		50		0	50		0
Lane width			11.0	12.0		11.0	12.0				12.0			12.0	
Parking / Gra	ade / Parking		N	1	N	N	1	N		N	2	N	N	2	N
Parking man	euvers, N _m														
Buses stopp	ing, N _B		0	0		0	0				0			0	
Min. time for	pedestrians, (Э _р		3.5			3.5				3.5			3.5	
Phasing	EW Perm		02	0	3	04		NS F	erm		06		07		08
T!!	G = 37.0	G =		G =		G =		G = 2	3.0	G		G =		G =	
iming	Timing $Y = 5$ $Y =$	Y =		Y =		Y =		Y = 5		Υ:	=	Y =		Y =	
Duration of A	Ouration of Analysis, T = 0.25									Су	cle Len	gth, C =	70.0		

Duration of Analysis, 1 - 0.2					7,010 2011	9, -						
Lane Group Capacity, Cor	trol Del	ay, and	LOS De	etermina	ntion					1		
		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			8.0	11.7			17.7			19.0	
Progression factor, PF	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	Α	В		Α	В			В			С	
Approach delay	1.	12.9		•	15.2			19.7			23.9	
Approach LOS		В			В			В			С	
Intersection delay	1			X _c =	= 0.59		Interse	ection LO	S		В	

General Information

Swan IM Analyst

Agency or Co. Tranplan Associates

01/04/2004 Date Performed PM Peak Time Period

Site Information

Intersection

Queen & Church CBD or Similar Area Type Jurisdiction St Marys 2011 Analysis Year

Thames Creek Farms Subdivision - Extend Cycle Project ID

Volume and	l Timing Inpu	William)					71. Yz.		raje i je	, 13.55	1		6.7		
				EB			WE				NB			SB	
			LT	TH	RT	LT	TH	 _F	RT	LT	TH	RT	LT	TH_	RT
Number of la	ines, N ₁		1	1	0	1	1		0	0	1	0	0	1	0
Lane group			L	TR		L	TR				LTR			LTR	
Volume, V (v	/ph)		40	442	23	26	445	9	8	30	40	30	120	22	39 v
% Heavy vel	nicles, %HV		7	7	7	7	7		7	7	7	7	7	7	7
Peak-hour fa	ctor, 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	1	D	P	P	P	P	P	P
Start-up lost	time, I,		2.0	2.0		2.0	2.0				2.0			2.0	
Extension of	effective gree	n, e	2.0	2.0		2.0	2.0				2.0			2.0	
Arrival type,	ival type, AT 3		3	3		3	3				3			3	
Unit extension	Unit extension, UE 3.0		3.0	3.0		3.0	3.0				3.0			3.0	
Filtering/met	ering, I		1.000	1.000		1.000	1.00	0			1.000			1.000	
Initial unmet	demand, Q _b		0.0	0.0		0.0	0.0				0.0			0.0	
Ped / Bike / I	RTOR volume	S	50	5	0	50	5	3	30	50	5	0	50	5	0
Lane width	1		11.0	12.0		11.0	12.0				12.0			12.0	
Parking / Gra	ade / Parking		N	1	N	N	1	1	٧	N	2	N	N	2	N
Parking man	euvers, N _m														
Buses stopp	ing, 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	0	3	04		NS	Perr	n	06		07		08
	G = 36.0	G =		G =		G =		G =	24.0	G	=	G =		G =	
Timing	Y = 5	Y =		Y =		Y =		Y =	5	Υ:		Y =		Y =	
Duration of A	Ouration of Analysis, T = 0.25									Су	cle Len	gth, C =	70.0		

Lane Group Capacity, Co	ntrol De	lay, and	LOS De	etermina	ition		aren ere					
		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	
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	ļ
Initial queue delay, d ₃												
Control delay	10.7	16.1		9.5	18.6			17.9			24.3	
Lane group LOS	В	В		Α	В			В			С	
Approach delay	1	15.7			18.2			17.9			24.3	
Approach LOS		В			В			В			С	
Intersection delay	1	18.1		X _c :	= 0.65		Interse	ection LO	S		В	

UNSIGNALIZED INTERSECTIONS

·				

	TWO	-WAY STOP	CONTR	OL S	UM	MARY			
General Informat	on		Site I	nforn	nati	on			
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM	Associates 04	Interse Jurisdi Analys	ction ction			Water St St Marys 2011	N & Emily	St
	Thames Crest	Farms Subdivisi							
East/West Street: En							r Street No	rth	
Intersection Orientatio	n: <i>North-Sou</i>	th	Study	Period	(hrs	s): 0.25			
Vehicle Volumes	and Adjustr	nents	-						
Major Street		Northbound					Southboo	ınd	
Movement	1	2	3			4	5		6
	L.	Т	R			<u> L </u>	Ţ		R
Volume	16	37	13			16	40		1
Peak-Hour Factor, PH		0.95	0.95			0.95	0.95	(0.95
Hourly Flow Rate, HFF		38 13				16	42 		1
Percent Heavy Vehicle	es 5								
Median Type		Undivided							
RT Channelized		1 0 0							0
Lanes	0	1 0					1		0
Configuration	LTR		LTR		LTR				
Upstream Signal		0					0		···
Minor Street		Westbound					Eastbou	nd	
Movement	7	8	9			10	11		12
	<u>.</u> L	Т	R			L	Т		R
Volume	14	5	16			1	11		37
Peak-Hour Factor, PH		0.95	0.95			0.95	0.95		0.95
Hourly Flow Rate, HFF		5	16			1	11		38
Percent Heavy Vehicle	s 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	١	Vestb	ound	d	E	astbound	
Movement	1	4	7	8		9	10	11	12
Lane Configuration	LTR	LTR		LTF	?			LTR	
v (vph)	16	16		35				50	
C (m) (vph)	1547	1536		837	7			927	
v/c	0.01	0.01		0.04	4			0.05	
95% queue length	0.03	0.03		0.13	3			0.17	
Control Delay	7.4	7.4		9.5				9.1	
LOS	Α	Α		Α				Α	
Approach Delay			9.5				9.1		
Approach LOS			А					Α	

TWO-WAY STOP CONTROL SUMMARY **General Information** Site Information Water St N & Emily St Swan IM Intersection Analyst Tranplan Associates Jurisdiction St Marys Agency/Co. Analysis Year 2011 01/04/2004 Date Performed Analysis Time Period PM Peak Hour Thames Crest Farms Subdivision Project Description North/South Street: Water Street North East/West Street: Emily St North-South Study Period (hrs): 0.25 Intersection Orientation: Vehicle Volumes and Adjustments Southbound Northbound Maior Street 3 4 5 6 Movement R R L T T L 43 37 6 16 10 1 Volume 0.95 0.95 0.95 Peak-Hour Factor, PHF 0.95 0.95 0.95 45 10 1 16 Hourly Flow Rate, HFR 38 6 --Percent Heavy Vehicles 5 Undivided Median Type 0 0 RT Channelized 0 0 0 1 Lanes LTR LTR Configuration 0 0 Upstream Signal Eastbound Westbound Minor Street 12 10 9 11 8 Movement R R Т L Т L 8 33 6 18 8 Volume 0.95 0.95 0.95 0.95 0.95 0.95 Peak-Hour Factor, PHF 8 34 18 8 1 Hourly Flow Rate, HFR 6 5 5 5 5 5 5 Percent Heavy Vehicles 2 2 Percent Grade (%) Ν Ν Flared Approach 0 0 Storage 0 0 RT Channelized 0 0 1 0 0 1 anes LTR LTR Configuration Delay, Queue Length, and Level of Service Westbound Eastbound NB SB Approach 12 10 11 1 4 7 8 9 Movement LTR LTR LTR LTR ane Configuration 43 32 38 10 v (vph) 930 776 1574 1543 C (m) (vph) 0.05 0.01 0.04 0.02 v/c 0.02 0.13 0.15 0.08 95% queue length 9.1 9.8 7.4 7.3 Control Delay Α Α Α Α LOS 9.8 9.1 --Approach Delay Α --Approach LOS

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	TWO	WAY STOP	CONTR	OL SU	MMARY			
General Information)		Site I	nforma	ition			
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan i 01/04/200 AM Peak	Hour				Water St I St Marys 2011	V & Parkv	riew Dr
Project Description Th	ames Crest F	arms Subdivisi	on					
East/West Street: Parky	iew Dr		North/	South St	reet: <i>Wa</i>	ter Street Noi	th	
Intersection Orientation:	North-Souti	7	Study	Period (h	rs): <i>0.25</i>)		
Vehicle Volumes an								
Major Street	ia Aajaoin	Northbound				Southbou	nd	
Movement	1	2	3		4	5		6
VIOVEITICAL	Ĺ	Т	R		L	Т		R
/olume	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							
Median Type				Undivid	ed			
RT Channelized			0					0
Lanes	0	1	0		0	1		0
Configuration			TR	i	LT			
Upstream Signal		0				0		
Minor Street					Eastbou	nd		
Movement	7	Westbound 8	9		10	11		12
Movement	L	Т	R		. L	T		R
Volume	26	0	2		12	0		5
Peak-Hour Factor, PHF	0.95	0.95	0.98	5	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		T N				N		
		0				0		
Storage			0					0
RT Channelized	0	1.	1 0		0	0		0
Lanes	U	LTR	<u> </u>					
Configuration								
Delay, Queue Length, a	nd Level of	Service	1	14/4b	ام ما		Eastbound	4
Approach	NB	SB		Westbou				
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LTR				
v (vph)		5		29				
C (m) (vph)		1518		851				
v/c		0.00		0.03	. [
		0.01		0.11				
95% queue length		7.4		9.4				
Control Delay				A A	_			
LOS		<u> </u>	ļ					
Approach Delay			9.4				-	
Approach LOS		 pyright © 2003 Unive	l	Α				Version

TWO-WAY STOP CONTROL SUMMARY **General Information** Site Information Water St N & Parkview Dr Swan IM Intersection Analyst Tranplan Associates Jurisdiction Agency/Co. St Marvs 01/04/2004 Analysis Year 2011 Date Performed Analysis Time Period PM Peak Hour Project Description Thames Crest Farms Subdivision Water Street North East/West Street: Parkview Dr North/South Street: Intersection Orientation: North-South Study Period (hrs): 0.25 Vehicle Volumes and Adjustments Northbound Southbound Major Street 3 4 Movement 5 6 R R L L T 7 46 48 9 70 22 Volume 0.95 0.95 0.95 0.95 0.95 Peak-Hour Factor, PHF 0.95 48 50 9 73 0 Hourly Flow Rate, HFR 0 0 5 Percent Heavy Vehicles --Undivided Median Type 0 0 RT Channelized 0 1 0 0 0 Lanes 1 \overline{LT} TR Configuration ō Upstream Signal 0 Eastbound Westbound Minor Street 9 10 11 12 Movement 8 R L Т R L Т 12 59 ō 8 0 5 Volume 0.95 0.95 0.95 0.95 0.95 0.95 Peak-Hour Factor, PHF Hourly Flow Rate, HFR 62 0 8 0 0 0 5 5 5 0 0 0 Percent Heavy Vehicles 0 Percent Grade (%) 2 Ν Ν Flared Approach 0 0 Storage RT Channelized 0 0 0 0 anes 0 1 0 0 LTR Configuration Delay, Queue Length, and Level of Service Westbound Eastbound NB SB Approach 1 4 7 8 9 10 11 12 Movement LTR LTLane Configuration 9 70 v (vph) 831 1476 C (m) (vph) 0.01 0.08 0.02 0.28 95% queue length 7.5 9.7 Control Delay Α Α LOS 9.7 Approach Delay --Approach LOS

	TWO	-WAY STOP	CONTR	OL SI	JMMAF	RY			
General Information	1		Site I	nform	ation				
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM		Interse Jurisdio Analys	ction ction	-		Wellington St E St Marys 2011	n St N & V	Vidder
Project Description Th	ames Crest F	arms Subdivisi	on						
East/West Street: Wido	er St East		North/S	South S	Street: V	Vellin	gton Stree	t North	
Intersection Orientation:	North-Sout	h	Study F	Period	(hrs): 0	.25			
Vehicle Volumes ar	nd Adjustn	nents							
Major Street		Northbound					Southbou	ınd	
Movement	1	2	3		4		5		6
	L	T	R		<u> </u>		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 Undivided								
Median Type				Undivi	ded				
RT Channelized			0						0
Lanes	0	1 0			0		11		0
Configuration	LTR				LTR		0		
Upstream Signal		0							
Minor Street		Westbound			40		Eastbou	nd	40
Movement	7	8	9		10		11		12
	L	Т	R		<u> </u>		T		R
Volume	24	20	20		6		2		30),95
Peak-Hour Factor, PHF	0.95	0.95	0.95		0.95		0.95	- '	31
Hourly Flow Rate, HFR	25	21	21		6 5		<u>2</u> 5		5
Percent Heavy Vehicles	5	5	5		3		2	1	<u> </u>
Percent Grade (%)		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, a	nd Level of	Service							
Approach	NB	SB	1	Vestbo	und		E	astbound	
Movement	1	4	7	8	,	9	10	11	12
Lane Configuration	, LTR	LTR		LTR				LTR	
	6	14		67				39	
v (vph)				730				838	
C (m) (vph)	1426	1519						0.05	
v/c	0.00	0.01		0.09					
95% queue length	0.01	0.03		0.30				0.15	<u> </u>
Control Delay	7.5	7.4		10.4				9.5	
LOS	Α	Α		В				Α	
Approach Delay				10.4				9.5	
, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,								Α	

0.000

	TWO	-WAY STOP	CONTR	OL S	UM	IMARY			
General Informati	on		Site I	nforr	nat	ion			
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM		Interse Jurisdi Analys	ection ction			Wellingto St E St Marys 2011	n St N & l	Vidder
Project Description	Thames Crest I	Farms Subdivisi	ion		<u>-</u>				
East/West Street: Wi				South	Stre	et: Wellir	ngton Stree	t North	
Intersection Orientatio		h	Study	Perioc	(hr	s): <i>0.25</i>			
Vehicle Volumes	and Adjustn	nents							
Major Street		Northbound					Southbou	ınd	
Movement	1	2	3			4	5		6
	L	Т	R			<u> </u>	Т		R
Volume	13	105	5			6	48		1
Peak-Hour Factor, PH		0.95	0.95			0.95	0.95		0.95
Hourly Flow Rate, HFF		110	5			6	50		1
Percent Heavy Vehicle	s 5	5				. 5			
Median Type		T			/ided	7			
RT Channelized		0 1							0
Lanes	0	1	0			0	1		0
Configuration	LTR					LTR			
Upstream Signal		0					0		
Minor Street		Westbound					Eastbou	<u>nd</u>	
Movement	7	8	9			10	11		12
	<u> </u>	Т	R			L	Т		R
Volume	9	22	15			16	2		12
Peak-Hour Factor, PH		0.95	0.95			0.95	0.95		0.95
Hourly Flow Rate, HFF		23	15			16	2		12
Percent Heavy Vehicle	s 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			1		LTR		
Delay, Queue Length	and Level of	Service							
Approach	NB I	SB	1	Nestb	ound	d	E	Eastbound	
Movement	1	4	7	8		9	10	11	12
Lane Configuration	LTR	LTR		LTF	₹			LTR	
v (vph)	13	6		47				30	
C (m) (vph)	1536	1455		755	5			791	
v/c	0.01	0.00		0.0				0.04	
95% queue length	0.03	0.01		0.2				0.12	
Control Delay	7.4	7.5		10.				9.7	1
	A A	7.0 A		B				A	
LOS				10.	1	I		9.7	<u> </u>
Approach Delay					1				
Approach LOS				В				A	

	TWO-	WAY STOP	CONTR	OL S	UM	MARY				
General Information	1		Site Information							
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan 01/04/200		Interse Jurisdi Analys	ction	r		Wellingto St St Marys 2011		& St	ation
Project Description Th	ames Crest F	arms Subdivisi	on							
East/West Street: Static				South S	Stree	et: <i>Wellir</i>	ngton Stre	et Norti	h	
Intersection Orientation:	North-South	7	Study	Period	(hrs): 0.25				
Vehicle Volumes ar	nd Adjustm	ents				****				
Major Street		Northbound					Southbo	und		
Movement	1	2	3			4	5			6
	L	Т	R			<u> </u>	Т			R
Volume	7	62	59			6	173			22
Peak-Hour Factor, PHF	0.95	0.95	0.95	-		0.95	0.95			95 0
Hourly Flow Rate, HFR	0	65	62			6 5	182			
Percent Heavy Vehicles	0	-	Undivided						-	
Median Type			1 0	Unalv	iuea		I	<u> </u>		0
RT Channelized		1	0			0	1 1			0
Lanes	0	1	TR			LT	<u>'</u>			V
Configuration		0	I			<u> </u>	0			
Upstream Signal										
Minor Street	7	Westbound	9 10		11	una T		12		
Movement	7	8 T	R			 	T			R
	77	0	6			12	0			5
Volume Peak-Hour Factor, PHF	0.95	0.95	0.95			0.95	0.95			95
Hourly Flow Rate, HFR	81	0.93	6			0	0			0
Percent Heavy Vehicles	5	5	5			0	0			0
Percent Grade (%)		2	I				0			
		T N	T				N			
Flared Approach		0					0			
Storage		-	0							0
RT Channelized						0	0			0
Lanes	0	1	0			U	0			U
Configuration		LTR								
Delay, Queue Length, a							T	E 41		
Approach	NB	SB		Westb	ounc			Eastbo		
Movement	1	4	7	8		9	10	11		12
Lane Configuration		LT		LTF	₹					
v (vph)		6		87						
C (m) (vph)		1441		704	1					
v/c		0.00		0.12	2					
95% queue length		0.01		0.42						
Control Delay		7.5		10.8						
LOS		A		В						
				10.8	3					
Approach Delay				10.0 B			-			
Approach LOS			l				1			

	TWO	-WAY STOP	CONTR	OL S	UM	IMARY			
General Information	on		Site I	nforn	nat	ion			
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM		Interse Jurisdi	ection		,	Wellington St N & Sta St St Marys 2011		
		^E arms Subdivisi							
East/West Street: Sta				rth/South Street: Wellington Street North					
Intersection Orientatior	n: North-Sout	h	Study	Period	(hr	s): 0.25			
Vehicle Volumes a	and Adjustn								
Major Street		Northbound					Southbo	und	
Movement	1	2	3			4			6
	L	Т	R			L	Т		R
Volume	7	118	121		,	1	67		22
Peak-Hour Factor, PHF		0.95	0.95			0.95	0.95		0.95
Hourly Flow Rate, HFR		124	127				70		0
Percent Heavy Vehicle	s 0					5			
Median Type				Undiv	<i>ide</i>				
RT Channelized			0						0
Lanes	0	1	0			0	1	_	0
Configuration			TR			LT			
Upstream Signal	<u>L</u>	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		
Peak-Hour Factor, PHF		0.95	0.95			0.95			0.95
Hourly Flow Rate, HFR		0	6			0	0		0
Percent Heavy Vehicles	s 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							
	and level of						L		
Delay, Queue Length, Approach	NB	SB		Vestbo	าแทด	4		Eastbou	nd
Movement	1	4	7	8	Jane	9	10	11	12
Lane Configuration	<u> </u>	LT	,	LTR	?		10	-	·-
v (vph)		1		113					
		1297		727					
C (m) (vph)		0.00		0.16					
v/c		0.00		0.75					
95% queue length								<u> </u>	
Control Delay		7.8		10.9	,				
LOS		Α		10.0	<u> </u>	l		L.,	
Approach Delay		** **		10.9					
Approach LOS				В			<u> </u>		

	TWO-	WAY STOP	CONTR	OL SU	MMA	RY				
General Informatio	n		Site I	nform	ation					
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM		Interse Jurisdi	ection			Wellington St N & Parkv Dr St Marys 2011			
Project Description Th	names Crest F	arms Subdivisi	on			***************************************				
East/West Street: Park				South S	treet:	Nellir	gton Stree	et North		
Intersection Orientation:		η .	Study	Period (eriod (hrs): 0.25					
Vehicle Volumes a	nd Adjustm	ents								
Major Street		Northbound					Southbo	und		
Movement	1	2	3		4		5		6	
	L	Т	R		L		Т		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				240		26	
Percent Heavy Vehicles	5	<u> </u>		<u></u>	5		**			
Median Type				Undivid	ded					
RT Channelized			0					0		
Lanes	0	1	0		0		1		0	
Configuration	LTR				LTR					
Upstream Signal		0	<u> </u>				0			
Minor Street		Westbound					Eastbou	ınd	- 40	
Movement	7	8	9		10		11		12	
	L	Т	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.		
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		N					N			
Storage		0					- 0			
RT Channelized			0						0	
Lanes	0	1	0		0		1		0	
Configuration		LTR					LTR			
Delay, Queue Length, a	nd Level of S	Service								
Approach	NB	SB	1	Vestbo	und			Eastboun	d	
Movement	1	4	7	8		9	10	11	12	
Lane Configuration	LTR	LTR		LTR				LTR		
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	Α		В				В		
Approach Delay				10.7				11.1		
Approach LOS				В				В		
, ipprodoit 200			·		<u> </u>					

	TWO	-WAY STOP	CONTR	OL SU	MMARY			
General Informatio	n		Site I	nforma	tion			
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM		Interse Jurisdi Analys			Wellington St N & Park Dr St Marys 2011		
Project Description Th	names Crest I	arms Subdivisi	on					
East/West Street: Park		***************************************		South St	reet: Welli	ington Stree	et North	
Intersection Orientation:		h	Study	Period (h	rs): <i>0.25</i>			
Vehicle Volumes a		nents						
Major Street	l	Northbound	***************************************			Southboo	und	
Movement	1	2	3		4	5		6
	L	Т	R		L	Т		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			140		37
Percent Heavy Vehicles	5				5			
Median Type				Undivia	ed	1		
RT Channelized			0			1		0
Lanes	0	1	0		0	7		U
Configuration	LTR		<u> </u>		LTR			
Upstream Signal		0				0 Faathound		
Minor Street		Westbound	7 ~	Eastbound 9 10 11			na	12
Movement	7	8	9		10	 		12 R
	L	T	R		L	5		<u>18</u>
Volume	8	3	5		34 0.95	0.95).95
Peak-Hour Factor, PHF	0.95	0.95	0.95 5	<u>' </u>	35	5		18
Hourly Flow Rate, HFR	8 5	3 5	5		5	5		5
Percent Heavy Vehicles	5		<u> </u>		J	2		
Percent Grade (%)		2	- <u>T</u>			1 N		
Flared Approach		N						
Storage		0				0		_
RT Channelized			0					0
Lanes	0	1	0		0	1		0
Configuration		LTR				LTR		
Delay, Queue Length, a	nd Level of	Service						
Approach	NB	SB	1	Westbou	nd		Eastbound	
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (vph)	26	1		16			58	
C (m) (vph)	1381	1329		564			587	
v/c	0.02	0.00		0.03			0.10	
	0.02	0.00	×	0.09		1	0.33	
95% queue length		7.7					11.8	
Control Delay	7.7			11.6			B	
LOS	Α	Α	**	B				<u> </u>
Approach Delay				11.6		11.8		
Approach LOS				В		В		

	TWO	-WAY STOP	CONTR	OL SU	JMMARY				
General Informati	on		Site I	nform	ation				
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan 01/04/20	Associates 04	Interse Jurisdi Analys			Church S St Marys 2011			
Project Description	Thames Crest i	Farms Subdivisi	on						
East/West Street: Jar		th	North/	South S	treet: Chu	urch Street North			
Intersection Orientation	n: North-Sout	h	Study	Period (hrs): 0.25	?5			
Vehicle Volumes	and Adjustn	nents						•	
Major Street		Northbound				Southbo	und		
Movement	1	2	3		4	5		6	
	L	Т	R		L	T		R	
Volume	26	28	86		11	40		2	
Peak-Hour Factor, PHF		0.95	0.95		0.95	0.95		0.95	
Hourly Flow Rate, HFR		29	90		1	42		2	
Percent Heavy Vehicle	s 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	Т		R	
Volume	111	54	1		1	52		13	
Peak-Hour Factor, PHF		0.95	0.95		0.95	0.95	(0.95	
Hourly Flow Rate, HFR	116	56	1		1	54		13	
Percent Heavy Vehicle	s 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	\	Vestbou	ınd		astbound		
Movement	1	4	7	8	9	10	11	12	
Lane Configuration	LTR	LTR		LTR			LTR		
v (vph)	27	1		173			68		
C (m) (vph)	1545	1451		687			710		
v/c	0.02	0.00		0.25			0.10		
	0.02	0.00		0.99			0.32		
95% queue length						10.6			
Control Delay	7.4	7.5		12.0					
LOS	Α	<u> </u>		В			B		
Approach Delay				12.0			10.6		
Approach LOS			В В			В			

	TWO	-WAY STOP	CONTR	OL SU	MMARY					
General Informati	ion		Site I	nforma	tion					
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan 01/04/20 PM Peak	Associates 04 (Hour				Church S St Marys 2011	St N & Jan	es St N		
		Farms Subdivisi								
East/West Street: Jai					eet: Churc	ch Street N	lorth	7		
Intersection Orientatio			Study	Perioa (n	rs): 0.25					
Vehicle Volumes	and Adjustr									
Major Street		Northbound				Southbou	und			
Movement	1	2	3		4	5 T		6		
	L	T	R		<u>L</u> 1	9		R 2		
Volume	53	23 0.95	89 0.95		0.95	0.95		2 0.95		
Peak-Hour Factor, PH			93	<u> </u>	1	9		2		
Hourly Flow Rate, HFF		24			5					
Percent Heavy Vehicle	es 5			Undivide			L			
Median Type			1 0	Unaivia	∍ a	0				
RT Channelized			0			1		0		
Lanes	0	1	0		0	1		0		
Configuration	LTR	0			LTR	0				
Upstream Signal						L				
Minor Street		Westbound	1 ^		40	Eastbou 11	12			
Movement	7	8 -	9		10	<u>Т</u>		R		
	<u>L</u>	Т	R		L			22		
Volume	111	53	1		<u> </u>	99 0.95		22 0.95		
Peak-Hour Factor, PH		0.95	0.95		1	104		23		
Hourly Flow Rate, HFF		55 5	<u>1</u> 5		5	704 5		5		
Percent Heavy Vehicle	es 5	5	J 3		3	2		Ü		
Percent Grade (%)		2	1							
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	١	Westbour	nd	E	Eastbound	l		
Movement	1	4	7	8	9	10	11	12		
Lane Configuration	LTR	LTR		LTR			LTR			
v (vph)	55	1		172			128			
C (m) (vph)	1589	1453		603			682			
v/c	0.03	0.00		0.29		1	0.19			
95% queue length	0.11	0.00		1.17			0.69			
Control Delay	7.3	7.5		13.3			11.5			
LOS	Α	Α	· · · · · · · · · · · · · · · · · · ·	В			В			
Approach Delay				13.3			11.5			
Approach LOS				В			В			
4-14-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-		-1-1- @ 2002 H-i						Version 4 1		

	TWC	-WAY STOP	CONTR	OL SU	MMARY				
General Informati	on		Site	nforma	ation				
Analyst Agency/Co. Date Performed	Swan IM Tranplan 01/04/20	Associates 04	Interse Jurisd Analys			James St St Marys 2011	,		
Analysis Time Period	AM Peak		<u> </u>						
		Farms Subdivis				- C (N			
East/West Street: Gla						es Street No	ortn		
Intersection Orientation			Study	Period (hrs): 0.25				
Vehicle Volumes a	and Adjustr	nents							
Major Street		Northbound				Southbou	und		
Movement	11	2	3		4	5		6	
	L	T	R		L	T		R	
Volume	10	76	17		2	69		8 0.95	
Peak-Hour Factor, PHF		0.95	0.98	} 	0.95	0.95		0.95	
Hourly Flow Rate, HFR		80	17		<u>2</u> 5	72	<u></u>		
Percent Heavy Vehicle	s 5		<u> </u>	11-11-1		+-			
Median Type	_			Undivid	iea		0		
RT Channelized			0					0	
Lanes	0	11	0		0	1		U	
Configuration			TR		LT				
Upstream Signal		0				0			
Minor Street		Westbound				Eastbou	<u>nd</u>	46	
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	0.98	5	0.95	0.95		0.95 0	
Hourly Flow Rate, HFR	6	0	3		0	0			
Percent Heavy Vehicle	s 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	0		0	
Configuration		LTR							
Delay, Queue Length,	and Lovel of								
	NB	SB	T	Westbou	ınd		Eastbound	d	
Approach	1	4	7	T 8	9	10	11	12	
Movement	l .	LT	1	LTR			, ,	†	
Lane Configuration		2		9					
v (vph) C (m) (vph)		1478		862					
		0.00		0.01					
v/c 95% queue length		0.00	ļ.	0.03	<u> </u>				
Control Delay		7.4		9.2					
LOS		A		A					
Approach Delay				9.2					
	M			A					
Approach LOS		<u> </u>	University of Florida, All Rights Reserved			Version 4.			

	TWC	-WAY STOP	CONTR	OL SU	MMARY				
General Information	n		Site	nforma	ation				
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM	Associates 104	Interse Jurisd	ection		James S St Marys 2011		ilass	
		Farms Subdivis	ion				· · · · · · · · · · · · · · · · · · ·		
East/West Street: Glas	ss Street		North/	South St	reet: <i>Jam</i>	es Street N	orth		
Intersection Orientation	: North-Sou	th	Study	Period (h	nrs): <i>0.25</i>				
Vehicle Volumes a	nd Adjustr	nents							
Major Street		Northbound				Southbo	und		
Movement	1	2	3		4	5		6	
	L	T	R		L	Т		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	ļ			Undivid	ed		· · · · · · · · · · · · · · · · · · ·		
RT Channelized			0					0	
Lanes	0	1	0		0	11		0	
Configuration	LTR				LTR				
Upstream Signal	<u> </u>	0				0			
Minor Street		Westbound					Eastbound		
Movement	7	8	9		10	11		12	
	L	Т	R		L'	Т		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		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	1	Vestbou	nd		Eastbour	d	
Movement	1	4	7	8	9	10	11	12	
Lane Configuration	LTR	LTR		LTR					
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	Α	А		Α					
Approach Delay				9.8					
Approach LOS				Α.					

	TWC	-WAY STOP	CONTR	OL S	UMI	MARY				
General Information	on		Site	Inforr	mati	on				
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM	n Associates 104	Jurisd	ection iction sis Yea	ar		James Street & Trailside St Marys 2011			
		Farms Subdivis	ion							
	ilside Ct			'South	Stree	et: Jame	s Street N	orth		
Intersection Orientation		th			Period (hrs): 0.25					***************************************
Vehicle Volumes a										
Major Street	T Aujusti	Northbound		Southbound						
Movement	1 1	2	3			4	5	6		
MOVOMON		T	R			L	Т			R
Volume	0	89	9			1	74			0
Peak-Hour Factor, PHF	0.95	0.95	0.98	5	(0.95	0.95		(0.95
Hourly Flow Rate, HFR	0	93	9			1	77			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			East			nd		
Movement	7	8	9	10		10	11		12	
MOVEMEN	L	T	R			L	Т		R	
Volume	28	o	1 1			0	0		0	
Peak-Hour Factor, PHF		0.95	0.98	5	(0.95	0.95	,	0.95	
Hourly Flow Rate, HFR	29	0	1			0	0		0	
Percent Heavy Vehicles		5	5			0	0			0
Percent Grade (%)		2					0			
Flared Approach		T N					T N	T		
	+	1 0					0			
Storage			0				-			0
RT Channelized						0	0			0
Lanes	0	1 1 70	0	***************************************	-	U	1 -			0
Configuration		LTR								
Delay, Queue Length,			***************************************							
Approach	NB	SB		Westb				Eastbo		
Movement	1	4	7	8		9	10	1.	1	12
Lane Configuration		LT		LTF	₹∏					
v (vph)		1		30						
C (m) (vph)		1471		809	9 1					
v/c		0.00		0.0			1			
		0.00	 -	0.1			1			
95% queue length			 				-	 		
Control Delay		7.4		9.6	<u>' </u>		1			ļ
LOS		Α		A				<u></u>		
Approach Delay				9.6	3			.,		
Approach LOS			A							

	TWO	D-WAY STOF	CONTR	ROL S	UMN	IARY					
General Informat	ion		Site	Inform	natio	n		·			
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IN Tranplar 01/04/20 PM Peal	n Associates 2004 k Hour	Jurisd Analy	ection iction sis Yeaı	r		James S St Marys 2011		Trailside		
Project Description		Farms Subdivis							··.		
East/West Street: Tra							s Street N	orth	·		
Intersection Orientatio			Study	Period	(hrs):	0.25			****		
Vehicle Volumes	<u>and Adjusti</u>										
Major Street		Northbound					Southbo	und			
Movement	1 1	2	3			4	5 T		6		
N - 1	0	T 442	R 34			<u>L</u> 1	115		0 0		
Volume		113 0.95	0.98		0	95	0.95		0.95		
Peak-Hour Factor, PH		118	35	' 		90 1	121		0.95		
Hourly Flow Rate, HFF						<u>'</u> 5	†				
Percent Heavy Vehicle	55 0			Undivi		0	<u></u>		> *		
Median Type			0	Onaivi	ueu		<u> </u>	0			
RT Channelized	0	1	0			0	1		0		
Lanes	 		TR			.T	 		U		
Configuration	_	0	1 IR			. 1	0				
Upstream Signal											
Minor Street		Westbound	1 0			10	Eastbound		40		
Movement	7	8	9			10	11 T		12		
	L	T	R			L			R		
Volume	21	0	1			0 95	0 0.95		0 0.95		
Peak-Hour Factor, PH		0.95 0	0.95	· -		95 0	0.95		0.95		
Hourly Flow Rate, HFF		5	5			0	0		0		
Percent Heavy Vehicle	s 5] 3				<u> </u>		U		
Percent Grade (%)	_	2					0				
Flared Approach		N					N				
Storage		0					0				
RT Channelized			0						0		
Lanes	0	1	0		()	0		0		
Configuration		LTR									
Delay, Queue Length	and Level of	Service									
Approach	NB	SB	1	Westbo	und		I	Eastbou	nd		
Movement	1	4	7	8		9	10	11	12		
Lane Configuration		LT		LTR							
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		Α		В							
Approach Delay				10.1							
Approach LOS				В							

	TWO	WAY STOP	CONTR	OL S	UMMARY	•					
General Informat	ion		Site I	nfor	mation						
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan 01/04/200 AM Peak	Hour	Interse Jurisdi Analys	ction	ar	James S St Marys 2011	treet & Eg	an Ave.			
Project Description	Thames Crest F	arms Subdivisio									
East/West Street: Eg					Street: Jan		orth				
Intersection Orientation	n: <i>North-Souti</i>	7	Study	Period	l (hrs): 0.25)					
Vehicle Volumes	and Adjustm	ents									
Major Street		Northbound				Southbound					
Movement	1	2	3		4	5		6			
	L L	T	R		<u> </u>	T		R			
Volume	5	102	2		0	115		16			
Peak-Hour Factor, PH		0.95	0.95		0.95	0.95		0.95			
Hourly Flow Rate, HF		107	0		0	121		16			
Percent Heavy Vehicle	es 5			1.1	0						
Median Type	_		1 0	Undi	/iaea	1					
RT Channelized			0					0			
Lanes	0	1	0		0	1		0 TD			
Configuration	LT	ļ	ļ					TR			
Upstream Signal		0				0					
Minor Street		Westbound	· · · · ·		40		Eastbound				
Movement	7	8	9		10	11		12			
	L	T	R		L	T	<u> </u>	R			
Volume	6	0	1 0.95		18 0.95	0.95		3 0.95			
Peak-Hour Factor, PH		0.95 0	0.95		0.95 18	0.95		3			
Hourly Flow Rate, HF		0	0			5		5			
Percent Heavy Vehicle	8 0	-t			3	2		3			
Percent Grade (%)		0					····				
Flared Approach		N	l "			N					
Storage		0				0					
RT Channelized			0					0			
Lanes	0	0	0		0	1		0			
Configuration						LTR					
Delay, Queue Length	, and Level of S	ervice									
Approach	NB	SB	١	Vestb	ound		Eastbound				
Movement	1	4	7	8	9	10	11	12			
Lane Configuration	LT						LTR				
v (vph)	5					······································	21				
C (m) (vph)	1429						754				
v/c	0.00			-		1	0.03				
95% queue length	0.01						0.09				
Control Delay	7.5						9.9				
LOS	A A						A				
							9.9	L			
Approach Delay											
Approach LOS		right © 2003 Universi	tu a CElanida	All Dial	ta Basaniad	_1	A	Version 4.1			

	TWO	-WAY STOP	CONTR	OL SI	JMMARY	1				
General Informati	on		Site I	nform	ation					
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan 01/04/20 PM Peak	Hour			,	James St St Marys 2011				
Project Description	Thames Crest i	⊏arms Subdivisi	ion							
East/West Street: Eg	an Ave.		North/			nes Street No	orth			
Intersection Orientatio	n: <i>North-Sout</i>	h	Study Period (hrs): 0.25							
Vehicle Volumes	and Adjustn									
Major Street		Northbound				Southbou	und			
Movement	1	2	3		4	5		6		
	L	Т	R		L	T 100		R		
Volume	2	132	2		0	122		10		
Peak-Hour Factor, PH		0.95	0.95		0.95	0.95		0.95		
Hourly Flow Rate, HFF		138	0		0	128		10		
Percent Heavy Vehicle	s 5			11111	0					
Median Type			T ~	Undivi	aea	0				
RT Channelized			0							
Lanes	0	1	0		0	1		0 TR		
Configuration	LT					0		IK		
Upstream Signal		0								
Minor Street		Westbound	1 - 2		40	Eastbou 11	na	12		
Movement	7	8	9		10	 		R		
	L	T	R		L			6		
Volume	6	0	1		20	0				
Peak-Hour Factor, PH		0.95	0.95		0.95 21	0.95				
Hourly Flow Rate, HFF		0	0		5	5		5		
Percent Heavy Vehicle	s 0		U		3	2		<u> </u>		
Percent Grade (%)		0								
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		Vestbo	und	E	Eastbound			
Movement	1	4	7	8	9	10	11	12		
Lane Configuration	LT						LTR			
v (vph)	2						27			
C (m) (vph)	1427						744			
v/c	0.00						0.04			
	0.00						0.11	1		
95% queue length							10.0	 		
Control Delay	7.5						10.0 B	-		
LOS	Α							<u> </u>		
Approach Delay							10.0			
Approach LOS				В						

	TWO	D-WAY STOR	CONTR	ROL S	UN	IMARY		***	
General Informat	ion		Site	Inforn	nat	ion			
Analyst Agency/Co. Date Performed Analysis Time Period	01/04/20	n Associates 004	Jurisd	ection iction sis Yea	ır		James S St Marys 2011	treet & Wi	dder St
Project Description		Farms Subdivis	sion			***************************************			
East/West Street: W	lidder Street Ea	ıst	North/	South:	Stre	et: <i>Jame</i>	s Street N	orth	
Intersection Orientation	on: <i>North-</i> Soเ	ıth	Study	Period	(hr	s): <i>0.25</i>			
Vehicle Volumes	and Adjust	ments							
Major Street		Northbound					Southbo	und	
Movement	1	2	3			4	5		6
		T	R			L	T		R
Volume	1	105	11			1	121		3
Peak-Hour Factor, Ph		0.95	0.95	<u> </u>		0.95	0.95		0.95
Hourly Flow Rate, HF		110	11			1	127		3
Percent Heavy Vehicle	es 5					5			
Median Type				Undiv	ride	d			
RT Channelized			0						0
Lanes	0	1	0			0	1		0
Configuration	LTR					LTR			
Upstream Signal							0		
Minor Street		Westbound					Eastbou	ınd	
Movement	7	8	9			10	11		12
	L	Т	R			L	Т		R
Volume	37	6	3			9	2		2
Peak-Hour Factor, PH		0.95	0.95	5		0.95	0.95		0.95
Hourly Flow Rate, HFI		6	3			9	2		2
Percent Heavy Vehicle	es 5	5	5			5	5		5
Percent Grade (%)		2					2		
Flared Approach		N					N	i	
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	١	Vestbo	ounc	j	E	astbound	
Movement	1	4	7	8		9	10	11	12
Lane Configuration	LTR	LTR		LTR				LTR	
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	Α	А		В				В	
Approach Delay				10.5				10.2	
Approach LOS				В				В	

TWO-WAY STOP CONTROL SUMMARY **General Information** Site Information James Street & Widder St Swan IM Intersection Analyst Tranplan Associates Jurisdiction Agency/Co. St Marys 01/04/2004 Analysis Year 2011 Date Performed PM Peak Hour Analysis Time Period Thames Crest Farms Subdivision Project Description North/South Street: James Street North East/West Street: Widder Street East Intersection Orientation: North-South Study Period (hrs): 0.25 Vehicle Volumes and Adjustments Northbound Southbound **Major Street** 3 6 Movement R T R L L 120 Volume 1 144 45 6 10 0.95 0.95 0.95 0.95 0.95 0.95 Peak-Hour Factor, PHF 126 10 151 47 6 Hourly Flow Rate, HFR 1 5 5 __ Percent Heavy Vehicles Undivided Median Type 0 RT Channelized 0 0 1 0 0 1 0 Lanes LTR LTR Configuration 0 Upstream Signal 0 Westbound Eastbound Minor Street 12 9 10 11 Movement 8 L T R L T R 31 6 6 3 Volume 0.95 0.95 0.95 0.95 0.95 0.95 Peak-Hour Factor, PHF 6 3 Hourly Flow Rate, HFR 32 6 2 1 5 5 5 5 5 5 Percent Heavy Vehicles 2 2 Percent Grade (%) N Ν Flared Approach 0 0 Storage RT Channelized 0 0 0 0 0 1 0 1 _anes LTR LTR Configuration Delay, Queue Length, and Level of Service Eastbound NB SB Westbound Approach 10 11 12 1 4 7 8 9 Movement LTR LTR LTR LTR Lane Configuration 10 6 40 1 v (vph) 621 623 1430 1357 C (m) (vph) 0.02 0.00 0.06 0.00 v/c 0.01 0.21 0.05 0.00 95% queue length 11.2 10.9 7.5 7.7 Control Delay В В Α Α LOS 11.2 10.9 Approach Delay --В В Approach LOS

2021

INTERSECTION CAPACITY ANALYSES

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SIGNALIZED INTERSECTIONS

			: •

HCS2000™ DETAILED REPORT General Information Site Information Intersection Queen & Water Swan IM Analyst CBD or Similar Area Type Tranplan Associates Agency or Co. Jurisdiction St Marys Date Performed 01/04/2004 2021 Analysis Year Time Period AM Peak Thames Crest Farms Project ID Subdivision Volume and Timing Input NB **WB** SB EB RT LT TH RT LT TH RT LT TH RT LT TH 0 1 0 Number of lanes, N. 1 1 0 1 0 1 1 0 1 L L L TR LTR TR TR Lane group 43 Volume, V (vph) 52 335 84 77 349 36 90 32 80 27 48 7 7 7 7 7 % Heavy vehicles, %HV 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 Р Р P Р Р P P Р Р P 2.0 2.0 2.0 2.0 2.0 2.0 2.0 Start-up lost time, I, Extension of effective green, e 2.0 2.0 2.0 2.0 2.0 2.0 2.0 3 Arrival type, AT 3 3 3 3 3 3 3.0 3.0 3.0 3.0 Unit extension, UE 3.0 3.0 3.0 1.000 Filtering/metering, I 1.000 1.000 1.000 1.000 1.000 1.000 0.0 0.0 0.0 0.0 0.0 Initial unmet demand, Qh 0.0 0.0 0 Ped / Bike / RTOR volumes 5 5 0 50 5 50 5 0 50 0 50 12.0 Lane width 11.0 12.0 11.0 12.0 12.0 12.0 2 Ν Ν 2 Ν Parking / Grade / Parking Ν Ν Ν Ν Ν 1 1 Parking maneuvers, N_m 0 0 0 0 0 0 Buses stopping, N_B 3.5 3.5 3.5 3.5 Min. time for pedestrians, G_n 03 04 NS Perm 06 80 02 **EW Perm** Phasing G = 24.0G = G = G = G = G = 36.0G = G = **Timing** Y = Y = Y = Y = 5Y = Y = 5Y = Y = Cycle Length, C = 70.0 Duration of Analysis, T = 0.25Lane Group Capacity, Control Delay, and LOS Determination EΒ SB WB NB RT RT LT TH RT LT TH RT LT TH LT TH 428 100 125 131 Adjusted flow rate, v 58 86 465 354 451 453 310 801 Lane group capacity, c 334 782 0.28 0.29 0.28 0.53 0.28 v/c ratio, X 0.17 0.59 0.34 Total green ratio, g/C 0.51 0.51 0.34 0.34 0.51 0.51 16.8 16.7 16.7 Uniform delay, d₁ 9.1 11.9 9.6 11.4 1.000 Progression factor, PF 1.000 1.000 1.000 1.000 1.000 1.000 0.50 0.50 0.50 0.50 0.50 0.50 Delay calibration, k 0.50 2.2 2.5 2.0 1.5 1.6 1.1 3.3 Incremental delay, do Initial queue delay, d₃ 18.2 18.4 11.8 13.9 18.7 Control delay 10.2 15.2 В В В В В В Lane group LOS В 18.4 18.4 13.6 Approach delay 14.7 В В В Approach LOS В Intersection LOS В $X_{c} = 0.47$ Intersection delay 15.2

HCS2000™ DETAILED REPORT

General Information

Analyst

Swan IM

Agency or Co.

Tranplan Associates

01/04/2004 Date Performed PM Peak Time Period

Site Information

Intersection Queen & Water

Area Type Jurisdiction CBD or Similar St Marys

2021 Analysis Year

Thames Crest Farms Subdivision

Project ID

Volume and	l Timing Inpu	t			33.49		25.0						,	$\{f_i,f_i\}$	
				<u>EB</u>	,		WB				NB	·	ļ	SB	
			LT	TH	RT	LT	TH	RT	<u> </u>	<u>.T</u>	TH	RT	LT	TH	RT
Number of la	anes, N ₁		1	1	0	1	1	0			1	0	0	1	0
Lane group			L	TR		L	TR		L	_	TR			LTR	
Volume, V (\	/ph)		67	386	99	120	398	35	14	14	55	105	52	73	53
% Heavy vel	nicles, %HV		7	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour fa	actor, PHF		0.90	0.90	0.90	0.90	0.90	0.90	0.9	90	0.90	0.90	0.90	0.90	0.90
Pretimed (P)	or actuated (۹)	P	P	P	P	P	P	F	>	P	P	P	P	Р
Start-up lost	time, I ₁		2.0	2.0		2.0	2.0		2.	0	2.0			2.0	
Extension of	effective gree	n, 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			3	
Unit extension	on, UE		3.0	3.0		3.0	3.0		3	.0	3.0			3.0	
Filtering/met	ering, I		1.000	1.000		1.000	1.000)	1.0	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 volume	s	50	5	0	50	5	0	5	0	5	0	50	5	0
Lane width			11.0	12.0		11.0	12.0		12	.0	12.0			12.0	
Parking / Gra	ade / Parking		N	1	N	N	1	N	٨	J	2	N	N	2	N
Parking man	euvers, N _m														
Buses stopp	ing, N _B		0	0		0	0		(2	0			0	
Min. time for	pedestrians, (3 _p		3.5			3.5				3.5			3.5	
Phasing	EW Perm		02	0	3	04		NS Pe	erm		06		07		08
Timing	G = 35.0	G =		G =		G =		G = 26	.0	G:	=	G =		G =	
Timing	Y = 5	Y =		Y =		Y =		Y = 5		Υ =		Y =		Y =	
Duration of A	nalysis, T = 0	.25						·		Су	cle Leng	jth, C =	71.0		

Lane Group Capacity, Co	ntrol De	lay, and	LOS D	etermin	ation		194 17					
		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	ļ		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									ļ			<u> </u>
Control delay	12.8	20.1		21.2	17.0		21.4	18.5			19.8	
Lane group LOS	В	С		С	В		С	В			В	
Approach delay	1	9.2			17.9			19.9			19.8	
Approach LOS		В			В			В			В	
Intersection delay	1	9.0		X _c :	= 0.61		Interse	ction LOS	3		В	

HCS2000" DETAILED REPORT

General Information

Swan IM Analyst

Agency or Co.

Tranplan Associates

Date Performed 01/04/2004 AM Peak Time Period

Site Information Intersection Area Type

Project ID

Queen & Wellington CBD or Similar St Marys

Jurisdiction Analysis Year

2021 Thames Crest Farms Subdivision - Ext Cycle

											Overare passible			
Volume and	Timing Input			1							•		- 00	
				EB			WB		 	NB L TIL	RT	LT	SB TH	RT
			LT	TH	RT	LT	TH	RT	LT	TH			1	0
Number of la	nes, N ₁		1	1	0	1	1	0	0	1	0	0	ļ <u> </u>	0
Lane group			L	TR		L	TR		ļ	LTR	ļ	<u> </u>	LTR	<u> </u>
Volume, V (v	ph)		67	353	21	73	324	64	38	64	46	157	142	100
% Heavy veh	nicles, %HV		7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour fa	ctor, 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	۸)	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	<u> </u>	ļ	2.0	ļ
Extension of	effective gree	n, e	2.0	2.0		2.0	2.0			2.0	<u></u>		2.0	<u> </u>
Arrival type,	AT		3	3		3	3			3			3	
Unit extension	on, UE		3.0	3.0		3.0	3.0			3.0			3.0	
Filtering/met	ering, 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 volume:	s	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	<u> </u>
Parking / Gra	ade / Parking		N	1	N	N	1	N	N	2	N	N	2	N
Parking man	euvers, N _m													
Buses stopp			0	0		0	0			0			0	
Min. time for	pedestrians, (Э _р		3.5			3.5			3.5			3.5	·
Phasing	EW Perm		02)3	04		NS Pe	rm	06		07		80
	G = 32.0	G =		G =		G =		G = 36.	0	G =	G =	=	G =	
Timing	Y = 5	Y =		Y =		Υ =		Y = 5	,	Y =	Υ =	•	Y =	
Duration of	Analysis, T = 0	.25		1						Cycle Len	gth, C	= 78.0		
		VIOLESCENIA VALAS			NC Dess									

Duration of Analysis, 1 = 0.25								Sycie Len	gui, C -	70.0		
Lane Group Capacity, C	ontrol Del	ay, and	LOS De	etermina	tion					auten e	10.00	
		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	<u> </u>		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	<u> </u>
Initial queue delay, d ₃						<u></u>				<u> </u>	<u> </u>	ļ
Control delay	19.4	23.4		19.6	24.9			14.3			29.8	
Lane group LOS	В	С		В	С			В			С	
Approach delay	2	2.8			24.1			14.3			29.8	
Approach LOS		С			С			В			С	
Intersection delay	2	24.2		X _c	= 0.75		Inters	ection LC	S		С	

HCS2000" DETAILED REPORT

General Information

Analyst

Swan IM

Agency or Co.

Tranplan Associates

Date Performed 01/04/2004 Time Period PM Peak Intersection Area Type Queen & Wellington CBD or Similar

Jurisdiction Analysis Year

Site Information

St Marys 2021

Project ID

Thames Crest Farms

Subdivision

volume and	Timing Input			EB		<u> </u>	WB			NB		Ī	SB	
			LT	TH	RT	LT	TH	RT	LT		RT	LT	TH	RT
Number of la	nes, N ₁		1	1	0	1	1	0	0	1	0	0	1	0
Lane group			L	TR		L	TR			LTR		,	LTR	
Volume, V (v	ph)		58	427	55	96	432	101	45	173	106	76	121	79
% Heavy veh	nicles, %HV	-	7	7	7	7	7	7	7	7	7	7	7	7
Peak-hour fa	ctor, PHF		0.90	0.90	0.90	0.90	0.90	0.90	0.9	0.90	0.90	0.90	0.90	0.90
Pretimed (P)	or actuated (A	4)	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	
	effective gree	n, e	2.0	2.0		2.0	2.0			2.0			2.0	<u> </u>
Arrival type,	AT		3	3		3	3			3			3	
Unit extension	n, UE		3.0	3.0		3.0	3.0			3.0			3.0	
Filtering/met	ering, 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 / I	RTOR volume	s	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 / Gra	ade / Parking		N	1	N	N	1	N	Ν	2	N	N	2	N
Parking man	euvers, N _m													
Buses stopp	ing, N _B		0	0		0	0			0			0	
Min. time for	pedestrians, 0	Э _р		3.5			3.5			3.5			3.5	
Phasing	EW Perm		02	0	3	04		NS Pe	rm	06		07		08
	G = 38.0	G =		G =		G =		G = 26.	0	G =	G =		G =	
Timing	Y = 5	Y =		Y =	:	Y =		Y = 5		Y =	Y =	:	Y =	
Duration of A	Analysis, T = 0	.25								Cycle Le	ngth, C	= 74.0		

Duration of Analysis, T = 0.25	
Lane Group Capacity, Control Delay, a	and LOS Determination

Lane Group Capacity, C	ontrol Del	**************************************	LUS D	ererunus Serunus			1			T		
		<u>EB</u>	·		WB	7		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		<u> </u>	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											ļ	<u> </u>
Control delay	13.3	17.9		15.7	21.0			32.4			34.3	
Lane group LOS	В	В		В	C			С			С	
Approach delay	1	7.4			20.2			32.4			34.3	
Approach LOS		В			С			С			С	
Intersection delay	2	3.8		X _c	= 0.76		Inters	ection LC	S		С	

HCS2000" DETAILED REPORT Site Information General Information Queen & Church Intersection Swan IM Analyst CBD or Similar Area Type Tranplan Associates Agency or Co. Jurisdiction St Marys 01/04/2004 Date Performed Analysis Year 2021 AM Peak Time Period Thames Crest Farms Project ID Subdivision - Exist Geo Volume and Timing Input NB SB WB EB RT TH RT TH RT LT TH LT RT LT LT TH 1 0 0 0 0 1 1 1 0 1 1 0 Number of lanes, N, LTR LTR L L TR TR Lane group 150 49 39 386 179 36 88 45 21 21 57 478 Volume, V (vph) 7 7 7 7 7 7 7 7 7 7 7 7 % Heavy vehicles, %HV 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 Peak-hour factor, PHF P Р Р P P Р Ρ Pretimed (P) or actuated (A) P P Р P P 2.0 2.0 2.0 2.0 2.0 2.0 Start-up lost time, I1 2.0 2.0 Extension of effective green, e 2.0 2.0 2.0 2.0 3 3 3 3 3 3 Arrival type, AT 3.0 3.0 Unit extension, UE 3.0 3.0 3.0 3.0 1.000 1.000 1.000 Filtering/metering, I 1.000 1.000 1.000 0.0 0.0 0.0 0.0 0.0 0.0 Initial unmet demand, Qb 0 50 0 50 0 50 Ped / Bike / RTOR volumes 50 0 12.0 12.0 11.0 12.0 11.0 12.0 Lane width 2 Ν Ν 2 Ν Ν Ν 1 Ν Ν 1 Ν Parking / Grade / Parking Parking maneuvers, N_m 0 0 0 0 0 0 Buses stopping, NR 3.5 3,5 3.5 3.5 Min. time for pedestrians, Gp **NS Perm** 06 07 80 03 04 02 **EW Perm** Phasing G = G = G = G = G = 23.0G = G = G = 37.0Timing Y = Y = Y = Y = Y = Y = Y = 5Y = 5Cycle Length, C = 70.0 Duration of Analysis, T = 0.25Lane Group Capacity, Control Delay, and LOS Determination SB NB EB WB RT TH RT LT TH RT LT TH RT LT LT TH 188 264 23 628 Adjusted flow rate, v 63 554 448 356 801 274 835 Lane group capacity, c 228 0.74 0.42 0.78 0.08 v/c ratio, X 0.28 0.66 0.33 0.53 0.53 0.33 Total green ratio, g/C 0.53 0.53 20.9 18.3 Uniform delay, d₁ 9.1 12.0 8.1 13.3 1.000 1.000 Progression factor, PF 1.000 1.000 1.000 1.000 0.50 0.50 0.50 0.50 Delay calibration, k 0.50 0.50 0.6 7.6 2.9 13.0 3.0 4.1 Incremental delay, d2 Initial queue delay, d₃ 33.9 21.2 8.7 20.9 12.1 16.1 Control delay C C Α С В В Lane group LOS 21.2 33.9 20.4 15.7 Approach delay C C В C Approach LOS $X_{c} = 0.77$ C Intersection LOS Intersection delay 20.9

HCS2000" DETAILED REPORT General Information Site Information Intersection Queen & Church Analyst Swan IM Area Type CBD or Similar Agency or Co. Tranplan Associates Jurisdiction St Marys Date Performed 01/04/2004 Analysis Year 2021 Time Period PM Peak Thames Creek Farms Project ID Subdivision - Extend Cycle

Volume and	l Timing Inpu	t													
				EB			WE	3			NB			SB	
-			LT	TH	RT	LT_	TH		RT	LT	TH	RT	LT	TH	RT
Number of la	anes, N ₁		1	1	0	1	1		0	0	1	0	0	1	0
Lane group			L	TR		l L	TR				LTR			LTR	\ \V
Volume, V (v	/ph)		49	534	28	32	548		149	36	49	36	171	27	45 /
% Heavy vel	hicles, %HV		7	7	7	7	7		7	7	7	7	7	7	7
Peak-hour fa	ctor, 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		Р	P	P	P	P	P	P
Start-up lost	time, l₁		2.0	2.0		2.0	2.0				2.0			2.0	
Extension of	effective gree	n, e	2.0	2.0		2.0	2.0				2.0			2.0	
Arrival type,	AT		3	3		3	3				3			3	
Unit extension	on, UE		3.0	3.0		3.0	3.0				3.0			3.0	
Filtering/met	ering, l		1.000	1.000		1.000	1.00	0			1.000			1.000	
Initial unmet	demand, Q _b		0.0	0.0		0.0	0.0				0.0			0.0	
Ped / Bike / I	RTOR volume	s	50	5	0	50	5	T	30	50	5	0	50	5	0
Lane width			11.0	12.0		11.0	12.0)			12.0			12.0	/
Parking / Gra	ade / Parking		N	1	N	N	1		N	Ν	2	N	N	2	N
Parking man	euvers, N _m														
Buses stopp	ing, N _B		0	0		0	0				0			0	
Min. time for	pedestrians, (Э _р		3.5			3.5				3.5			3.5	
Phasing	EW Perm		02	0	3	04		N	S Perr	n	06		07	()8
Timing	G = 42.0	G =		G =		G =		G =	26.0	G	=	G =		G =	
I silling	Y = 5	Y =		Y =		Y =		Y =	5	Υ	=	Y =		Y =	
Duration of A	nalysis, T = 0	.25								Cy	cle Leng	gth, C =	78.0		

| Cycle Length, C = 78.0Lane 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, d₁ 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 5.4 Incremental delay, d2 5.7 1.4 14.8 2.0 14.8 Initial queue delay, d₃ Control delay 15.5 19.4 10.5 31.0 21.5 38.0 Lane group LOS В В В С С D Approach delay 19.1 30.0 21.5 38.0 Approach LOS В C C D $X_c = 0.85$ Intersection delay

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Intersection LOS

26.6

С

UNSIGNALIZED INTERSECTIONS

TWO-WAY STOP CONTROL SUMMARY

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

						· · · · · · · · · · · · · · · · · · ·
Vehicle Volumes and A	djustments					
Major Street		Northbound			Southbound	
Movement	1	2	3 .	4	5	6
	L	T	R	L	Т	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			Undi	vided		
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	LL	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		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, a	and Level of Se	rvice	1					
Approach	NB	SB		Westbound	i	Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (vph)	21	21		43			57	
C (m) (vph)	1522	1510		784			901	
v/c ³	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	Α	Α		Α			Α	
Approach Delay				9.9			9.3	
Approach LOS	4 +			Α			Α	

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TWO-WAY STOP CONTROL SUMMARY General Information Site Information Swan IM Water St N & Emily St Intersection Analyst St Marys Agency/Co. Tranplan Associates Jurisdiction Date Performed 01/04/2004 Analysis Year 2021 PM Peak Hour Analysis Time Period Thames Crest Farms Subdivision Project Description North/South Street: Water Street North East/West Street: Emily St Study Period (hrs): 0.25 North-South Intersection Orientation: Vehicle Volumes and Adjustments Southbound Northbound **Major Street** 6 Movement 1 2 3 4 5 Т R L Т R 52 44 7 20 13 1 Volume 0.95 0.95 0.95 Peak-Hour Factor, PHF 0.95 0.95 0.95 46 7 13 54 1 Hourly Flow Rate, HFR 21 5 5 Percent Heavy Vehicles Undivided Median Type 0 RT Channelized 0 0 0 1 0 0 1 Lanes LTR LTR Configuration 0 0 Upstream Signal Eastbound Westbound **Minor Street** 10 12 7 9 11 Movement 8 R L T R Т 40 17 10 1 6 Volume 0.95 0.95 0.95 0.95 0.95 0.95 Peak-Hour Factor, PHF 7 17 10 1 6 42 Hourly Flow Rate, HFR 5 5 5 5 5 5 Percent Heavy Vehicles 2 2 Percent Grade (%) Ν Ν Flared Approach 0 0 Storage 0 0 RT Channelized 0 0 0 1 0 1 _anes LTR LTR Configuration

Delay, Queue Length,	and Level of Se	rvice						
Approach	NB	SB		Westboun		Eastbound		
Movement	1	4	7	7 8 9		10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
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	A	Α		В			Α	
Approach Delay				10.1			9.1	
Approach LOS				В			Α	

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	TWO-	WAY STOP	CONTR	ROL SU	MMARY				
General Information	on		Site	Informa	ation		***		
Analyst Agency/Co. Date Performed Analysis Time Period	01/04/200 AM Peak	Hour	Inters Jurisc Analy	ection liction sis Year		Water St N & Parkview Di St Marys 2021			
Project Description T		arms Subdivisi							
East/West Street: Parl						er Street N	orth		
Intersection Orientation	: North-South)	Study	Period (h	rs): <i>0.25</i>				
Vehicle Volumes a	nd Adjustm	ents							
Major Street		Northbound				Southbo	und	······································	
Movement	1	2	3		4	5		6	
	L	Т	R		L	T		R	
Volume	7	59	18		6	85		22	
Peak-Hour Factor, PHF		0.95	0.98	5	0.95	0.95		0.95	
Hourly Flow Rate, HFR	0	62	18		6	89		0	
Percent Heavy Vehicles	0				5				
Median Type			Undivided						
RT Channelized			0					0	
_anes	0	1	0		0	1		0	
Configuration			TR		LT				
Jpstream Signal		0				0			
Minor Street		Westbound		Eastbound					
Vovement	7	8	9		10	11		12	
	L	Т	R		L	T		R	
Volume	32	0	3		12	o		5	
Peak-Hour Factor, PHF	0.95	0.95	0.95	5	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	1			0			
Flared Approach		<u> </u>	I			TN			
		0				1 0			
Storage			-			<u> </u>			
RT Channelized			0					0	
anes	0	1	0		0	0		0	
Configuration		<u>LTR</u>	<u> </u>		·			· · · · · · · · · · · · · · · · · · ·	
Delay, Queue Length, a		ervice							
Approach	NB	SB	'	Nestbour	nd		Eastbour	nd	
/lovement	1	4	7	8	9	10	11	12	
ane Configuration		LT		LTR					
(vph)		6		36		1			
		1499		820	 	1			
C (m) (vph)						 			
/c		0.00		0.04				_	
5% queue length		0.01		0.14		_			
Control Delay		7.4		9.6					
os		Α		Α					
approach Delay				9.6					

	TWO	-WAY STOP	CONTR	OL SU	MMARY					
General Informati	on	-	Site I	nforma	ation					
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan 01/04/200 PM Peak	Hour				Water St St Marys 2021		kview Dr		
Project Description		-arms Subdivisi								
East/West Street: Pa						er Street No	Street North			
Intersection Orientation	n: <i>North-Sout</i>	h	Study	Period (hrs): 0.25					
Vehicle Volumes	and Adjustn									
Major Street		Northbound				Southbo	und			
Movement	1	2	3		4	5		6		
	<u> </u>	T	R		L	T		R		
Volume	7	56	59		11	85		22		
Peak-Hour Factor, PH		0.95	0.95		0.95	0.95		0.95		
Hourly Flow Rate, HFF		58	62		11	89		0		
Percent Heavy Vehicle	s 0			<u></u>	5					
Median Type				Undivid	led					
RT Channelized			0					0		
Lanes	0	1	0		0	1		0		
Configuration			TR		LT					
Upstream Signal		0				0				
Minor Street		Westbound				Eastbou	ınd			
Movement	7	8	9		10	11		12		
	L	Т	R		L	Т		R		
Volume	71	0	10		12	0		5		
Peak-Hour Factor, PHI	0.95	0.95	0.95		0.95	0.95		0.95		
Hourly Flow Rate, HFF	74	0	10		0	0		0		
Percent Heavy Vehicle	s 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	1	Westbou	ınd	i	Eastbour	ıd		
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		Α		В						
Approach Delay				10.1	•					
Approach LOS				В						
<u> </u>		uniaht @ 2002 Liniuar	's CF3 3.1	A 11 D : -1-4-	Danamad			Version 4.1		

	TWO-WAY STO	P CONTROL SUMMARY	Y
General Information		Site Information	
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan Associates 01/04/2004 AM Peak Hour	Intersection Jurisdiction Analysis Year	Wellington St N & Widder St E St Marys 2021
Project Description Tha	mes Crest Farms Subdivision		
East/West Street: Widde	r St East	North/South Street: V	Vellington Street North
Intersection Orientation:	North-South	Study Period (hrs): 0.	.25
Vehicle Volumes and A	Adjustments	2	
14 1 04 1	N - 41 1	1	

Vehicle Volumes and A	djustments					
Major Street		Northbound			Southbound	
Movement	1	2	3	4	5	6
	L	<u> </u>	R	L	Т	R
Volume	7	90	11	7	207	10 V
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			Und	divided		
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	<u> </u>	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		LTR			LTR	

Delay, Queue Length, a	and Level of Sei	rvice						
Approach	NB	SB		Westbound		Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
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	Α	Α		В			В	
Approach Delay				11.4			10.1	·
Approach LOS		-		В			В	

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	TWO-WAY STO	P CONTROL SUMMARY	1
General Information		Site Information	
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan Associates 01/04/2004 PM Peak Hour	Intersection Jurisdiction Analysis Year	Wellington St N & Widder St E St Marys 2021
Project Description That	mes Crest Farms Subdivision		
East/West Street: Widden	r St East	North/South Street: V	Vellington Street North
Intersection Orientation:		Study Period (hrs): 0.	.25
Vehicle Volumes and /	Adjustments		
Major Street	Northbound	d	Southbound

Vehicle Volumes and A	djustments					
Major Street		Northbound			Southbound	
Movement	1	2	3	4	5	6
	L	Т	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			Und	livided		· · · · · · · · · · · · · · · · · · ·
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	Т	R	L	Т	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		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			<u> </u> LTR	J

Delay, Queue Length, a	and Level of Ser	vice						
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
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	Α	Α		В			В	
Approach Delay		_		11.2			10.5	
Approach LOS				В			В	

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TWO-WAY STOP CONTROL SUMMARY

General Information

Swan IM

Site Information

Analyst

Tranplan Associates 01/04/2004

Intersection Jurisdiction Analysis Year

Wellington St N & Station St

Agency/Co. Date Performed

Analysis Time Period

AM Peak Hour

St Marys 2021

Project Description

Thames Creek Farms Subdivision

East/West Street: Station St

Wellington Street North North/South Street:

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

Vehicle Volumes and A	djustments	11111	17. A. P. T.		100	
Major Street		Northbound	,		Southbound	<u>,</u>
Movement	11	2	3	4	5	6
	L	Т	R	L	Т	R
Volume		91	71	7	263	٢
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	-	an m
Median Type			Undi	ivided		
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	, 0	10	11	12
	L	Т	R	L	Т	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	e .	1 (298)			

Delay, Queue Length, a	ind Level of Sei	vice	1.0				- 114	
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		В				,
Approach Delay				12.6				
Approach LOS				В				

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

		and the first water of control descriptions from the first feet for	CONTRACTOR OF THE PROPERTY OF	a nomination of the more representative and recommendation	The state of the s				
Vehicle Volumes and A	djustments								
Major Street		Northbound			Southbound				
Movement	11	2	3	4	5	6			
	L	T	R	<u> </u>	T	R			
Volume		194	144	1	105	<u> </u>			
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95			
Hourly Flow Rate, HFR	0	204	151	11	110	0			
Percent Heavy Vehicles	0			5					
Median Type			Und	divided					
RT Channelized			0			0			
Lanes	0	1	0	0	1	0			
Configuration			TR	LT					
Upstream Signal		0			0	1			
Minor Street		Westbound			Eastbound				
Movement	7	8	9	10	11	12			
	L	Т	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		N			N				
Storage		0			0				
RT Channelized			0			0			
Lanes	0	0	0	0	0	0			
Configuration		LR							

Delay, Queue Length, a	ind Level of Ser	vice .		100			47.24万年上	
Approach	NB	SB		Westbound	i i	Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
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		Α		В				
Approach Delay				12.8				
Approach LOS				В				Varaian A

	Т	WO-WAY STO	P CONTR	OL SU	MM.	ARY					
General Information			Site I	nforma	atio	1	2.00				
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan 01/04/200 AM Peak		Interse Jurisdi Analys				Wellington St Marys 2004	n St N &	Parkview Dr		
	names Creek Far	ms Subdivision									
East/West Street: Park							on Street N	orth			
Intersection Orientation:			Study Period (hrs): 0.25								
Vehicle Volumes and	<u>l Adjustments</u>										
Major Street		Northbound					Southbo	und			
Movement	1 L	2 T	3 R			4	5 T		<u>6</u>		
Volume	10	140	6			<u>L</u>	330		R 31 /		
Peak-Hour Factor, PHF	0.95	0.95	0.95	5		0.95	0.95		0.95		
Hourly Flow Rate, HFR	10	147	6			1	347		32		
Percent Heavy Vehicles	5		<u> </u>			5	J 377		<u> </u>		
Median Type				1 Undiv	ido						
RT Channelized		1	0	Oriali	/IU U C	<i>I</i>	1				
	0		0				 		0		
Lanes		1				0	1		0		
Configuration	LTR					LTR					
Upstream Signal		0					0				
Minor Street		Westbound				40	Eastbou	nd			
Movement	7	8 T	9			10	11		12		
Volume		1	R 1			17	T 1		R		
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	·			
Percent Grade (%)		2					2				
Flared Approach		1 N	1				N		·		
Storage							 	<u></u>	····		
RT Channelized			0				0		0		
Lanes	0	1	0			0	1		0		
Configuration		LTR	-			U	LTR				
							LIK				
Delay, Queue Length, a Approach	NB	vice SB	<u> </u>	Westbo	pd	<u> </u>		Caathau	nd		
Movement	1	4	7	vvesibe 8	Juna	9		Eastbou			
Lane Configuration	LTR	LTR	<u>'</u>	LTR)	9	10	11	12		
v (vph)	10	1	<u> </u>	3			<u> </u>	LTR 25			
C (m) (vph)	1163	1409		525				492			
V/c	0.01	0.00		0.01			<u> </u>	0.05			
95% queue length	0.03	0.00		0.01				0.05			
Control Delay	8.1	7.6		11.9				12.7			
LOS	A	A		B				12.7 B			
Approach Delay				11.9				12.7			
				11.0			ļ	14.1			

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В

В

	I V	VO-WAY STOP						VII. 1872/KANDONA		
General Information			Site In		tion		7			
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan A 01/04/2004 PM Peak I	4	Intersed Jurisdic Analysis	tion			Wellington St N & Parkview Dr St Marys 2021			
	ames Crest Farm									
East/West Street: Parkv	iew Dr						on Street No	orth		
Intersection Orientation:			Study P	eriod (l	hrs):	0.25				
Vehicle Volumes and	Adjustments									
Major Street		Northbound					Southbou	ınd		
Movement	1	2	3			4	5		6	
	<u>L</u>	T	R			<u> </u>	T 184		R 43 V	
Volume	31	295	10			<u>1</u> 0.95	0.95		0.95	
Peak-Hour Factor, PHF	0.95	0.95	0.95			1	193		45	
Hourly Flow Rate, HFR	32	310				5				
Percent Heavy Vehicles	5						<u> </u>	<u> </u>		
Median Type			1 -	Undiv	iaea		1		0	
RT Channelized			0						0	
Lanes	0	11	0			0	1		U	
Configuration	LTR		_			LTR				
Upstream Signal		0					0			
Minor Street		Westbound					Eastbou	<u>nd</u>	40	
Movement	7	8	9			10	11 T		12 R	
	<u>_</u>	Ţ	R			42	6		22	
Volume	10	0.95	6 0.95	-V		<u>42</u> 0.95	0.95		0.95	
Peak-Hour Factor, PHF	0.95	0.95	6			44	6		23	
Hourly Flow Rate, HFR	5	5	5			5	5		5	
Percent Heavy Vehicles	3						2			
Percent Grade (%)	_	2	<u> </u>				N			
Flared Approach		N		∤			0			
Storage		0	+				<u> </u>		0	
RT Channelized			0				1		0	
Lanes	0	1	0			0	LTR		U	
Configuration		<u> </u> LTR					<u>LIR</u>		rational and resident State of the State of	
Delay, Queue Length, a	nd Level of Ser						I		<u> </u>	
Approach	NB	SB		Westbo				Eastboun		
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	5			0.16		
95% gueue length	0.08	0.00		0.14				0.55		
Control Delay	7.8	7.9		13.5				14.1		
LOS	A	A		В				В		
Approach Delay	-			13.5	 5			14.1		
Approach Delay				10.0			<u> </u>			

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В

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В

Analyst Swan IM Agency/Co. Tranplan Associates Date Performed 01/04/2004 Analysis Time Period AM Peak Hour Project Description Thames Crest Farms Subdivision East/West Street: James Street North Intersection Church St N & James St N Jurisdiction St Marys Analysis Year 2021 North/South Street: Church Street North						
General Information		Site Information				
Analyst Agency/Co. Date Performed Analysis Time Period	Tranplan Associates 01/04/2004	Jurisdiction	St Marys			
Project Description Tha	mes Crest Farms Subdivision					
East/West Street: James	Street North	North/South Street: C	hurch Street North			
Intersection Orientation:	North-South 🕑	Study Period (hrs): 0.2	25			

Vehicle Volumes and A	djustments								
Major Street		Northbound			Southbound				
Movement	1	2	3	4	5	6			
	L	Т	R	L	Т	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			Und	livided					
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			
	<u> </u>	Т	R	L	Τ	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 Se	rvice					ejet kut ir		
Approach	NB	SB		Westbound 7 8 9			Eastbound		
Movement	1	4	7				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	Α		В			В		
Approach Delay		_		14.1			11.2		
Approach LOS				В			В	***************************************	

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	TWO-WAY STO	P CONTROL SUMMARY	•
General Information		Site Information	
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan Associates 01/04/2004 PM Peak Hour	Intersection Jurisdiction Analysis Year	Church St N & James St N St Marys 2021
Project Description Tha	mes Crest Farms Subdivision		
East/West Street: James	Street North	North/South Street: C	Church Street North
Intersection Orientation:	North-South	Study Period (hrs): 0.	.25

Vehicle Volumes and A	djustments								
Major Street		Northbound			Southbound	-			
Movement	1	2	3	4	5	66			
	L	Т	R	L.	<u> T </u>	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			Una	livided					
RT Channelized			0			0			
Lanes	0	1	0	0	1	0			
Configuration	LTR			LTR					
Upstream Signal		0							
Minor Street		Westbound			Eastbound				
Movement	7	8	9	10	11	12			
	L	T	R	LL	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		ļ	0			
Lanes	0	1	0	0	1	0			
Configuration		LTR			LTR]			

Comigaration						<u> </u>		
Delay, Queue Length, a	and Level of Sei	rvice						
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	Α	A		С			В	
Approach Delay	_		ļ	17.5			12.8	
Approach LOS	_			С			В	

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	TWO	D-WAY STOP	CONT	ROL SU	MMARY			
General Informa	tion		Site	Inform	ation			
Analyst Agency/Co. Date Performed Analysis Time Period	01/04/20 AM Pea	n Associates 1004 k Hour	Juriso Analy	section diction vsis Year		James St Mary 2021	Street & G 's	ilass
Project Description		Farms Subdivis						
East/West Street: G					reet: <i>Jam</i>		Vorth	
Intersection Orientation			Study	Period (I	nrs): <i>0.25</i>			
Vehicle Volumes	and Adjusti	nents						
Major Street		Northbound				Southbo	ound	
Movement	1	2	3		4	5		6
	<u>L</u>	Т	R		L	Т		R
Volume	10	81	22		1	81		8
Peak-Hour Factor, Ph		0.95	0.9		0.95	0.95		0.95
Hourly Flow Rate, HF		85	23		1	85		8
Percent Heavy Vehicl	es 5				5			
Median Type RT Channelized			T	Undivid	ed			
Lanes	0		0					0
Configuration	LTR	11	0	 -	0	1		0
Upstream Signal		0	- 		LTR	0		
Minor Street		Westbound						
Movement	7	8 vvestbound	9		10	Eastbo	und	40
Movement	T L	 	R		L	11 T		12
Volume	2	1	2		21	1		R
Peak-Hour Factor, PH		0.95	0.98	 -	0.95	0.95		25 0.95
Hourly Flow Rate, HFI		1	2	'	22	1		26
Percent Heavy Vehicle		5	5		5	5		5
Percent Grade (%)		2	1			2		<u> </u>
Flared Approach		T N						
Storage		0				1 0		
RT Channelized			0			-		
anes	0	1	0		0			0
Configuration		LTR	-		U	1		0
Delay, Queue Length	and level of					<u>LTR</u>		
Approach	NB			A1 11	1	т		
		SB		Westbour			Eastbound	
Movement	1	4	7	8	9	10	11	12
ane Configuration	LTR	LTR		LTR			LTR	
(vph)	10	1		5			49	
C (m) (vph)	1483	1464		779			838	
r/c	0.01	0.00		0.01			0.06	
5% queue length	0.02	0.00		0.02			0.19	
Control Delay	7.4	7.5		9.7			9.6	1
.os	Α	A		A			A	
pproach Delay				9.7			9.6	L
				·				
pproach LOS	Con	yright © 2003 Universi	ty of Florida	All Rights Re	ecerved		Α	Version 4

	TWO	-WAY STOP	CONTR	ROL SI	UMMARY					
General Informati	on		Site	Inform	nation					
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan 01/04/20 PM Peak	Associates 04 Hour			-	James Street & Glass St Marys 2021				
Project Description	Thames Crest	Farms Subdivis	ion				,			
East/West Street: Gla	ass Street		North/South Street: James Street North							
Intersection Orientatio	n: <i>North-Sou</i> t	^t h	Study	Period	(hrs): 0.25					
Vehicle Volumes	and Adiustr	nents								
Major Street		Northbound				Southbo	und			
Movement	1	2	3		4	5	5			
	L	Т	R		L	T		R		
Volume	31	102	19			116		24		
Peak-Hour Factor, PH		0.95		0.95 0.95		0.95		0.95		
Hourly Flow Rate, HFF		107	20		3	122		25		
Percent Heavy Vehicle	s 5				5					
Median Type				Undivi	ided					
RT Channelized			0					0		
Lanes	0	1	0			1		0		
Configuration	LTR				LTR					
Upstream Signal		0				0				
Minor Street		Westbound				Eastbou	nd			
Movement	7	8	9		10	11		12		
	L	Т	R		L	T		R		
Volume	35	3	2		18	5		25		
Peak-Hour Factor, PH	F 0.95	0.95	0.98	5	0.95	0.95		0.95		
Hourly Flow Rate, HFF		3	2		18	5		26		
Percent Heavy Vehicle	s 5	. 5	5		5	5		5		
Percent Grade (%)		2				2				
Flared Approach		N				N				
Storage		0				0				
RT Channelized			0					0		
	0	1	0		0	1		0		
Lanes Configuration	 	LTR	+			LTR				
Delay, Queue Length			1	Westbo	und	1 1	astbound	<u> </u>		
Approach	NB	SB								
Movement	1	4	7	8	9	10	11	12		
Lane Configuration	LTR	LTR		LTR			LTR			
v (vph)	32	3		41			49	<u> </u>		
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			
	7.6	7.5		11.6			10.3			
Control Delay				B			B			
LOS	Α	Α		<u> </u>				<u> </u>		
Approach Delay				11.6			10.3			
Approach LOS		 oyright © 2003 Unive	ŀ	В		В				

General Informa	·	O-WAY STO							
General Informa Analyst	swan	18.4		<u>Infor</u>		on			
Analyst Agency/Co.		ııvı an Associates		section diction					Trailsid
Date Performed	01/04/			ysis Ye			St Mary 2021	/8	
Analysis Time Period		ak Hour	1 ""	y 515 1 C	ui		2021		
Project Description	Thames Cre	st Farms Subdiv	ision						
East/West Street: Ti	railside Ct		North/South Street: James Street North						
Intersection Orientation	on: <i>North-S</i> o	outh	Study Period (hrs): 0.25						
Vehicle Volumes	and Adjus	tments							
Major Street		Northboun	nd		T		Southb	ound	
Movement	1	2		3		4	5	ound	6
	L	Т		₹		i i	 		R
Volume	. 0	114	9			1	116		0
Peak-Hour Factor, PH	IF 0.95	0.95	0.9	95	(0.95	0.98		0.95
Hourly Flow Rate, HF		120	9			1	122		0
Percent Heavy Vehicl	es 0					5			
Median Type				Undi	vided				
RT Channelized			0						0
Lanes	0	1 1	0			0	1		0
Configuration			TF	TR		LT			
Jpstream Signal		0				0			
Minor Street		Westbound					Eastbo	und	
Movement	7	8	9)		10	11		12
	L	Т	F	₹		L		Т	
/olume	28	0	4	4		0	0		R 0
Peak-Hour Factor, PH	F 0.95	0.95	0.9	0.95		:95	0.95		0.95
Hourly Flow Rate, HFF	२ 29	0	4			0	0		0
Percent Heavy Vehicle	es 5	5	5			0	0		0
Percent Grade (%)		2					0		
lared Approach		N					T N		
Storage		0					1 0		
RT Channelized			0				+ -		
anes	0	1	0			ñ	+ -		0
Configuration	 	LTR	- 0			0	0		0
				i					
Delay, Queue Length		7	1	141			<u></u>	_	
Approach	NB	SB		Westbo	ound			Eastbou	
Novement	11	4	7	8		9	10	11	12
ane Configuration		LT		LTR	?				
(vph)		1		33					
(m) (vph)		1438		751					
/c		0.00		0.04	1			1	1
5% queue length		0.00		0.14					
Control Delay	-	7.5		10.0				-	
		<u> </u>	<u> </u>	 	<u> </u>			<u> </u>	
OS .		, A		В				<u> </u>	
pproach Delay				10.0)				
pproach LOS			I	В		1			

	TWO	-WAY STOP	CONTR	OL S	JMMAR	Υ				
General Informati	on		Site	Inform	ation					
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM	Associates 04	Jurisd	ection iction sis Yea	-	James St St Marys 2021				
Project Description	Thames Crest I	Farms Subdivis	ion							
East/West Street: Tra						ames Street No	orth			
Intersection Orientation	n: <i>North-Sout</i>	'h	Study	Study Period (hrs): 0.25						
Vehicle Volumes	and Adjustn	nents								
Major Street		Northbound				Southbou	ınd			
Movement	1	2	3		4	5		6		
	L	Т	R		L	Τ		R		
Volume	0	173	36		9	166		0		
Peak-Hour Factor, PHI		0.95	0.9	5	0.95	0.95		0.95		
Hourly Flow Rate, HFF		182	37		9	174		0		
Percent Heavy Vehicle	s 0				5					
Median Type				Undiv	ded		1			
RT Channelized			0		_			0		
Lanes	0	1	0			1		0		
Configuration			TR		LT	0				
Upstream Signal		0								
Minor Street		Westbound			10	Eastbou	nd			
Movement	7	8		9		11		12		
	L	Т	R		L	Т		R		
Volume	23	0	7		0	0		0		
Peak-Hour Factor, PHI		0.95	0.9	5	0.95	0.95		0.95		
Hourly Flow Rate, HFF		0	7		0	0		0		
Percent Heavy Vehicle	s 5	5	5		0	` O		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									
Approach	NB	SB		Westbo	ound	l E	astboun	d		
Movement	1	4	7	8	9		11	12		
Lane Configuration	I .	LT	<u> </u>	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						
		A		В						
LOS				10.9						
Approach Delay										
Approach LOS		 pyright © 2003 Unive	L	В	D			Version 4		

						04-05.	
	TV	O-WAY STO	CONTROL S	UMMARY			
General Information	No.		Site Inform	nation			
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan A 01/04/2004 AM Peak H		Intersection Jurisdiction Analysis Yea	ar	James Street & Egan Ave. St Marys 2021		
	nes Crest Farm	s Subdivision					
East/West Street: Egan A	ve.	4	North/South	Street: James	Street North		
Intersection Orientation: I	Vorth-South		Study Period (hrs): 0.25				
Vehicle Volumes and A	djustments						
Major Street		Northbound			Southbound		
Movement	1	2	3	4	5	6	
	L	T	R	L	Т	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	

	Northbound		Southbound				
11	2	3	4	5	6		
L	Т	R	L	Т	R		
6	125	2	0	157	21		
0.95	0.95	0.95	0.95	0.95	0.95		
6	131	0	0	165	22		
5		_	0	_	_		
		Und	livided				
		0			0		
0	1	0	0	1	0		
LT					TR		
	0			0			
	Westbound			Eastbound			
7	8	9	10	11	12		
L	T	R	L	Т	R		
6		1	24	0	4		
0.95	0.95	0.95	0.95	0.95	0.95		
0	0	0	25	0	4		
0	0	0	5	5	5		
	0			2			
	N			N	ĺ		
	0			0			
		0			0		
0	0	0	0	0	0		
				LR			
	0.95 6 5 0 LT 7 L 6 0.95 0	L T 6 125 0.95 0.95 6 131 5 0 1 LT 0 Westbound 7 8 L T 6 0 0.95 0.95 0 0 0 0 0 0 0 0 0 0	L T R 6 125 2 0.95 0.95 0.95 6 131 0 5 Und 0 1 0 LT 0 Westbound 7 8 9 9 L T R 6 0 1 0.95 0.95 0.95 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	L T R L 6 125 2 0 0.95 0.95 0.95 0.95 6 131 0 0 Undivided 0 0 0 LT 0 0 Vestbound 0 0 L T R L 6 0 1 24 0.95 0.95 0.95 0.95 0 0 0 25 0 0 0 5 0 0 0 5	L T R L T 6 125 2 0 157 0.95 0.95 0.95 0.95 0.95 6 131 0 0 165 5 - 0 - Undivided 0 1 0 0 1 LT 0 0 1 0 Vestbound Eastbound Eastbound 7 8 9 10 11 L T R L T 6 0 1 24 0 0.95 0.95 0.95 0.95 0.95 0 0 0 5 5 0 0 0 5 5 0 0 0 0 0 0 0 0 0 0		

Delay, Queue Length, a	and Level of Ser	vice						
Approach	NB	SB		Westboun	d	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	Α						В	
Approach Delay		-					10.5	
Approach LOS	_						В	

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	TW	O-WAY STOP	CONTROL	LSUN	IMARY					
General Information	100		Site Inf	ormat	ion					
Analyst Agency/Co. Date Performed Analysis Time Period	Swan IM Tranplan As 01/04/2004 PM Peak Ho		Jurisdicti	Intersection Jurisdiction Analysis Year			James Street & Egan Ave. St Marys 2021			
Project Description Tha	mes Crest Farms									
East/West Street: Egan			North/South Street: James Street North							
Intersection Orientation:	North-South		Study Period (hrs): 0.25							
Vehicle Volumes and .	Adjustments				100	^ .ALL	.1			
Major Street		Northbound	1 2			Southbou 5	<u>na</u> I	6		
Movement	1 1	2 T	3 R		4 L	T	_	R		
1/-1	<u>L</u>	185	2		0	164		21		
Volume 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	 	Undivided								
RT Channelized	-	0						0		
	0	1	0		0	1				
Lanes Configuration	LT	-	-					TR		
Upstream Signal	 -	0	 			0				
Minor Street		Westbound				Eastbou	nd			
Movement	7	8	9		10	11		12		
Wovement	L	Т	R		L	Т		R		
Volume	6	0	1		30	0		7		
Peak-Hour Factor, PHF	0.95	0.95	0.95		0.95	0.95		0.95 7		
Hourly Flow Rate, HFR	0	0	0		31	0				
Percent Heavy Vehicles	0	0	0		5	5		5		
Percent Grade (%)		0				2				
Flared Approach		N				N N				
Storage		0	_			0				
RT Channelized		ļ	0					0		
Lanes	0	0	0		0	0		0		
Configuration						LR				
Delay, Queue Length, a						The state of the s				
Approach	NB	SB	\	Westbo			Eastbound			
Movement	1	4	7	8	9	10	11	12		
Lane Configuration	LT						LR			
v (vph)	3						38			
C (m) (vph)	1361						645			
ν/c	0.00						0.06			
95% queue length	0.01						0.19			
	7.7						10.9			
Control Delay	A						В	1		
LOS			<u> </u>				10.9			
Approach Delay	-						10.9			

Approach LOS Rights Reserved

Version 4.1d

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В

TWO-WAY STOP CONTROL SUMMARY

General Information

Swan IM

Site Information

Analyst

Intersection

Agency/Co.
Date Performed

Tranplan Associates 01/04/2004

Jurisdiction

James Street & Widder St

Analysis Time Period

AM Peak Hour

Analysis Year

St Marys 2021

Project Description

Thames Crest Farms Subdivision

East/West Street: Widder Street East Intersection Orientation: North-South

James Street North North/South Street:

Study Period (hrs): 0.25

Vehicle Volumes and A	Adjustments		144			
Major Street	<u> </u>	Northbound			Southbound	
Movement	1	2	3	4	5	6
	L	Т	R	L	Т	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		· ·	Undi	ivided		
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	ТТ	R	L	Т	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		N			N	
Storage		0			0	
RT Channelized			0			. 0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Delay Oueue Length and	Laval of Const		The Control of the State of the			

Delay, Queue Length,	and Level of Se	rvice				70,000	,	90 (2.00 2.4) 2.00 (2.00 2.00 2.00 2.00 2.00 2.00 2.00
Approach	NB	SB		Westbound			Eastbound	
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
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	Α	Α		В			В	
Approach Delay				11.6			10.6	1
Approach LOS	**			В			В	

TWO-WAY STOP CONTROL SUMMARY

General Information

Date Performed

Swan IM

01/04/2004

Site Information

Analyst Tranplan Associates Agency/Co.

Intersection Jurisdiction Analysis Year James Street & Widder St

St Marys 2021

PM Peak Hour Analysis Time Period Thames Crest Farms Subdivision Project Description

East/West Street: Widder Street East North-South Intersection Orientation:

James Street North North/South Street:

Study Period (hrs): 0.25

Intersection Onemation.						GARGETTER STATE OF STATE
Vehicle Volumes and A	djustments				Southbound	1. J.War. (1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
Major Street		Northbound			······	6
Movement	11	2	3	4	5 	R
	L	Т	R	10	168	3 ~
Volume	1	200	55		0.95	0.95
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95		3
Hourly Flow Rate, HFR	1	210	57	10	176	
Percent Heavy Vehicles	5			5		
Median Type			Undi	ivided	T	
RT Channelized			0			0
Lanes	0	1 .	0	0	1	0
Configuration	LTR			LTR		-
Upstream Signal		0			0	
Minor Street		Westbound			Eastbound	40
Movement	7	8	9	10	11	12
Wovement	L	T	R	L	T	R
Volume	38	7	6	3	4	
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	ſ
Flared Approach		N			N .	
Storage		0			Ö	
RT Channelized			0			0
Lanes	0	1	0	0	1 1	0
Configuration		LTR			LTR	
Delay, Queue Length, an	d Level of Servi	će -				
IDGIGY, MUCHO LONGER,	April 10 Control of the Control of t				I	haund

Configuration						3.557 (185.59)		407-130421
Delay, Queue Length,	and Level of Se	rvice						16. AC-11.
Approach	NB	SB		Westbound		Eastbound		
Movement	1	4	. 7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (vph)	1	10		53			8	
C (m) (vph)	1367	1269		518			508	
	0.00	0.01		0.10			0.02	
V/C	0.00	0.02		0.34			0.05	
95% queue length	7.6	7.9		12.7			12.2	
Control Delay	7.0 A	A		В			В	
LOS				12.7			12.2	
Approach Delay				В			В	
Approach LOS				<i>D</i>				

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