### OTY RESIDENTIAL DEVELOPMENT 200, 230 & 260 STEAMLINE STREET OTTAWA, ONTARIO

## TRANSPORTATION IMPACT ASSESSMENT REVISED

Prepared for:

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## OTY RESIDENTIAL DEVELOPMENT 200, 230 & 260 STEAMLINE STREET OTTAWA, ONTARIO

## TRANSPORTATION IMPACT ASSESSMENT REVISED

## **MODULE 1 - SCREENING**

A Screening Form has been prepared which is included as Exhibit 1 in the Appendix. The Trip Generation Trigger has been satisfied in the Screening Form, with the City of Ottawa staff review recommending that the assessment study proceed to the Scoping Form. The following will address the requirements of the Scoping Form.

## **MODULE 2 - SCOPING**

## **MODULE 2.1 – Existing and Planned Conditions**

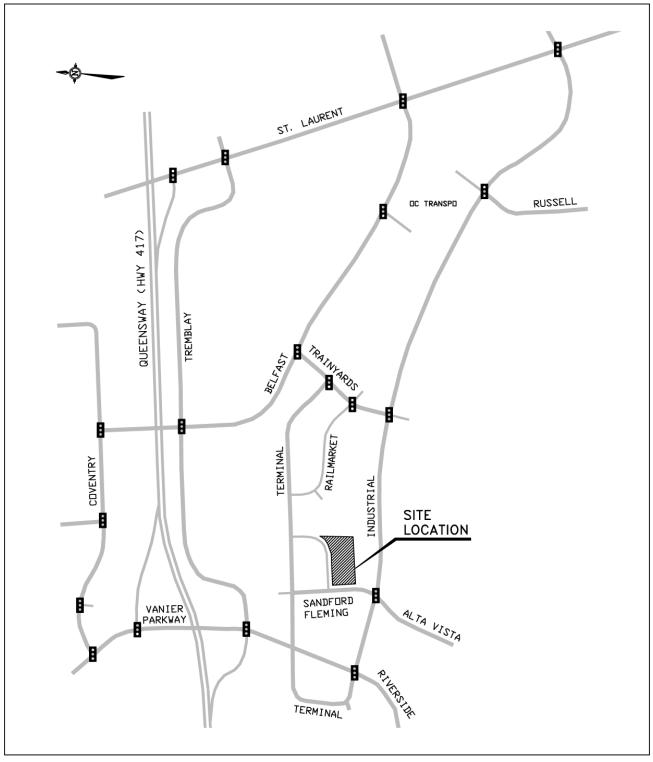
A Site Plan has been prepared for the development of land along Steamline Street which is part of the Ottawa Train Yards land. The proposed development is located along the south side of Steamline Street, between Sandford Fleming Avenue and Terminal Avenue. The location of the development is shown in Figure 2.1.

## **Element 2.1.1 – Proposed Development**

The Site Plan proposes the development to consist of the construction of seven apartment buildings on a 3.529 ha parcel of land. The development will be constructed in three phases with the following showing the building number, number of units, and anticipated completion date.

PHASE 1		
Buildings 100 & 200	420 units	2021 completion
PHASE 2		
Buildings 300, 400 & 500	865 units	2027 completion
PHASE 3		
Buildings 600 & 700	605 units	2031 completion
Total Apartment Units	1,890 units	

### FIGURE 2.1 SITE LOCATION PLAN



The land currently has one commercial/industrial use building. The surrounding land uses consist of the Canada Post office complex to the west, retail shopping to the east, office development to the north, and commercial/industrial to the south. Steamline Street currently exists with a connection to Sandford Fleming Avenue. The street provides access to the commercial/industrial properties on both the north and south sides of Steamline Street.

The land is currently zoned "Transit Oriented Development Zone" (TOD) TD2[1979] which will support the proposed development. Amendments to the zoning may be required for the development.

The proposed development will have two access points onto Steamline Street. Steamline Street currently connects to Sandford Fleming Avenue approximately 125 m south of Terminal Avenue, and will be extended during Phase 3 of the development to Terminal Avenue approximately 320 m east of Sandford Fleming Avenue. A drop-off is proposed on Sandford Fleming Avenue for passengers and deliveries. The drop-off will have two access points onto Sandford Fleming Avenue which will have a separation of 35 m (centreline to centreline) and be restricted to one-way traffic.

The Site Plan provides 2,097 parking spaces for tenants and visitors for 1,890 dwelling units which is a 1.11 space per unit parking ratio. The number of parking spaces provided is below the 1.75 spaces per dwelling unit rate stipulated for a TOD site in the Zoning By-law. Access to both the surface and underground parking will be from the two proposed accesses onto Steamline Street. Figure 2.2 shows a plan of the proposed development.

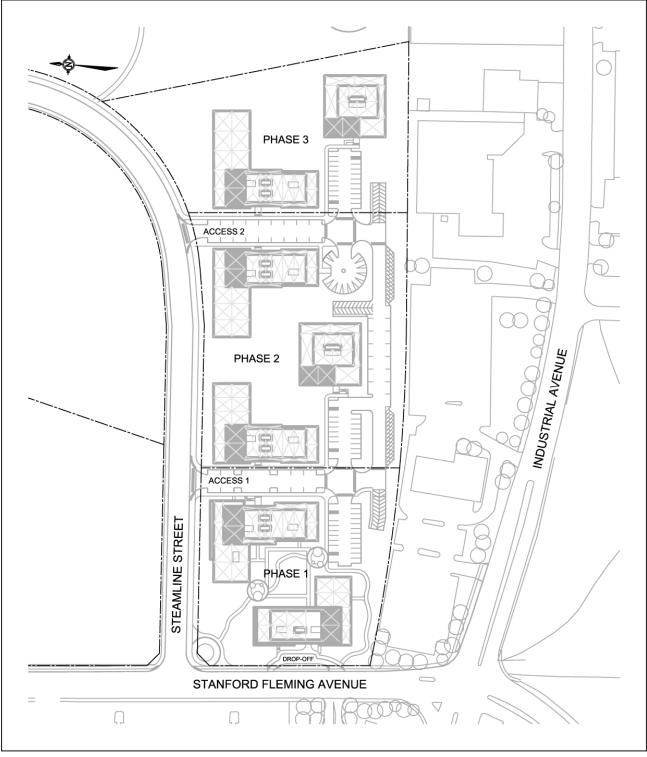
## **Element 2.1.2 – Existing Conditions**

The apartment development will be located along Steamline Street which will connect to both Sandford Fleming Avenue and Terminal Avenue. Sandford Fleming Avenue is a two lane urban collector road with an unposted speed limit of 50 km./h. The pavement width is approximately 14 metres, with sidewalks along both sides of the roadway. Paid parking is permitted along the east side of the road with parking prohibited along the west side. There are no designated cycling lanes along the road.

The City of Ottawa *Transportation Master Plan* (TMP) has identified a "Major Pathway" in the Cycling Network - Primary Urban plan which would connect Industrial Avenue to Terminal Avenue. The pathway would then travel north along a route which has yet to be established. The land between the site's south property limit and Industrial Avenue is not owned by Ottawa Train Yards Inc. and any north-south pathway would not be able to connect to Industrial Avenue. The site plan has provided for a 3.0 m multi-use pathway along the south side of Steamline Street connecting to the existing sidewalks on both Sandford Fleming Avenue and Terminal Avenue.

Terminal Avenue is designated in the TMP as a collector road. The road is a two lane urban roadway with a posted speed limit of 50 km./h. The pavement is approximately 11 metres in width with parking restricted along the south side of the road. There is a sidewalk along the south side of the roadway which extends across the frontage of Walmart from Steamline Street to Railmarket Private. A sidewalk exists along the north side of Terminal Avenue from Sandford Fleming Avenue to the point where the south sidewalk terminates at the west limit of Walmart.

## FIGURE 2.2 CONCEPTUAL SITE PLAN



There are no cycling lanes along this portion of Terminal Avenue. In the fall of 2013 Terminal Avenue was open to two-way traffic between Sandford Fleming Avenue and Riverside Drive. In 2015 the traffic was changed back to bus only traffic westbound from Sandford Fleming Avenue to Riverside Drive as part of the construction of the Transitway/LRT.

Belfast Road is designated as a collector road with an unposted speed of 50 km./h. The road has a two lane cross-section east and west of the Belfast/Trainyards intersection, and a four lane urban cross-section at the approaches to Trainyards Drive. There is a sidewalk along the north side of the road. There are no cycling lanes along the road, but Belfast Road between Trainyards Drive and Coventry Road is identified as a "Major Pathway" in the Cycling Network - Primary Urban in the City of Ottawa *Transportation Master Plan* (TMP).

Trainyards Drive is a two lane urban roadway linking Belfast Road to Industrial Avenue. The road has an unposted speed limit of 50 km./h., with a sidewalk along the west side of the roadway and a multi-use pathway along the east side. Trainyards Drive is designated as a "Major Pathway" in the TMP.

Railmarket Private is a two lane private urban road which passes through the retail site linking Terminal Avenue to Trainyards Drive.

Industrial Avenue is designated in the *Transportation Master Plan* as a four lane undivided arterial roadway. The posted speed limit along Industrial Avenue is 60 km./h. There is a pedestrian sidewalk along the north side of the road. There are no designated cycling lanes along the road. Industrial Avenue is identified as a "Spine Route" in the TMP.

Riverside Drive is a four lane divided arterial road with a posted speed limit of 60 km./h. The road has pedestrian sidewalks along both sides of the road. Riverside Drive is identified as a "Spine Route" in the TMP, with no designated cycling lanes.

The intersection of Terminal Avenue and Sandford Fleming Avenue is controlled by all-way stop signs. The Terminal/Sandford Fleming intersection is a "T" intersection, with Terminal Avenue forming the eastbound and westbound approaches to the intersection, and Sandford Fleming Avenue the northbound approach. The southbound approach to the intersection is a private approach to the Canada Post parking lot. The following is the lane configuration:

NB Sandford Fleming Approach -	One shared left/through/right lane
Southbound Canada Post Driveway -	One shared left/through/right lane
Eastbound Terminal Approach -	One shared left/through lane
	One right turn lane
Westbound Terminal Approach -	One shared left/through/right lane

Note: Currently all westbound movements on Terminal Avenue west of Sandford Fleming Avenue is restricted to Buses Only. The NB approach functions as an exclusive right turn lane and a shared left/through lane due to the pavement width of the road The Terminal/Railmarket intersection is a "T" intersection controlled by a stop sign at the northbound Railmarket Private approach. The eastbound and westbound Terminal Avenue approaches are single lanes with no exclusive turn lanes, and the northbound Railmarket Private approach consists of an exclusive left turn and right turn lane.

The Terminal/Trainyards intersection is essentially a "T" intersection with Trainyards Drive forming the northbound and southbound approaches, and Terminal Avenue the eastbound approach. A private driveway forms the westbound approach. The intersection is controlled by traffic signals with the following lane configuration:

Northbound Trainyards Approach -	One left turn lane
	One through lane
	One right turn lane
Southbound Trainyards Approach -	One shared left/through lane
	One right turn lane
Eastbound Trainyards Approach -	Two left turn lanes
	One shared through/right lane
Westbound Private Driveway -	One shared left/through/right lane

The Trainyards/Belfast intersection is a "T" intersection with Belfast Road forming the eastbound and westbound approaches, and Trainyards Drive the northbound approach. The intersection is controlled by traffic signals with the following lane configuration:

Northbound Trainyards Approach -	Two left turn lanes
	One right turn lane
Eastbound Belfast Approach -	One through lane
	One right turn lane
Westbound Belfast Approach -	One left turn lane
	Two through lanes

The Trainyards/Railmarket intersection is controlled by traffic signals. The lane configuration of the intersection is as follows:

Northbound Trainyards Approach -	One left turn lane
	One shared through/right lane
Southbound Trainyards Approach -	One left turn lane
	One through lane
	One right turn lane
Eastbound Railmarket Approach -	One left turn lane
	One shared through/right lane
Westbound New Retail Entrance -	One left turn lane
	One shared through/right lane

The Industrial/Trainyards intersection is a signalized intersection with Industrial Avenue forming the eastbound and westbound approaches, Trainyards Drive the southbound approach, and a private driveway to a commercial site forms the northbound approach. The lane configuration of the intersection is as follows:

Northbound Private Driveway - Southbound Trainyards Approach -	One shared left/through/right lane One left turn lane One shared through/right lane
Eastbound Industrial Approach -	One left turn lane One through lane
Westbound Industrial Approach -	One shared through/right lane One left turn lane One through lane One shared through/right lane

The Industrial/Sandford Fleming (Alta Vista) intersection is controlled by traffic signals, with Industrial Avenue forming the eastbound and westbound approaches, Sandford Fleming Avenue the southbound approach, and Alta Vista Drive the northbound approach. The intersection has a continuous eastbound right turn lane from Riverside Drive to Sandford Fleming Avenue (Alta Vista Drive). The lane configuration of the intersection is as follows:

Two left turn lanes
One shared through/right lane
One left turn lane
One through lane
One right turn lane (channelized)
One left turn lane
Two through lanes
One right turn lane (channelized)
One left turn lane
One through lane
One shared through/right lane

The Industrial (Terminal)/Riverside intersection is controlled by traffic signals, with Riverside Drive forming the northbound and southbound approaches, Terminal Avenue the eastbound approach, and Industrial Avenue the westbound approach. The lane configuration of the intersection is as follows:

Northbound Riverside Approach -	One left turn lane Three through lanes
	One right turn lane (channelized)
Southbound Riverside Approach -	Two left turn lanes
	Two through lane
	One right turn lane
Eastbound Terminal Approach -	One left turn lane
	One through lane
	One right turn lane
Westbound Industrial Approach -	Two left turn lanes
	One through lane
	Two right turn lanes (channelized)
	One right turn bus lane (channelized)

Driveways in close proximity to the site is the Canada Post main entrance which is located 85 m south of the Sandford Fleming/Steamline intersection, with loading docks located along the east side of the Canada Post building across from Steamline Street. Along Terminal Avenue the access to 405 Terminal Avenue is located 90 m west of the Terminal/Steamline intersection, and the access to Walmart is located 70 m east of the proposed intersection.

Transit service in the vicinity of Steamline Street comprises of routes along both Sandford Fleming Avenue and Terminal Avenue. These routes provide service to the downtown area and to Hurdman Transit Station. Bus stops are located at the Terminal/Sandford Fleming and Sandford Fleming/Steamline intersections. Hurdman Transit Station is located at a walk of approximately 900 m.

Traffic counts obtained from the City of Ottawa at intersections in the vicinity of the site has determined the weekday peak AM hour to occur between 7:30 and 9:30, and peak PM between 3:15 and 5:15. The time period for the peak volume of traffic was applicable to vehicular, cycling and pedestrian traffic. Figure 2.3 presents the existing peak hour traffic counts.

## **Element 2.1.3 – Planned Conditions**

The City of Ottawa *Transportation Master Plan 2013* was reviewed to identify transit and roadway projects in the vicinity of the development. The document identified the Confederation LRT Line between Tunney's Pasture and Blair stations in the "2031 Affordable RTTP Network Projects", and the widening of Tremblay Road from two to four lanes between Pickering Place and St. Laurent Boulevard in the "2031 Affordable Road Network". Both projects would have a positive impact on the volume of site related trips.

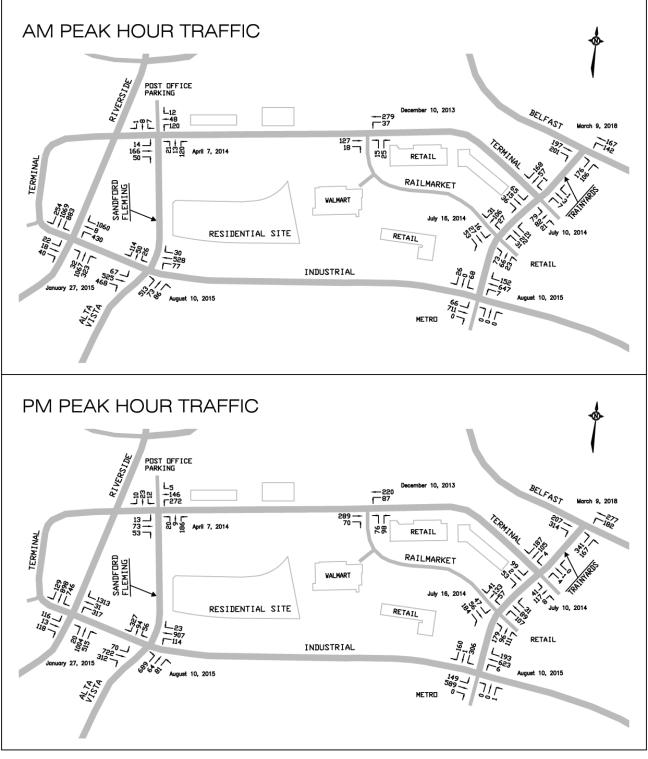
## **MODULE 2.2 – Study Area and Time Periods**

## Element 2.2.1 – Study Area

The study area was determined during a pre-consultation meeting with City staff which discussed the scope of the study and the impact of site trips from the proposed apartment development on the surrounding roads. It was determined that the traffic analysis should address the operation of the following intersections:

- 1. Sandford Fleming/Steamline intersection (proposed)
- 2. Terminal/Steamline intersection (proposed)
- 3. Terminal/Sandford Fleming intersection
- 4. Terminal/Railmarket intersection
- 5. Terminal/Trainyards intersection
- 6. Trainyards/Belfast intersection
- 7. Trainyards/Railmarket intersection
- 8. Industrial/Trainyards intersection
- 9. Industrial/Sandford Fleming (Alta Vista) intersection
- 10. Industrial (Terminal)/Riverside intersection

## FIGURE 2.3 EXISTING PEAK AM AND PM HOUR TRAFFIC COUNTS



#### **Element 2.2.2 – Time Periods**

The proposed apartment development would typically produce peak hour trips during the weekday AM hours as tenants leave for work and during the PM hours as tenants arrive home from work.

The adjacent land uses to the development comprise mainly of office/industrial with Canada Post west of the site, light industrial south of the site, and two office buildings located at 395 and 405 Terminal Avenue north of the site. These land uses generate peak hour trips during the weekday AM and PM hours with a very low number of trips on a Saturday.

The Ottawa Train Yards shopping centre is located east of the site with the peak hour trips occurring on a Saturday which are distributed mainly along Trainyards Drive to Industrial Avenue.

With the adjacent office/industrial uses on Sandford Fleming Avenue and Terminal Avenue generating peak hour trips on a weekday, the peak time periods for the analysis would be the weekday peak AM and PM hours which would be determined from traffic counts obtained from the City of Ottawa.

#### **Element 2.2.3 – Horizon Years**

The apartment development would be constructed in the following three phases:

Phase 1 – 2021 Phase 2 – 2027 Phase 3 – 2031

The TIA will examine the operation of the roads and intersections using the existing traffic counts, and at build out of each phase in 2021, 2027 and 2031. With the final phase planned for completion in 2031 which is beyond the immediate future and close to the horizon year of the *Transportation Master Plan* and *Official Plan*, the scope of work would not consider the "build out plus five years" time horizon as discussed in Element 2.2.3 of the TIA Guidelines.

## **MODULE 2.3 – Exemptions Review**

The exemptions, which provide possible reductions to the scope of work of the TIA Study, were examined using Table 4: Possible Exemptions which is provided in the City's *Transportation Impact Assessment Guidelines (2017)*.

There is not an equivalent volume of person-trips permitted under the established zoning for the lands. The number of parking spaces does not exceed the required parking ratio or number of parking spaces designated for a "Transit Oriented Development Zone". The development would be exempt from further examination under Module 4.8, Network Concept.

Utilizing the table, the following lists the possible exemptions proposed for the TIA Study report:

MODULE	ELEMENT	EXEMPTION CONSIDERATIONS	
Design Review Component			
4.1 Development Design	4.1.2 Circulation and Access	No - Access to the development and site circulation will be examined.	
	4.1.3 New Street Networks	Yes - Only required for subdivisions.	
4.2 Decking	4.2.1 Parking Supply	No - the supply of parking will be discussed.	
4.2 Parking	4.2.2 Spillover Parking	Yes - No spillover expected. Parking will be above that required by zoning.	
Network Impact Component			
4.5 Transportation Demand Management	All Elements	No - TDM measures will be addressed.	
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	No - Will examine the traffic along the adjacent local and collector streets and determine the function and role of the streets.	
4.8 Network Concept		Yes - The site would not generate more than 200 person-trips per peak hour in excess of the volume permitted by established zoning.	

## **MODULE 3 - FORECASTING**

## **MODULE 3.1 – Development-generated Travel Demand**

## **Element 3.1.1 – Trip Generation and Mode Shares**

The proposed development consists of an apartment use which is located adjacent to a regional shopping centre and within walking distance to OC Transpo bus stops. The apartment development will be constructed in three phases with Table 3.1 showing the number of apartment units and expected completion date for each phase.

# TABLE 3.1PHASING OF THE DEVELOPMENT

PHASE 1		
Buildings 100 & 200	420 units	2021 completion
Total Units – Phase 1	420 units	2021 completion
PHASE 2		
Buildings 300, 400 & 500	865 units	2027 completion
Total Units – Phase 1 & 2	1,285 units	2027 completion
PHASE 3		
Buildings 600 & 700	605 units	2021 completion
Total Apartment Units	1,890 units	2031 completion

The number of expected site generated trips utilized the trip statistical data documented in the 2009 TRANS Trip Generation Study report. The analysis used the vehicle trip generation rates with transit bonus from Table 6.3 of the TRANS document for ITE Land Use Code 222 "Highrise apartments", and the blended directional distribution shown in Table 6.2 of the document. The trips rates are shown in Table 3.2 below.

## TABLE 3.2TRIP GENERATION RATES AND DIRECTIONAL SPLITS

Peak Hr. Trip Rate	Peak A	M Hour	Peak Pl	M Hour	
Trip Rate	0.24 ]	ſ/Unit	0.27 T/Unit		
	Inbound	Outbound	Inbound	Outbound	
Directional Distribution	24%	77%	62%	39%	

The development falls within the Transit Oriented Development area which would place a high priority on transit use. Table 3.3 presents the mode share of person-trips as discussed with staff of the City of Ottawa.

Future Mode Share Targets for the Development						
Travel Mode	Mode Share Target	Rationale				
Transit	65%	The development is within the Transit Oriented Development area				
Walking	13%	Due to the close proximity to the Train Yards shopping centre				
Cycling	2%	Consistent with the City's Official Plan				
Auto Passenger	5%	Consistent with modal share targets and				
Auto Driver	15%	proximity to employment and retail areas				

## TABLE 3.3MODE SHARE SUMMARY (Person-trips)

The site generated trips were determined by the product of the number of units for each phase during the peak hour (Table 3.1), and the trip rates shown in Table 3.2. The total number of auto trips for each phase is shown in Table 3.4. The person-trips were determined by the number of auto trips divided by the mode share for the number of vehicle-trips. The mode share used was from Table 3.13 of the 2009 TRANS Trip Generation report for an apartment use in an urban area inside the green belt. The mode share is 0.37 vehicle-trips for the peak AM hour and 0.40 vehicle-trips for the peak PM hour. Table 3.4 shows the future peak hour person-trips, and includes the Trip Reduction Factor for the existing building on site. The Trip Reduction Factor for the existing building and use is explained below:

• The existing site is currently occupied by a light industrial land use which will be replaced by the proposed apartment development. The building is currently unoccupied and is ready for demolition. The building comprises of a three storey office/commercial building and an attached single storey industrial building. The building use and zoning would be for an ITE Land Use 110 "General Light Industrial" with a gross floor area of approximately 5,400 m<sup>2</sup> (58,125 ft<sup>2</sup>). The number of existing site trips which will be replaced by the proposed apartment development will be accounted for as a trip reduction in the vehicular trip generation table in the Analysis module. It was determined that during the peak AM hour there would be 47 vehicles entering the site and 6 exiting, and during the peak PM hour 7 vehicles would be entering and 49 vehicles exiting the site. The calculated vehicle-trips were converted to person-trips using a 1.28 trip rate as stated in the TIA Guidelines. The person-trips were calculated as 68 trips during the peak AM hour and 72 during the peak PM hour. The person-trips from the existing buildings on site were subtracted from the site generated future person-trips in Table 3.4.

# TABLE 3.4TOTAL PEAK HOUR SITE GENERATED TRIPS

Trips	AUTO-TRIP GENERATION		FUTURE PERSON-TRIPS	
Phase	PEAK AM HR.	PEAK PM HR.	PEAK AM HR.	PEAK PM HR.
PHASE 1 420 Units	101 veh.	113 veh.	273 per. <u>-68 per.</u> 205 per.	283 per. <u>-72 per.</u> 211 per.
PHASE 2 1,285 Units	308 veh.	347 veh.	832 per. <u>-68 per.</u> 764 per.	868 per. <u>-72 per.</u> 796 per.
PHASE 3 1,890 Units	453 veh.	510 veh.	1,224 per. <u>-68 per.</u> 1,156 per.	1,275 per. <u>-72 per.</u> 1,203 per.

The peak hour person-trips were determined by the product of the peak hour future person-trips from Table 3.4 and the future mode share from Table 3.3. The results are shown in Table 3.5.

## **Element 3.1.2 – Trip Distribution**

The distribution of site generated trips for the proposed apartment development was determined from the projected population and employment growth at the year 2021, and examination of the existing traffic pattern in the area. The trip distribution which will be utilized in the study for both the weekday peak AM hour and PM hour was as follows:

To/From the north	along Riverside Drive & Vanier Parkway	30%
	along Belfast Road	5%
To/From the south	along Riverside Drive	20%
	along Alta Vista Drive	10%
	along Industrial Ave. and St. Laurent Blvd.	10%
To/From the east	along Belfast Rd. and St. Laurent Blvd.	10%
	along Industrial Ave. and Innes Road	15%

## Element 3.1.3 – Trip Assignment

The trip assignment has examined the site generated trips with respect to the shortest and most convenient routes to/from the development. The study has assumed that the westbound Terminal Avenue traffic to Riverside Drive will be open to automobile traffic following the completion of the LRT and modifications to the Hurdman Transit Station. Figure 3.1 shows the trip assignment for the apartment development.

## TABLE 3.5PEAK HOUR FUTURE DEVELOPMENT GENERATED PERSON-TRIPS

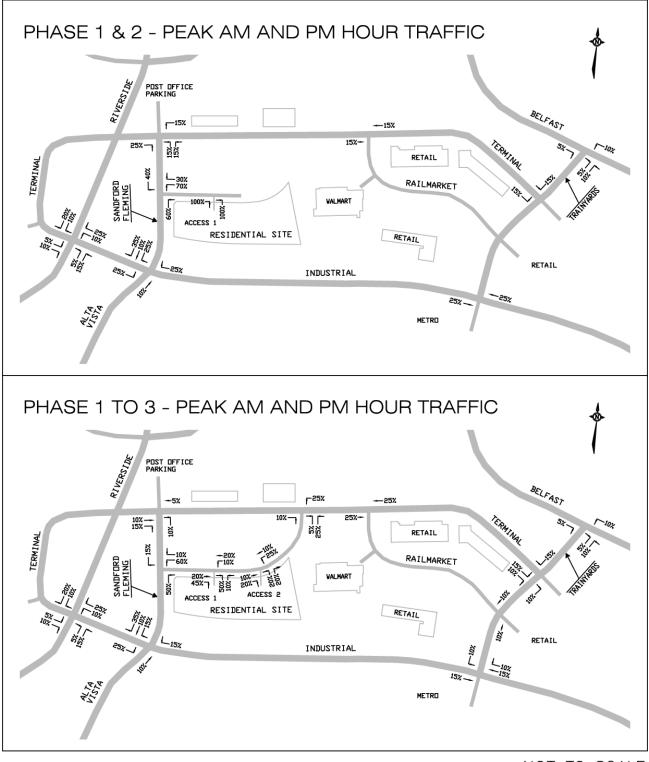
	DEVELOPMENT GENERATED PERSON-TRIPS				
TRAVEL MODE	PEAK AM HOUR	PEAK PM HOUR			
PHASE 1					
Transit	133 per./trips	137 per./trips			
Walking	27 per./trips	28 per./trips			
Cycling	4 per./trips	4 per./trips			
Auto Passenger	11 per./trips	11 per./trips			
Auto Driver	30 per./trips	31 per./trips			
PHASE 2					
Transit	497 per./trips	518 per./trips			
Walking	100 per./trips	104 per./trips			
Cycling	15 per./trips	16 per./trips			
Auto Passenger	38 per./trips	40 per./trips			
Auto Driver	114 per./trips	118 per./trips			
PHASE 3					
Transit	752 per./trips	782 per./trips			
Walking	151 per./trips	157 per./trips			
Cycling	23 per./trips	24 per./trips			
Auto Passenger	58 per./trips	61 per./trips			
Auto Driver	172 per./trips	179 per./trips			

## **Element 3.2.1 – Transportation Network Plans**

The City of Ottawa *Transportation Master Plan 2013* was reviewed to identify transit and roadway projects in the vicinity of the development. The document identified the Confederation LRT Line between Tunney's Pasture and Blair stations in the "2031 Affordable RTTP Network Projects", and the widening of Tremblay Road from two to four lanes between Pickering Place and St. Laurent Boulevard in the "2031 Affordable Road Network". Both projects would have a positive impact on the volume of both pedestrian and vehicular site related trips.

On a smaller scale, development in close proximity to the apartment development would consist of the office building at 405 Terminal Avenue. The construction of the building is substantially complete, but the building has not been occupied to date.

## FIGURE 3.1 PEAK AM AND PM HOUR TRIP ASSIGNMENT



#### **Element 3.2.2 – Background Growth**

To determine the growth in background traffic, the study has compared historical traffic counts obtained from the City of Ottawa at major intersections in the vicinity of the development. The counts taken in 2009/2010 at the Industrial/Sandford Fleming, Industrial/Riverside, Industrial/Trainyards and Terminal/Trainyards were compared to the traffic from the 2015 counts. The counts showed that over the 5 or 6 year time period, the volume of traffic was relatively the same with traffic at some approach movements decreasing over time while others increased. Increases in traffic were attributed to the 395 Terminal Avenue office building and more retail which was constructed at the Ottawa Train Yards (OTY) shopping centre. From historical traffic counts, previous studies have determined the growth in background traffic from outside the study area to be at an annual rate of 0.7 percent. The study has therefore increased all municipal road traffic volumes by an annual compounded rate of 1.0 percent to account for development outside the proposed apartment development and Ottawa Train Yards shopping centre.

#### **Element 3.2.3 – Other Developments**

Local developments which will be accounted for in the background traffic are the expected trips from the 405 Terminal Avenue office building. The building is substantially complete but currently is unoccupied. The expected trips would be estimated from the TIS report prepared for the building development.

The commercial/industrial building at 400 Terminal Avenue located between Steamline Street and Terminal Avenue will be demolished in the summer of 2018. The background traffic has accounted for the reduction in trips from the site. The trips were determined from a gross floor area of the building of  $3,505 \text{ m}^2 (37,720 \text{ ft}^2)$  and the ITE Land Use 110 "General Light Industrial". Figure 3.2 presents the background traffic at the year 2021 following the completion of Phase 1, Figure 3.3 the background traffic at 2027 following the completion of Phase 1 & 2, and Figure 3.4 the 2031 background traffic at the completion of Phase 1 to 3.

## **MODULE 4 – ANALYSIS**

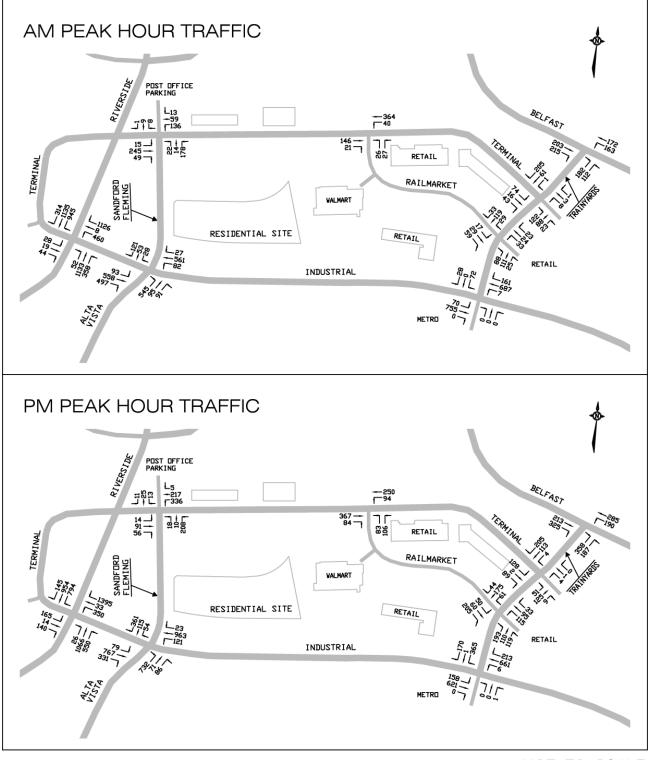
#### **MODULE 4.1 – Development Design**

#### **Element 4.1.1 – Design for Sustainable Modes**

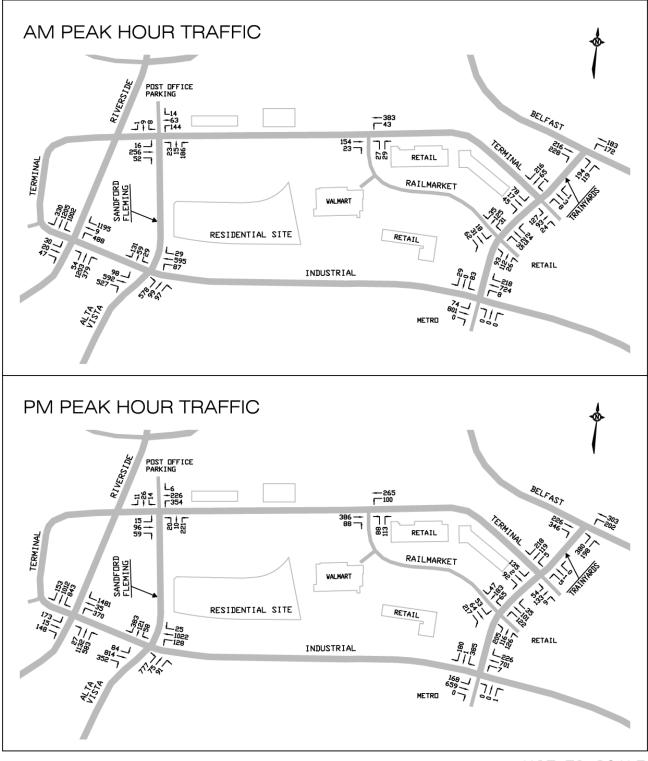
The site plan is consistent with the City of Ottawa Planning and Design Guidelines by placing the parking lots within the site with the majority of parking placed in an underground parking garage. Surface parking is placed close to the apartment building accesses but within the site at a distance from the municipal street which would provide a visual separation. The site contains two access points onto Steamline Street for vehicular traffic.

The site plan provides a 3.0 m multi-use pathway along the south side of Steamline Street adjacent to the site, and a 1.85 m sidewalk along the north side. The site has an internal sidewalk/pathway network connecting the buildings to the sidewalks along Steamline Street.

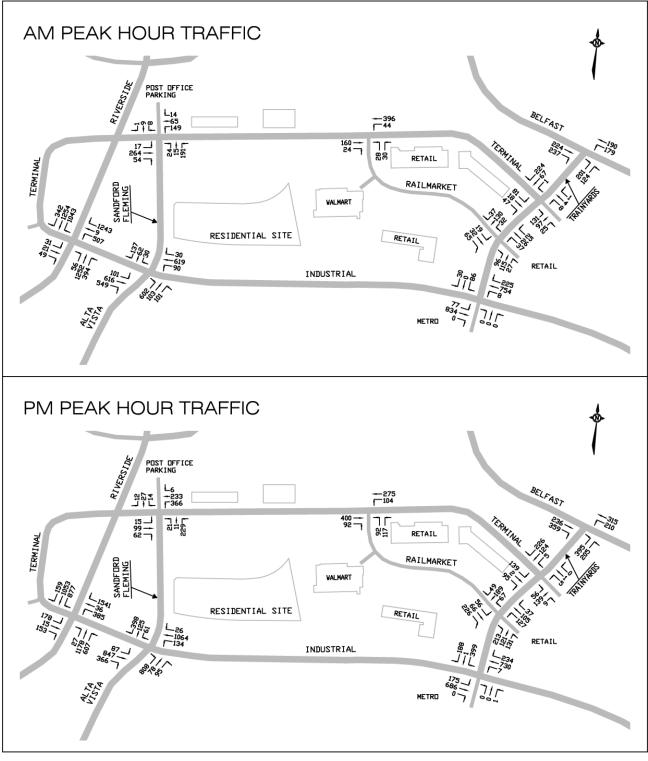
## FIGURE 3.2 PHASE 1 – 2021 PEAK AM AND PM HOUR BACKGROUND TRAFFIC



## FIGURE 3.3 PHASE 1 & 2 – 2027 PEAK AM AND PM HOUR BACKGROUND TRAFFIC



## FIGURE 3.4 PHASE 1 to 3 - 2031 PEAK AM AND PM HOUR BACKGROUND TRAFFIC



Bicycle storage racks for tenants are provided in the parking garage and would access the city streets from the garage to Steamline Street. Visitor bike racks are placed close to the building entrances.

OC Transpo bus stops are currently located along Sandford Fleming Avenue and at the Terminal/Sandford Fleming intersection. The site is located at an approximate walking distance of 900 m from the Hurdman Transit Station, and in close proximity to the LRT station at the Tremblay Road VIA rail station.

#### **Element 4.1.2 – Circulation and Access**

The apartment development provides two site access points onto Steamline Street. The access meets the requirements for a fire route and would allow single unit garbage trucks to access the garbage containers which are located on the garbage pad at the south limit of the site. All moving trucks will enter/exit the site from Steamline Street and load/unload within the site.

## **MODULE 4.2 – Parking**

#### **Element 4.2.1 – Parking Supply**

The Site Plan shows parking at full development of the site (Phases 1 to 3) to have a total of 2,097 parking spaces. The number of parking spaces meets the "Transit Oriented Development Zone" for the lands. The demand for parking would be for the storage of a minimum of 1 vehicle per apartment unit, which the site would provide a parking ratio of 1.06 spaces per unit including visitor parking.

Bicycle parking will be accommodated in the underground garage. Storage racks will provide space for 946 bicycles for the total Phase 1 to 3 of the development.

#### **Element 4.2.2 – Spillover Parking**

The Site Plan provides sufficient parking for both residents and for visitors. Steamline Street will not provide any on-street parking. Spillover parking is not expected to be an issue.

#### **MODULE 4.3 – Boundary Street Design**

The City of Ottawa Complete Streets concept allows for the safe movement of everyone whether they choose to walk, bike, drive or take public transit. The boundary roads to the site would consist of the existing streets of Sandford Fleming Avenue and Terminal Avenue.

Sandford Fleming Avenue is a collector road linking Industrial Avenue to Terminal Avenue. The road has an urban cross-section with a pavement width of approximately 14 m. OC Transpo provides bus service along the road which connects to the Hurdman Transit Station. Sidewalks are provided along both sides of the road which allows pedestrian access to the Hurdman Transit Station and the Ottawa Train Yards shopping centre. Although not identified in the TMP as a cycling route, Sandford Fleming is of sufficient width to accommodate cycling. Terminal Avenue is an urban collector road with a pavement width of 11 m. OC Transpo provides service along Terminal Avenue to the Hurdman Transit Station, and to the downtown core to the north and Billings Bridge Plaza to the south. Sidewalks currently exist along the north side of the road, east of Sandford Fleming Avenue to the approximate location of the extension of Steamline Street to Terminal Avenue. A multi-use pathway is proposed across the frontage of the site (south side of Steamline Street) which will connect to the portion of sidewalk adjacent to Walmart which will allow the safe movement of pedestrians along sidewalks to the retail at the Ottawa Train Yards shopping centre. The road is not designated as a cycling route in the TMP, but would provide a route to a major pathway along Trainyards Drive and the recreational pathway along the Rideau River.

Table 4.1 shows the collision history over a five year period between January 1, 2012 and December 31, 2016 for the intersections along the boundary roads. The collision data determined a pattern of rear end collisions being the most prominent form of collision which would be mainly attributed to a high volume of traffic. Intersections along Industrial Avenue between Riverside Drive and Trainyards Drive experienced the most collisions, with intersections along Sandford Fleming Avenue and Terminal Avenue experiencing a relatively low number of collisions for each pattern type. All intersections examined experienced more than six collisions in five years with the exception of the Sandford Fleming/Terminal and Terminal/Trainyards intersections.

The boundary streets provide the elements which would maximize the objectives of the Multi-Modal Level of Service (MMLOS).

## **MODULE 4.4 – Access Intersection Design**

## Element 4.4.1 – Location and Design of Access

The apartment development site would be located on the south side of Steamline Street. Steamline Street would be classified as a local street with a 20 m right-of-way and a pavement width of 11 m. The Site Plan proposes two access points onto Steamline Street. The first access, which will be referred to as Access 1 in the report, is located approximately 112 m east of Sandford Fleming Avenue (centreline to centreline) and would have a clear throat length of 65 m. The second access, referred to as Access 2, is located approximately 130 m east of the first access (centreline to centreline) and would provide a clear throat length of 70 m. Both Access 1 and Access 2 will have a pavement width of 6.7 m.

Steamline Street is an existing street with access to Sandford Fleming Avenue which is located 125 m south of Terminal Avenue. At Phase 3 of the development, Steamline Street will be extended to Terminal Avenue at an intersection 320 m east of Sandford Fleming Avenue.

The commercial/industrial on the north side of Steamline Street is scheduled to be demolished in the summer of 2018. Any accesses to future development for the site will align with the accesses to the apartment development. Along Sandford Fleming Avenue there is an access to the Canada Post facility which is located 85 m south of Steamline Street. Along Terminal Avenue there is an access to the office building at 405 Terminal Avenue which is located approximately 80 m west of the proposed Terminal/Steamline intersection.

## TABLE 4.1BOUNDARY ROAD COLLISION SUMMARY AT INTERSECTIONS (2012 to 2016)

YEAR	REAR END	ANGULAR	TURNING	SIDESWIPE	OTHER	TOTAL		
Sandford I	Sandford Fleming Avenue and Terminal Avenue Intersection							
2016	0	0	0	0	0	0		
2015	0	0	0	1	0	1		
2014	0	0	0	0	1	1		
2013	3	0	0	0	0	3		
2012	0	0	0	0	0	0		
Industrial	Avenue and Sar	ndford Fleming	Avenue Interse	ection		-		
2016	10	2	6	3	0	21		
2015	7	1	3	4	0	15		
2014	9	0	4	1	0	14		
2013	5	1	5	3	1	15		
2012	6	5	3	3	0	17		
Industrial	Avenue and Riv	verside Drive In	tersection			•		
2016	11	3	0	5	1	20		
2015	22	2	2	13	0	39		
2014	24	2	1	7	1	35		
2013	17	0	3	3	0	23		
2012	17	2	1	3	3	26		
<b>Terminal</b>	Avenue and Tra	inyards Drive I	ntersection					
2016	0	1	1	0	0	2		
2015	0	2	0	0	1	3		
2014	0	0	0	0	0	0		
2013	0	0	0	0	0	0		
2012	0	0	0	0	0	0		
Trainyard	s Drive and Belf	ast Road Inters	ection					
2016	0	0	0	0	0	0		
2015	0	1	1	0	1	3		
2014	0	0	0	0	0	0		
2013	3	1	2	2	1	9		
2012	2	0	0	0	1	3		
Trainyard	s Drive and Rai	lmarket Private	Intersection					
2016	1	2	0	1	0	4		
2015	0	3	0	0	0	3		
2014	1	1	0	0	0	2		
2013	0	0	0	0	0	0		
2012	0	0	0	0	0	0		
Industrial	Avenue and Tra	ainyards Drive	Intersection	· ·		-		
2016	3	0	0	0	0	3		
2015	2	0	3	3	0	8		
2013	2	0	1	3	0	6		
2013	0	0	0	0	0	0		
2012	0	0	0	0	0	0		

#### **Element 4.4.2 – Intersection Control**

The intersection traffic controls for the Sandford Fleming/Steamline and Terminal/Steamline intersections were analyzed utilizing the traffic signal warrant analysis as documented in the Ministry of Transportation publication, *Geometric Design Standards for Ontario Highways*. The analysis determined that the Sandford Fleming/Steamline intersection met 40 percent of the warrants and the Terminal/Steamline intersection 6 percent of the warrants for the installation of traffic control signals. Exhibit 2 in the Appendix presents the warrant analysis for the Sandford Fleming/Steamline intersection. Both intersections should be designed as two-way stop controlled intersections.

#### **Element 4.4.3 – Intersection Design**

LEVEL OF SERVICE

The intersection analysis will use the *Highway Capacity Software, Version 7.4,* which utilizes the intersection capacity analysis procedure as documented in the *Highway Capacity Manual 2010* and  $6^{th}$  Edition. For unsignalized intersections the level of service of each lane movement and approach is determined as a function of the delay of vehicles at the approach. The following relates the level of service of each lane movement with the expected delay at the approach.

DELAY

LEVEL OF BERVICE	DEEMI	
Level of Service A	0-10 sec./vehicle	Little or No Delay
Level of Service B	>10-15 sec./vehicle	Short Traffic Delays
Level of Service C	>15-25 sec./vehicle	Average Traffic Delays
Level of Service D	>25-35 sec./vehicle	Long Traffic Delays
Level of Service E	>35-50 sec./vehicle	Very Long Traffic Delays
Level of Service F	>50 sec./vehicle	Extreme Delays – Demand Exceeds Capacity

The expected length of queue at the critical lane movements for an unsignalized intersection was determined by the calculation of the 95<sup>th</sup> percentile queue at the lane approach. The 95<sup>th</sup> percentile queue length is the calculated 95<sup>th</sup> greatest queue length out of 100 occurrences at a movement during a 15-minute peak period. The 95<sup>th</sup> percentile queue length is a function of the capacity of a movement and the total expected traffic, with the calculated value determining the magnitude of the queue by representing the queue length as fractions of vehicles.

For a signalized intersection, the operation or level of service of an intersection is determined from the volume to capacity ratio (v/c) for each lane movement as documented by the City of Ottawa in the *Transportation Impact Assessment Guidelines (2017)*. The following relates the level of service with the volume to capacity ratio at each lane movement.

LEVEL OF SERVICE	VOLUME TO CAPACITY RATIO
Level of Service A	0 to 0.60
Level of Service B	0.61 to 0.70
Level of Service C	0.71 to 0.80
Level of Service D	0.81 to 0.90
Level of Service E	0.91 to 1.00
Level of Service F	> 1.00

The operational analysis of intersections has used the most current traffic counts and traffic signal timing plans which were obtained from the City of Ottawa.

The number of new site generated trips was determined utilizing the Peak Hour Future Development Generated Person-Trips (Table 3.5). One person-trip for an auto driver from the table would represent one vehicular trip. The number of new site generated trips was determined for each of the three phases of development.

## PEAK HOUR SITE GENERATED TRIPS

Phase 1 would comprise of 420 apartment units, Phase 1 & 2 has a total of 1,285 apartments, and Phase 1 to 3 has a total of 1,890 apartments. The auto driver trips from Table 3.5 were proportioned to trips entering and exiting the site at the percentages shown in Table 3.2. The total number of site generated trips at each Phase is presented in Table 4.2.

## TABLE 4.2PHASES 1 to 3 - PEAK HOUR SITE TRIPS GENERATED

PHASES	WEEKDAY PEAK AM HR.			WEEKDAY PEAK PM HR.		
PHASES	TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT
Phase 1	30	7 (24%)	23 (77%)	31	19 (62%)	12 (39%)
Phases 1 & 2	114	27 (24%)	87 (77%)	118	72 (62%)	46 (39%)
Phases 1 to 3	172	41 (24%)	131 (77%)	179	110 (62%)	69 (39%)

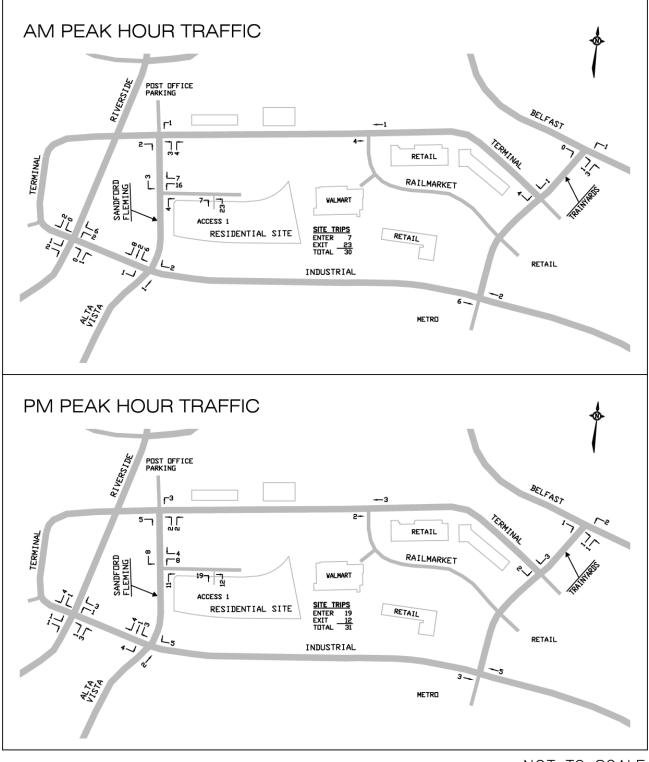
The number of new trips generated by the site was proportioned onto the surrounding roads using the trip assignment distribution presented in Figure 3.1. The distribution of new site generated trips for Phase 1 is shown in Figure 4.1 and for Phases 1 & 2 in Figure 4.2. Both phases would have access to Sandford Fleming Avenue from Steamline Street.

Phases 1 to 3 would be the completion of the development which would provide 1,890 apartment units. At the completion of Phase 3, access to the site would be from Steamline Street which would connect to both Sandford Fleming Avenue and Terminal Avenue. Figure 4.3 shows the distribution of site generated trips.

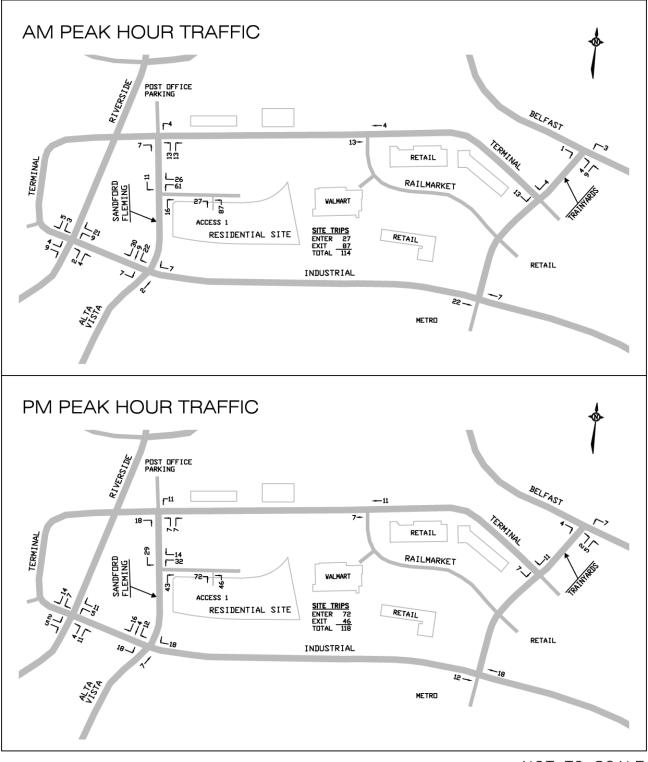
## TOTAL PEAK AM AND PM HOUR TRAFFIC

The total traffic generated by the site was determined for each phase of the development. The total traffic is the sum of the peak hour background traffic, Figure 3.2 (2021), Figure 3.3 (2027) and Figure 3.4 (2031), and the site generated trips provided as Figure 4.1 for Phase 1, Figure 4.2 for Phases 1 & 2 and Figure 4.3 for Phases 1 to 3. Figure 4.4 presents the total peak AM and PM hour traffic at the year 2021 (Phase 1), Figure 4.5 at the year 2027 (Phases 1 & 2) and Figure 4.6 the peak hour traffic at the year 2031 (Phases 1 to 3).

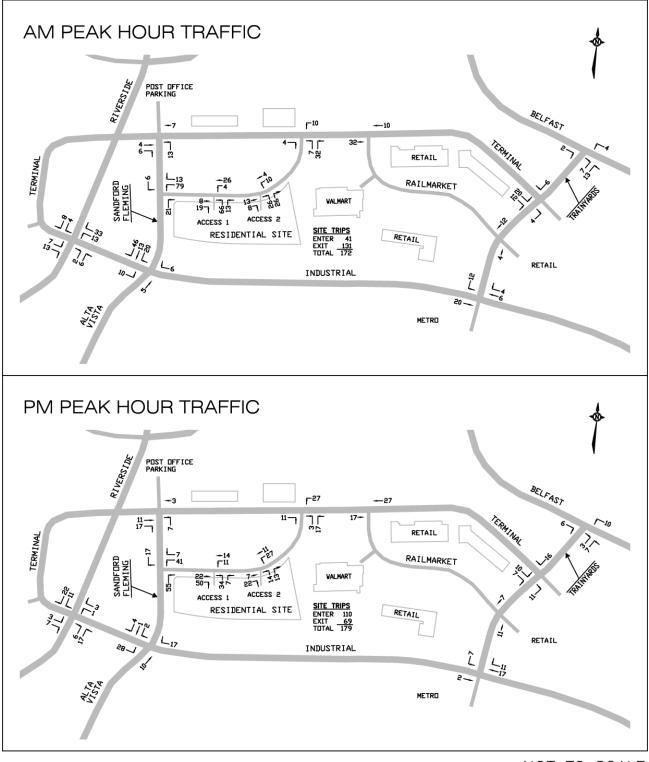
## FIGURE 4.1 PHASE 1 – PEAK AM AND PM HOUR SITE GENERATED TRIPS



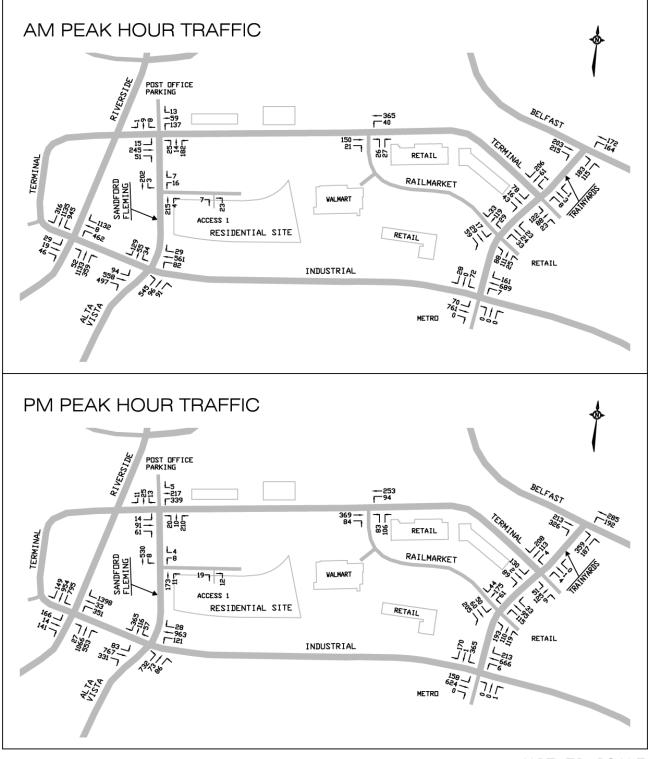
## FIGURE 4.2 PHASE 1 & 2 – PEAK AM AND PM HOUR SITE GENERATED TRIPS



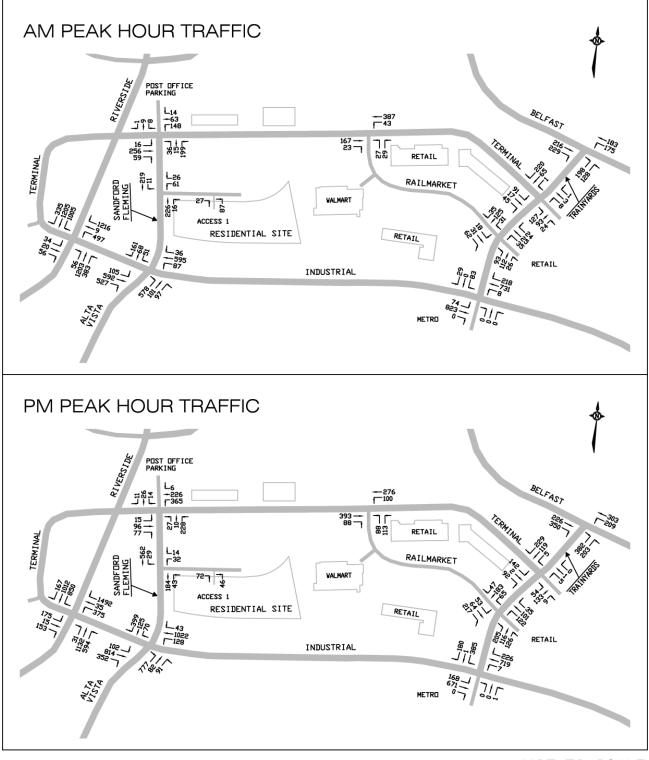
## FIGURE 4.3 PHASE 1 to 3 – PEAK AM AND PM HOUR SITE GENERATED TRIPS



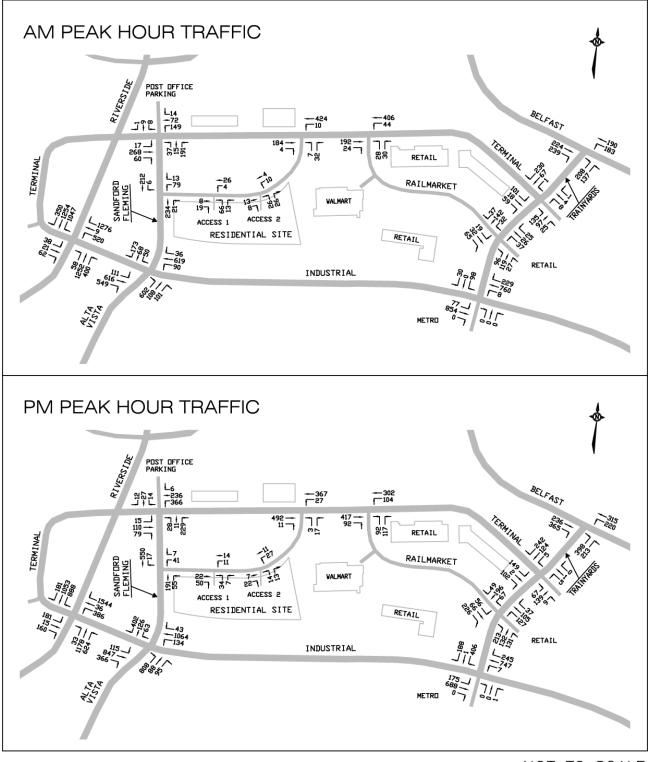
## FIGURE 4.4 PHASE 1 – 2021 PEAK AM AND PM HOUR TOTAL TRAFFIC



## FIGURE 4.5 PHASE 1 & 2 – 2027 PEAK AM AND PM HOUR TOTAL TRAFFIC



## FIGURE 4.6 PHASE 1 to 3 – 2031 PEAK AM AND PM HOUR TOTAL TRAFFIC



## **VEHICULAR LEVEL OF SERVICE (LOS) - Intersection Capacity Analysis**

#### Access 1 and Steamline Street Intersection

Access 1 will be constructed under Phase 1 of the development and will service all three phases. At the completion of Phase 3 in 2031, Steamline Street will be extended to Terminal Avenue. The access will be 6.7 m in width and will be a full movement access onto Steamline Street. The access intersection will be controlled by a stop sign at the northbound Access 1 approach with no auxiliary turn lanes at the intersection. Table 4.3 summarizes the operation of the intersection in 2031 with the summary sheets provided in the Appendix as Exhibit 4 for the peak AM hour and Exhibit 5 for the peak PM hour.

## TABLE 4.3 ACCESS 1/STEAMLINE INTERSECTION – LoS & Control Delay

Intersection	WEEKDAY PEAK AM HOUR YEAR (2031)LoSDelay (sec/veh)			AY PEAK PM HOUR YEAR (2031)
Approach			LoS	Delay (sec/veh)
WB Left/Through - Steamline	(A)	(7.3)	(A)	(7.4)
NB Left/Right - Access 1	(A)	(9.1)	(A)	(9.1)

#### Access 2 and Steamline Street Intersection

Access 2 will be constructed under Phase 3 of the development at the same time that Streamline Street is extended to Terminal Avenue. The Access 2 is approximately 130 m east of Access 1. The Access 2 approach is 6.7 m in width and the intersection is controlled by a stop sign at the northbound Access 2 approach. There are no auxiliary turn lanes at the approach. Table 4.4 summarizes the operation of the intersection with the analysis sheets provided as Exhibit 6 and Exhibit 7.

## TABLE 4.4 ACCESS 2/STEAMLINE INTERSECTION – LoS & Control Delay

Intersection	WEEKDAY PEAK AM HOUR YEAR (2031)LoSDelay (sec/veh)		WEEKDAY PEAK PM HOU YEAR (2031)	
Approach			LoS	Delay (sec/veh)
WB Left/Through - Steamline	(A)	(7.3)	(A)	(7.3)
NB Left/Right – Access 2	(A)	(8.8)	(A)	(8.8)

#### Sandford Fleming Avenue and Steamline Street Intersection

The Sandford Fleming/Steamline intersection is an existing intersection which provides access to the previous development on site and to 400 Terminal Avenue. A traffic signal warrant analysis (Exhibit 2) determined that the intersection would not meet the warrants for the installation of traffic signals using the expected 2031 traffic. The intersection was examined as a two-way stop controlled intersection with a stop sign at the westbound Steamline Street approach. For the 2021 and 2027 traffic, the lane configuration of Sandford Fleming Avenue would be one southbound shared left/through lane and for Steamline Street one westbound shared left/right lane. Following the completion of Phase 3 at the year 2031, the southbound approach would comprise of one excusive left turn lane and one through lane, and the westbound approach an exclusive left turn lane (Exhibit 12), the exclusive left turn lanes are recommended to improve the operation of the intersection. With a pavement width of approximately 14 m on Sandford Fleming Avenue and 11 m on Steamline Street, the exclusive turn lanes following the completion of Phase 3 at 2031 can be accommodated by the use of pavement markings.

Table 4.5 shows the operational analysis of the intersection with the analysis sheets provided as Exhibit 8 and 9 for the 2021 peak AM and PM hours, Exhibit 10 and 11 for the 2027 traffic, and Exhibit 13 and 14 for the 2031 peak AM and PM hour traffic.

Intersection Approach	<b>WEEKDAY PEAK AM HOUR</b> <b>YEAR</b> 2021 <b>2027</b> (2031)		<b>WEEKDAY PEAK PM HOUR</b> <b>YEAR</b> 2021 <b>2027</b> (2031)	
	LoS	Delay (sec/veh)	LoS	Delay (sec/veh)
WB Left/Right – Steamline *	B <b>B</b> (B)	11.1 <b>12.5</b> (13.2)	B C (C)	13.3 <b>16.0</b> (18.2)
WB Left – Steamline (2031)	(A)	(9.7)	(A)	(9.5)
$SB \ {\tt Left/Through-Sandford} \ {\tt Flem}$	A <b>A</b> (A)	7.7 <b>7.8</b> (7.8)	A <b>A</b> (A)	7.6 <b>7.8</b> (7.8)

## TABLE 4.5 SANDFORD FLEMING/STEAMLINE INTERSECTION – LoS & Control Delay

\* For the 2021 and 2027 traffic scenarios, the westbound approach would comprise of a shared left/right turn lane. For the 2031 scenario the westbound left/right turn lane would become an exclusive right turn lane. The southbound left/through approach would become one exclusive left turn lane and one through lane.

#### Terminal Avenue and Steamline Street Intersection

Steamline Street will be extended to Terminal Avenue at Phase 3 of the development in 2031. A left turn warrant analysis shown in Exhibit 15 determined that an exclusive westbound left turn lane was not warranted, but the analysis assumed exclusive left turn lanes as the roadway has sufficient pavement width for a left turn lane which would improve the operation of the intersection. The westbound Terminal Avenue approach will comprise of an exclusive left turn and exclusive through lane, and the northbound Steamline Street approach will comprise of an

exclusive left turn and right turn lane. The intersection will be controlled by a stop sign at the northbound Steamline Street approach as the intersection does not warrant the installation of traffic control signals (Exhibit 3).

Table 4.6 shows the operational analysis of the intersection with the analysis sheets provided as Exhibit 16 and 17 for the 2031 peak AM and PM hour traffic.

## TABLE 4.6 TERMINAL/STEAMLINE INTERSECTION – LoS & Control Delay

Intersection	WEEKDAY PEAK AM HOUR YEAR (2031)LoSDelay (sec/veh)			AY PEAK PM HOUR YEAR (2031)
Approach			LoS	Delay (sec/veh)
WB Left – Terminal	(A)	(7.6)	(A)	(8.6)
NB Left – Steamline	(B)	(13.9)	(C)	(18.8)
SB Right – Steamline	(A)	(9.5)	(B)	(11.9)

#### Terminal Avenue and Sandford Fleming Avenue Intersection

The intersection of Terminal Avenue and Sandford Fleming Avenue is an all-way stop controlled intersection. The intersection was examined using the 2014 traffic counts which were taken during the two year period when Terminal Avenue permitted two-way vehicle travel between Sandford Fleming Avenue and Riverside Drive. Eastbound traffic along Terminal Avenue is currently restricted to buses only between Riverside Drive and Sandford Fleming Avenue until 2018 when construction of the LRT is completed.

The analysis has used the existing lane configuration for the 2014 analysis (the northbound Sandford Fleming Avenue approach was assumed to be a shared left/through lane and exclusive right turn lane as that is the way the intersection functioned). The westbound Terminal Avenue approach comprised of a shared left/through/right lane movement.

As the background traffic increases, the westbound Terminal Avenue approach should be modified to provide an exclusive left turn lane and shared through/right lane. This can be accomplished through pavement markings. The 2021, 2027 and 2031 analysis has assumed the exclusive westbound left turn lane. This would be triggered by the increasing background traffic and not by the proposed apartment development.

Table 4.7 shows the operational analysis of the intersection with the analysis sheets provided as Exhibit 18 and 19 for the existing 2014 traffic counts, Exhibit 20 and 21 for the 2021 peak AM and PM hour traffic, Exhibits 22 and 23 for the 2027 peak hour traffic, and Exhibit 24 and 25 for the 2031 peak hour traffic.

# TABLE 4.7 TERMINAL/SANDFORD FLEMING INTERSECTION – LoS & Control Delay

Intersection		AY PEAK AM HOUR 014 2021 2027 (2031)		<b>AY PEAK PM HOUR</b> 2014 2021 <b>2027</b> (2031)
Approach	LoS	Delay (sec/veh)	LoS	Delay (sec/veh)
EB – Terminal	<i>A</i> B <b>B</b> (B)	9.5 11.7 <b>12.4</b> (12.8)	<i>A</i> B <b>B</b> (B)	9.4 10.1 <b>10.5</b> (12.8)
WB – Terminal *	<i>B</i> B <b>B</b> (B)	<i>10.7</i> 10.2 <b>10.7</b> (10.7)	<i>C</i> C C (B)	22.5 16.5 <b>19.1</b> (10.7)
NB – Sandford Fleming	<i>A</i> A <b>B</b> (B)	8.8 10.0 <b>10.5</b> (10.5)	<i>B</i> B <b>B</b> (B)	<i>10.7</i> 11.8 <b>12.7</b> (10.5)
SB – Post Office Parking Lot	$A \to A (A)$	9.1 9.6 <b>9.8</b> (9.8)	<i>B</i> B <b>B</b> (A)	<i>10.3</i> 10.5 <b>10.8</b> (9.8)

\* For the 2021, 2027 and 2031 traffic scenarios, the westbound approach would comprise of an exclusive left.

#### Industrial Avenue and Sandford Fleming Avenue Intersection

The intersection of Industrial Avenue and Sandford Fleming Avenue is controlled by traffic signals. Alta Vista Drive forms the northbound approach and Sandford Fleming Avenue the southbound approach.

Table 4.8 shows the operational analysis of the intersection with the analysis sheets provided as Exhibit 26 and 27 for the existing 2015 traffic counts, Exhibit 28 and 29 for the 2021 peak hour traffic, Exhibit 30 and 31 for the 2027 peak hour traffic, and Exhibit 32 and 33 for the 2031 peak AM and PM hour traffic.

#### Industrial Avenue and Riverside Drive Intersection

The intersection of Industrial Avenue and Riverside Drive is controlled by traffic signals. Riverside Drive forms the northbound and southbound approaches, Terminal Avenue the eastbound approach and Industrial Avenue the westbound approach.

Table 4.9 shows the operational analysis of the intersection with the analysis sheets provided as Exhibit 34 and 35 for the existing 2015 traffic counts, Exhibit 36 and 37 for the 2021 peak hour traffic, Exhibit 38 and 39 for the 2027 peak hour traffic, and Exhibit 40 and 41 for the 2031 peak AM and PM hour traffic.

# TABLE 4.8 INDUSTRIAL/SANDFORD FLEMING INTERSECTION – LoS & v/c Ratio

Intersection	WEEKDAY PEAK AM HOUR YEAR 2015 2021 2027 (2031)		WEEKDAY PEAK PM HOUR YEAR 2015 2021 2027 (2031)	
Approach	LoS	v/c Ratio	LoS	v/c Ratio
EB Left – Industrial	$D \neq \mathbf{F} (\mathbf{F})$	0.872 1.224 <b>1.367</b> (1.445)	$D \to \mathbf{F}(F)$	<i>0.819</i> 0.971 <b>1.193</b> (1.345)
EB Through – Industrial	$A \to \mathbf{A} (\mathbf{A})$	<i>0.319</i> 0.347 <b>0.376</b> (0.398)	<i>A</i> A <b>B</b> (B)	<i>0.497</i> 0.558 <b>0.610</b> (0.636)
WB Left-Industrial	$E \to \mathbf{F}(F)$	<i>0.926</i> 0.986 <b>1.046</b> (1.082)	$F \mathbf{F} \mathbf{F} (\mathbf{F})$	<i>1.201</i> 1.275 <b>1.348</b> (1.412)
WB Through – Industrial	$A \to \mathbf{A} (\mathbf{A})$	<i>0.327</i> 0.353 <b>0.386</b> (0.407)	<i>A</i> B C (C)	0.608 0.685 <b>0.761</b> (0.792)
WB Right – Industrial	$A \to \mathbf{A} (\mathbf{A})$	<i>0.328</i> 0.354 <b>0.387</b> (0.408)	<i>A</i> B C (C)	<i>0.608</i> 0.685 <b>0.762</b> (0.793)
NB Left – Alta Vista	<i>D</i> D <b>D</b> (D)	<i>0.868</i> 0.874 <b>0.881</b> (0.886)	<i>E</i> E <b>E</b> (E)	<i>0.915</i> 0.929 <b>0.959</b> (0.997)
NB Through – Alta Vista	<i>B</i> C C (C)	0.654 0.721 <b>0.725</b> (0.738)	$A \wedge A (A)$	<i>0.434</i> 0.453 <b>0.477</b> (0.504)
${f SB}$ Left – Sandford Fleming	$A \to \mathbf{A} (A)$	0.274 0.354 <b>0.525</b> (0.514)	$A \to \mathbf{A} (\mathbf{A})$	<i>0.473</i> 0.410 <b>0.474</b> (0.424)
${SB}$ Through – Sandford Fleming	$A \to \mathbf{A} (A)$	0.441 0.479 <b>0.585</b> (0.585)	<i>C</i> C C (C)	0.756 0.794 <b>0.805</b> (0.807)

# TABLE 4.9 INDUSTRIAL/RIVERSIDE INTERSECTION – LoS & v/c Ratio

Intersection		<b>AY PEAK AM HOUR</b> 2015 2021 <b>2027</b> (2031)		<b>AY PEAK PM HOUR</b> 2015 2021 <b>2027</b> (2031)
Approach	LoS	v/c Ratio	LoS	v/c Ratio
EB Left – Terminal	<i>B</i> C C (C)	<i>0.636</i> 0.744 <b>0.753</b> (0.759)	<i>D</i> D <b>E</b> (E)	<i>0.812</i> 0.869 <b>0.916</b> (0.948)
EB Through – Terminal	$A \to \mathbf{A} (A)$	<i>0.127</i> 0.120 <b>0.113</b> (0.110)	$A \to \mathbf{A} (\mathbf{A})$	<i>0.035</i> 0.033 <b>0.035</b> (0.035)
EB Right – Terminal	$A \to \mathbf{A} (A)$	0.228 0.234 <b>0.253</b> (0.260)	$A \to \mathbf{A} (\mathbf{A})$	<i>0.378</i> 0.392 <b>0.426</b> (0.445)
WB Left – Industrial	$F \mathbf{F} \mathbf{F} (\mathbf{F})$	<i>1.385</i> 1.488 <b>1.600</b> (1.674)	$D \neq \mathbf{F} $ (F)	<i>0.905</i> 1.002 <b>1.071</b> (1.102)
WB Through – Industrial	$A \to \mathbf{A} (A)$	<i>0.029</i> 0.028 <b>0.030</b> (0.029)	$A \to \mathbf{A} (\mathbf{A})$	<i>0.114</i> 0.120 <b>0.128</b> (0.131)
WB Right – Industrial	$A \to \mathbf{A} (A)$	0.534 0.559 <b>0.587</b> (0.608)	<i>B</i> B C (C)	0.639 0.679 <b>0.726</b> (0.752)
NB Left – Riverside	<i>B</i> C <b>D</b> (D)	<i>0.638</i> 0.779 <b>0.839</b> (0.869)	<i>A</i> B <b>B</b> (B)	0.605 0.639 <b>0.653</b> (0.660)
NB Through – Riverside	<i>B</i> C <b>D</b> (E)	0.696 0.775 <b>0.873</b> (0.948)	$C \to \mathbf{F}(F)$	<i>0.793</i> 0.958 <b>1.017</b> (1.058)
SB Left – Riverside	$F \mathbf{F} \mathbf{F} (\mathbf{F})$	<i>1.038</i> 1.111 <b>1.181</b> (1.230)	$F \mathbf{F} \mathbf{F} (\mathbf{F})$	<i>1.060</i> 1.130 <b>1.208</b> (1.262)
SB Through – Riverside	<i>A</i> B C (C)	0.579 0.644 <b>0.707</b> (0.754)	<i>A</i> B C (C)	0.580 0.671 <b>0.718</b> (0.750)
SB Right – Riverside	$A \to \mathbf{A} (\mathbf{A})$	0.207 0.305 <b>0.344</b> (0.376)	$A \wedge A (A)$	0.050 0.092 <b>0.127</b> (0.155)

#### Terminal Avenue and Railmarket Private Intersection

The intersection of Terminal Avenue and Railmarket Private is controlled by two-way stop control signs. The stop sign is installed at the northbound Railmarket Private approach.

Table 4.10 shows the operational analysis of the intersection with the analysis sheets provided as Exhibit 42 and 43 for the existing 2013 traffic counts, Exhibit 44 and 45 for the 2021 peak hour traffic, Exhibit 46 and 47 for the 2027 peak hour traffic, and Exhibit 48 and 49 for the 2031 peak AM and PM hour traffic.

Intersection	WEEKDAY PEAK AM HOUR YEAR 2013 2021 2027 (2031)LoSDelay (sec/veh)			<b>AY PEAK PM HOUR</b> 013 2021 <b>2027</b> (2031)
Approach			LoS	Delay (sec/veh)
WB Left/Through – Terminal	$A \wedge A (A)$	7.6 7.7 <b>7.7</b> (7.8)	$A \to \mathbf{A} (A)$	8.3 8.7 <b>8.8</b> (9.0)
NB Left – Railmarket	<i>B</i> B C (C)	<i>12.5</i> 14.3 <b>15.0</b> (15.8)	<i>C</i> C <b>D</b> (D)	<i>19.2</i> 24.8 <b>28.8</b> (33.8)
NB Right – Railmarket	$A \to A (A)$	<i>9.1</i> 9.3 <b>9.4</b> (9.6)	<i>B</i> B <b>B</b> (B)	<i>11.1</i> 12.2 <b>12.7</b> (13.1)

# TABLE 4.10 TERMINAL/RAILMARKET INTERSECTION – LoS & Control Delay

#### Terminal Avenue and Trainyards Drive Intersection

The intersection of Terminal Avenue and Trainyards Drive is controlled by traffic signals. Terminal Avenue forms the eastbound approach and a private driveway the westbound approach.

Table 4.11 shows the operational analysis of the intersection with the analysis sheets provided as Exhibit 50 and 51 for the existing 2014 traffic counts, Exhibit 52 and 53 for the 2021 peak hour traffic, Exhibit 54 and 55 for the 2027 peak hour traffic, and Exhibit 56 and 57 for the 2031 peak AM and PM hour traffic.

#### Trainyards Drive and Belfast Road Intersection

The intersection of Trainyards Drive and Belfast Road is controlled by traffic signals. The intersection is a "T" intersection with Belfast Road forming the eastbound and westbound approaches and Trainyards Drive the northbound approach.

Table 4.12 shows the operational analysis of the intersection with the analysis sheets provided as Exhibit 58 and 59 for the existing 2018 traffic counts, Exhibit 60 and 61 for the 2021 peak hour traffic, Exhibit 62 and 63 for the 2027 peak hour traffic, and Exhibit 64 and 65 for the 2031 peak AM and PM hour traffic.

# TABLE 4.11 TERMINAL/TRAINYARDS INTERSECTION – LoS & v/c Ratio

Intersection		<b>AY PEAK AM HOUR</b> 2014 2021 <b>2027</b> (2031)		<b>AY PEAK PM HOUR</b> 2014 2021 <b>2027</b> (2031)
Approach	LoS	v/c Ratio	LoS	v/c Ratio
EB Left – Terminal	$A \to \mathbf{A} (\mathbf{A})$	<i>0.168</i> 0.197 <b>0.227</b> (0.249)	$A \to \mathbf{A} (\mathbf{A})$	0.255 0.329 <b>0.359</b> (0.377)
EB Through/Right – Terminal	$A \to \mathbf{A} (\mathbf{A})$	0.245 0.283 <b>0.295</b> (0.373)	$A \to \mathbf{A} (\mathbf{A})$	0.255 0.433 <b>0.448</b> (0.498)
WB Left/Through/Right - Access	$A \to \mathbf{A} (\mathbf{A})$	<i>0.157</i> 0.163 <b>0.163</b> (0.169)	$A \to \mathbf{A} (\mathbf{A})$	<i>0.096</i> 0.096 <b>0.107</b> (0.107)
NB Left – Trainyards	$A \to \mathbf{A} (\mathbf{A})$	<i>0.100</i> 0.156 <b>0.164</b> (0.176)	$A \to \mathbf{A} (\mathbf{A})$	<i>0.054</i> 0.068 <b>0.073</b> (0.091)
NB Through – Trainyards	$A \to \mathbf{A} (\mathbf{A})$	<i>0.087</i> 0.094 <b>0.100</b> (0.105)	$A \to \mathbf{A} (A)$	<i>0.121</i> 0.130 <b>0.139</b> (0.145)
NB Right – Trainyards	$A \to \mathbf{A} (\mathbf{A})$	<i>0.001</i> 0.004 <b>0.005</b> (0.006)	$A \to \mathbf{A} (A)$	0.004 0.005 <b>0.005</b> (0.005)
SB Left/Through – Trainyards	$A \to \mathbf{A} (\mathbf{A})$	<i>0.059</i> 0.064 <b>0.068</b> (0.070)	$A \to \mathbf{A} (A)$	<i>0.109</i> 0.118 <b>0.126</b> (0.131)
SB Right – Trainyards	$A \to \mathbf{A} (A)$	<i>0.016</i> 0.051 <b>0.064</b> (0.073)	$A \to \mathbf{A} (A)$	0.037 0.058 <b>0.079</b> (0.093)

# TABLE 4.12TRAINYARDS/BELFAST INTERSECTION – LoS & v/c Ratio

Intersection Approach	WEEKDAY PEAK AM HOUR YEAR 2018 2021 2027 (2031)			<b>AY PEAK PM HOUR</b> 2018 2021 <b>2027</b> (2031)
Approach	LoS	v/c Ratio	LoS	v/c Ratio
EB Through – Belfast	$A \to \mathbf{A} (A)$	0.206 0.215 <b>0.232</b> (0.243)	$A \to \mathbf{A} (A)$	0.237 0.247 <b>0.268</b> (0.284)
EB Right – Belfast	$A \to \mathbf{A} (\mathbf{A})$	<i>0.124</i> 0.143 <b>0.162</b> (0.177)	$A \to \mathbf{A} (\mathbf{A})$	<i>0.293</i> 0.314 <b>0.354</b> (0.382)
WB Left – Belfast	$A \wedge A \wedge (A)$	<i>0.157</i> 0.184 <b>0.201</b> (0.213)	$A \wedge A (A)$	<i>0.226</i> 0.242 <b>0.270</b> (0.289)
WB Through – Belfast	$A \to \mathbf{A} (\mathbf{A})$	0.074 0.077 <b>0.083</b> (0.087)	$A \to \mathbf{A} (\mathbf{A})$	<i>0.154</i> 0.160 <b>0.173</b> (0.181)
NB Left – Trainyards	$A \to \mathbf{A} (A)$	<i>0.546</i> 0.540 <b>0.544</b> (0.546)	<i>C</i> C C (C)	<i>0.718</i> 0.726 <b>0.737</b> (0.745)
NB Right – Trainyards	$A \wedge A (A)$	0.251 0.267 <b>0.290</b> (0.306)	$A \to \mathbf{A} (A)$	<i>0.323</i> 0.356 <b>0.376</b> (0.387)

#### Trainyards Drive and Railmarket Private Intersection

The intersection of Trainyards Drive and Railmarket Private is controlled by traffic signals. Trainyards Drive forms the northbound and southbound approaches, and Railmarket Private the eastbound and westbound approaches. Table 4.13 shows the operational analysis of the intersection with the analysis sheets provided as Exhibit 66 and 67 for the existing 2014 traffic counts, Exhibit 68 and 69 for the 2021 peak hour traffic, Exhibit 70 and 71 for the 2027 peak hour traffic, and Exhibit 72 and 73 for the 2031 peak AM and PM hour traffic.

# TABLE 4.13 TRAINYARDS/RAILMARKET INTERSECTION – LoS & v/c Ratio

Intersection	WEEKDAY PEAK AM HOUR YEAR 2014 2021 2027 (2031)		WEEKDAY PEAK PM HOUR YEAR 2014 2021 2027 (2031)	
Approach	LoS	v/c Ratio	LoS	v/c Ratio
EB Left – Railmarket	$A \wedge A \wedge (A)$	<i>0.080</i> 0.086 <b>0.091</b> (0.096)	$A \wedge A \wedge (A)$	<i>0.138</i> 0.138 <b>0.141</b> (0.146)
EB Through/Right – Railmarket	$A \to \mathbf{A} (A)$	0.429 0.465 <b>0.488</b> (0.506)	$A \to \mathbf{A} (\mathbf{A})$	0.582 0.595 <b>0.599</b> (0.601)
WB Left– Railmarket	$A \to \mathbf{A} (\mathbf{A})$	<i>0.185</i> 0.202 <b>0.217</b> (0.233)	$A \to \mathbf{A} (A)$	<i>0.479</i> 0.500 <b>0.517</b> (0.529)
WB Through/Right – Railmarket	$A \to \mathbf{A} (\mathbf{A})$	<i>0.224</i> 0.241 <b>0.249</b> (0.257)	$A \to \mathbf{A} (\mathbf{A})$	0.269 0.265 <b>0.267</b> (0.270)
NB Left – Trainyards	$A \to \mathbf{A} (\mathbf{A})$	<i>0.071</i> 0.087 <b>0.092</b> (0.097)	$A \to \mathbf{A} (\mathbf{A})$	<i>0.223</i> 0.263 <b>0.290</b> (0.312)
NB Through/Right – Trainyards	$A \to \mathbf{A} (\mathbf{A})$	<i>0.092</i> 0.141 <b>0.144</b> (0.152)	$A \to \mathbf{A} (\mathbf{A})$	<i>0.318</i> 0.370 <b>0.407</b> (0.453)
SB Left – Trainyards	$A \to \mathbf{A} (\mathbf{A})$	<i>0.022</i> 0.030 <b>0.032</b> (0.033)	$A \to \mathbf{A} (\mathbf{A})$	<i>0.078</i> 0.089 <b>0.100</b> (0.109)
SB Through – Trainyards	$A \wedge A \wedge (A)$	<i>0.114</i> 0.129 <b>0.135</b> (0.154)	$A \wedge A \wedge (A)$	<i>0.182</i> 0.253 <b>0.275</b> (0.303)
${f SB}$ Right – Trainyards	$A \to \mathbf{A} (A)$	0.001 0.004 <b>0.006</b> (0.009)	$A \to \mathbf{A} (A)$	<i>0.018</i> 0.024 <b>0.030</b> (0.035)

#### Industrial Avenue and Trainyards Drive Intersection

The intersection of Industrial Avenue and Trainyards Drive is controlled by traffic signals. Industrial Avenue forms the eastbound and westbound approaches, Trainyards Drive the southbound approach, and a private driveway the northbound approach.

Table 4.14 shows the operational analysis of the intersection with the analysis sheets provided as Exhibit 74 and 75 for the existing 2015 traffic counts, Exhibit 76 and 77 for the 2021 peak hour traffic, Exhibit 78 and 79 for the 2027 peak hour traffic, and Exhibit 80 and 81 for the 2031 peak AM and PM hour traffic.

# TABLE 4.14 INDUSTRIAL/TRAINYARDS INTERSECTION – LoS & v/c Ratio

Intersection	WEEKDAY PEAK AM HOUR YEAR 2015 2021 2027 (2031)		WEEKDAY PEAK PM HOUR YEAR 2015 2021 2027 (2031)	
Approach	LoS	v/c Ratio	LoS	v/c Ratio
EB Left – Industrial	$A \to \mathbf{A} (A)$	<i>0.111</i> 0.121 <b>0.138</b> (0.148)	$A \to \mathbf{A} (\mathbf{A})$	<i>0.312</i> 0.367 <b>0.413</b> (0.447)
EB Through – Industrial	$A \to \mathbf{A} (A)$	<i>0.306</i> 0.306 <b>0.316</b> (0.329)	$A \to \mathbf{A} (\mathbf{A})$	<i>0.368</i> 0.391 <b>0.400</b> (0.402)
EB Right– Industrial	$A \to \mathbf{A} (A)$	<i>0.000</i> 0.000 <b>0.000</b> (0.000)	$A \to \mathbf{A} (A)$	0.000 0.000 <b>0.000</b> (0.000)
WB Left - Industrial	$A \to \mathbf{A} (A)$	<i>0.015</i> 0.016 <b>0.019</b> (0.020)	$A \to \mathbf{A} (\mathbf{A})$	<i>0.021</i> 0.023 <b>0.029</b> (0.030)
WB Through – Industrial	$A \to \mathbf{A} (A)$	<i>0.442</i> 0.458 <b>0.513</b> (0.537)	<i>B</i> C C (D)	<i>0.624</i> 0.721 <b>0.787</b> (0.840)
WB Right – Industrial	$A \to \mathbf{A} (A)$	0.442 0.458 <b>0.514</b> (0.538)	<i>B</i> C C (D)	0.624 0.721 <b>0.787</b> (0.842)
NB Left/Through/Right - Access	$A \to \mathbf{A} (A)$	<i>0.000</i> 0.000 <b>0.000</b> (0.000)	$A \to \mathbf{A} (\mathbf{A})$	<i>0.000</i> 0.000 <b>0.000</b> (0.000)
SB Left – Trainyards	$A \to \mathbf{A} (\mathbf{A})$	0.254 0.265 <b>0.302</b> (0.352)	<i>C</i> C C (D)	0.722 0.765 <b>0.780</b> (0.813)
SB Through/Right – Trainyards	$A \to \mathbf{A} (A)$	0.149 0.159 <b>0.162</b> (0.165)	$A \to \mathbf{A} (A)$	0.436 0.402 <b>0.408</b> (0.421)

#### PEDESTRIAN LEVEL OF SERVICE (PLOS)

The pedestrian level of service was determined utilizing the City of Ottawa publication, *Multi-Modal Level of Service (MMLOS) Guidelines*. Table 4.15 presents the level of service for street segments within the study area, with the analysis for the 2031 traffic provided in the Appendix.

# TABLE 4.15 PEDESTRIAN LEVEL OF SERVICE (PLOS) – Street Segments & Intersections

Street	Segment	Level of Service	Analysis
Steamline Street	Sandford Fleming to Terminal	A	Exhibit 82
Sandford Fleming Ave.	Industrial to Terminal	C	Exhibit 83
Terminal Avenue	Sandford Fleming to Railmarket	D	Exhibit 84
Industrial Avenue	Riverside to Trainyards	Е	Exhibit 85
Trainyards Drive	Belfast to Industrial	D	Exhibit 86
Intersection		Level of Service	Analysis
Industrial Avenue and Sandford Fleming Avenue		F	Exhibit 87
Industrial Avenue and Ri	verside Drive	F	Exhibit 88
Terminal Avenue and Tra	ainyards Drive	D	Exhibit 89

#### **BICYCLE LEVEL OF SERVICE (BLOS)**

The bicycle level of service (BLOS) was determined utilizing the City of Ottawa publication, *Multi-Modal Level of Service (MMLOS) Guidelines*. Industrial Avenue is classified as an arterial road which is identified as a "Spine Route" in the Cycling Network - Primary Urban plan. Industrial Avenue does not contain cycling lanes along the road. Table 4.16 presents the level of service for the road segments and intersections with the analysis for the 2031 traffic provided in the Appendix.

## TABLE 4.16 BICYCLE LEVEL OF SERVICE (BLOS) – Street Segments & Intersections

Street	Segment	Level of Service	Analysis
Steamline Street	Sandford Fleming to Terminal	В	Exhibit 90
Sandford Fleming Ave.	Industrial to Terminal	D	Exhibit 91
Terminal Avenue	Sandford Fleming to Railmarket	D	Exhibit 92
Industrial Avenue	Riverside to Trainyards	F	Exhibit 93
Trainyards Drive	Belfast to Industrial	В	Exhibit 94
Intersection		Level of Service	Analysis
Industrial Avenue and Sandford Fleming Avenue		F	Exhibit 95
Industrial Avenue and Ri	verside Drive	F	Exhibit 96
Terminal Avenue and Tra	ainyards Drive	F	Exhibit 97

#### TRANSIT LEVEL OF SERVICE (TLOS)

The apartment development is located within the Transit Oriented Development area and is in close proximity to the Hurdman transit station and the future LRT station at the VIA rail station. OC Transpo bus service provides access to the transit stations and downtown core with routes along both Terminal Avenue and Sandford Fleming Avenue. On-street parking along both roads is limited with no dedicated transit lanes.

Table 4.17 presents the level of service along Terminal Avenue and Sandford Fleming Avenue which were determined from Exhibit 15 of the City of Ottawa publication, *Multi-Modal Level of Service (MMLOS) Guidelines*. The transit level of service at the signalized intersections along the route was determined from the intersection capacity analysis for the approach delay at the intersections using the 2031 traffic.

# TABLE 4.17 TRANSIT LEVEL OF SERVICE (TLOS) – Street Segments & Intersections

Street	Segment	Level of Service	Analysis
Sandford Fleming Ave.	Industrial to Terminal	D	Exhibit 98
Terminal Avenue	Sandford Fleming to Railmarket	D	Exhibit 99
Intersection		Level of Service	Analysis
Industrial Avenue and Sa	ndford Fleming Avenue	D	Exhibit 100
Terminal Avenue and Tra	ainyards Drive	D	Exhibit 101

#### TRUCK LEVEL OF SERVICE (TkLOS) - Street Segments & Intersections

The truck level of service (TkLOS) was determined utilizing the City of Ottawa publication, *Multi-Modal Level of Service (MMLOS) Guidelines*. The truck LoS was determined for Sandford Fleming Avenue and Terminal Avenue, and the Industrial/Sandford and Terminal/Trainyards intersections. Table 4.18 presents the truck level of service for street segments and intersections within the study area and in close proximity to the site, with the analysis for the 2031 traffic provided as Exhibits 102 to 105.

## TABLE 4.18 TRUCK LEVEL OF SERVICE (TkLOS) – Street Segments & Intersections

Street	Segment	Level of Service	Analysis
Sandford Fleming Ave.	Industrial to Terminal	В	Exhibit 102
Terminal Avenue	Sandford Fleming to Railmarket	В	Exhibit 103
Intersection		Level of Service	Analysis
Industrial Avenue and Sa	ndford Fleming Avenue	С	Exhibit 104
Terminal Avenue and Tra	ainyards Drive	С	Exhibit 105

#### **MODULE 4.5 – Transportation Demand Management**

#### **Element 4.5.1 – Context for TDM**

The apartment development is located in the Transit Oriented Development area in close proximity to transit service. The apartment units are proposed as rental apartments with tenants desiring easy access to transit and possibly within walking distance of areas of employment, shopping and other amenities. The location of the apartment development promotes transit use, walking and cycling.

#### **Element 4.5.2 – Need and Opportunity**

Future development in the area would comprise of additional office space on the north side of Steamline Street (400 Terminal Avenue) as well as future office/commercial along Terminal Avenue. These future land uses would increase employment and promote walking and cycling which would reduce the impact on the surrounding road network.

#### Element 4.5.3 – TDM Program

Post-occupancy TDM measures would comprise of ensuring that a sidewalk system is in place to provide the safe and efficient movement of pedestrians to adjacent employment areas and to transit stations. Additional bus routes should be examined, and the location of bus stops should be evaluated to ensure that the stops are in close proximity to the development and access to the stops is safe (road crossing).

#### **MODULE 4.6 – Neighbourhood Traffic Management**

#### Element 4.6.1 – Adjacent Neighbourhoods

Access routes to the apartment development are from arterial and collector roads. There would be little impact on neighbouring areas.

#### **MODULE 4.7 - Transit**

#### **Element 4.7.1 – Transit Route Capacity**

Future transit passenger demands can be accommodated at both the Hurdman Transit station and the future LRT station which is expected to be completed and operational by the end of Phase 1 of the apartment development.

#### **MODULE 4.8 – Review of Network Concept**

The travel demands of the proposed apartment development would not trigger any changes to the Transportation Master Plan (TMP) concepts for auto or transit networks.

#### **MODULE 4.9 – Intersection Design**

#### **Element 4.9.1 – Intersection Control**

The intersection of Sandford Fleming Avenue and Steamline Street was examined for traffic controls using the expected 2031 traffic. A traffic signal warrant analysis determined that the intersection met 40 percent of the warrants for the installation of traffic control signals. The intersection would therefore be designed as a two-way stop controlled intersection with stop signs at the westbound Steamline Street approach.

A traffic signal warrant analysis was conducted for the intersection of Steamline Street and Terminal Avenue using the 2031 traffic. The warrant analysis determined that the intersection

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met 6 percent of the traffic signal warrants. The intersection would be designed as a two-way stop controlled intersection with a stop sign installed at the northbound Steamline Street approach.

A drop-off is proposed for Building 100 which faces Sandford Fleming Avenue. Building 100 will contain 174 apartment units and would also have entrances at the rear of the building off of Access 1. The drop-off will be designed as a one-way access where vehicles would enter at the south access and exit at the north egress. The direction of traffic entering the drop-off would be controlled by painted arrows on the pavement, and a "One-Way" sign (Rb-21) located at the entrance and a "Do Not Enter" sign (Rb-19) located at the exit. The south entrance to the drop-off is located approximately 55 m north of the Industrial/Sandford Fleming intersection. The separation between the access and egress is approximately 35 m, with space for the temporary parking of two vehicles. The vehicles using the drop-off would be small parcel delivery vehicles and drivers picking up or dropping off residents of the building. The drop-off is expected to generate few trips during the peak AM and PM hours and resulting in a minor impact on the operation of the adjacent roads.

#### **Element 4.9.2 – Intersection Design**

The transportation analysis for the study area determined the following intersection design modifications.

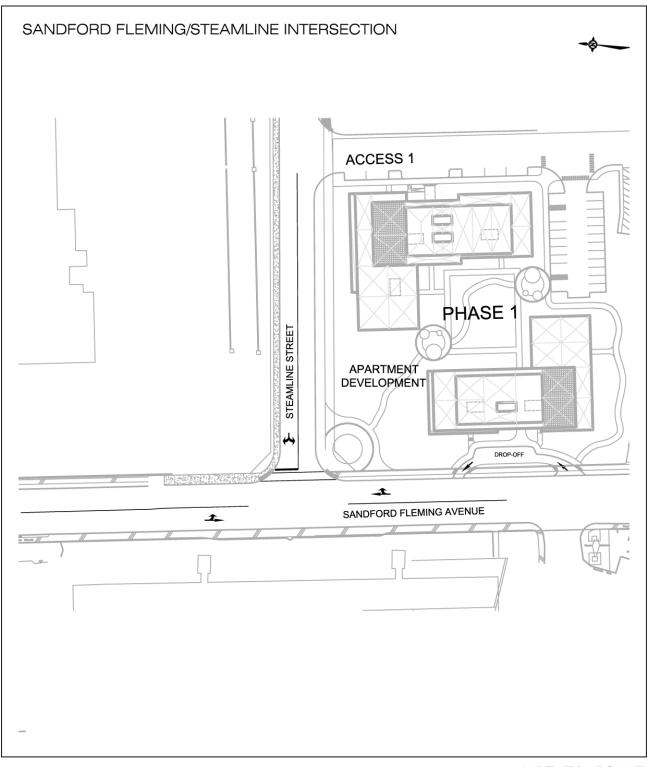
#### Triggered by the Steamline Street Apartment Development

Phase 1 and Phase 2 – The site would have one access point onto Sandford Fleming Avenue from Streamline Street. Modifications to the Sandford Fleming/Steamline intersection would comprise of pavement markings which provide a Sandford Fleming shared southbound left/through lane, a shared northbound through/right lane, and a Steamline shared westbound left/right lane. Figure 4.7 shows the intersection lane configuration which would be completed at Phase 1 by the year 2021. All pavement markings can be done within the pavement width of the road.

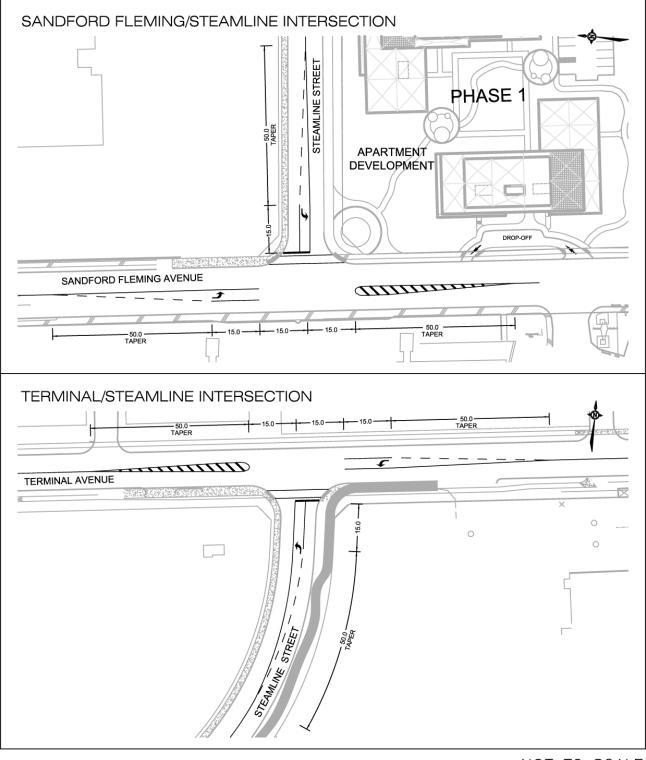
Phase 3 – At the completion of Phase 3 by the year 2031, Steamline Street would be extended to Terminal Avenue. Modifications to the pavement markings at the Sandford Fleming/Steamline intersection would comprise of providing an exclusive Sandford Fleming southbound left turn lane and exclusive westbound Steamline left turn and right turn lanes. The Terminal/Steamline intersection would require an exclusive Terminal westbound left turn lane and exclusive northbound Steamline left turn and right turn lanes. The left turn lane warrant analysis at both the Sandford/Steamline and Terminal/Steamline intersections determined that exclusive left turn lanes were not warranted (Exhibit 12 and 15), but the exclusive left turn lanes which are shown in Figure 4.8 are recommended to improve the operation of the intersections. The existing pavement width can accommodate the turn lanes and required only pavement markings.

The 95<sup>th</sup> percentile queue in the intersection operational analysis determined that the queuing at the exclusive left turn lanes at both intersections was less than one vehicle. The pavement markings would provide all exclusive left turn lanes with 15 m of vehicular storage.

#### FIGURE 4.7 LANE CONFIGURATION –Phase 1 (2021) and Phase 2 (2027)



#### FIGURE 4.8 LANE CONFIGURATION –Phase 3 (2031)



NOT TO SCALE

The width of lanes at the intersections would be the following:

Steamline S	t. & Terminal Ave.		Sandford F	leming Ave.	
11 m	Left turn lane	3.25 m	14 m	Left turn lane	3.50 m
Pavement	Through/Right lane	3.50 m	Pavement	Through/Right lane	3.75 m
	Opposing lane	4.25 m		Opposing lane	6.75 m

Figure 4.8 shows the lane configuration which would be completed at Phase 3. All pavement markings can be done within the existing right-of-way of Sandford Fleming Avenue, Terminal Avenue and Steamline Street.

#### Triggered by the Increase in Background Traffic

The transportation analysis determined that the all-way stop controlled intersection of Terminal Avenue and Sandford Fleming Avenue was beginning to show operational problems at the westbound approach due to the increasing background traffic. The proposed apartment development on Steamline Street would have little impact on the westbound Terminal Avenue approach to the intersection. It is recommended that the westbound Terminal Avenue approach to the all-way stop controlled intersection be modified to provide an exclusive left turn lane and a shared through/right lane.

#### SUMMARY

A summary of the level of service for the various modes of transportation are summarized in Table 4.19, with the results detailed in the analysis sheets provided as Exhibits in the Appendix. The proposed Steamline Street would meet the minimum desirable MMLOS targets for a development in a "Transit Oriented Development Zone" within 600 m of a rapid transit station as set out in the Official Plan Policy/Designation & Road Class. The targets for pedestrian and bicycle level of service are met, along with transit level of service along Sandford Fleming Avenue and Terminal Avenue. The level of service at the Industrial/Sandford, Industrial/Riverside, and Terminal/Trainyards intersections which are signalized intersections in close proximity to the site also meet the minimum desirable MMLOS targets.

SECMENTS		Level o	f Service (LoS	) – 2031	
SEGMENTS	Pedestrian	Cyclist	Transit	Auto	Truck
Steamline Street	А	В	N/A	-	N/A
Sandford Fleming Ave.	С	D	D	-	В
Terminal Avenue	D	D	D	-	В
Industrial Avenue	Е	F	N/A	-	-
Trainyards Drive	D	В	N/A	-	-
		Level of	f Service (LoS	) – 2031	
INTERSECTIONS	Pedestrian	Cyclist	Transit	Auto	Truck
Industrial/Sandford	F	F	D	В	С
Industrial/Riverside	F	F	-	С	-
Terminal/Trainyards	D	F	D	А	С

## TABLE 4.19MULTI-MODAL (MMLOS) SUMMARY TABLE

Prepared by:

David & Walsung

David J. Halpenny, M. Eng., P. Eng.



## APPENDIX

# SCREENING FORM TRAFFIC SIGNAL WARRANT ANALYSIS LEFT TURN LANE WARRANT ANALYSIS VEHICULAR TRAFFIC ANALYSIS PLOS and BLOS SEGMENT EVALUATIONS

#### EXHIBIT 1 SCREENING FORM

## TIA SCREENING FORM

1. Description of Proposed Developn	nent
Municipal Address	Steamline Street, Ottawa
Description of Location	Located on the east side of Sandford Fleming Avenue, south of Steamline Street.
Land Use Classification	Transit Oriented TD2[1979]
Development Size (units)	1,845 units
Development Size (m <sup>2</sup> )	
Number of Accesses and Locations	Two accesses onto Steamline Avenue and a layby on Sandford Fleming Avenue.
Phase of Development	3 Phases
Buildout Year	2029

2. Trip Generation Trigger	
Land Use Type	Residential Apartment Buildings
Development Size	90 units < 1,845 units
Trip Generation Trigger Satisfied?	Yes

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

4. Safety Triggers	
	Yes/No
Are posted speed limits on a boundary road 80 km/h or greater?	No

Are there any horizontal/vertical curvatures on a boundary street which limits sight lines at a proposed driveway?	No
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (300 m rural conditions or 150 m urban/suburban conditions)?	No
Is the proposed driveway within the auxiliary lanes of an intersection?	No
Does the proposed driveway make use of an existing median break that serves an existing site?	No
Is there a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?	No
Does the development include a drive-thru facility?	No
Safety Trigger Satisfied?	No

5. Summary	
	Yes/No
Does the development satisfy the Trip Generation Trigger?	Yes
Does the development satisfy the Location Trigger?	No
Does the development satisfy the Safety Trigger?	No

#### EXHIBIT 2 TRAFFIC SIGNAL WARRANT ANALYSIS – Sandford/Steamline (2031 Traffic)

#### MINIMUM WARRANTS FOR INSTALLATION OF TRAFFIC SIGNAL USING PROJECTED VOLUME

Municipality\_ City of Ottawa \_\_\_\_\_Projected Volume Year 2031

WARRANT	DESCRIPTION	MINIMUM REQUIREN 2 LANE HIGHWAY	MENT FOR	COM	IPLIAN	CE
		2. FREE FLOW	3. RESTRICT. FLOW	SECTIONA	L	4. ENTIRE %
				NUMBER	%	
1. VEHICULAR VOLUME	1. A. Vehicle volume all approaches (Average hour)	480	720	357	50	14%
	B. Vehicle volume, along minor roads, (Average hour)	120	255 170	35	14	1470
2. DELAY TO CROSS TRAFFIC	1. A. Vehicle volume, along artery (Average hour)	480	720	322	45	
	B. Combined vehicle and pedestrian volume crossing artery from minor roads, (Average hour)	50	75	30	40	(40%)

Projected Average Hour - Use the sum of the AM and PM Peak volumes divided by 4  $S^{\cdot}$ 

NOTES:

1. Vehicle volume warrants (1A) and (2A) for intersections of roadways having two or more moving lanes in one direction, should be 25% higher than the values given above.

- 2. Warrant values for free flow apply when the 85 percentile speed of artery traffic equals or exceeds 70 Km/h or when the intersection lies within the built-up area of an isolated community having a population of less than 10,000.
- 3. Warrant values for restricted flow apply to large urban communities when the 85 percentile speed of artery traffic does not exceed 70 Km/h.
- 4. The lowest sectional percentage governs the entire Warrant.
- 5. For "T" intersections the warrant values for minor road should be increased by 50 % (Warrant 1B only).
- 6. The crossing volumes are defined as:
  - (a) Left turns from both minor road approaches
  - (b) The heaviest through volume from the minor road
  - (c) 50% of the heavier left turn movement from major road when both of the following are met:
    - (i) the left turn volume > 120 vph.
    - (ii) the left turn volume plus the opposing volume > 720 vph.
  - (d) Pedestrians crossing the major road.

(-----)

#### EXHIBIT 3 TRAFFIC SIGNAL WARRANT ANALYSIS – Terminal/Steamline (2031 Traffic)

#### MINIMUM WARRANTS FOR INSTALLATION OF TRAFFIC SIGNAL USING PROJECTED VOLUME

Municipality City of Ottawa Projected Volume Year 2031

WARRANT	DESCRIPTION	MINIMUM REQUIREN 2 LANE HIGHWAY	MENT FOR	COM	IPLIAN	CE
		2. FREE FLOW	3. RESTRICT. FLOW	SECTIONA	L	4. ENTIRE %
		FLOW	FLOW	NUMBER	%	70
1. VEHICULAR VOLUME	1. A. Vehicle volume all approaches (Average hour)	480	720	395	55	6%)
	B. Vehicle volume, along minor roads, (Average hour)	120	255 170	15	6	
2. DELAY TO CROSS TRAFFIC	1. A. Vehicle volume, along artery (Average hour)	480	720	380	53	
	B. Combined vehicle and pedestrian volume crossing artery from minor roads, (Average hour)	50	75	3	4	4%

Projected Average Hour - Use the sum of the AM and PM Peak volumes divided by 4  $S^{\cdot}$ 

NOTES:

- 1. Vehicle volume warrants (1A) and (2A) for intersections of roadways having two or more moving lanes in one direction, should be 25% higher than the values given above.
- 2. Warrant values for free flow apply when the 85 percentile speed of artery traffic equals or exceeds 70 Km/h or when the intersection lies within the built-up area of an isolated community having a population of less than 10,000.
- 3. Warrant values for restricted flow apply to large urban communities when the 85 percentile speed of artery traffic does not exceed 70 Km/h.
- 4. The lowest sectional percentage governs the entire Warrant.
- 5. For "T" intersections the warrant values for minor road should be increased by 50 % (Warrant 1B only).
- 6. The crossing volumes are defined as:
  - (a) Left turns from both minor road approaches
  - (b) The heaviest through volume from the minor road
  - (c) 50% of the heavier left turn movement from major road when both of the following are met:
    - (i) the left turn volume > 120 vph.
    - (ii) the left turn volume plus the opposing volume > 720 vph.
  - (d) Pedestrians crossing the major road.

#### EXHIBIT 4 YEAR 2031 PEAK AM HOUR TRAFFIC – Access 1/Steamline

General Information							Site	Infor	natio	n						
Analyst	1							ection			Acces	is 1/Stea	mline			
Agency/Co.							Jurisd				Acces	5 1/ 5100				
Date Performed	6/13/	2018						West Str	eet		Steam	nline Str	eet			
Analysis Year	2031	2010						n/South !		Steamline Street Access 1						
Time Analyzed		Peak AM Hour						Hour Fa			0.92					
Intersection Orientation	East-\								Period (	hrs)	0.25					
Project Description	OTY F	Resident	ial Deve	opment												_
Lanes	-															
				J 4 1 4 4 4 1 4		<u>↑</u>		نې بې د								
Vehicle Volumes and Ad	justme	nts			Majo	or Street: Ea	st-West									
Approach		Eastk	ound			West	ound			North	bound	oound Southbound			bound	
Movement	U	L	Т	R	U	L	T	R	U	L	Т	R	U	L	Т	R
Priority	10	1	2	3	40	4	5	6		7	8	9		10	11	12
	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Number of Lanes				TR							LR					
Configuration				<u> </u>		LT										
Configuration Volume, V (veh/h)			8	19		4	26			66		31				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%)			8	<u> </u>			26			66 0		31 0				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked			8	<u> </u>		4	26			0		<u> </u>				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%)				<u> </u>		4				0	0	<u> </u>				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized		1	8	19	vided	4				0		<u> </u>			10	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage				19	vided	4				0	0	<u> </u>		N	     	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H	eadwa			19	vided	4				0	0	<u> </u>		N	lo lo	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec)	eadwa			19	vided	4				0	0	<u> </u>		N	lo	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec)	eadwa			19	vided	4				0	0	<u> </u>		N		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)	eadwa			19	vided	4				0	0	<u> </u>		N		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		19 Undi	vided	4				0	0	<u> </u>				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b>		ys		19 Undi	vided	4 0 N				0		<u> </u>				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h)		ys		19 Undi	vided	4 0 N				0		<u> </u>				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		19 Undi	vided	4 0 N				0		<u> </u>				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Critical teadway (sec) Follow-Up Headway (sec) Critical teadway (sec) Follow-Up Headway (sec) Critical teadway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Capacity, c (veh/h) v/c Ratio		ys		19 Undi	vided	4 0 N 4 1597 0.00				0	105 987 0.111	<u> </u>				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		19 Undi	vided	4 0 N 4 1597 0.00 0.0				0	105 987 0.11 0.4	<u> </u>				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (		ys		19 Undi	vided	4 0 N 4 1597 0.00 0.0 7.3				0	105 987 0.11 0.4 9.1	<u> </u>				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Ease Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		19 Undi	vided	4 0 N 4 1597 0.00 0.0					105 987 0.11 0.4	<u> </u>				

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#### EXHIBIT 5 YEAR 2031 PEAK PM HOUR TRAFFIC – Access 1/Steamline

								_		ort						
General Information							Site	Infor	natio	า						
Analyst							Inters	ection			Acces	is 1/Stea	mline			
Agency/Co.							Jurisd	liction								
Date Performed	6/13/	2018					East/	West Str	eet		Stean	nline Stro	eet			
Analysis Year	2031						North	/South	Street		Acces	is 1				
Time Analyzed	Peak	PM Hou	r				Peak	Hour Fa	ctor		0.92					
Intersection Orientation	East-\	Nest					Analy	sis Time	Period (	hrs)	0.25					
Project Description	OTY F	Resident	ial Devel	opment												
				J 4 1 7 4 1 4 4	14	↓ ↓ ×	14 t		· · ·							
Vehicle Volumes and Ad	justme	nts			Majo	r street. La	ist-west									
Approach			ound			West					bound				bound	_
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R
Priority	10	1	2	3	40	4	5	6		7	8	9		10	11	12
	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Number of Lanes				TR												
Configuration			22	<u> </u>		LT	14	<u> </u>		24	LR	7				
Configuration Volume, V (veh/h)			22	50		11	14			34	LR	7				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%)			22	<u> </u>			14			34 0		7				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked			22	<u> </u>		11	14			0		<u> </u>				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%)				<u> </u>		11 0				0	)	<u> </u>				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized			22 	50	vided	11				0	)	<u> </u>			10	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage				50	vided	11 0				0	)	<u> </u>		N	0	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H	eadwa			50	vided	11 0 N				0 (	)	0		N	lo	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec)	eadwa			50	vided	11 0 N				0 ( N 7.1	)	6.2		N	10	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec)	eadwa			50	vided	11 0 N 4.1 4.10				0 ( N 7.1 6.40	)	0 6.2 6.20		N		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)	eadwa			50	vided	11 0 				0 ( N 7.1 6.40 3.5	)	0 6.2 6.20 3.3		N		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		Undi	vided	11 0 N 4.1 4.10				0 ( N 7.1 6.40	)	0 6.2 6.20		N		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an		ys		Undi	vided	11 0 N 4.1 4.10 2.2 2.20				0 ( N 7.1 6.40 3.5		0 6.2 6.20 3.3				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h)		ys		Undi	vided	11 0 4.1 4.10 2.2 2.20				0 ( N 7.1 6.40 3.5	45	0 6.2 6.20 3.3				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		Undi	vided	11 0 4.1 4.10 2.2 2.20 1233				0 ( N 7.1 6.40 3.5	45 926	0 6.2 6.20 3.3				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h)		ys		Undi	vided	11 0 4.1 4.10 2.2 2.20 1533 0.01				0 ( N 7.1 6.40 3.5	45 926 0.05	0 6.2 6.20 3.3				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Ease Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		Undi	vided	11 0 N 4.1 4.10 2.2 2.20 1533 0.01 0.0				0 ( N 7.1 6.40 3.5	45 926 0.05 0.2	0 6.2 6.20 3.3				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (		ys		Undi	vided	11 0 4.1 4.10 2.2 2.20 12 1533 0.01 0.0 7.4				0 ( N 7.1 6.40 3.5	45 926 0.05 0.2 9.1	0 6.2 6.20 3.3				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (		ys		Undi	vided	11 0 4.1 4.10 2.2 2.20 12 1533 0.01 0.0 7.4 A				0 0 N 7.1 6.40 3.5 3.50	45 926 0.05 0.2	0 6.2 6.20 3.3				

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#### EXHIBIT 6 YEAR 2031 PEAK AM HOUR TRAFFIC – Access 2/Steamline

General Information							Site	Inforr	natio	า						
Analyst	T						Inters	ection			Acces	s 2/Stea	mline			
Agency/Co.							Jurisd	liction								
Date Performed	6/13/	2018					East/\	West Str	eet		Steam	nline Stro	eet			
Analysis Year	2031						North	/South	Street		Acces	s 2				
Time Analyzed	Peak	AM Hou	ır				Peak	Hour Fa	ctor		0.92					
Intersection Orientation	East-	Vest					Analy	sis Time	Period (	hrs)	0.25					
Project Description	OTY F	Resident	ial Devel	opment												
Lanes																
				J 4 4 7 4 4 6 6	ר ז ז	¥ **	141	*) K								
Vehicle Volumes and Adj	justme	nts			Majo	or Street: Ea	st-West									
Approach		Eastb	ound			West	oound			North	bound			South	bound	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	F
	10	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority	10															
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	C
Number of Lanes Configuration		0		TR	0	LT		0			1 LR			0	0	C
Number of Lanes Configuration Volume, V (veh/h)		0	1 13	-	0	LT 10	1	0		26		26		0	0	C
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%)		0		TR	0	LT		0						0	0	C
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked		0		TR	0	LT 10		0		26 0	LR	26		0	0	
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%)			13	TR	0	LT 10 0	4	0		26		26				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized				TR 8		LT 10	4	0		26	LR	26			0	
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage	0		13	TR 8	0	LT 10 0	4	0		26		26				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He	0		13	TR 8		LT 10 0	4	0		26 0		26 0				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec)	0		13	TR 8		LT 10 0	4			26 0 N 7.1		26 0 6.2				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec)	0		13	TR 8		LT 10 0 N 4.1 4.10	4			26 0 N 7.1 6.40		26 0 6.2 6.20				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)	0		13	TR 8		LT 10 0 N 4.1 4.10 2.2	4			26 0 N 7.1 6.40 3.5		26 0 6.2 6.20 3.3				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)	eadwa	ys	13 13	Undi		LT 10 0 N 4.1 4.10	4			26 0 N 7.1 6.40		26 0 6.2 6.20				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Headway (sec) Gritical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)	eadwa	ys	13 13	Undi		LT 10 0 N 4.1 4.10 2.2	4			26 0 N 7.1 6.40 3.5		26 0				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec)	eadwa	ys	13 13	Undi		LT 10 0	4			26 0 N 7.1 6.40 3.5	LR 	26 0				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Headway (sec) Critical Headway (sec) Base Critical Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec)	eadwa	ys	13 13	Undi		LT 10 0	4			26 0 N 7.1 6.40 3.5	LR 	26 0				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Headway (sec) Critical Headway (sec) Base Critical Headway (sec) Follow-Up Headway (sec) Critical Headway (sec) Follow-Up Headway (sec)	eadwa	ys	13 13	Undi		LT 10 0 4.1 4.10 2.2 2.20 11 1605 0.01	4			26 0 N 7.1 6.40 3.5	LR 	26 0				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)	eadwa	ys	13 13	Undi		LT 10 0 4.1 4.10 2.2 2.20 11 1605 0.01 0.0	4			26 0 N 7.1 6.40 3.5	LR 	26 0				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up Hea</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) F	eadwa	ys	13 13	Undi		LT 10 0 4.1 4.1 2.2 2.20 11 1605 0.01 0.0 7.3	4			26 0 N 7.1 6.40 3.5	LR LR 	26 0				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)	eadwa	ys	13 13	Undi		LT 10 0 4.1 4.10 2.2 2.20 11 1605 0.01 0.00 7.3 A	4			26 0 N 7.1 6.40 3.5 3.50	LR 	26 0				

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#### EXHIBIT 7 YEAR 2031 PEAK PM HOUR TRAFFIC – Access 2/Steamline

General Information							Site	Inform	natio	n						
Analyst								ection			Acces	is 2/Stea	mline			
Agency/Co.							Jurisd									
Date Performed	6/13/	2018					East/	West Str	eet		Stean	nline Stro	eet			
Analysis Year	2031							/South			Acces	is 2				
Time Analyzed		PM Hou	r					Hour Fa			0.92					
Intersection Orientation	East-						Analy	sis Time	Period (	hrs)	0.25					
Project Description	OTYF	Resident	ial Deve	lopment												
				J 4 1 7 4 5 6 9	× *	۲ • ۲		*) K								
Vehicle Volumes and Ad	justme					or Street: Ea										
Approach			bound				ound				bound				bound	
Movement	U	L	T	R	U	L	Т	R	U	L	T	R	U	L	T	R
Priority Number of Lanes	10	1	2	3	4U 0	4	5	6 0	<u> </u>	7	8	9		10 0	11 0	12
Number of Lanes	0	0	1	TR	0	LT	1	0			LR	0		0	0	
Configuration			<u> </u>	22		27	11		<u> </u>	14		13				-
Configuration	-		7							1 1 1		1 13				
Volume, V (veh/h)	-		7	22		<u> </u>				0		0				-
Volume, V (veh/h) Percent Heavy Vehicles (%)			7			0				0		0				
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked			7			<u> </u>					0	0				
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%)						0					0	0				
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized		1	Jo		vided	0	0				) D	0		N	lo	
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage	eadwa				vided	0					-	0		N	lo	
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H	eadwa				vided	N				N	-			N	0	
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec)	eadwa				vided	0 N 4.1				7.1	-	6.2		N	0	
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec)	eadwa				vided	N				N	-			N	lo	
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)	eadwa				vided	0 N 4.1 4.10				7.1 6.40	-	6.2 6.20		N		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		Undi	vided	0 N 4.1 4.10 2.2				7.1 6.40 3.5	-	6.2 6.20 3.3		N		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an		ys		Undi	vided	0 N 4.1 4.10 2.2 2.20				7.1 6.40 3.5		6.2 6.20 3.3		N		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h)		ys		Undi	vided	0 N 4.1 4.10 2.2 2.20 29				7.1 6.40 3.5	lo 	6.2 6.20 3.3		N		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h)		ys		Undi	vided	0 N 4.1 4.10 2.2 2.20 29 1593				7.1 6.40 3.5	lo 29 971	6.2 6.20 3.3				
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio		ys		Undi	vided	0 N 4.1 4.10 2.2 2.20 2.20 1593 0.02				7.1 6.40 3.5	lo 29 971 0.03	6.2 6.20 3.3				
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh)		ys		Undi	vided	0 N 4.1 4.10 2.2 2.20 29 1593 0.02 0.1				7.1 6.40 3.5	29 971 0.03 0.1	6.2 6.20 3.3				
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh) Control Delay (s/veh)		ys		Undi	vided	0 4.1 4.10 2.2 2.20 1593 0.02 0.1 7.3				7.1 6.40 3.5	29 971 0.03 0.1 8.8	6.2 6.20 3.3				
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh)		ys		Undi	vided	0 A.1 4.1 4.10 2.2 2.20 1593 0.02 0.1 7.3 A				7.1 6.40 3.5 3.50	29 971 0.03 0.1	6.2 6.20 3.3				

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## EXHIBIT 8 YEAR 2021 PEAK AM HOUR TRAFFIC – Sandford Fleming/Steamline

General Information							Site	Inform	natio	n						_
Analyst	1							ection	natio	•	Sandi	ford/Ste	amline			
Agency/Co.	-						Jurisd				<u> </u>	of Ottawa				
Date Performed	11/22	/2017						West Str	eet			nline Str				
Analysis Year	2021	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						/South			<u> </u>		ning Ave	enue		
Time Analyzed		AM Hou	r					Hour Fa			0.92					
Intersection Orientation	North	-South					Analy	sis Time	Period (	hrs)	0.25					
Project Description	ΟΤΥ Ρ	Resident	ial Deve	lopment						,						
Lanes																
				4 4 7 4 7		ት የ ቀ ነ	1									
Vehicle Volumes and Adj	justme	nts			Major	Street: No	rth-South									
Approach			ound				oound				bound				bound	_
Movement	U	L	Т	R	U	L	Т	R	U	L	T	R	U	L	Т	
Priority		10	11	12		7	8	9	10	1	2	3	40	4	5	
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	
Confirmation							LR				<u> </u>	TR		LT		
Configuration	+					1.0					215			2	202	
Volume, V (veh/h)						16		7			215	4		3	202	
Volume, V (veh/h) Percent Heavy Vehicles (%)						16 1		7			215	4		3	202	
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked						1		<u> </u>			215	4			202	
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%)						1	0	<u> </u>				4		1		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized		N	10	Undi	vided	1	) ) ) )	<u> </u>		N	215	4		1	202	
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage			lo	Undi	vided	1	-	<u> </u>		N		4		1		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Heave	eadwa		lo	Undi	vided	1	-	<u> </u>		N		4		1		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec)	eadwa			Undi	vided	1	-	<u> </u>		N		4		1		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec) Critical Headway (sec)	eadwa			Undi	vided	1	-	<u> </u>		N				1		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)	eadwa			Undi	vided	1	-	<u> </u>		N				1		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys			vided	1	-	<u> </u>		N		4		1		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an		ys			vided	1		<u> </u>		N						
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h)		ys			vided	1	lo 	<u> </u>						1 N		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h)		ys			vided	1	25 616	<u> </u>						1 N 3 1334		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio		ys			vided	1	25 616 0.04	<u> </u>						1 N 3 1334 0.00		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec) Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh)		ys			vided	1	25 616 0.04 0.1	<u> </u>						1 N 3 1334 0.00 0.0		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh) Control Delay (s/veh)		ys			vided	1	25 616 0.04 0.1 11.1	<u> </u>						1 N 3 1334 0.00 0.0 7.7		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Gritical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh)		ys			vided		25 616 0.04 0.1	<u> </u>						1 N 3 1334 0.00 0.0 7.7 A		

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## EXHIBIT 9 YEAR 2021 PEAK PM HOUR TRAFFIC – Sandford Fleming/Steamline

General Information							Site	Infor	natio	n						
Analyst							Inters	ection			Sand	ford/Stea	amline			
Agency/Co.							Jurisd					of Ottawa				
Date Performed		/2017						West Str			<u> </u>	nline Stro				
Analysis Year	2021							/South				ford Flen	ning Ave	enue		
Time Analyzed		PM Hou	r					Hour Fa			0.92					
Intersection Orientation		-South					Analy	sis Time	Period (	hrs)	0.25					
Project Description		Resident	ial Deve	opment												
				J 4 4 7 4 P C	ן קרי ו	4 1 + 1	↑ <b>*</b> 1									
Vehicle Volumes and Ad	ljustme	nts				Street: No										
Approach		Eastb	ound			West	bound			North	bound			South	bound	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	F
Priority		10	11	12		7	8	9	10	1	2	3	4U	4	5	6
		0	0	0		0	1	0	0	0	1	0	0	0	1	C
Number of Lanes				1						I		TR				
Configuration				<u> </u>			LR					<u> </u>	<u> </u>	LT		
Configuration Volume, V (veh/h)						8	LK	4			173	11		8	530	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%)						8		4			173	<u> </u>		<u> </u>	530	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked						1		<u> </u>			173	<u> </u>		8	530	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%)						1	0	<u> </u>				<u> </u>		8		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized			lo	Lindi	vided	1		<u> </u>			173 10	<u> </u>		8	530	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage				Undi	vided	1	0	<u> </u>				<u> </u>		8		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H	eadwa		lo	Undi	vided	1	0	<u> </u>		N		<u> </u>		8		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec)	eadwa		lo	Undi	vided	1	0	<u> </u>		N		<u> </u>		8		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec)	eadwa			Undi	vided	1	0	<u> </u>		N		<u> </u>		8		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)	leadwa			Undi	vided	1	0	<u> </u>		N		<u> </u>		8		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys			vided	1	0	<u> </u>		N		<u> </u>		8		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an		ys			vided	1		<u> </u>		N		<u> </u>		8 1 N		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h)		ys			vided	1	0 0 10 13	<u> </u>				<u> </u>		8 1 N		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec)		ys			vided	1		<u> </u>		N		<u> </u>		8 1 		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Critical teadway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Capacity, c (veh/h) v/c Ratio		ys			vided	1	13 445 0.03	<u> </u>				<u> </u>		8 1 		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>55</sub> (veh)		ys			vided	1	13 445 0.03 0.1	<u> </u>				<u> </u>		8 1 		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (se		ys			vided	1	13 445 0.03 0.1 13.3	<u> </u>				<u> </u>		8 1 		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>55</sub> (veh)		ys			vided		13 445 0.03 0.1	<u> </u>				<u> </u>		8 1 		

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### EXHIBIT 10 YEAR 2027 PEAK AM HOUR TRAFFIC – Sandford Fleming/Steamline

General Information							Site	Inform	natio	n						_
Appliet							Intos	oction				Ford /Sto	amlino			
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		2.7 2.1			Contractor							and an of	*****			
	2			F												
ويتعاديهم بمساجع المتحساطين	2.20			1. 		2/2	ar a de	A				- 242				
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	7			a na segar								<del></del>	<u>4 1997</u>	4.20 q		1
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		an frankrit Helen	and a strike	1. 1							79	-				
		in street														
Priority	T	10	11	12	The second second	7	8	9	1		4.4	1	and the -	the state of the s	· · · · · · · · · · · · · · · · · · ·	
Number of Lanes							°	9	10	1	2	3	4U	4	5	6
		0	0	0		0	1	0	1U 0	1 0	2	3 0	4U 0	4	5	
Configuration		0	0	0		0	<u> </u>	<u> </u>		<u> </u>				<u> </u>		
		0	0	0		0 61	1	<u> </u>		<u> </u>		0		0		
Configuration		0	0	0			1	0		<u> </u>	1	0 TR		0 LT	1	
Configuration Volume, V (veh/h)		0	0	0		61 1	1 LR	0 26		<u> </u>	1	0 TR		0 LT 11	1	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%)		0	0	0		61 1	1	0 26		<u> </u>	1	0 TR		0 LT 11	1	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized			No 0			61	1 LR	0 26		0	1	0 TR		0 LT 11	1	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage					vided	61	1 LR 	0 26		0	1 226	0 TR		0 LT 11	1 219	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage	eadway				vided	61	1 LR 	0 26		0	1 226	0 TR		0 LT 11	1 219	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage	eadway				vided	61	1 LR 	0 26		0	1 226	0 TR		0 LT 11	1 219	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He	eadway				vided	61	1 LR 	0 26		0	1 226	0 TR		0 LT 11	1 219	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical And Follow-up He Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)	eadway				vided	61	1 LR 	0 26		0	1 226	0 TR		0 LT 11	1 219	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		Undi	vided	61	1 LR 	0 26		0	1 226	0 TR		0 LT 11	1 219	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical And Follow-up He Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)		ys		Undi	vided	61	1 LR 	0 26		0	1 226	0 TR		0 LT 11	1 219	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		Undi	vided	61	1 LR 	0 26		0	1 226	0 TR		0 LT 11	1 219	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an		ys		Undi	vided	61		0 26		0	1 226	0 TR		0 LT 11 1	1 219	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		Undi	vided	61	1 LR 	0 26		0	1 226	0 TR		0 LT 11 1 	1 219	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		Undi	vided	61	1 LR 	0 26		0	1 226	0 TR		0 LT 11 1 	1 219	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec) Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio		ys		Undi	vided	61	1 LR 	0 26		0	1 226	0 TR		0 LT 11 1	1 219	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec) Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) V/c Ratio 95% Queue Length, Q <sub>95</sub> (veh)		ys		Undi	vided	61	1 LR I I I I I I I I I I I I I I I I I I	0 26		0	1 226	0 TR		0 LT 11 1 	1 219	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (s		ys		Undi	vided		1 LR 	0 26		0	1 226	0 TR		0 LT 11 1	1 219	

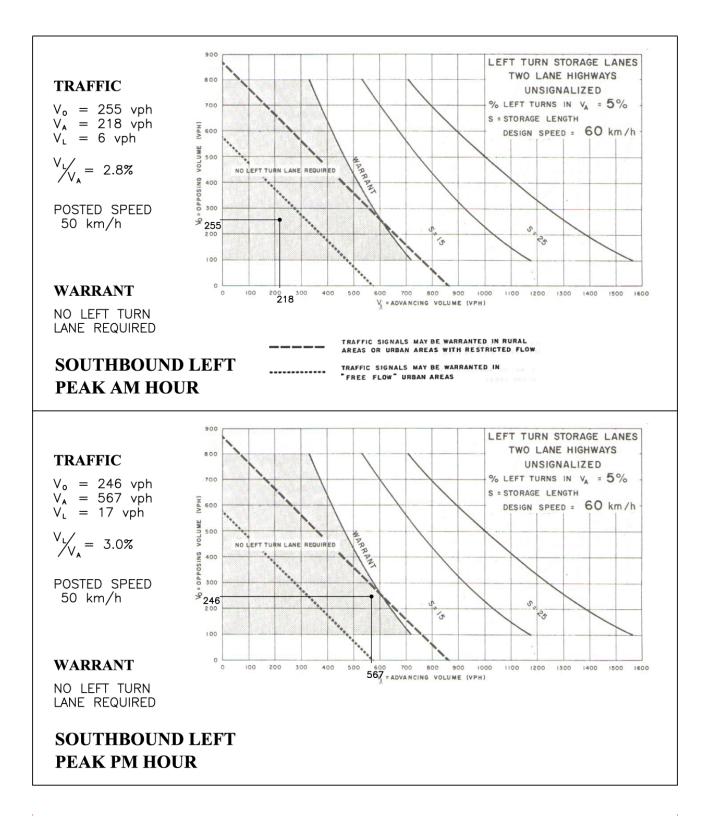
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## EXHIBIT 11 YEAR 2027 PEAK PM HOUR TRAFFIC – Sandford Fleming/Steamline

									Rep							
General Information							Site	Infor	natio	n						
Analyst							<u> </u>	ection				ford/Stea				
Agency/Co.							Jurisd					of Ottawa				
Date Performed		/2017						Nest Str				nline Stro				
Analysis Year	2027							/South				ford Flen	ning Ave	enue		
Time Analyzed		PM Hou	r					Hour Fa			0.92					
Intersection Orientation		n-South					Analy	sis Time	Period (	hrs)	0.25					
Project Description		Resident	ial Deve	lopment												
				J 4 7 7 4 7 7	) 0 – •	4 1 1 1 1 1 1	↑ ⊁ (									
Vehicle Volumes and Ad	ljustme	nts				Street: No	rth-South	_								
Approach		Eastb	ound			West	oound			North	bound			South	bound	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	F
Priority		10	11	12		7	8	9	10	1	2	3	4U	4	5	6
Number of Lanes	_	0	0	0		0	1	0	0	0	1	0	0	0	1	C
							LR					TR		LT		
Configuration																
Configuration Volume, V (veh/h)						32		14			184	43		29	562	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%)						32 1		14 1			184	43		29 1	562	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked						1		<u> </u>			184	43			562	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%)						1	0	<u> </u>				43		1		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized			10	Undi	ivided	1	) ) )	<u> </u>			184 Io	43		1	562 0	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage			lo	Undi	ivided	1	-	<u> </u>		N		43		1		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H	leadwa		lo	Undi	ivided	1	-	<u> </u>		N		43		1		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec)	leadwa			Undi	ivided	1	-	<u> </u>		N		43		1		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec)	leadwa			Undi	ivided	1	-	<u> </u>		N		43		1		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)	leadwa			Undi	ivided	1	-	<u> </u>		N		43		1		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys			ivided	1	-	<u> </u>		N		43		1		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an		ys			ivided	1		<u> </u>		N		43				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec)		ys			ivided	1	lo	<u> </u>				43		1 N 32		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec)		ys			vided	1	lo 	<u> </u>				43		1 N 32 1324		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Pelay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio		ys			vided	1	50 376 0.13	<u> </u>				43		1		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>55</sub> (veh)		ys				1	50 50 376 0.13 0.5	<u> </u>				43		1 32 1324 0.02 0.1		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (se		ys				1	50 376 0.13 0.5 16.0	<u> </u>				43		1 32 1324 0.02 0.1 7.8		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>55</sub> (veh)		ys					50 50 376 0.13 0.5	<u> </u>				43		1 32 1324 0.02 0.1 7.8 A		

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## EXHIBIT 13 YEAR 2031 PEAK AM HOUR TRAFFIC – Sandford Fleming/Steamline

General Information							Site	Inforr	natio	<b>n</b>						_
Analyst	1							ection	nation	•	Sandi	ford/Ste	amlino			
Agency/Co.	+							liction			<u> </u>	of Ottawa				
Date Performed	11/22	2/2017						West Str	eet			nline Str				
Analysis Year	2031	./201/						/South !			<u> </u>		ning Ave	nue		
Time Analyzed		AM Hou	r					Hour Fa			0.92		ining / tre	inde		
Intersection Orientation		n-South							Period (	hrs)	0.25					
Project Description		Resident	ial Deve	lopment												_
Lanes	-															
				14474		ሳ ጉ ቀ የ	<b>↑ ↑</b> 1									
Vehicle Volumes and Ad	justme	nts			Major	Street: Nor	th-South									
Approach			ound			West	_				bound				bound	
Movement	U	L	Т	R	U	L	T	R	U	L	T	R	U	L	T	
Priority		10	11	12		7	8	9	10	1	2	3	40	4	5	
Number of Lanes		0	0	0		1 L	0	1 R	0	0	1	0 TR	0	1 L	1 T	
Configuration Volume, V (veh/h)	+	<u> </u>		-	-	79		13			234	21		6	212	
	+					1		13			234	21		1	212	$\vdash$
			<u> </u>			1		-						1		⊢
Percent Heavy Vehicles (%) Proportion Time Blocked														1		
Proportion Time Blocked							<u>ן</u>									
Proportion Time Blocked Percent Grade (%)							)			 	lo				10	
Proportion Time Blocked Percent Grade (%) Right Turn Channelized		N	lo	Undi	ivided	l (				N	lo			١	10	
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage	eadway		lo	Undi	ivided					N	10			1	10	
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H	eadwa		lo	Undi	ivided					N	10			N	10	
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec)	eadwa			Undi	ivided					N				N	10	
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec)	eadwa			Undi	ivided					N				N	10	
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec)	eadwa			Undi	ivided					N				N	40	
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys			ivided					N						
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b>		ys			ivided	N										
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h)		ys			ivided	N		14						7		
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h)		ys			ivided	N 86 523		775						7 1291		
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio		ys			ivided	N 86 523 0.16		775 0.02						7 1291 0.01		
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh)		ys			ivided	86 523 0.16 0.6		775						7 1291		
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio		ys			ivided	N 86 523 0.16		775 0.02 0.1						7 1291 0.01 0.0		
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Pollay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) V/c Ratio 95% Queue Length, Q <sub>95</sub> (veh) Control Delay (s/veh)		ys			ivided	N 86 523 0.16 0.6 13.2 B		775 0.02 0.1 9.7						7 1291 0.01 0.0 7.8 A		

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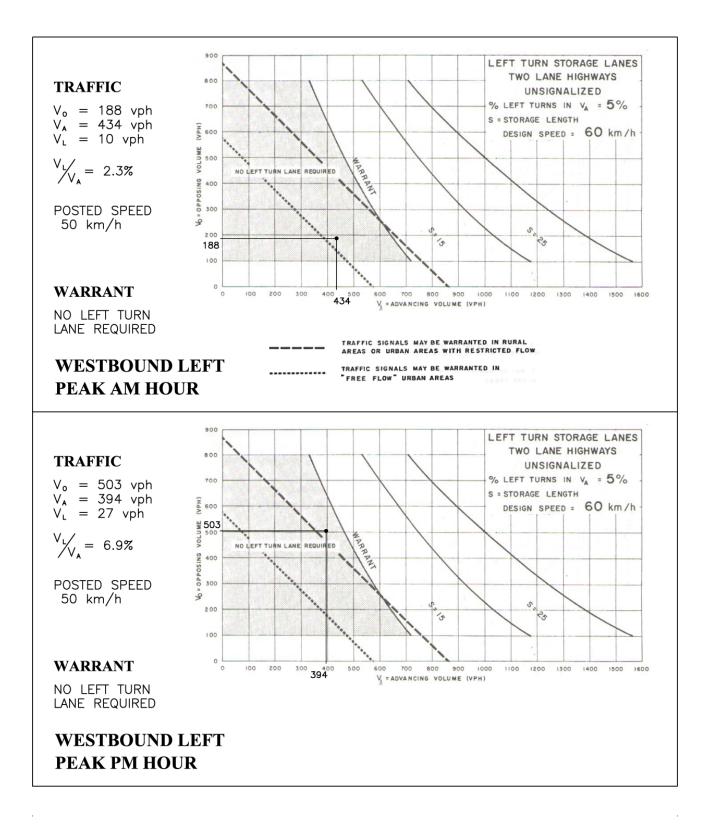
## EXHIBIT 14 YEAR 2031 PEAK PM HOUR TRAFFIC – Sandford Fleming/Steamline

							Cite	Traffic	Rep	_						
General Information								Inform	natioi	n						
Analyst								section				ford/Ste				
Agency/Co.								diction				of Ottawa				
Date Performed	+	2/2017						West Str				nline Str				
Analysis Year	2031	DIALI						n/South				ford Fler	ning Ave	enue		
Time Analyzed		PM Hou	r					Hour Fa		(hara)	0.92					
Intersection Orientation			ial Dava	onmont			Analy	vsis Time	Period (	nrs)	0.25					
Project Description		vesident		opment												_
				74474	ן חַרַי	1 1 + 1	↑ <b>↑</b>									
Vehicle Volumes and Adj	ustme	nts				Street: No	th-South									
Approach		Eastb	ound			West	ound			North	bound			South	bound	_
	1	Lι	Т	R	U	L	Т	R	U	ι.	Т	R	U	ι.	Т	
Movement	U		· ·					<u> </u>								F
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	
Priority Number of Lanes		<u> </u>		12 0		1	8 0	1	1U 0	1 0	2	0	4U 0	1	5	
Priority Number of Lanes Configuration		10	11			1 L		1 R		<u> </u>	1	0 TR	<u> </u>	1 L	5 1 T	
Priority Number of Lanes Configuration Volume, V (veh/h)		10	11			1 L 41		1 R 7		<u> </u>		0	<u> </u>	1 L 17	5	
Priority Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%)		10	11			1 L		1 R		<u> </u>	1	0 TR	<u> </u>	1 L	5 1 T	
Priority Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked		10	11			1 L 41 1	0	1 R 7		<u> </u>	1	0 TR	<u> </u>	1 L 17	5 1 T	
Priority Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%)		10 0	11 0			1 L 41 1	0	1 R 7		0	1 191	0 TR	<u> </u>	1 L 17 1	5 1 7 550	
Priority Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized		10 0	11	0		1 L 41 1	0	1 R 7		0	1	0 TR	<u> </u>	1 L 17 1	5 1 T	
Priority Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage		10	11 0	0	vided	1 L 41 1	0	1 R 7		0	1 191	0 TR	<u> </u>	1 L 17 1	5 1 7 550	
Priority Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized		10	11 0	0	vided	1 L 41 1	0	1 R 7		0	1 191	0 TR	<u> </u>	1 L 17 1	5 1 7 550	
Priority Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec)		10	11 0	0	vided	1 L 41 1	0	1 R 7		0	1 191	0 TR	<u> </u>	1 L 17 1	5 1 7 550	
Priority Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec)		10	11 0	0	vided	1 L 41 1	0	1 R 7		0	1 191	0 TR	<u> </u>	1 L 17 1	5 1 7 550	
Priority Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Base Follow-Up Headway (sec)		10	11 0	0	vided	1 L 41 1	0	1 R 7		0	1 191	0 TR	<u> </u>	1 L 17 1	5 1 7 550	
Priority Priority Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec) Critical Headway (sec) Follow-Up Headway (sec)		10 0	11 0 	Undi	vided	1 L 41 1	0	1 R 7		0	1 191	0 TR	<u> </u>	1 L 17 1	5 1 7 550	
Priority Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Base Follow-Up Headway (sec)		10 0	11 0 	Undi	vided	1 L 41 1	0	1 R 7		0	1 191	0 TR	<u> </u>	1 L 17 1	5 1 7 550	
Priority Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec) Critical Headway (sec) Follow-Up Headway (sec)		10 0	11 0 	Undi	vided	1 L 41 1	0	1 R 7		0	1 191	0 TR	<u> </u>	1 L 17 1	5 1 7 550	
Priority Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b>		10 0	11 0 	Undi	vided	1 L 41 1 (0 N	0	1 R 7 1		0	1 191	0 TR	<u> </u>	1 L 17 1 N	5 1 7 550	
Priority Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h)		10 0	11 0 	Undi	vided	1 L 41 1 N 41 1 1 41 1 1 41 41 41 41 41	0	1 R 7 1		0	1 191	0 TR	<u> </u>	1 L 17 1 N	5 1 7 550	
Priority Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)		10 0	11 0 	Undi	vided	1 L 41 1 N 0 0 0 0 0 0 0 0 0 0 0 0 0	0	1 R 7 1 		0	1 191	0 TR	<u> </u>	1 L 17 1 N	5 1 7 550	
Priority Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)		10 0	11 0 	Undi	vided	1 L 41 1 N 0 0 1 45 318 0.14	0	1 R 7 1 		0	1 191	0 TR	<u> </u>	1 L 17 1 N N N N N N N N N N N N N N N N N	5 1 7 550	
Priority Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Headway (sec) Base Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh)		10 0	11 0 	Undi		1 41 1	0	1 R 7 1 		0	1 191	0 TR	<u> </u>	1 L 17 1 N N N N N N N N N N N N N N N N N	5 1 7 550	

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#### EXHIBIT 16 YEAR 2031 PEAK AM HOUR TRAFFIC – Terminal/Steamline

General Information							Site	Inforr	natior	า						
Analyst	<u> </u>						Inters	ection			Termi	nal/Stea	amline			_
Agency/Co.	-						Jurisd	liction			City o	f Ottaw	а			
Date Performed	11/22	2/2017					East/	West Str	eet		Termi	nal Ave	nue			_
Analysis Year	2031						North	/South	Street		Steam	nline Str	eet			
Time Analyzed	Peak	AM Hou	ır				Peak	Hour Fa	ctor		0.92					_
Intersection Orientation	East-	West					Analy	sis Time	Period (	nrs)	0.25					
Project Description	OTYR	Resident	ial Devel	opment												
Lanes																
					L J	↓«	L L I									
						+ ^ *	** 4	L						_		
ana					್ಷ ಕ್ಷೇತ್ರಿಗಳು ಕ್ಷೇತ್ರ ವರ್ಷಕ್ರ						4.65 X.40					
											<u> </u>					3
Priority	10	1	2	3	4U	4	5	6		7	8	9		10	11	1
Number of Lanes	0	0	1	0	0	1	1	0		1	0	1		0	0	
Configuration				TR		L	Т			L		R				
Volume, V (veh/h)			184	4		10	424			7		32				
Percent Heavy Vehicles (%)						1				1		1				
Proportion Time Blocked																
Percent Grade (%)										(	)					
Right Turn Channelized		1	١o			N	lo			N	lo			Ν	lo	
Median Type/Storage				Undi	vided											
Critical and Follow-up I	leadwa	ys														
		-								_						Г
Base Critical Headway (sec)																$\vdash$
Base Critical Headway (sec) Critical Headway (sec)			-													-
Critical Headway (sec)																
Critical Headway (sec) Base Follow-Up Headway (sec)																$\vdash$
Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)																
Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, a	nd Leve	l of S	ervice													
Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, a Flow Rate, v (veh/h)	nd Leve	l of S	ervice			11				8		35				
Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, a</b> Flow Rate, v (veh/h) Capacity, c (veh/h)	nd Leve	l of S	ervice			1373				412		841				
Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, a Flow Rate, v (veh/h)	nd Leve	l of S	ervice													
Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, a</b> Flow Rate, v (veh/h) Capacity, c (veh/h)	nd Leve	l of S	ervice			1373				412		841				
Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, a</b> Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio	nd Leve	l of S	ervice			1373 0.01				412 0.02		841 0.04				
Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, a Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh)	nd Leve	l of S	ervice			1373 0.01 0.0				412 0.02 0.1		841 0.04 0.1				
Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, a</b> Flow Rate, v (veh/h) Capacity, c (veh/h) V/c Ratio 95% Queue Length, Q <sub>95</sub> (veh) Control Delay (s/veh)	nd Leve	l of S	ervice			1373 0.01 0.0 7.6 A	.2			412 0.02 0.1 13.9 B		841 0.04 0.1 9.5				

#### EXHIBIT 17 YEAR 2031 PEAK PM HOUR TRAFFIC – Terminal/Steamline

General Information							Site	Inforr	natio	n						
Analyst	T						Inters	ection			Term	inal/Stea	mline			_
Agency/Co.							Jurisd	liction			City c	of Ottawa	a			
Date Performed	11/22	/2017					East/	West Str	eet		Term	inal Aver	nue			
Analysis Year	2031						North	/South !	Street		Stean	nline Stro	eet			
Time Analyzed	Peak	PM Hou	r				Peak	Hour Fa	ctor		0.92					_
Intersection Orientation	East-	Nest					Analy	sis Time	Period (	hrs)	0.25					
Project Description	ΟΤΥ Ρ	Resident	ial Devel	opment												
Lanes																
				<u> </u>	ר ז ז	ነ ሰ ቀጥ 1	1 7 7	+								
Vehicle Volumes and Ad	justme	nts				or Street: Ea										
Approach		Eastk	ound			West	oound			North	bound			South	bound	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	
	10	1	2	3	4U	4	5	6		7	8	9		10	11	1
Priority																
Number of Lanes	0	0	1	0	0	1	1	0		1	0	1		0	0	(
Number of Lanes Configuration		0		TR	0	L	т	0		L	0	R		0	0	E
Number of Lanes Configuration Volume, V (veh/h)		0	1 492	-	0	L 27		0		L 3	0	R 17		0	0	
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%)		0		TR	0	L	т	0		L	0	R		0	0	
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked		0		TR	0	L 27	т	0		L 3 1		R 17		0	0	
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%)			492	TR	0	L 27 1	T 367	0		L 3 1	0	R 17				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized				TR 11		L 27 1	т	0		L 3 1		R 17			0	
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage			492	TR 11	0	L 27 1	T 367	0		L 3 1	0	R 17				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H			492	TR 11		L 27 1	T 367			L 3 1	0	R 17				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec)			492	TR 11		L 27 1	T 367			L 3 1	0	R 17				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec)			492	TR 11		L 27 1	T 367			L 3 1	0	R 17				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)			492	TR 11		L 27 1	T 367			L 3 1	0	R 17				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)	eadwa	ys	492 492	TR 11 Undi		L 27 1	T 367			L 3 1	0	R 17				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b>	eadwa	ys	492 492	TR 11 Undi		L 27 1	T 367				0	R 17 1				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h)	eadwa	ys	492 492	TR 11 Undi		L 27 1 N	T 367			L 3 1 N	0	R 17 1				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h)	eadwa	ys	492 492	TR 11 Undi		L 27 1 N 29 1027	T 367			L 3 1 N	0	R 17 1				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio	eadwa	ys	492 492	TR 11 Undi		L 27 1	T 367			L 3 1 N 0 0 0 0 0 0 0 0	0	R 17 1 				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)	eadwa	ys	492 492	TR 11 Undi		L 27 1	T 367			L 3 1 N N 3 264 0.01 0.0	0	R 17 1 				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Fol	eadwa	ys	492 492	TR 11 Undi		L 27 1	T 367			L 3 1 N 3 264 0.01 0.0 18.8	0	R 17 1 				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)	eadwa	ys	492 492	TR 11 Undi		L 27 1	T 367			L 3 1 N 3 264 0.01 0.0 18.8 C	0	R 17 1 				

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## EXHIBIT 18 EXISTING 2014 PEAK AM HOUR TRAFFIC – Terminal/Sandford Fleming

General Information					Site In	format	ion					
Analyst					Intersec	tion			Termina	l/Sandford	Fleming	
Agency/Co.					Jurisdict	tion			City of C			
Date Performed	11/22/2	017			East/We	est Street			Termina	l Avenue		
Analysis Year	2014				North/S	outh Stree	t		Sandfor	d Fleming /	Avenue	
Analysis Time Period (hrs)	0.25				Peak Ho	our Factor			0.92			_
Time Analyzed	Peak AN	/ Hour			1							
Project Description	OTY Res	idential De	evelopmen	t								
Lanes												
			J 4 4 4 4 4	4 1144	ሰ የተኑሰ	* * *						
Vehicle Volume and Adjus	stments	Eastbound			Westbound	4		Northboun			outhboun	
Movement		T	R	L	T	R	L	т	R	L	T	R
Volume	14	166	50	120	48	12	21	13	120	7	8	1
volume	14	100	50	120	40	1 12	21	12	120		0	L T
% Thrus in Shared Lane	11	12	13	11	12	13	11	12	13	11	12	13
% Thrus in Shared Lane Lane	L1	L2 P	L3	L1	L2	L3	L1	L2 P	L3	L1	L2	L3
% Thrus in Shared Lane Lane Configuration	LT	R	L3	LTR	L2	L3	LT	R	L3	LTR	L2	L3
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h)	LT 196	R 54	L3	LTR 196	L2	L3	LT 37	R 130	L3	LTR 17	L2	L3
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles	LT 196 0	R 54 5	L3	LTR	L2	L3	LT	R	L3	LTR	L2	L3
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S	LT 196 0	R 54 5 me	L3	LTR 196 2	L2	L3	LT 37 5	R 130 0	L3	LTR 17 0	L2	
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s)	LT 196 0 Service Tin 3.20	R 54 5 me 3.20	L3	LTR 196 2 3.20	L2	L3	LT 37 5 3.20	R 130 0 3.20	L3	LTR 17 0 3.20	L2	
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x	LT 196 0 5 5 5 2 0 1 7 4 0 1 7 4	R 54 5 me 3.20 0.048	L3	LTR 196 2 3.20 0.174		L3	LT 37 5 3.20 0.033	R 130 0 3.20 0.116		LTR 17 0 3.20 0.015	L2	
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Final Departure Headway, hd (s)	LT 196 0 Cervice Til 3.20 0.174 5.24	R 54 5 me 3.20 0.048 4.58		LTR 196 2 3.20 0.174 5.42	L2		LT 37 5 3.20 0.033 6.05	R 130 0 3.20 0.116 4.95	L3	LTR 17 0 3.20 0.015 5.94	L2	
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Departe of Utilization, x	LT 196 0 Cervice Ti 3.20 0.174 5.24 0.285	R 54 5 me 3.20 0.048 4.58 0.069		LTR 196 2 3.20 0.174 5.42 0.294			LT 37 5 3.20 0.033 6.05 0.062	R 130 0 3.20 0.116 4.95 0.179		LTR 17 0 3.20 0.015 5.94 0.029		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s)	LT 196 0 CETVICE TI 3.20 0.174 5.24 0.285 2.3	R 54 5 me 3.20 0.048 4.58 0.069 2.3		LTR 196 2 3.20 0.174 5.42 0.294 2.0			LT 37 5 3.20 0.033 6.05 0.062 2.3	R 130 0 3.20 0.116 4.95 0.179 2.3		LTR 17 0 3.20 0.015 5.94 0.029 2.0		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degaree of Utilization, x Final Departure Headway, hd (s) Final Degaree of Utilization, x Move-Up Time, m (s) Service Time, ts (s)	LT 196 0 CETTICE TIN 3.20 0.174 5.24 0.285 2.3 2.94	R           54           5           me           0.048           4.58           0.069           2.3           2.28		LTR 196 2 3.20 0.174 5.42 0.294			LT 37 5 3.20 0.033 6.05 0.062	R 130 0 3.20 0.116 4.95 0.179		LTR 17 0 3.20 0.015 5.94 0.029		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) Capacity, Delay and Level	LT 196 0 3.20 3.20 0.174 5.24 0.285 2.3 2.94 0.285 2.3	R 54 5 3.20 0.048 4.58 0.069 2.3 2.28 e		LTR 196 2 3.20 0.174 5.42 0.294 2.0 3.42			LT 37 5 3.20 0.033 6.05 0.062 2.3 3.75	R 130 0 3.20 0.116 4.95 0.179 2.3 2.65		LTR 17 0 3.20 0.015 5.94 0.029 2.0 3.94		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Depart	LT 196 0 3.20 0.174 5.24 0.285 2.3 2.94 0 <b>5 Servic</b> 196	R           54           5           me           3.20           0.048           4.58           0.069           2.3           2.28           e           54		LTR 196 2 3.20 0.174 5.42 0.294 2.0 3.42			LT 37 5 3.20 0.033 6.05 0.062 2.3 3.75	R 130 0 3.20 0.116 4.95 0.179 2.3 2.65		LTR 17 0 3.20 0.015 5.94 0.029 2.0 3.94		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) Capacity, Delay and Level Flow Rate, v (veh/h) Capacity	LT 196 0 3.20 3.20 0.174 5.24 0.285 2.3 2.94 0 <b>CES</b>	R 54 5 		LTR 196 2 3.20 0.174 5.42 0.294 2.0 3.42 3.42			LT 37 5 3.20 0.033 6.05 0.062 2.3 3.75 3.75	R 130 0 3.20 0.116 4.95 0.179 2.3 2.65 2.65		LTR 17 0 3.20 0.015 5.94 0.029 2.0 3.94 3.94		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Departure Headway, hd (s) Final Departure Headway, hd (s) Service Time, ts (s) Capacity, Delay and Level Flow Rate, v (veh/h) Capacity 95% Queue Length, Q <sub>95</sub> (veh)	LT 196 0 3.20 4 0.174 5.24 0.285 2.3 2.34 02.94 0 0 0 0 0 0 0 0 0 0 0 0 0	R           54           5           me           3.20           0.048           4.58           0.069           2.3           2.28           e           54           786           0.2		LTR 196 2 3.20 0.174 5.42 0.294 2.0 3.42 3.42 196 665 1.2			LT 37 5 3.20 0.033 6.05 0.062 2.3 3.75 3.75 37 595 0.2	R 130 0 3.20 0.116 4.95 0.179 2.3 2.65 2.65 130 727 0.7		LTR 17 0 3.20 0.015 5.94 0.029 2.0 3.94 17 606 0.1		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Depa	LT 196 0 3.20 0.174 5.24 0.285 2.3 2.94 0 5 5 5 4 6 8 7 196 6 87 12 100 100	R           54           5           3.20           0.048           4.58           0.069           2.3           2.28 <b>6</b> 54           786           0.2           7.6		LTR 196 2 3.20 0.174 5.42 0.294 2.0 3.42 2.0 3.42 106 665 1.2 10.7			LT 37 5 0.033 6.05 0.062 2.3 3.75 3.75 37 595 0.2 9.2	R 130 0 3.20 0.116 4.95 0.179 2.3 2.65 130 727 130 727 0.7 727 8.7		LTR 17 0 3.20 0.015 5.94 0.029 2.0 3.94 2.0 3.94 17 606 0.1 9.1		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Depa	LT 196 0 3.20 4 0.174 5.24 0.285 2.3 2.34 02.94 0 0 0 0 0 0 0 0 0 0 0 0 0	R           54           5           0.048           4.58           0.069           2.3           2.28           9           54           786           0.2           7.6           A		LTR 196 2 3.20 0.174 5.42 0.294 2.0 3.42 3.42 196 665 1.2			LT 37 5 3.20 0.033 6.05 0.062 2.3 3.75 3.75 37 595 0.2	R           130           0           3.20           0.116           4.95           0.179           2.3           2.65           130           727           0.727           8.7           A		LTR 17 0 3.20 0.015 5.94 0.029 2.0 3.94 17 606 0.1		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) Capacity, Delay and Level Flow Rate, v (veh/h) Capacity 95% Queue Length, Q <sub>95</sub> (veh) Control Delay (s/veh)	LT 196 0 3.20 0.174 5.24 0.285 2.3 2.94 0 5 5 5 4 6 8 7 196 6 87 12 100 100	R           54           5           3.20           0.048           4.58           0.069           2.3           2.28 <b>6</b> 54           786           0.2           7.6		LTR 196 2 3.20 0.174 5.42 0.294 2.0 3.42 2.0 3.42 106 665 1.2 10.7	L2		LT 37 5 0.033 6.05 0.062 2.3 3.75 3.75 37 595 0.2 9.2	R 130 0 3.20 0.116 4.95 0.179 2.3 2.65 130 727 130 727 0.7 727 8.7		LTR 17 0 3.20 0.015 5.94 0.029 2.0 3.94 2.0 3.94 17 606 0.1 9.1	L2	

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### EXHIBIT 19 EXISTING 2014 PEAK PM HOUR TRAFFIC – Terminal/Sandford Fleming

General Information					Site Information								
Analyst	1				Intersection				Terminal/Sandford Fleming				
Agency/Co.					Jurisdiction				City of Ottawa				
Date Performed	11/22/2	11/22/2017			East/West Street				Terminal Avenue				
Analysis Year	2014				North/South Street				Sandford Fleming Avenue				
Analysis Time Period (hrs)	0.25	0.25			Peak Hour Factor				0.92				
Time Analyzed	Peak PN	Peak PM Hour											
Project Description	OTY Res	OTY Residential Development											
Lanes	_												
			J 4 1 1 4 1	4 1 4 • 1	י 1111	↔ ↔ ↓ ↓ ↓							
Vehicle Volume and Adjustments           Approach         Eastbound				Westbound				1	4	Southbound			
								Northbound			т		
Movement	L 13	Т	R	L	Т	R	L	T	R	L	T 23	R	
Movement Volume	L 13										T 23	R	
Movement Volume % Thrus in Shared Lane	13	Т	R 53	L	Т	R 5	L 20	T	R 186	L		R 10	
Movement Volume % Thrus in Shared Lane Lane	_	T 73	R	L 272	T 146	R	L	T 9	R	L 12	23	R	
Movement Volume % Thrus in Shared Lane	13 L1	T 73 L2	R 53	L 272 L1	T 146	R 5	L 20 L1	T 9 L2	R 186	L 12 L1	23	R 10	
Movement Volume % Thrus in Shared Lane Lane Configuration	13 L1 L1 LT	T 73 L2 R	R 53	L 272 L1 LTR	T 146	R 5	L 20 L1 LT	T 9 L2 R	R 186	L 12 L1 LTR	23	R 10	
Movement Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles	13 L1 L1 93 0	T 73 L2 R 58 5	R 53	L 272 L1 LTR 460	T 146	R 5	L 20 L1 LT 32	T 9 L2 R 202	R 186	L 12 L1 LTR 49	23	R 10	
Movement Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S	13 L1 L1 93 0 ervice Ti	T 73 L2 R 58 5 5	R 53	L 272 L1 LTR 460 2	T 146	R 5	L 20 L1 LT 32 5	T 9 L2 R 202 0	R 186	L 12 L1 LTR 49 0	23	R 10	
Movement Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s)	13 L1 L1 93 0	T 73 L2 R 58 5	R 53	L 272 L1 LTR 460	T 146	R 5	L 20 L1 LT 32	T 9 L2 R 202	R 186	L 12 L1 LTR 49	23	R 10	
Movement Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s) Initial Degree of Utilization, x	13       11       11       11       11       11       11       11       11       11       11       11       11       12       13       14       15       15       16       17       18       18       19       19       10       11       11       12       13       14       15       16       17       17       18       18       18       19       19       10 <td>T 73 L2 R 58 5 5 </td> <td>R 53</td> <td>L 272 L1 LTR 460 2 3.20</td> <td>T 146</td> <td>R 5</td> <td>L 20 L1 LT 32 5 3.20</td> <td>T 9 L2 R 202 0 3.20</td> <td>R 186</td> <td>L 12 L1 LTR 49 0</td> <td>23</td> <td>R 10</td>	T 73 L2 R 58 5 5 	R 53	L 272 L1 LTR 460 2 3.20	T 146	R 5	L 20 L1 LT 32 5 3.20	T 9 L2 R 202 0 3.20	R 186	L 12 L1 LTR 49 0	23	R 10	
Movement Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s)	<ul> <li>13</li> <li>L1</li> <li>LT</li> <li>93</li> <li>0</li> </ul> ervice Til <ul> <li>3.20</li> <li>0.083</li> </ul>	T 73 L2 R 58 5 5	R 53	L 272 L1 LTR 460 2 3.20 0.409	T 146	R 5	L 20 L1 32 5 3.20 0.028	T 9 L2 R 202 0 0 3.20 0.180	R 186	L 12 L1 LTR 49 0 	23	R 10	
Movement Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s)	13       L1       LT       93       0       ervice Til       3.20       0.083       6.04	T 73 L2 R 58 5 S 3.20 0.051 5.34	R 53	L 272 L1 LTR 460 2 3.20 0.409 5.71	T 146	R 5	L 20 L1 32 5 3.20 0.028 6.75	T 9 L2 R 202 0 0 3.20 0.180 5.61	R 186	L 12 L1 LTR 49 0 0 .043 6.61	23	R 10	
Movement Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Depree of Utilization, x	<ul> <li>13</li> <li>L1</li> <li>VT</li> <li>93</li> <li>0</li> <li>0</li> <li>3.20</li> <li>0.083</li> <li>6.04</li> <li>0.157</li> </ul>	T 73 L2 R 58 5 3.20 0.051 5.34 0.085	R 53	L 272 L1 LTR 460 2 3.20 0.409 5.71 0.730	T 146	R 5	L 20 L1 32 5 3.20 0.028 6.75 0.059	T 9 L2 R 202 0 3.20 3.20 0.180 5.61 0.315	R 186	L 12 L1 LTR 49 0 3.20 0.043 6.61 0.090	23	R 10	
Movement Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Departure Headway, hd (s) Final Departure Headway, hd (s) Final Departure Meadway, hd (s)	<ul> <li>13</li> <li>L1</li> <li>LT</li> <li>93</li> <li>0</li> </ul> ervice Till <ul> <li>3.20</li> <li>0.083</li> <li>6.04</li> <li>0.157</li> <li>2.3</li> <li>3.74</li> </ul>	T 73 L2 R 58 5 3.20 0.051 5.34 0.085 2.3 3.04	R 53	L 272 L1 LTR 460 2 3.20 0.409 5.71 0.730 2.0	T 146	R 5	L 20 L1 LT 32 5 3.20 0.028 6.75 0.059 2.3	T 9 L2 R 202 0 3.20 0.180 5.61 0.315 2.3	R 186	L 12 L1 LTR 49 0 3.20 0.043 6.61 0.090 2.0	23	R 10	
Movement Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s)	<ul> <li>13</li> <li>L1</li> <li>LT</li> <li>93</li> <li>0</li> </ul> ervice Till <ul> <li>3.20</li> <li>0.083</li> <li>6.04</li> <li>0.157</li> <li>2.3</li> <li>3.74</li> </ul>	T 73 L2 R 58 5 3.20 0.051 5.34 0.085 2.3 3.04	R 53	L 272 L1 LTR 460 2 3.20 0.409 5.71 0.730 2.0	T 146	R 5	L 20 L1 LT 32 5 3.20 0.028 6.75 0.059 2.3	T 9 L2 R 202 0 3.20 0.180 5.61 0.315 2.3	R 186	L 12 L1 LTR 49 0 3.20 0.043 6.61 0.090 2.0	23	R 10	
Movement Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Departure Headway, hd (s) Final Departure Headway, hd (s) Final Departure Headway, hd (s) Final Departure Headway, hd (s) Service Time, ts (s) Capacity, Delay and Level	<ul> <li>13</li> <li>11</li> <li>1</li></ul>	T       73       L2       R       58       5       3.20       0.051       5.34       0.085       2.3       3.04	R 53	L 272 L1 LTR 460 2 3.20 0.409 5.71 0.730 2.0 3.71	T 146	R 5	L 20 L1 32 5 3.20 0.028 6.75 0.059 2.3 4.45	T 9 L2 R 202 0 3.20 0.180 5.61 0.315 2.3 3.31	R 186	L 12 L1 LTR 49 0 3.20 0.043 6.61 0.090 2.0 4.61	23	R 10	
Movement Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) Capacity, Delay and Level Flow Rate, v (veh/h)	<ul> <li>13</li> <li>L1</li> <li>LT</li> <li>93</li> <li>0</li> <li>ervice Till</li> <li>3.20</li> <li>0.083</li> <li>6.04</li> <li>0.157</li> <li>2.3</li> <li>3.74</li> <li>of Servic</li> <li>93</li> </ul>	T 73 L2 R 58 5 3.20 0.051 5.34 0.085 2.3 3.04 2.3 3.04	R 53	L 272 L1 LTR 460 2 3.20 0.409 5.71 0.730 2.0 3.71 2.0 3.71	T 146	R 5	L 20 L1 32 5 3.20 0.028 6.75 0.059 2.3 4.45	T 9 202 0 3.20 0.180 5.61 0.315 2.3 3.31	R 186	L 12 L1 LTR 49 0 	23	R 10	
Movement Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway, hd (s) Initial Degare of Utilization, x Final Degarture Headway, hd (s) Final Degarture Headway, hd (	13       L1       L1       93       0       3.20       3.20       0.083       6.04       0.157       2.3       3.74       of Servic       93       596	T 73 2 2 2 3 5 3 3 2 0 0.051 5.34 0.085 2.3 0.085 2.3 3.04 2 5 8 5 8 675	R 53	L 272 L1 LTR 460 2 3.20 0.409 5.71 0.730 2.0 3.71 3.71	T 146	R 5	L 20 L1 32 5 32 0.028 6.75 0.028 6.75 0.059 2.3 4.45	T 9 1 202 0 0 3.20 0.180 5.61 0.315 2.3 3.31 2.23 3.31	R 186	L 12 L1 LTR 49 0 0 .043 6.61 0.090 2.0 4.61	23	R 10	
Movement Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Departure Headway, hd (	13       13       113 <td>T       73       L2       R       58       5       3.20       0.051       5.34       0.085       2.3       3.04       58       675       0.3</td> <td>R 53</td> <td>L 272 L1 LTR 460 2 3.20 0.409 5.71 0.730 2.0 3.71 3.71 460 630 6.3</td> <td>T 146</td> <td>R 5</td> <td>L 20 L1 LT 32 5 320 0.028 6.75 0.059 2.3 4.45 32 32 32 533 0.2</td> <td>T 9 1 202 0 202 0 3.20 0.180 5.61 0.315 2.3 3.31 3.31 2.02 2.02 642 1.3</td> <td>R 186</td> <td>L 12 L1 LTR 49 0 3.20 0.043 6.61 0.090 2.0 2.0 4.61 49 49 544 0.3</td> <td>23</td> <td>R 10</td>	T       73       L2       R       58       5       3.20       0.051       5.34       0.085       2.3       3.04       58       675       0.3	R 53	L 272 L1 LTR 460 2 3.20 0.409 5.71 0.730 2.0 3.71 3.71 460 630 6.3	T 146	R 5	L 20 L1 LT 32 5 320 0.028 6.75 0.059 2.3 4.45 32 32 32 533 0.2	T 9 1 202 0 202 0 3.20 0.180 5.61 0.315 2.3 3.31 3.31 2.02 2.02 642 1.3	R 186	L 12 L1 LTR 49 0 3.20 0.043 6.61 0.090 2.0 2.0 4.61 49 49 544 0.3	23	R 10	
Movement Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway, hd (s) Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Departure Headway, hd (s) Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) Edapacity, Delay and Level Flow Rate, v (veh/h) Capacity 95% Queue Length, Q <sub>95</sub> (veh) Control Delay (s/veh)	13       13       113       113       113       113       111       113       113       113       113       113       113       113       113       113       113       113       113       114       115 <td>T 73 2 2 8 5 8 5 3.20 0.051 3.20 0.051 5.34 0.085 2.3 3.04 2.3 3.04 5 8 5 8 5 8 5 8 5 8 5 8 5 8 5 8 5</td> <td>R 53</td> <td>L 272 L1 LTR 460 2 3.20 0.409 5.71 0.730 2.0 3.71 0.730 2.0 3.71 4.00 3.71 4.00 5.3 1 2.0 3.71</td> <td>T 146</td> <td>R 5</td> <td>L 20 L1 32 5 32 0.028 6.75 0.028 6.75 0.059 2.3 4.45 32 32 533 0.2 9.9</td> <td>T 9 202 0 3.20 0.180 5.61 0.315 2.3 3.31 3.31 202 202 642 1.3 10.9</td> <td>R 186</td> <td>L 12 L1 LTR 49 0 3.20 0.043 6.61 0.090 2.0 4.61 4.61 4.61 5.44 0.3</td> <td>23</td> <td>R 10</td>	T 73 2 2 8 5 8 5 3.20 0.051 3.20 0.051 5.34 0.085 2.3 3.04 2.3 3.04 5 8 5 8 5 8 5 8 5 8 5 8 5 8 5 8 5	R 53	L 272 L1 LTR 460 2 3.20 0.409 5.71 0.730 2.0 3.71 0.730 2.0 3.71 4.00 3.71 4.00 5.3 1 2.0 3.71	T 146	R 5	L 20 L1 32 5 32 0.028 6.75 0.028 6.75 0.059 2.3 4.45 32 32 533 0.2 9.9	T 9 202 0 3.20 0.180 5.61 0.315 2.3 3.31 3.31 202 202 642 1.3 10.9	R 186	L 12 L1 LTR 49 0 3.20 0.043 6.61 0.090 2.0 4.61 4.61 4.61 5.44 0.3	23	R 10	

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# EXHIBIT 20 YEAR 2021 PEAK AM HOUR TRAFFIC – Terminal/Sandford Fleming

General Information					Site In	format	ion					
Analyst	T				Intersec	tion			Termina	l/Sandford	Fleming	
Agency/Co.					Jurisdict	tion			City of C			
Date Performed	11/22/2	017			East/We	est Street			Termina	l Avenue		
Analysis Year	2021					outh Stree	t		Sandfor	d Fleming /	Avenue	
Analysis Time Period (hrs)	0.25				Peak Ho	our Factor			0.92			
Time Analyzed	Peak AM	/ Hour							1			
Project Description	OTY Re:	sidential De	evelopmen	t								
Lanes												
			J 4 4 4 4 4	4 114 1	י ז ז ז ז ז ז	γ * * γ						
Vehicle Volume and Adjus	tments											
Approach		Eastbound		<u> </u>	Westbound			Northboun			outhboun	
Movement	L	Т	R	L	Т	R	L	Т	R	L	Т	R
	15	245	51	137	59	13	25	14	182	8	9	
Volume	15			137		15	25	14	102	0	-	1
% Thrus in Shared Lane												
% Thrus in Shared Lane Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	
% Thrus in Shared Lane Lane Configuration	L1 LT	L2 R		L1 L	L2 TR		L1 LT	L2 R		L1 LTR		L3
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h)	L1 LT 283	L2 R 55		L1 L 149	L2 TR 78		L1 LT 42	L2 R 198		L1 LTR 20		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles	L1 LT 283 0	L2 R 55 5		L1 L	L2 TR		L1 LT	L2 R		L1 LTR		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S	L1 LT 283 0 ervice Ti	L2 R 55 5 me		L1 L 149 2	L2 TR 78 2		L1 LT 42 5	L2 R 198 0		L1 LTR 20 0		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s)	L1 LT 283 0 ervice Ti 3.20	L2 R 55 5 <b>me</b> 3.20		L1 L 149 2 3.20	L2 TR 78 2 3.20		L1 LT 42 5 3.20	L2 R 198 0		L1 LTR 20 0 3.20		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x	L1 LT 283 0 ervice Ti 3.20 0.251	L2 R 55 5 <b>•</b> ••••••••••••••••••••••••••••••		L1 L 149 2 3.20 0.132	L2 TR 78 2 3.20 0.070		L1 LT 42 5 3.20 0.038	L2 R 198 0 3.20 0.176		L1 LTR 20 0 3.20 0.017		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Departure Headway, hd (s)	<ul> <li>L1</li> <li>LT</li> <li>283</li> <li>0</li> </ul> ervice Ti <ul> <li>3.20</li> <li>0.251</li> <li>5.53</li> </ul>	L2 R 55 5 <b>•</b> • • • • • • • •		L1 L1 149 2 3.20 0.132 6.13	L2 TR 78 2 3.20 0.070 5.50		L1 LT 42 5 3.20 0.038 6.35	L2 R 198 0 3.20 0.176 5.25		L1 LTR 20 0 3.20 0.017 6.33		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Departe of Utilization, x	<ul> <li>L1</li> <li>LT</li> <li>283</li> <li>0</li> <li>ervice Ti</li> <li>3.20</li> <li>0.251</li> <li>5.53</li> <li>0.434</li> </ul>	L2 R 55 5 <b>•••••••••••••••••••••••••••••••</b>		L1 L1 149 2 3.20 0.132 6.13 0.254	L2 TR 78 2 3.20 0.070 5.50 0.120		L1 LT 42 5 3.20 0.038 6.35 0.075	L2 R 198 0 3.20 0.176 5.25 0.288		L1 LTR 20 0 3.20 0.017 6.33 0.034		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s)	<ul> <li>L1</li> <li>L1</li> <li>283</li> <li>0</li> <li>ervice Ti</li> <li>3.20</li> <li>0.251</li> <li>5.53</li> <li>0.434</li> <li>2.3</li> </ul>	L2 R 55 5 3.20 0.049 4.88 0.075 2.3		L1 L1 149 2 3.20 0.132 6.13 0.254 2.3	L2 TR 78 2 3.20 0.070 5.50 0.120 2.3		L1 LT 42 5 3.20 0.038 6.35 0.075 2.3	L2 R 198 0 3.20 0.176 5.25 0.288 2.3		L1 LTR 20 0 3.20 0.017 6.33 0.034 2.0		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s)	<ul> <li>L1</li> <li>LT</li> <li>283</li> <li>0</li> <li>3.20</li> <li>0.251</li> <li>5.53</li> <li>0.434</li> <li>2.3</li> <li>3.23</li> </ul>	L2 R 55 5		L1 L1 149 2 3.20 0.132 6.13 0.254	L2 TR 78 2 3.20 0.070 5.50 0.120		L1 LT 42 5 3.20 0.038 6.35 0.075	L2 R 198 0 3.20 0.176 5.25 0.288		L1 LTR 20 0 3.20 0.017 6.33 0.034		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) <b>Capacity, Delay and Level</b>	<ul> <li>L1</li> <li>L1</li> <li>283</li> <li>0</li> <li>ervice Ti</li> <li>3.20</li> <li>0.251</li> <li>5.53</li> <li>0.434</li> <li>2.3</li> <li>3.23</li> <li>Service</li> </ul>	L2 R 55 5		L1 L1 149 2 3.20 0.132 6.13 0.254 2.3 3.83	L2 TR 78 2 3.20 0.070 5.50 0.120 2.3 3.20		L1 LT 42 5 3.20 0.038 6.35 0.075 2.3 4.05	L2 R 198 0 3.20 0.176 5.25 0.288 2.3 2.95		L1 LTR 20 0 3.20 0.017 6.33 0.034 2.0 4.33		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Depart	<ul> <li>L1</li> <li>L1</li> <li>283</li> <li>0</li> <li>ervice Ti</li> <li>3.20</li> <li>0.251</li> <li>5.53</li> <li>0.434</li> <li>2.3</li> <li>3.23</li> <li>of Servic</li> <li>283</li> </ul>	L2 R 55 3.20 0.049 4.88 0.075 2.3 2.58 E		L1 L1 149 2 3.20 0.132 6.13 0.254 2.3 3.83	L2 TR 78 2 3.20 0.070 5.50 0.120 2.3 3.20		L1 LT 42 5 3.20 0.038 6.35 0.075 2.3 4.05	L2 R 198 0 3.20 0.176 5.25 0.288 2.3 2.95		L1 LTR 20 0 3.20 0.017 6.33 0.034 2.0 4.33		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Depart	<ul> <li>L1</li> <li>L1</li> <li>283</li> <li>0</li> <li>3.20</li> <li>0.251</li> <li>5.53</li> <li>0.434</li> <li>2.3</li> <li>3.23</li> <li>SERVIC</li> <li>2.83</li> <li>652</li> </ul>	L2 R 55 5 3.20 0.049 4.88 0.075 2.3 2.58 2.58 55 55 738		L1 L1 2 3.20 0.132 6.13 0.254 2.3 3.83 3.83	L2 TR 78 2 3.20 0.070 5.50 0.120 2.3 3.20 2.3 3.20		L1 LT 42 5 3.20 0.038 6.35 0.075 2.3 4.05 2.3 4.05	L2 R 198 0 3.20 0.176 5.25 0.288 2.3 2.95 2.95		L1 LTR 20 0 3.20 0.017 6.33 0.034 2.0 4.33 2.0 4.33		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Departure Headway, hd (s) Final Departure Headway, hd (s) Service Time, ts (s) Capacity, Delay and Level Flow Rate, v (veh/h) Capacity 95% Queue Length, Q <sub>95</sub> (veh)	<ul> <li>L1</li> <li>L1</li> <li>283</li> <li>0</li> <li>283</li> <li>0</li> <li>283</li> <li>0.251</li> <li>5.53</li> <li>0.434</li> <li>2.3</li> <li>3.23</li> <li>5.53</li> <li>4.34</li> <li>2.3</li> <li>3.23</li> <li>5.52</li> <li>2.2</li> </ul>	L2 R 55 5 3.20 0.049 4.88 0.075 2.3 2.58 <b>2</b> 55 738 0.2		L1 L1 2 3.20 0.132 6.13 0.254 2.3 3.83 3.83 149 587 1.0	L2 TR 78 2 3.20 0.070 5.50 0.120 2.3 3.20 2.3 3.20		L1 LT 42 5 3.20 0.038 6.35 0.075 2.3 4.05 42 567 0.2	L2 R 198 0 3.20 0.176 5.25 0.288 2.3 2.95 2.95		L1 LTR 20 0 3.20 0.017 6.33 0.034 2.0 4.33 2.0 4.33		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Depar	<ul> <li>L1</li> <li>L1</li> <li>283</li> <li>0</li> <li>3.20</li> <li>0.251</li> <li>5.53</li> <li>0.434</li> <li>2.3</li> <li>3.23</li> <li>5.53</li> <li>6.434</li> <li>2.3</li> <li>3.23</li> <li>5.53</li> <li>1.283</li> <li>2.2</li> <li>1.2.4</li> </ul>	L2 R 55 5 3.20 0.049 4.88 0.075 2.3 2.58 2.55 55 55 738 0.2 8.00		L1 L1 2 3.20 0.132 6.13 0.254 2.3 3.83 3.83 149 587 1.0 10.9	L2 TR 78 2 3.20 0.070 5.50 0.120 2.3 3.20 2.3 3.20 78 654 0.4 9.0		L1 LT 42 5 	L2 R 198 0 3.20 0.176 5.25 0.288 2.3 2.95 2.95 2.95 198 686 686 1.2 1.2		L1 LTR 20 0 3.20 0.017 6.33 0.034 2.0 4.33 2.0 4.33 2.0 5.69 20 5.69 0.1 20		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Depa	<ul> <li>L1</li> <li>L1</li> <li>283</li> <li>0</li> <li>283</li> <li>0</li> <li>283</li> <li>0.251</li> <li>5.53</li> <li>0.434</li> <li>2.3</li> <li>3.23</li> <li>5.53</li> <li>4.34</li> <li>2.3</li> <li>3.23</li> <li>5.52</li> <li>2.2</li> </ul>	L2 R 55 3.20 0.049 4.88 0.075 2.3 2.58 2.58 55 738 0.2 8 2.55 2.3 2.58		L1 L1 2 3.20 0.132 6.13 0.254 2.3 3.83 3.83 149 587 1.0	L2 TR 78 2 3.20 0.070 5.50 0.120 2.3 3.20 2.3 3.20 78 654 0.4 9.0 4		L1 LT 42 5 3.20 0.038 6.35 0.075 2.3 4.05 42 567 0.2	L2 R 198 0 3.20 0.176 5.25 0.288 2.3 2.95 2.95 198 686 686 1.2 10.1 B		L1 LTR 20 0 3.20 0.017 6.33 0.034 2.0 4.33 2.0 4.33		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Depar	<ul> <li>L1</li> <li>L1</li> <li>283</li> <li>0</li> <li>3.20</li> <li>0.251</li> <li>5.53</li> <li>0.434</li> <li>2.3</li> <li>3.23</li> <li>5.53</li> <li>6.434</li> <li>2.3</li> <li>3.23</li> <li>5.53</li> <li>1.283</li> <li>2.2</li> <li>1.2.4</li> </ul>	L2 R 55 5 3.20 0.049 4.88 0.075 2.3 2.58 2.55 55 55 738 0.2 8.00		L1 L1 2 3.20 0.132 6.13 0.254 2.3 3.83 3.83 149 587 1.0 10.9	L2 TR 78 2 3.20 0.070 5.50 0.120 2.3 3.20 2.3 3.20 78 654 0.4 9.0		L1 LT 42 5 	L2 R 198 0 3.20 0.176 5.25 0.288 2.3 2.95 2.95 2.95 198 686 686 1.2 1.2		L1 LTR 20 0 3.20 0.017 6.33 0.034 2.0 4.33 2.0 4.33 2.0 5.69 20 5.69 0.1 20		

## EXHIBIT 21 YEAR 2021 PEAK PM HOUR TRAFFIC – Terminal/Sandford Fleming

General Information					Site In	format	ion					
Analyst	1				Intersec				Termina	l/Sandford	Flemina	
Agency/Co.					Jurisdict				City of 0		Therming	
Date Performed	11/22/2	017				st Street				al Avenue		
Analysis Year	2021					outh Stree	t		<u> </u>	d Fleming	Avenue	
Analysis Time Period (hrs)	0.25					our Factor	•		0.92	j		
Time Analyzed	Peak PN	/ Hour			- call re				0.012			
Project Description	_	sidential De	evelopmen	t								
Lanes	0		rerepinen									
			J 4 1 1 4 4 1	1 1144	<b>ז</b> ויי די	4 r 1 4 4 7 1						
Vehicle Volume and Adjus	tments	Fasthours		1	Westbound	1		Northboun	4		Southboun	al
Approach Movement	L	Eastbound	R	L	T	R	L	T	R	L	T	R
wovement	L		ĸ	1 5	<u> </u>	ĸ	L L	l '	ĸ	L L	'	
Volume	14	01	61	220	217	- E	20	10	210	12	25	11
Volume	14	91	61	339	217	5	20	10	210	13	25	1:
% Thrus in Shared Lane												
% Thrus in Shared Lane Lane	L1	L2	61 L3	L1	L2	5 L3	L1	L2	210 L3	L1	25 L2	11 L3
% Thrus in Shared Lane Lane Configuration	L1 LT	L2 R		L1 L	L2 TR		L1 LT	L2 R		L1 LTR		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h)	L1 LT LT 114	L2 R 66		L1 L 368	L2 TR 241		L1 LT 33	L2 R 228		L1 LTR 53		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles	L1 LT 114 0	L2 R 66 5		L1 L	L2 TR		L1 LT	L2 R		L1 LTR		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S	L1 LT 1114 0 ervice Ti	L2 R 66 5 me		L1 L 368 2	L2 TR 241 2		L1 LT 33 5	L2 R 228 0		L1 LTR 53 0		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s)	L1 LT 114 0 ervice Ti 3.20	L2 R 66 5 <b>me</b> 3.20		L1 L 368 2 3.20	L2 TR 241 2 3.20		L1 LT 33 5 3.20	L2 R 228 0 3.20		L1 LTR 53 0 3.20		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x	L1 LT 114 0 ervice Ti 3.20 0.101	L2 R 66 5 <b>T</b> 		L1 L 368 2 3.20 0.328	L2 TR 241 2 3.20 0.214		L1 LT 33 5 3.20 0.029	L2 R 228 0 3.20 0.203		L1 LTR 53 0 3.20 0.047		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s)	L1 LT 1114 0 ervice Ti 3.20 0.101 6.38	L2 R 66 5 <b>•••••••••••••••••••••••••••••••••</b>		L1 L1 368 2 3.20 0.328 6.26	L2 TR 241 2 3.20 0.214 5.74		L1 LT 33 5 3.20 0.029 7.00	L2 R 228 0 3.20 0.203 5.88		L1 LTR 53 0 3.20 0.047 6.75		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Depare of Utilization, x	<ul> <li>L1</li> <li>LT</li> <li>114</li> <li>0</li> <li>ervice Ti</li> <li>3.20</li> <li>0.101</li> <li>6.38</li> <li>0.202</li> </ul>	L2 R 66 5 <b>T</b> <b>E</b> 3.20 0.059 5.69 0.105		L1 L1 368 2 3.20 0.328 6.26 0.641	L2 TR 241 2 3.20 0.214 5.74 0.385		L1 LT 33 5 3.20 0.029 7.00 0.063	L2 R 228 0 3.20 0.203 5.88 0.373		L1 LTR 53 0 3.20 0.047 6.75 0.100		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Departure Headway, hd (s) Final Departure Headway, hd (s) Final Departure Meadway, hd (s)	<ul> <li>L1</li> <li>L1</li> <li>114</li> <li>0</li> <li>ervice Ti</li> <li>3.20</li> <li>0.101</li> <li>6.38</li> <li>0.202</li> <li>2.3</li> </ul>	L2 R 66 5 		L1 L1 368 2 3.20 0.328 6.26 0.641 2.3	L2 TR 241 2 3.20 0.214 5.74 0.385 2.3		L1 LT 33 5 3.20 0.029 7.00 0.063 2.3	L2 R 228 0 3.20 0.203 5.88 0.373 2.3		L1 LTR 53 0 3.20 0.047 6.75 0.100 2.0		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s)	<ul> <li>L1</li> <li>LT</li> <li>1114</li> <li>0</li> </ul> ervice Ti <ul> <li>3.20</li> <li>0.101</li> <li>6.38</li> <li>0.202</li> <li>2.3</li> <li>4.08</li> </ul>	L2 R 66 5 		L1 L1 368 2 3.20 0.328 6.26 0.641	L2 TR 241 2 3.20 0.214 5.74 0.385		L1 LT 33 5 3.20 0.029 7.00 0.063	L2 R 228 0 3.20 0.203 5.88 0.373		L1 LTR 53 0 3.20 0.047 6.75 0.100		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) <b>Capacity, Delay and Level</b>	<ul> <li>L1</li> <li>L1</li> <li>114</li> <li>0</li> <li>ervice Ti</li> <li>3.20</li> <li>0.101</li> <li>6.38</li> <li>0.202</li> <li>2.3</li> <li>4.08</li> </ul>	L2 R 66 5 		L1 L1 368 2 3.20 0.328 6.26 0.641 2.3 3.96	L2 TR 241 2 3.20 0.214 5.74 0.385 2.3 3.44		L1 LT 33 5 3.20 0.029 7.00 0.063 2.3 4.70	L2 R 228 0 3.20 0.203 5.88 0.373 2.3 3.58		L1 LTR 53 0 3.20 0.047 6.75 0.100 2.0 4.75		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Headwa	<ul> <li>L1</li> <li>L1</li> <li>114</li> <li>0</li> <li>ervice Ti</li> <li>3.20</li> <li>0.101</li> <li>6.38</li> <li>0.202</li> <li>2.3</li> <li>4.08</li> <li>OEVENCIA</li> <li>OEVENCIA<td>L2 R 66 3.20 0.059 5.69 0.105 2.3 3.39 e 66</td><td></td><td>L1 L1 368 2 3.20 0.328 6.26 0.641 2.3 3.96</td><td>L2 TR 241 2 3.20 0.214 5.74 0.385 2.3 3.44</td><td></td><td>L1 LT 33 5 3.20 0.029 7.00 0.063 2.3 4.70</td><td>L2 R 228 0 3.20 0.203 5.88 0.373 2.3 3.58</td><td></td><td>L1 LTR 53 0 3.20 0.047 6.75 0.100 2.0 4.75</td><td></td><td></td></li></ul>	L2 R 66 3.20 0.059 5.69 0.105 2.3 3.39 e 66		L1 L1 368 2 3.20 0.328 6.26 0.641 2.3 3.96	L2 TR 241 2 3.20 0.214 5.74 0.385 2.3 3.44		L1 LT 33 5 3.20 0.029 7.00 0.063 2.3 4.70	L2 R 228 0 3.20 0.203 5.88 0.373 2.3 3.58		L1 LTR 53 0 3.20 0.047 6.75 0.100 2.0 4.75		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) <b>Capacity, Delay and Level</b> Flow Rate, v (veh/h) Capacity	<ul> <li>L1</li> <li>L1</li> <li>0</li> <li>3.20</li> <li>0.101</li> <li>6.38</li> <li>0.202</li> <li>2.3</li> <li>4.08</li> <li>OSE Service</li> <li>114</li> <li>564</li> </ul>	L2 R 66 3		L1 L1 368 2 3.20 0.328 6.26 0.641 2.3 3.96 3.96	L2 TR 241 2 3.20 0.214 5.74 0.385 2.3 3.44 2.41 627		L1 LT 33 5 3.20 0.029 7.00 0.063 2.3 4.70 33 33	L2 R 228 0 3.20 0.203 5.88 0.373 2.3 3.58 2.3 3.58		L1 LTR 53 0 3.20 0.047 6.75 0.100 2.0 2.0 4.75 53		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Nove-Up Time, m (s) Service Time, ts (s) <b>Capacity, Delay and Level</b> Flow Rate, v (veh/h) Capacity 95% Queue Length, Q <sub>95</sub> (veh)	<ul> <li>L1</li> <li>L1</li> <li>114</li> <li>0</li> <li>3.20</li> <li>0.101</li> <li>6.38</li> <li>0.202</li> <li>2.3</li> <li>4.08</li> <li>Servic</li> <li>114</li> <li>564</li> <li>0.8</li> </ul>	L2 R 66 5 		L1 L1 368 2 3.20 0.328 6.26 0.641 2.3 3.96 2.3 3.96 368 575 4.5	L2 TR 241 2 3.20 0.214 5.74 0.385 2.3 3.44 2.41 627 1.8		L1 LT 33 5 3.20 0.029 7.00 0.063 2.3 4.70 33 514 0.2	L2 R 228 0 3.20 0.203 5.88 0.373 2.3 3.58 2.3 3.58 2.28 612 1.7		L1 LTR 53 0 3.20 0.047 6.75 0.100 2.0 4.75 53 533 0.3		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) Capacity, Delay and Level Flow Rate, v (veh/h) Capacity 95% Queue Length, Q <sub>95</sub> (veh) Control Delay (s/veh)	<ul> <li>L1</li> <li>L1</li> <li>114</li> <li>0</li> <li>3.20</li> <li>0.101</li> <li>6.38</li> <li>0.202</li> <li>2.3</li> <li>4.08</li> <li>564</li> <li>0.8</li> <li>10.7</li> </ul>	L2 R 66 5 		L1 L1 368 2 3.20 0.328 6.26 0.641 2.3 3.96 3.68 575 4.5 4.5	L2 TR 241 2 3.20 0.214 5.74 0.385 2.3 3.44 2.3 3.44 2.3 2.3 2.3 1.4 241 627 1.8 12.0		L1 LT 33 5 3.20 0.029 7.00 0.063 2.3 4.70 3.3 4.70	L2 R 228 0 3.20 0.203 5.88 0.373 2.3 3.58 2.3 3.58 2.28 612 1.7 12.0		L1 LTR 53 0 3.20 0.047 6.75 0.100 2.0 4.75 53 533 533 0.3 10.5		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Depa	<ul> <li>L1</li> <li>L1</li> <li>114</li> <li>0</li> <li>3.20</li> <li>0.101</li> <li>6.38</li> <li>0.202</li> <li>2.3</li> <li>4.08</li> <li>Servic</li> <li>114</li> <li>564</li> <li>0.8</li> </ul>	L2 R 66 5 3.20 0.059 5.69 0.105 2.3 3.39 <b>E</b> 66 633 0.3 9.1 A		L1 L1 368 2 3.20 0.328 6.26 0.641 2.3 3.96 2.3 3.96 368 575 4.5	L2 TR 241 2 3.20 0.214 5.74 0.385 2.3 3.44 241 627 1.8 2241 627 1.8 12.0 B		L1 LT 33 5 3.20 0.029 7.00 0.063 2.3 4.70 33 514 0.2	L2 R 228 0 3.20 0.203 5.88 0.373 2.3 3.58 3.58 2.3 3.58 2.3 3.58 2.3 1.7 2.28 612 1.7 12.0 B		L1 LTR 53 0 3.20 0.047 6.75 0.100 2.0 4.75 53 533 0.3		
% Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Departure Headway, hd (s) Final Departure Headway, hd (s) Service Time, ts (s) <b>Capacity, Delay and Level</b> Flow Rate, v (veh/h) Capacity 95% Queue Length, Q <sub>95</sub> (veh)	<ul> <li>L1</li> <li>L1</li> <li>114</li> <li>0</li> <li>3.20</li> <li>0.101</li> <li>6.38</li> <li>0.202</li> <li>2.3</li> <li>4.08</li> <li>564</li> <li>0.8</li> <li>10.7</li> </ul>	L2 R 66 5 		L1 L1 368 2 3.20 0.328 6.26 0.641 2.3 3.96 3.68 575 4.5 4.5	L2 TR 241 2 3.20 0.214 5.74 0.385 2.3 3.44 2.3 3.44 2.3 2.3 2.3 1.4 241 627 1.8 12.0		L1 LT 33 5 3.20 0.029 7.00 0.063 2.3 4.70 3.3 4.70	L2 R 228 0 3.20 0.203 5.88 0.373 2.3 3.58 2.3 3.58 2.28 612 1.7 12.0		L1 LTR 53 0 3.20 0.047 6.75 0.100 2.0 4.75 53 533 533 0.3 10.5		

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# EXHIBIT 22 YEAR 2027 PEAK AM HOUR TRAFFIC – Terminal/Sandford Fleming

General Information					Site In	format	ion					
Analyst	1				Intersec	tion			Termina	l/Sandford	Flemina	
Agency/Co.					Jurisdict				City of C			
Date Performed	11/22/2	017				st Street				l Avenue		
Analysis Year	2027					outh Stree	t			d Fleming /	Avenue	
Analysis Time Period (hrs)	0.25					our Factor	•		0.92	- · · · · · · · · · · · · · · · · · · ·		
Time Analyzed	Peak AN	/ Hour							0.01			
Project Description		idential De	velopment									
Lanes	011140		veropinen									
			J 4 1 4 4 4	1 1 1 4 4	ז. אין די	ר ד ד ד ד ד ד ד						
Vehicle Volume and Adjus	tments											
Approach		Eastbound			Westbound	ł	1	Northboun	d	S	outhboun	d
Movement	L	Т	R	L	Т	R	L	Т	R	L	Т	R
Volume	L 16	T 256	R 59	L 148	T 63	R 14	L 36	T 15	R 199	L 8	Т 9	R 1
	16	256	59	148	63	14		15	199		9	1
Volume												
Volume % Thrus in Shared Lane	16	256	59	148	63	14	36	15	199	8	9	1
Volume % Thrus in Shared Lane Lane	16 L1	256 L2	59	148 L1	63 L2	14	36 L1	15 L2	199	8 	9	1
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles	16 L1 L1 296 0	256 L2 R 64 5	59	148 L1 L	63 L2 TR	14	36 L1 LT	15 L2 R	199	8 L1 LTR	9	1
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles	16 L1 L1 296 0	256 L2 R 64 5	59	148 L1 L 161	63 L2 TR 84	14	36 L1 LT 55	15 L2 R 216	199	8 L1 LTR 20	9	1
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles	16 L1 L1 296 0	256 L2 R 64 5	59	148 L1 L 161	63 L2 TR 84	14	36 L1 LT 55	15 L2 R 216	199	8 L1 LTR 20	9	1
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S	16 L1 LT 296 0 ervice Ti	256 L2 R 64 5 me	59	148 L1 L 161 2	63 L2 TR 84 2	14	36 L1 LT 55 5	15 L2 R 216 0	199	8 L1 LTR 20 0	9	1
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s)	16       L1       L7       296       0	256 L2 R 64 5 <b>me</b> 3.20	59	148 L1 L1 2 3.20	63 L2 TR 84 2 3.20	14	36 L1 LT 55 5 3.20	15 L2 R 216 0	199	8 L1 LTR 20 0	9	1
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x	<ul> <li>16</li> <li>L1</li> <li>296</li> <li>0</li> <li>a.20</li> <li>0.263</li> </ul>	256 L2 R 64 5 <b>THE</b> 3.20 0.057	59	148 L1 L1 2 3.20 0.143	63 L2 TR 84 2 3.20 0.074	14	36 L1 LT 55 5 3.20 0.049	15 L2 R 216 0	199	8 L1 LTR 20 0 	9	1
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Final Departure Headway, hd (s)	<ul> <li>16</li> <li>L1</li> <li>L7</li> <li>296</li> <li>0</li> <li>3.20</li> <li>0.263</li> <li>5.68</li> </ul>	256 L2 R 64 5 	59	148 L1 L1 161 2 3.20 0.143 6.30	63 L2 TR 84 2 3.20 0.074 5.67	14	36 L1 LT 55 5 3.20 0.049 6.52	15 L2 R 216 0 3.20 0.192 5.39	199	8 L1 LTR 20 0 3.20 0.017 6.54	9	1
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Departure Headway, hd (s) Final Degree of Utilization, x	<ul> <li>16</li> <li>L1</li> <li>296</li> <li>0</li> <li>3.20</li> <li>0.263</li> <li>5.68</li> <li>0.467</li> </ul>	256 L2 R 64 5 <b></b> 3.20 0.057 5.04	59	148 L1 L1 2 3.20 0.143 6.30 0.282	63 L2 TR 84 2 3.20 0.074 5.67 0.132	14	36 L1 LT 55 5 3.20 0.049 6.52 0.100	15 L2 R 216 0 3.20 0.192 5.39 0.324	199	8 L1 LTR 20 0 3.20 0.017 6.54 0.036	9	1
Volume Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway, hd (s) Initial Degree of Utilization, x Final Degreture Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s)	<ul> <li>16</li> <li>L1</li> <li>LT</li> <li>296</li> <li>0</li> <li>3.20</li> <li>3.20</li> <li>5.68</li> <li>0.467</li> <li>2.3</li> <li>3.38</li> </ul>	256 L2 R 64 5 	59	148 L1 L1 161 2 3.20 0.143 6.30 0.282 2.3	63 L2 TR 84 2 3.20 0.074 5.67 0.132 2.3	14	36 L1 LT 55 5 3.20 0.049 6.52 0.100 2.3	15 L2 R 216 0 3.20 0.192 5.39 0.324 2.3	199	8 L1 LTR 20 0 0 3.20 0.017 6.54 0.036 2.0	9	1
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Departure Headway, hd (s) Final Degree of Utilization, x Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s)	<ul> <li>16</li> <li>L1</li> <li>LT</li> <li>296</li> <li>0</li> <li>3.20</li> <li>3.20</li> <li>5.68</li> <li>0.467</li> <li>2.3</li> <li>3.38</li> </ul>	256 L2 R 64 5 	59	148 L1 L1 161 2 3.20 0.143 6.30 0.282 2.3	63 L2 TR 84 2 3.20 0.074 5.67 0.132 2.3	14	36 L1 LT 55 5 3.20 0.049 6.52 0.100 2.3	15 L2 R 216 0 3.20 0.192 5.39 0.324 2.3	199	8 L1 LTR 20 0 0 3.20 0.017 6.54 0.036 2.0	9	1
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) Capacity, Delay and Level	<ul> <li>16</li> <li>16</li> <li>L1</li> <li>296</li> <li>0</li> <li>3.20</li> <li>0.263</li> <li>5.68</li> <li>0.467</li> <li>2.3</li> <li>3.38</li> <li>5 Service</li> </ul>	256 L2 R 64 5 <b>T</b> <b>T</b> <b>T</b> <b>T</b> <b>T</b> <b>T</b> <b>T</b> <b>T</b>	59	148 L1 L1 2 3.20 0.143 6.30 0.282 2.3 4.00	63 L2 TR 84 2 3.20 0.074 5.67 0.132 2.3 3.37	14	36 L1 LT 55 5 3.20 0.049 6.52 0.100 2.3 4.22	15 L2 R 216 0 3.20 0.192 5.39 0.324 2.3 3.09	199	8 L1 LTR 20 0 3.20 0.017 6.54 0.036 2.0 4.54	9	1
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final	<ul> <li>16</li> <li>16</li> <li>L1</li> <li>296</li> <li>0</li> <li>3.20</li> <li>3.20</li> <li>5.68</li> <li>0.467</li> <li>2.3</li> <li>3.38</li> <li>OF Servic</li> <li>296</li> </ul>	256 L2 R 64 5 	59	148 L1 L1 2 3.20 0.143 6.30 0.282 2.3 4.00	63 L2 TR 84 2 3.20 0.074 5.67 0.132 2.3 3.37	14	36 L1 LT 55 5 3.20 0.049 6.52 0.100 2.3 4.22	15 L2 R 216 0	199	8 L1 LTR 20 0 3.20 0.017 6.54 0.036 2.0 4.54	9	1
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final	16       116       116       117       296       0       3.20       3.20       0.263       5.68       0.467       2.3       3.38       OF Servic       296       633	256 L2 R 64 5 	59	148 L1 L1 2 3.20 0.143 6.30 0.282 2.3 4.00	63 L2 TR 84 2 3.20 0.074 5.67 0.132 2.3 3.37 84 635	14	36 L1 LT 55 5 3.20 0.049 6.52 0.100 2.3 4.22 55 555	15 L2 R 216 0 3.20 0.192 5.39 0.324 2.3 3.09 2.3 3.09	199	8 L1 LTR 20 0 3.20 0.017 6.54 0.036 2.0 4.54 2.0 4.54	9	1
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final	<ul> <li>16</li> <li>16</li> <li>16</li> <li>16</li> <li>16</li> <li>16</li> <li>16</li> <li>16</li> <li>296</li> <li>0</li> <li>320</li> <li>3.20</li> <li>0.263</li> <li>3.20</li> <li>0.263</li> <li>0.263</li> <li>0.263</li> <li>3.20</li> <li>0.263</li> <li>3.20</li> <li>0.263</li> <li>3.20</li> <li>0.263</li> <li>3.20</li> <li>0.263</li> <li>3.20</li> <li>0.263</li> <li>3.20</li> <li>0.263</li> <li>3.38</li> <li>0.467</li> <li>2.3</li> <li>3.38</li> <li>0.467</li> <li>2.3</li> <li>3.38</li> <li>0.467</li> <li>2.3</li> <li>3.38</li> <li>0.467</li> <li>2.3</li> <li>3.38</li> <li>0.467</li> <li>3.20</li> <li>0.263</li> <li>3.20</li> <li>0.263</li> <li>3.20</li> <li>0.263</li> <li>3.20</li> <li>0.263</li> <li>3.20</li> <li>0.263</li> <li>3.20</li> <li>0.263</li> <li>0.467</li> <li>0.</li></ul>	256 L2 R 64 5 	59	148 L1 L1 2 3.20 0.143 6.30 0.282 2.3 4.00 161 571 1.2	63 L2 TR 84 2 3.20 0.074 5.67 0.132 2.3 3.37 84 635 0.5	14	36 L1 LT 55 5 3.20 0.049 6.52 0.100 2.3 4.22 3 4.22 55 552 0.3	15 L2 R 216 0 3.20 0.192 5.39 0.324 2.3 3.09 2.3 3.09	199	8 L1 LTR 20 0 3.20 0.017 6.54 0.036 2.0 4.54 2.0 4.54 2.0 5.51 0.1	9	1
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final	<ul> <li>16</li> <li>16</li> <li>16</li> <li>16</li> <li>16</li> <li>16</li> <li>16</li> <li>16</li> <li>296</li> <li>0</li> <li>320</li> <li>3.20</li> <li>0.263</li> <li>0.467</li> <li>2.3</li> <li>3.38</li> <li>0.467</li> <li>2.3</li> <li>3.38</li> <li>0.467</li> <li>2.3</li> <li>3.38</li> <li>0.467</li> <li>2.3</li> <li>3.38</li> <li>0.467</li> <li>3.20</li> <li>3.38</li> <li>0.467</li> <li>3.20</li> <li>3.38</li> <li>0.467</li> <li>0.</li></ul>	256 L2 R 64 5 	59	148 L1 L1 2 3.20 0.143 6.30 0.282 2.3 4.00 161 571 161 571 1.2 11.5	63 L2 TR 84 2 3.20 0.074 5.67 0.132 2.3 3.37 84 635 0.5 9.2	14	36 L1 LT 55 5 3.20 0.049 6.52 0.100 2.3 4.22 2.3 4.22	15 216 3.20 0.192 5.39 0.324 2.3 3.09 2.3 3.09 2.16 668 1.4 1.0.6	199	8 L1 LTR 20 0 3.20 0.017 6.54 0.036 2.0 4.54 2.0 4.54 2.0 1.1 0.1 9.8	9	1

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## EXHIBIT 23 YEAR 2027 PEAK PM HOUR TRAFFIC – Terminal/Sandford Fleming

General Information					Site In	format	ion					
Analyst	1				Intersec	tion			Termina	l/Sandford	Flemina	
Agency/Co.					Jurisdict				City of 0			
Date Performed	11/22/2	017				est Street				al Avenue		
Analysis Year	2027				<u> </u>	outh Stree	t		<u> </u>	d Fleming	Avenue	
Analysis Time Period (hrs)	0.25					our Factor	•		0.92	j		
Time Analyzed	Peak PN	1 Hour			- can re				0.012			
Project Description		sidential De	evelopmen	t								
Lanes												
			J 4 1 1 4 4 1	4 14*	<b>1</b> 14↑7	4 L 1 X 4 F L						
Vehicle Volume and Adjus	tments	Fasthound		1	\M/oothour	1		Northboun	4		Southboun	d
Approach Movement	L	Eastbound T	R	L	Westbound	R	L	T	R	L	T	R
			I K			I K	I L		I K	L		K
		06	77		226		27		220	14	26	1
Volume	15	96	77	365	226	6	27	10	228	14	26	1
Volume % Thrus in Shared Lane	15			365		6		10				
Volume % Thrus in Shared Lane Lane	15 L1	L2	77 L3	365 L1	L2		L1	10 L2	228 L3	L1	26 L2	
Volume % Thrus in Shared Lane Lane Configuration	15 L1 L1	L2 R		365 L1 L	L2 TR	6	L1 LT	10 L2 R		L1 LTR		
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h)	15 L1 L1 LT 121	L2 R 84		365 L1 L 397	L2 TR 252	6	L1 LT 40	10 L2 R 248		L1 LTR 55		
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles	15 L1 LT 121 0	L2 R 84 5		365 L1 L	L2 TR	6	L1 LT	10 L2 R		L1 LTR		
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S	15 L1 LT 121 0 ervice Ti	L2 R 84 5 me		365 L1 L 397 2	L2 TR 252 2	6	L1 LT 40 5	10 L2 R 248 0		L1 LTR 55 0		
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles <b>Departure Headway and S</b> Initial Departure Headway, hd (s)	<ul> <li>15</li> <li>L1</li> <li>LT</li> <li>121</li> <li>0</li> </ul> ervice Ti	L2 R 84 5 me 3.20		365 L1 L 397 2 3.20	L2 TR 252 2 3.20	6	L1 LT 40 5 3.20	10 L2 R 248 0		L1 LTR 55 0 3.20		
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x	<ul> <li>15</li> <li>L1</li> <li>LT</li> <li>121</li> <li>0</li> </ul> ervice Ti <ul> <li>3.20</li> <li>0.107</li> </ul>	L2 R 84 5 <b>THE</b> 3.20 0.074		365 L1 397 2 3.20 0.353	L2 TR 252 2 3.20 0.224	6	L1 LT 40 5 3.20 0.036	10 L2 R 248 0 3.20 0.220		L1 LTR 55 0 3.20 0.049		
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Final Departure Headway, hd (s)	<ul> <li>15</li> <li>L1</li> <li>LT</li> <li>121</li> <li>0</li> </ul> ervice Ti <ul> <li>3.20</li> <li>0.107</li> <li>6.59</li> </ul>	L2 R 84 5 <b>T</b> 2.20 0.074 5.90		365 L1 J 397 2 3.20 0.353 6.43	L2 TR 252 2 3.20 0.224 5.90	6	L1 LT 40 5 3.20 0.036 7.21	10 L2 R 248 0 3.20 0.220 6.06		L1 LTR 55 0 3.20 0.049 6.99		
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Departure Headway, hd (s) Final Degree of Utilization, x	<ul> <li>15</li> <li>115</li> <li>111</li> <li>121</li> <li>0</li> </ul> ervice Ti <ul> <li>3.20</li> <li>0.107</li> <li>6.59</li> <li>0.221</li> </ul>	L2 R 84 5 <b>me</b> 3.20 0.074 5.90 0.137		365 L1 L1 397 2 3.20 0.353 6.43 0.708	L2 TR 252 2 3.20 0.224 5.90 0.413	6	L1 LT 40 5 3.20 0.036 7.21 0.081	10 L2 R 248 0 3.20 3.20 0.220 6.06 0.417		L1 LTR 55 0 3.20 0.049 6.99 0.108		
Volume Vo	<ul> <li>15</li> <li>15</li> <li>115</li> <li>117</li> <li>121</li> <li>0</li> <li>3.20</li> <li>0.107</li> <li>6.59</li> <li>0.221</li> <li>2.3</li> </ul>	L2 R 84 5 3.20 0.074 5.90 0.137 2.3		365 L1 397 2 3.20 0.353 6.43 0.708 2.3	L2 TR 252 2 3.20 0.224 5.90 0.413 2.3	6	L1 LT 40 5 3.20 0.036 7.21 0.081 2.3	10 L2 R 248 0 3.20 0.220 6.06 0.417 2.3		L1 LTR 55 0 3.20 0.049 6.99 0.108 2.0		
Volume Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s)	<ul> <li>15</li> <li>L1</li> <li>LT</li> <li>3.20</li> <li>0.107</li> <li>6.59</li> <li>0.221</li> <li>2.3</li> <li>4.29</li> </ul>	L2 R 84 5 		365 L1 L1 397 2 3.20 0.353 6.43 0.708	L2 TR 252 2 3.20 0.224 5.90 0.413	6	L1 LT 40 5 3.20 0.036 7.21 0.081	10 L2 R 248 0 3.20 3.20 0.220 6.06 0.417		L1 LTR 55 0 3.20 0.049 6.99 0.108		
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Departure Headway, hd (s) Final Departure Headway, hd (s) Service Time, m (s) Service Time, ts (s)	<ul> <li>15</li> <li>15</li> <li>115</li> <li>117</li> <li>121</li> <li>0</li> <li>3.20</li> <li>0.107</li> <li>6.59</li> <li>0.221</li> <li>2.3</li> <li>4.29</li> <li>5 Servic</li> </ul>	L2 R 84 5 3.20 0.074 5.90 0.137 2.3 3.60 e		365 L1 397 2 3.20 0.353 6.43 0.708 2.3 4.13	L2 TR 252 2 3.20 0.224 5.90 0.413 2.3 3.60	6	L1 LT 40 5 3.20 0.036 7.21 0.081 2.3 4.91	10 L2 R 248 0 3.20 0.220 6.06 0.417 2.3 3.76		L1 LTR 55 0 3.20 0.049 6.99 0.108 2.0 4.99		
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) Capacity, Delay and Level Flow Rate, v (veh/h)	<ul> <li>15</li> <li>L1</li> <li>L1</li> <li>3.20</li> <li>0.107</li> <li>6.59</li> <li>0.221</li> <li>2.3</li> <li>4.29</li> <li>Servic</li> <li>121</li> </ul>	L2 R 84 5 3.20 0.074 5.90 0.137 2.3 3.60 e 84		365 L1 L1 397 2 327 3.20 0.353 6.43 0.708 2.3 4.13	L2 TR 252 2 3.20 0.224 5.90 0.413 2.3 3.60	6	L1 LT 40 5 3.20 0.036 7.21 0.081 2.3 4.91	10 L2 R 248 0		L1 LTR 55 0 3.20 0.049 6.99 0.108 2.0 4.99		
Volume Vo	<ul> <li>15</li> <li>15</li> <li>115</li> <li>117</li> <li>121</li> <li>0</li> <li>3.20</li> <li>0.107</li> <li>6.59</li> <li>0.221</li> <li>2.3</li> <li>4.29</li> <li>547</li> </ul>	L2 R 84 5 		365 L1 L1 397 2 3.20 0.353 6.43 0.708 2.3 4.13 4.13	L2 TR 252 2 3.20 0.224 5.90 0.413 2.3 3.60 252 252 610	6	L1 LT 40 5 3.20 0.036 7.21 0.081 2.3 4.91 40 40	10 L2 R 248 0 3.20 0.220 6.06 0.220 6.06 0.417 2.3 3.76 3.76		L1 LTR 55 0 3.20 0.049 6.99 0.108 2.0 4.99 4.99		
Volume Vo	15       115       117       121       0       3.20       0.107       6.59       0.221       2.3       4.29       547       0.8	L2 R 84 5 		365 L1 L1 397 2 3.20 0.353 6.43 0.708 2.3 6.43 0.708 2.3 4.13 397 560 5.7	L2 TR 252 2 3.20 0.224 5.90 0.413 2.3 3.60 2.52 610 2.0	6	L1 LT 40 5 3.20 0.036 7.21 0.081 2.3 4.91 4.91 40 499 0.3	10 L2 R 248 0 3.20 3.20 6.06 0.417 2.3 3.76 2.48 594 2.1		L1 LTR 55 0 3.20 0.049 6.99 0.108 2.0 4.99 2.0 4.99		
Volume % Thrus in Shared Lane Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final	<ul> <li>15</li> <li>15</li> <li>115</li> <li>111</li> <li>121</li> <li>0</li> <li>3.20</li> <li>0.107</li> <li>6.59</li> <li>0.221</li> <li>2.3</li> <li>4.29</li> <li>547</li> <li>547</li> <li>0.8</li> <li>11.1</li> </ul>	L2 R 84 5 		365 L1 L1 397 2 3.20 0.353 6.43 0.708 2.3 4.13 4.13 397 560 5.7 5.7 2.3.2	L2 TR 252 2 3.20 0.224 5.90 0.413 2.3 0.413 2.3 3.60 2.0 2.0 2.0 1.2.7	6	L1 LT 40 5 3.20 0.036 7.21 0.081 2.3 4.91 4.91 4.91 40 499 0.3 10.5	10 L2 R 248 0 3.20 0.220 6.06 0.417 2.3 3.76 2.48 594 2.1 1.3.0		L1 LTR 55 0 3.20 0.049 6.99 0.108 2.0 4.99 4.99 55 515 515 0.4 10.8		
Volume Volume Volume Volume Volume Volume Volume Volume Volume Lane Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles  Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Nove-Up Time, m (s) Service Time, ts (s)  Capacity, Delay and Level Flow Rate, v (veh/h) Capacity 95% Queue Length, Qas (veh) Control Delay (s/veh) Level of Service, LOS	15       115       117       121       0       3.20       0.107       6.59       0.221       2.3       4.29       547       0.8	L2 R 84 5 		365 L1 L1 397 2 3.20 0.353 6.43 0.708 2.3 6.43 0.708 2.3 4.13 397 560 5.7	L2 TR 252 2 3.20 0.224 5.90 0.413 2.3 3.60 2.3 3.60 2.5 252 610 2.0 12.7 B	6	L1 LT 40 5 3.20 0.036 7.21 0.081 2.3 4.91 4.91 40 499 0.3	10 L2 R 248 0 3.20 0.220 6.06 0.220 6.06 0.417 2.3 3.76 2.48 594 2.1 13.0 B		L1 LTR 55 0 3.20 0.049 6.99 0.108 2.0 4.99 2.0 4.99		
Volume Vo	<ul> <li>15</li> <li>15</li> <li>115</li> <li>111</li> <li>121</li> <li>0</li> <li>3.20</li> <li>0.107</li> <li>6.59</li> <li>0.221</li> <li>2.3</li> <li>4.29</li> <li>547</li> <li>547</li> <li>0.8</li> <li>11.1</li> </ul>	L2 R 84 5 		365 L1 L1 397 2 3.20 0.353 6.43 0.708 2.3 4.13 4.13 397 560 5.7 5.7 2.3.2	L2 TR 252 2 3.20 0.224 5.90 0.413 2.3 0.413 2.3 3.60 2.0 2.0 2.0 1.2.7	6	L1 LT 40 5 3.20 0.036 7.21 0.081 2.3 4.91 4.91 4.91 40 499 0.3 10.5	10 L2 R 248 0 3.20 0.220 6.06 0.417 2.3 3.76 2.48 594 2.1 1.3.0		L1 LTR 55 0 3.20 0.049 6.99 0.108 2.0 4.99 4.99 55 515 515 0.4 10.8		

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# EXHIBIT 24 YEAR 2031 PEAK AM HOUR TRAFFIC – Terminal/Sandford Fleming

							eport					
General Information					Site In	format	ion					
Analyst					Intersec	tion			Termina	l/Sandford	Fleming	
Agency/Co.					Jurisdict	ion			City of C	Ottawa		
Date Performed	11/22/2	017			East/We	st Street			Termina	l Avenue		
Analysis Year	2031				North/S	outh Stree	t		Sandfor	d Fleming /	Avenue	
Analysis Time Period (hrs)	0.25				Peak Ho	ur Factor			0.92			
Time Analyzed	Peak AN	/I Hour										
Project Description	OTY Res	sidential De	velopmen	t								
Lanes												
			J 4 1 4 4 5		ሰ የተኮሰ	4 * r						
Vehicle Volume and Adjus												
Approach		Eastbound			Westbound		1	Northboun	d	9	outhboun	d
Movement	L	Т	R	L	Т	R	L	Т	R	L	Т	R
Volume	17	268	60	149	72	14	37	15	191	8	9	1
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LT	R		L	TR		LT	R		LTR		
Flow Rate, v (veh/h)	310	65		162	93		57	208		20		
Percent Heavy Vehicles	0	5						0				
		5		2	2		5	0		0		
Departure Headway and S	ervice Ti			2	2		5	0		0		
Departure Headway and S Initial Departure Headway, hd (s)	Service Ti			2 3.20	3.20		3.20	3.20		0 3.20		
	-	me		I	I							
Initial Departure Headway, hd (s)	3.20	<b>me</b> 3.20		3.20	3.20		3.20	3.20		3.20		
Initial Departure Headway, hd (s) Initial Degree of Utilization, x	3.20 0.275	me 3.20 0.058		3.20 0.144	3.20 0.083		3.20 0.050	3.20 0.185		3.20 0.017		
Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s)	3.20 0.275 5.68	me 3.20 0.058 5.04		3.20 0.144 6.31	3.20 0.083 5.69		3.20 0.050 6.59	3.20 0.185 5.45		3.20 0.017 6.59		
Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x	3.20 0.275 5.68 0.489	3.20           0.058           5.04           0.091		3.20 0.144 6.31 0.284	3.20 0.083 5.69 0.148		3.20 0.050 6.59 0.103	3.20 0.185 5.45 0.314		3.20 0.017 6.59 0.036		
Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s)	3.20           0.275           5.68           0.489           2.3           3.38	3.20 0.058 5.04 0.091 2.3 2.74		3.20 0.144 6.31 0.284 2.3	3.20 0.083 5.69 0.148 2.3		3.20 0.050 6.59 0.103 2.3	3.20 0.185 5.45 0.314 2.3		3.20 0.017 6.59 0.036 2.0		
Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s)	3.20           0.275           5.68           0.489           2.3           3.38	3.20 0.058 5.04 0.091 2.3 2.74		3.20 0.144 6.31 0.284 2.3	3.20 0.083 5.69 0.148 2.3		3.20 0.050 6.59 0.103 2.3	3.20 0.185 5.45 0.314 2.3		3.20 0.017 6.59 0.036 2.0		
Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) Capacity, Delay and Level	<ul> <li>3.20</li> <li>0.275</li> <li>5.68</li> <li>0.489</li> <li>2.3</li> <li>3.38</li> <li>of Servic</li> </ul>	3.20           0.058           5.04           0.091           2.3           2.74		3.20 0.144 6.31 0.284 2.3 4.01	3.20 0.083 5.69 0.148 2.3 3.39		3.20 0.050 6.59 0.103 2.3 4.29	3.20 0.185 5.45 0.314 2.3 3.15		3.20 0.017 6.59 0.036 2.0 4.59		
Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) <b>Capacity, Delay and Level</b> Flow Rate, v (veh/h)	<ul> <li>3.20</li> <li>0.275</li> <li>5.68</li> <li>0.489</li> <li>2.3</li> <li>3.38</li> <li>of Servic</li> <li>310</li> </ul>	3.20           0.058           5.04           0.091           2.3           2.74           e           65		3.20 0.144 6.31 0.284 2.3 4.01	3.20 0.083 5.69 0.148 2.3 3.39 93		3.20 0.050 6.59 0.103 2.3 4.29 57	3.20 0.185 5.45 0.314 2.3 3.15 208		3.20 0.017 6.59 0.036 2.0 4.59		
Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) <b>Capacity, Delay and Level</b> Flow Rate, v (veh/h) Capacity	3.20           0.275           5.68           2.3           3.38 <b>of Servic</b> 310           633	3.20 0.058 5.04 0.091 2.3 2.74 e 65 715		3.20 0.144 6.31 0.284 2.3 4.01 162 571	3.20 0.083 5.69 0.148 2.3 3.39 93 633		3.20 0.050 6.59 0.103 2.3 4.29 57 57	3.20 0.185 5.45 0.314 2.3 3.15 208 661		3.20 0.017 6.59 0.036 2.0 4.59 20 20 546		
Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) <b>Capacity, Delay and Level</b> Flow Rate, v (veh/h) Capacity 95% Queue Length, Q <sub>95</sub> (veh)	3.20       0.275       5.68       0.489       2.3       3.38 <b>5 5</b> 3.38 <b>5 6</b> 3.30       2.3	3.20         0.058         5.04         0.091         2.3         2.74         e         65         715         0.3		3.20 0.144 6.31 0.284 2.3 4.01 162 571 1.2	3.20 0.083 5.69 0.148 2.3 3.39 93 633 0.5		3.20 0.050 6.59 0.103 2.3 4.29 57 57 547 0.3	3.20 0.185 5.45 0.314 2.3 3.15 208 661 1.3		3.20 0.017 6.59 0.036 2.0 4.59 20 20 546 0.1		
Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) <b>Capacity, Delay and Level</b> Flow Rate, v (veh/h) Capacity 95% Queue Length, Q <sub>95</sub> (veh) Control Delay (s/veh)	3.20       0.275       5.68       0.489       3.38 <b>5 5</b> 3.38 <b>5 5</b> </td <td>3.20         0.058         5.04         0.091         2.3         2.74         0         65         715         0.3         8.2</td> <td></td> <td>3.20 0.144 6.31 0.284 2.3 4.01 162 571 1.2 11.5</td> <td>3.20 0.083 5.69 0.148 2.3 3.39 93 633 0.5 9,4</td> <td></td> <td>3.20 0.050 6.59 0.103 2.3 4.29 57 57 547 0.3 10.0</td> <td>3.20 0.185 5.45 0.314 2.3 3.15 208 661 1.3 10.6</td> <td></td> <td>3.20 0.017 6.59 0.036 2.0 4.59 20 20 546 0.1 9.8</td> <td>9.8</td> <td></td>	3.20         0.058         5.04         0.091         2.3         2.74         0         65         715         0.3         8.2		3.20 0.144 6.31 0.284 2.3 4.01 162 571 1.2 11.5	3.20 0.083 5.69 0.148 2.3 3.39 93 633 0.5 9,4		3.20 0.050 6.59 0.103 2.3 4.29 57 57 547 0.3 10.0	3.20 0.185 5.45 0.314 2.3 3.15 208 661 1.3 10.6		3.20 0.017 6.59 0.036 2.0 4.59 20 20 546 0.1 9.8	9.8	
Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) Capacity, Delay and Level Flow Rate, v (veh/h) Capacity 95% Queue Length, Q <sub>95</sub> (veh) Control Delay (s/veh) Level of Service, LOS	3.20       0.275       5.68       0.489       3.38 <b>5 5</b> 3.38 <b>5 5</b> </td <td>3.20         0.058         5.04         0.091         2.3         2.74         65         715         0.3         8.2         A</td> <td></td> <td>3.20 0.144 6.31 0.284 2.3 4.01 162 571 1.2 11.5</td> <td>3.20 0.083 5.69 0.148 2.3 3.39 93 633 0.5 9.4 A</td> <td></td> <td>3.20 0.050 6.59 0.103 2.3 4.29 57 57 547 0.3 10.0</td> <td>3.20 0.185 5.45 0.314 2.3 3.15 208 661 1.3 10.6 B</td> <td></td> <td>3.20 0.017 6.59 0.036 2.0 4.59 20 20 546 0.1 9.8</td> <td>9.8 A</td> <td></td>	3.20         0.058         5.04         0.091         2.3         2.74         65         715         0.3         8.2         A		3.20 0.144 6.31 0.284 2.3 4.01 162 571 1.2 11.5	3.20 0.083 5.69 0.148 2.3 3.39 93 633 0.5 9.4 A		3.20 0.050 6.59 0.103 2.3 4.29 57 57 547 0.3 10.0	3.20 0.185 5.45 0.314 2.3 3.15 208 661 1.3 10.6 B		3.20 0.017 6.59 0.036 2.0 4.59 20 20 546 0.1 9.8	9.8 A	

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## EXHIBIT 25 YEAR 2031 PEAK PM HOUR TRAFFIC – Terminal/Sandford Fleming

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General Information					Site In	format	ion					
Analyst					Intersec	tion			Termina	l/Sandford	Fleming	
Agency/Co.					Jurisdict	ion			City of C	Ottawa		
Date Performed	11/22/2	017			East/We	st Street			Termina	l Avenue		
Analysis Year	2031				North/S	outh Stree	t		Sandfor	d Fleming	Avenue	
Analysis Time Period (hrs)	0.25				Peak Ho	our Factor			0.92			
Time Analyzed	Peak PN	1 Hour										
Project Description	OTY Re:	sidential De	evelopmen	t								
Lanes												
Vehicle Volume and Adjus	tmonto		144.	- ተ ነተቀነ	ר ר ד ר	۲ ۲ ۲						
Approach	suments	Eastbound		1	Westbound	J		Northboun	4		outhboun	
Movement	L	T	R	L	T	R	L	т	R	L	T	R
Volume	15	110	79	366	236	6	28	11	229	14	27	12
% Thrus in Shared Lane	15	110	15	500	2.50	0	20		LLJ	14	27	12
Lane	L1	L2	L3	L1	L2			L2				
						I 13	I LI		L3	L1	L2	L L3
	LT	R				L3	L1 LT		L3	L1 LTR	L2	Lä
Configuration	LT 136	R 86		L	TR		LT	R	L3	LTR	L2	L
Configuration Flow Rate, v (veh/h)	136	R 86 5		L 398	TR 263		LT 42	R 249	L3	LTR 58	L2	
Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles	136 0	86 5		L	TR		LT	R	L3	LTR	L2	
Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S	136 0 Service Ti	86 5 <b>me</b>		L 398 2	TR 263 2		LT 42 5	R 249 0	L3	LTR 58 0	L2	
Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s)	136 0 <b>Gervice Ti</b> 3.20	86 5 <b>me</b> 3.20		L 398 2 3.20	TR 263 2 3.20		LT 42 5 3.20	R 249 0 3.20	L3	LTR 58 0 3.20	L2	
Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x	136       0       Service Ti       3.20       0.121	86 5 <b>me</b> 3.20 0.076		L 398 2 3.20 0.354	TR 263 2 3.20 0.234		LT 42 5 3.20 0.038	R 249 0 3.20 0.221		LTR 58 0 3.20 0.051		
Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s)	136           0           Gervice Ti           3.20           0.121           6.63	86 5 <b>me</b> 3.20 0.076 5.95		L 398 2 3.20 0.354 6.49	TR 263 2 3.20 0.234 5.96		LT 42 5 3.20 0.038 7.28	R 249 0 3.20 0.221 6.14		LTR 58 0 3.20 0.051 7.06		
Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x	136       0       3.20       0.121       6.63       0.250	86 5 <b>me</b> 3.20 0.076		L 398 2 3.20 0.354 6.49 0.717	TR 263 2 3.20 0.234		LT 42 5 3.20 0.038	R 249 0 3.20 0.221		LTR 58 0 3.20 0.051		
Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Departure Headway, hd (s) Final Depare of Utilization, x	136           0           Gervice Ti           3.20           0.121           6.63	86 5 <b>me</b> 3.20 0.076 5.95 0.142		L 398 2 3.20 0.354 6.49	TR 263 2 3.20 0.234 5.96 0.436		LT 42 5 3.20 0.038 7.28 0.086	R 249 0 3.20 0.221 6.14 0.424		LTR 58 0 3.20 0.051 7.06 0.113		
Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s)	136       0       3.20       0.121       6.63       0.250       2.3       4.33	86 5 3.20 0.076 5.95 0.142 2.3 3.65		L 398 2 3.20 0.354 6.49 0.717 2.3	TR 263 2 2 3.20 0.234 5.96 0.436 2.3		LT 42 5 3.20 0.038 7.28 0.086 2.3	R 249 0 3.20 0.221 6.14 0.424 2.3		LTR 58 0 3.20 0.051 7.06 0.113 2.0		
Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) Capacity, Delay and Level	136       0       3.20       0.121       6.63       0.250       2.3       4.33       of Servic	86 5 3.20 0.076 5.95 0.142 2.3 3.65 e		L 398 2 3.20 0.354 6.49 0.717 2.3 4.19	TR 263 2 3.20 0.234 5.96 0.436 2.3 3.66		LT 42 5 3.20 0.038 7.28 0.086 2.3 4.98	R 249 0 3.20 0.221 6.14 0.424 2.3 3.84		LTR 58 0 3.20 0.051 7.06 0.113 2.0 5.06		
Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) Capacity, Delay and Level Flow Rate, v (veh/h)	136       0       3.20       0.121       6.63       0.250       2.3       4.33       of Servic       136	86 5 3.20 0.076 5.95 0.142 2.3 3.65 <b>e</b> 86		L 398 2 3.20 0.354 6.49 0.717 2.3 4.19	TR 263 2 3.20 0.234 5.96 0.436 2.3 3.66		LT 42 5 3.20 0.038 7.28 0.086 2.3 4.98	R 249 0 3.20 0.221 6.14 0.424 2.3 3.84		LTR 58 0 3.20 0.051 7.06 0.113 2.0 5.06		
Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) Capacity, Delay and Level Flow Rate, v (veh/h) Capacity	136       0       3.20       0.121       6.63       0.250       2.3       4.33       of Servic       136       543	86 5 3.20 0.076 5.95 0.142 2.3 3.65 2.3 3.65 8 86 605		L 398 2 3.20 0.354 6.49 0.717 2.3 4.19 398 398	TR           263           2           3.20           0.234           5.96           0.436           2.3           3.66           2           263           604		LT 42 5 0.038 7.28 0.086 2.3 4.98 4.98	R 249 0 3.20 0.221 6.14 0.424 2.3 3.84 2.3 3.84		LTR 58 0 .0.051 7.06 0.113 2.0 5.06 5.06		
Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) Capacity, Delay and Level Flow Rate, v (veh/h) Capacity 95% Queue Length, Q <sub>95</sub> (veh)	136       0       3.20       0.121       6.63       0.250       2.3       4.33       of Servic       136	86 5 3.20 0.076 5.95 0.142 2.3 3.65 <b>e</b> 86		L 398 2 3.20 0.354 6.49 0.717 2.3 4.19	TR 263 2 3.20 0.234 5.96 0.436 2.3 3.66		LT 42 5 3.20 0.038 7.28 0.086 2.3 4.98	R 249 0 3.20 0.221 6.14 0.424 2.3 3.84		LTR 58 0 3.20 0.051 7.06 0.113 2.0 5.06		
Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) Capacity, Delay and Level Flow Rate, v (veh/h) Capacity	136       0       0       0       0       0       0.121       0.663       0.250       2.3       4.33       OF Servic       136       543       1.0	86 5 3.20 0.076 5.95 0.142 2.3 3.65 86 605 0.5 9.6		L 398 2 3.20 0.354 6.49 0.717 2.3 4.19 398 555 5.8 23.9	TR 263 2 3.20 0.234 5.96 0.436 2.3 3.66 2.3 3.66 2.3 3.66		LT 42 5 3.20 0.038 7.28 0.086 2.3 4.98 42 494 0.3	R 249 0 3.20 0.221 6.14 0.424 2.3 3.84 2.3 3.84 2.49 587 2.1		LTR 58 0 3.20 0.051 7.06 0.113 2.0 5.06 5.06 5.06 5.00 0.4		
Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) Capacity, Delay and Level Flow Rate, v (veh/h) Capacity 95% Queue Length, Q <sub>95</sub> (veh) Control Delay (s/veh)	136       0       0       0       0       0       0.121       0.250       2.3       4.33       V       136       543       1.0       11.5	86 5 3.20 0.076 5.95 0.142 2.3 3.65 <b>e</b> 86 605 0.5		L 398 2 3.20 0.354 6.49 0.717 2.3 4.19 398 555 5.8	TR 263 2 3.20 0.234 5.96 0.436 2.3 3.66 2.3 3.66 2.3 3.66 4 2.2 13.2		LT 42 5 0.038 7.28 0.086 2.3 4.98 4.98 4.98	R 249 0 3.20 0.221 6.14 0.424 2.3 3.84 2.3 3.84 2.3 587 2.1 13.3		LTR 58 0 	L2	
Configuration Flow Rate, v (veh/h) Percent Heavy Vehicles Departure Headway and S Initial Departure Headway, hd (s) Initial Degree of Utilization, x Final Departure Headway, hd (s) Final Degree of Utilization, x Move-Up Time, m (s) Service Time, ts (s) Capacity, Delay and Level Flow Rate, v (veh/h) Capacity 95% Queue Length, Q <sub>95</sub> (veh) Control Delay (s/veh) Level of Service, LOS	136       0       0       0       0       0       0.121       0.250       2.3       4.33       V       136       543       1.0       11.5	86           5           3.20           0.076           5.95           0.142           2.3           3.65           86           605           9.6           A		L 398 2 3.20 0.354 6.49 0.717 2.3 4.19 398 555 5.8 23.9	TR 263 2 .2 .2 .2 .2 .3 .2 .96 .0.436 2.3 3.66 2.3 3.66 2.3 3.66 2.3 3.66 2.3 3.66 2.3 3.66 2.3 3.66 2.3 3.66 2.3 3.66 2.3 3.66 2.3 3.66 3.2 3.65 3.2 5.9 5.9 5.9 5.9 5.9 5.9 5.9 5.9 5.9 5.9		LT 42 5 0.038 7.28 0.086 2.3 4.98 4.98 4.98	R 249 0 		LTR 58 0 		

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### **EXHIBIT 26** EXISTING 2015 PEAK AM HOUR TRAFFIC – Industrial/Sandford Fleming

		HCS	67 Sig	nalize	d Int	ersec	tion F	Resu	lts Sur	nmar	у				
General Inform	ation								Intersec	tion Inf	ormatic	n		オムゆい	ыų
Agency	ation							$\rightarrow$	Duration		0.25			ţĹ	
Analyst				Analys	ie Date	e Jun 1	4 2018		Area Typ	,	Other				
Jurisdiction				Time F			AM Hou		PHF		0.92				*
Urban Street		200, 220, 8, 260, 54	oomli			r 2015				Deried	1> 7:0	20			-
Intersection		200, 230 & 260 Str Sandford/Industrial		File Na		_	<u> </u>		Analysis	Fellou	1-7.	50			_
	l'au				ame	2015	_ex_am.	xus					-	<u> </u>	20
Project Descript	lion	OTY Residential De	evelopm	ent											r
Demand Inform	nation				EB	_		VVE	3		NB	_		SB	_
Approach Move	ment			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), ve	eh/h			67	525		77	528	3 30	513	73	86	26	50	
0	4 <sup>1</sup>														
Signal Informa					Lz.	_									Γ
Cycle, s	150.0	Reference Phase	2		Γ "	<b>→</b>		5	17			1	→ <sub>2</sub>	3	+-
Offset, s	0	Reference Point	Begin	Green	7.1	80.4	9.7	28.		0.0			ĸ		
Uncoordinated	No	Simult. Gap E/W	Off	Yellow		3.7	3.3	3.3		0.0		~			- V
Force Mode	Float	Simult. Gap N/S	Off	Red	2.2	2.7	3.1	2.7	0.0	0.0		5	6	7	I
Timer Results				EBI		EBT	WB		WBT	NB		NBT	SBI		SBT
Assigned Phase	<u></u>			5	-	2	1	-	6		-	8		-	4
Case Number	,			2.0		4.0	2.0		4.0			10.0			10.0
	-				_		_	_			_				
Phase Duration	,			13.0		86.8	13.0	_	86.8		-	34.2			16.1
Change Period,				6.4		6.4	5.9	_	6.4			6.0		_	6.4
Max Allow Head				3.1	_	0.0	3.1		0.0			3.2		_	3.1
Queue Clearand				8.6	_		9.5	_				26.5			6.5
Green Extension		(ge),s		0.0	_	0.0	0.0		0.0	<u> </u>		1.6	<u> </u>		0.1
Phase Call Prot				0.95	_		0.97	_			_	1.00			0.97
Max Out Probat	ollity			1.00	)		1.00	)				0.00			0.00
Movement Gro	up Res	ults			EB	_		WB			NB			SB	_
Approach Move	ment			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Mover	ment			5	2		1	6	16	3	8	18	7	4	
Adjusted Flow F	Rate ( v	), veh/h		73	571		84	306	300	558	173		28	54	
Adjusted Satura	ation Flo	w Rate (s), veh/h/	′ln	1647	1647		1674	1730	1689	1652	1359		1447	1730	
Queue Service	Time ( 🤉	q s), S		6.6	9.4		7.5	9.6	9.7	24.5	17.6		2.8	4.5	
Cycle Queue Cl				6.6	9.4		7.5	9.6	9.7	24.5	17.6		2.8	4.5	
Green Ratio ( g/		(0-7,-		0.05	0.54		0.05	0.54		0.19	0.19		0.07	0.07	
Capacity (c), v	,			83	1786		90	938	916	642	264		103	123	
Volume-to-Capa		tio (X)		0.872			0.926	0.327	-	0.868			0.274	0.441	
	-	In ( 50 th percentile	)	105.1			125	92.3			177		30.2	52.8	
		eh/In ( 50 th percent		4.0	3.2		4.9	3.6	3.5	10.6	6.1		1.0	2.0	
		RQ) (50 th percen		0.00	0.00		0.00	0.00	_	0.00	0.00		0.00	0.00	
Uniform Delay (		,, ,	,	69.5	10.9		69.3	11.0	10.8	58.6	55.8		66.0	66.8	
Incremental Del				56.8	0.5		69.6	0.9	1.0	4.6	1.0		0.5	0.9	
Initial Queue De		1.		0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (				126.2	11.4		138.9	11.9	11.8	63.2	56.8		66.5	67.7	
Level of Service	e (LOS)			F	В		F	В	В	Е	E		E	E	
Approach Delay	, s/veh	/LOS		24.4	1	С	27.3	3	С	61.7	7	E	67.3	3	E
							9.7						D		
Intersection Del															
				_											
Multimodal Res					EB			WB			NB			SB	
		/LOS		2.60	_	С	2.22	_	В	2.76	6	C C	3.52	_	D

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## **EXHIBIT 27** EXISTING 2015 PEAK PM HOUR TRAFFIC – Industrial/Sandford Fleming

		HCS	7 Sig	nalize	d Int	ersec	tion F	Resul	ts Sur	nmar	у				
General Inform	ation								ntersec	tion Inf	ormatic	n		4.444	b L
Agency	lation								Duration		0.25	<i>"</i>		ţĻ	
<u> </u>				Analy	via Date	lun 1	4 2019			,					
Analyst						Jun 1		_	Area Typ ⊃HF	ie .	Other 0.92				*
Jurisdiction		000,000 8,000,04	P	Time F			PM Hou			Deviad		20			-
Urban Street		200, 230 & 260 Str			sis Yea			_	Analysis	Period	1> 7:0	00			
Intersection		Sandford/Industrial		File Na	ame	2015	_ex_pm.	xus					_	<u> </u>	
Project Descrip	tion	OTY Residential De	evelopm	ent										4 I 4 Y	11
Demand Inform	nation				EB			WE	}		NB			SB	
Approach Move	ement			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), v				70	722		114	907	_	689	64	81	56	94	
( ),															
Signal Informa	tion														L
Cycle, s	150.0	Reference Phase	2	1	F "	-⊢`			<u>↑</u> 2		×		→		Þ
Offset, s	0	Reference Point	Begin	Green	<u>8</u> 1	69.8	11.2	36.2		0.0		1	2	3	4
Uncoordinated	No	Simult. Gap E/W	Off	Yellow		3.7	3.3	30.4	2 0.0	0.0		7	4		<b>KŤ</b> 2
Force Mode	Float	Simult. Gap N/S	Off	Red	2.2	2.7	3.1	2.7	0.0	0.0		Б	6	7	$-\mathbf{Y}$
Timer Results				EBI	_	EBT	WB	L	WBT	NB	L	NBT	SBI	-	SBT
Assigned Phase	e			5		2	1		6			8			4
Case Number				2.0		4.0	2.0		4.0			10.0			10.0
Phase Duration	, S			14.0	)	76.2	14.0	)	76.2			42.2			17.6
Change Period,	( Y+R	c), S		6.4		6.4	5.9		6.4			6.0			6.4
Max Allow Head	dway(/	ИАН ), s		3.1		0.0	3.1		0.0			3.2			3.1
Queue Clearan	ce Time	e (gs), s		8.9			11.1					35.1			11.0
Green Extensio	n Time	(ge),s		0.0		0.0	0.0		0.0			1.1			0.2
Phase Call Prol	bability			0.96	3		0.99	)				1.00			1.00
Max Out Proba	bility			1.00	)		1.00	)				0.74			0.00
					50			14/0		_	ND		_	0.0	
Movement Gro		sults		L	EB T	R	L	WB T	R	L	NB T	R	L	SB T	R
Approach Move				5	2	ĸ	1	6	16	3	8	18	_	4	ĸ
Assigned Move		\		-	_		_	-		_		18	7		
Adjusted Flow F		1.		76	785		124	508	503	749	158	<u> </u>	61	102	<u> </u>
		w Rate (s), veh/h/	In	1621	1674		1701	1772		1652	1466		1581	1660	
Queue Service				6.9	19.0	<u> </u>	9.1	25.8	25.8	33.1	13.6		5.5	9.0	<u> </u>
Cycle Queue C		e Time ( <i>g c</i> ), s		6.9	19.0	<u> </u>	9.1	25.8	25.8	33.1	13.6		5.5	9.0	
Green Ratio (g	,			0.06	0.47		0.06	0.47	0.47	0.25	0.25		0.08	0.08	
Capacity (c), v		tie (M)		93	1580		103	836	827	819	363		129	135	
Volume-to-Capa		. ,	<b>`</b>	0.819			1.201 207.5	0.608		0.915			0.473	0.756	
		In (50 th percentile			171.1				288.2		135.5		61	106.6	
		eh/In (50 th percent		3.8	6.7		8.2	10.0	9.9	15.1	5.0		2.3	3.9	
		RQ) (50 th percen	ule)	0.00	0.00		0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay ( Incremental De				68.5 39.4	18.4 1.1		68.9 152.3	19.7 3.3	19.5 3.3	54.9 12.8	47.5 0.3		65.8 1.0	67.4 3.2	
Initial Queue De				0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (		· ·		107.9	19.5		221.2	23.0	22.8	67.7	47.8		66.8	70.6	
Level of Service				F	B		F	C	C	E	D		E	E	
	. ,			27.3		С	44.5		D	64.2		E	69.2		E
		, 200		21.3	,		44.0 6.8	,	0	04.2	-	-	D	-	-
Approach Delay		h/LOS											-		
		h / LOS													
Approach Delay	ay, s/ve	h / LOS			EB			WB			NB			SB	
Approach Delay Intersection Del	ay, s/ve sults			2.64	_	С	2.24	_	В	2.94	_	С	3.62	_	D

### **EXHIBIT 28** YEAR 2021 PEAK AM HOUR TRAFFIC – Industrial/Sandford Fleming

		HCS	67 Sig	nalize	ed Int	ersec		lesu	ts Sur	nmar	У				
General Inform	nation								Intersec	tion Inf	ormatic	n		4741	de la
Agency	lation								Duration.		0.25	<i>"</i>		ļĻ	
• •				Analis		lum 1	4 0040								
Analyst						Jun 1			Area Typ	e	Other				*
Jurisdiction				Time F			AM Hou		PHF		0.92			"ie	-
Urban Street		200, 230 & 260 Str			sis Year				Analysis	Period	1> 7:0	00			
Intersection		Sandford/Industrial		File Na	ame	2021	_tot_am	xus						111	
Project Descrip	tion	OTY Residential De	evelopm	ent									h	4144	P (*
Demand Inform	nation				EB		1	WE	3	1	NB			SB	
Approach Move				L	T	R	L	Т	R	L	Т	R	L	T	R
Demand (v), v				94	558		82	56	_	545	96	91	34	55	
				01	000		02	00	20	010	00	01	01	00	
Signal Informa	ition														T
Cycle, s	150.0	Reference Phase	2	1	P 4	- → `		8	<b>Ф</b> 2		<b>×</b>	<u> </u>	→		$\mathbf{b}$
Offset, s	0	Reference Point	Begin	Craa	7 4	79.6	0.0			0.0		1	2	3	
Uncoordinated	No	Simult. Gap E/W	Off	Green		78.6	9.8	29.		0.0		~	4		-1
Force Mode	Float	Simult. Gap N/S	Off	Red	2.2	2.7	3.1	2.7	0.0	0.0		5	6	7	
	Tiour	Cirrian: Cap ru C	0.11	Ttou		1	1011		1010						
Timer Results				EBI	-	EBT	WB	L	WBT	NBI	-	NBT	SBI		SBT
Assigned Phase	е			5		2	1		6			8			4
Case Number				2.0		4.0	2.0		4.0			10.0			10.0
Phase Duration	I. S			13.0	)	85.0	13.0	5	85.0			35.8			16.2
Change Period,		c). S		6.4	_	6.4	5.9		6.4			6.0			6.4
Max Allow Head				3.1		0.0	3.1	_	0.0			3.2			3.1
Queue Clearan				9.6		0.0	10.0		0.0			28.1			7.0
Green Extensio				0.0	_	0.0	0.0		0.0			1.7			0.1
Phase Call Prol		(90),0		0.99		0.0	0.98		0.0			1.00			0.98
Max Out Proba				1.00	_		1.00	_			_	0.01		_	0.00
Max out roba	Sincy			1.00			1.00					0.01		and an	0.00
Movement Gro	oup Res	ults			EB			WB			NB			SB	
Approach Move	ement			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Move	ment			5	2		1	6	16	3	8	18	7	4	
Adjusted Flow F	Rate ( v							324	318	592	203				_
Adjusted Satura		), veh/h		102	607		89	524	010		200		37	60	
	ation Flo	), veh/h ow Rate ( <i>s</i> ), veh/h/	ín	102 1647	607 1647		89 1674	1730		1652	1374		37 1447	60 1730	
Queue Service		ow Rate (s), veh/h/	'In						1693						
	Time ( g	ow Rate ( <i>s</i> ), veh/h/ g <sub>s</sub> ), s	'In	1647	1647		1674	1730	1693	1652	1374		1447	1730	
Queue Service	Time ( g learance	ow Rate ( <i>s</i> ), veh/h/ g <sub>s</sub> ), s	'In	1647 7.6	1647 10.7		1674 8.0	1730 10.9	1693 11.0 11.0	1652 26.1	1374 20.7		1447 3.6	1730 5.0	
Queue Service Cycle Queue C Green Ratio ( g	Time(g learance I/C)	ow Rate ( <i>s</i> ), veh/h/ g <sub>s</sub> ), s	ʻln	1647 7.6 7.6	1647 10.7 10.7		1674 8.0 8.0	1730 10.9 10.9	1693 11.0 11.0	1652 26.1 26.1	1374 20.7 20.7		1447 3.6 3.6	1730 5.0 5.0	
Queue Service Cycle Queue C Green Ratio (g Capacity (c), v	Time(g learance I/C) /eh/h	w Rate(s), veh/h// gs), s e Time(gc), s	'ln	1647 7.6 7.6 0.05	1647 10.7 10.7 0.53 1748		1674 8.0 8.0 0.05	1730 10.9 10.9 0.53 918	1693 11.0 11.0 0.53	1652 26.1 26.1 0.21	1374 20.7 20.7 0.21 282		1447 3.6 3.6 0.07	1730 5.0 5.0 0.07	
Queue Service Cycle Queue C Green Ratio (g Capacity (c), v Volume-to-Capa	Time(g learance t/C) veh/h acity Ra	w Rate ( <i>s</i> ), veh/h// <i>g</i> s), s e Time ( <i>g</i> c), s itio ( <i>X</i> )		1647 7.6 7.6 0.05 83 1.224	1647 10.7 10.7 0.53 1748 0.347		1674 8.0 8.0 0.05 90 0.986	1730 10.9 10.9 0.53 918 0.353	<ul> <li>1693</li> <li>11.0</li> <li>11.0</li> <li>0.53</li> <li>898</li> <li>0.354</li> </ul>	1652 26.1 26.1 0.21 678 0.874	1374 20.7 20.7 0.21 282 0.721		1447 3.6 3.6 0.07 104 0.354	1730 5.0 5.0 0.07 125 0.479	
Queue Service Cycle Queue C Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue	Time ( <u>c</u> learance t/C ) veh/h acity Ra ( Q ), ft/	w Rate ( <i>s</i> ), veh/h// <i>g s</i> ), s e Time ( <i>g c</i> ), s atio ( <i>X</i> ) /In ( 50 th percentile)		1647 7.6 7.6 0.05 83 1.224 184.6	1647 10.7 0.53 1748 0.347 94.6		1674 8.0 8.0 0.05 90 0.986 143.4	1730 10.9 0.53 918 0.353 104.7	<ul> <li>1693</li> <li>11.0</li> <li>11.0</li> <li>0.53</li> <li>898</li> <li>0.354</li> <li>114.7</li> </ul>	1652 26.1 26.1 0.21 678 0.874 286.5	1374 20.7 20.7 0.21 282 0.721 212.5		1447 3.6 3.6 0.07 104 0.354 39.7	1730 5.0 5.0 0.07 125 0.479 58.2	
Queue Service Cycle Queue C Green Ratio ( <i>g</i> Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue Back of Queue	Time ( <u>c</u> learance l/C ) veh/h acity Ra ( Q ), ft/ ( Q ), ve	w Rate ( $s$ ), veh/h/ $g_s$ ), s e Time ( $g_c$ ), s atio ( $X$ ) /In (50 th percentile) eh/In (50 th percent	e) tile)	1647 7.6 7.6 0.05 83 1.224 184.6 7.1	1647 10.7 0.53 1748 0.347 94.6 3.6		1674 8.0 0.05 90 0.986 143.4 5.6	1730 10.9 10.9 0.53 918 0.353 104.7 4.0	<ul> <li>1693</li> <li>11.0</li> <li>11.0</li> <li>0.53</li> <li>898</li> <li>0.354</li> <li>114.7</li> <li>4.0</li> </ul>	1652 26.1 26.1 0.21 678 0.874 286.5 11.4	1374 20.7 20.7 0.21 282 0.721 212.5 7.3		1447 3.6 3.6 0.07 104 0.354 39.7 1.4	1730 5.0 5.0 0.07 125 0.479 58.2 2.2	
Queue Service Cycle Queue C Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage	Time ( <u>c</u> learance t/C ) veh/h acity Ra ( Q ), ft/ ( Q ), ve Ratio (	by Rate ( $s$ ), veh/h/ gs), s e Time ( $gc$ ), s attic ( $X$ ) /In (50 th percentile) eh/In (50 th percent RQ) (50 th percent	e) tile)	1647 7.6 0.05 83 1.224 184.6 7.1 0.00	1647 10.7 0.53 1748 0.347 94.6 3.6 0.00		1674 8.0 0.05 90 0.986 143.4 5.6 0.00	1730 10.9 0.53 918 0.353 104.7 4.0	<ul> <li>1693</li> <li>11.0</li> <li>11.0</li> <li>0.53</li> <li>898</li> <li>0.354</li> <li>114.7</li> <li>4.0</li> <li>0.00</li> </ul>	1652 26.1 26.1 0.21 678 0.874 286.5 11.4 0.00	1374 20.7 20.7 282 0.721 212.5 7.3 0.00		1447 3.6 3.6 0.07 104 0.354 39.7 1.4 0.00	1730 5.0 0.07 125 0.479 58.2 2.2 0.00	
Queue Service Cycle Queue C Green Ratio ( g Capacity ( c ), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay (	Time ( <u>c</u> learance t/C ) /eh/h acity Ra ( Q ), ft/ ( Q ), ve Ratio ( ( d 1 ), s/	by Rate ( $s$ ), veh/h/ gs), s e Time ( $gc$ ), s attic ( $X$ ) /In (50 th percentile) eh/In (50 th percent RQ) (50 th percent /veh	e) tile)	1647 7.6 0.05 83 1.224 184.6 7.1 0.00 69.9	1647 10.7 0.53 1748 0.347 94.6 3.6 0.00 12.0		1674 8.0 0.05 90 0.986 143.4 5.6 0.00 69.5	1730 10.9 0.53 918 0.353 104.7 4.0 0.00 12.0	1693           11.0           11.0           0.53           898           0.354           114.7           4.0           0.00           11.9	1652 26.1 26.1 0.21 678 0.874 286.5 11.4 0.00 57.7	1374 20.7 20.7 0.21 282 0.721 212.5 7.3 0.00 55.6		1447 3.6 3.6 0.07 104 0.354 39.7 1.4 0.00 66.3	1730 5.0 0.07 125 0.479 58.2 2.2 0.00 66.9	
Queue Service Cycle Queue C Green Ratio ( g Capacity ( c ), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De	Time ( <u>c</u> learance t/C ) /eh/h acity Ra ( Q ), ft/ ( Q ), ve Ratio ( ( d 1 ), s/ lay ( d 2	w Rate ( $s$ ), veh/h/ gs), s e Time ( $gc$ ), s attic ( $X$ ) /In (50 th percentile) eh/In (50 th percentile) RQ) (50 th percent /veh	e) tile)	1647 7.6 0.05 83 1.224 184.6 7.1 0.00 69.9 170.5	1647 10.7 10.7 0.53 1748 0.347 94.6 3.6 0.00 12.0 0.5		1674 8.0 0.05 90 0.986 143.4 5.6 0.00 69.5 89.6	1730 10.9 0.53 918 0.353 104.7 4.0 0.00 12.0 1.1	1693           11.0           11.0           0.53           898           0.354           114.7           4.0           0.00           11.9           11.9	1652 26.1 26.1 0.21 678 0.874 286.5 11.4 0.00 57.7 5.7	1374 20.7 20.7 0.21 282 0.721 212.5 7.3 0.00 55.6 2.1		1447 3.6 0.07 104 0.354 39.7 1.4 0.00 66.3 0.8	1730 5.0 0.07 125 0.479 58.2 2.2 0.00 66.9 1.1	
Queue Service Cycle Queue C Green Ratio ( g Capacity ( c ), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De	Time ( <u>c</u> learance //C ) /eh/h acity Ra ( Q ), ft/ ( Q ), ve Ratio ( ( d 1 ), s/ ilay ( d 2 elay ( d	by Rate ( $s$ ), veh/h/ g s), s e Time ( $g c$ ), s attice ( $X$ ) //In (50 th percentile) eh/In (50 th percentile) eh/In (50 th percentile) RQ) (50 th percentile) Q), s/veh s), s/veh	e) tile)	1647 7.6 0.05 83 1.224 184.6 7.1 0.00 69.9 170.5 0.0	1647 10.7 10.7 0.53 1748 0.347 94.6 3.6 0.00 12.0 0.5 0.0		1674 8.0 0.05 90 0.986 143.4 5.6 0.00 69.5 89.6 0.0	1730 10.9 0.53 918 0.353 104.7 4.0 0.00 12.0 1.1 0.0	1693           11.0           11.0           0.53           898           0.354           114.7           4.0           0.00           11.9           1.1.9           0.11.9           0.00	1652 26.1 26.1 0.21 678 0.874 286.5 11.4 0.00 57.7 5.7 0.0	1374 20.7 20.7 282 0.721 212.5 7.3 0.00 55.6 2.1 0.0		1447 3.6 0.07 104 0.354 39.7 1.4 0.00 66.3 0.8 0.0	1730 5.0 0.07 125 0.479 58.2 2.2 0.00 66.9 1.1 0.0	
Queue Service Cycle Queue C Green Ratio ( g Capacity ( c ), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay (	Time ( <u>c</u> learance //C ) /eh/h acity Ra ( Q ), ft/ ( Q ), ve Ratio ( ( d 1 ), s/ elay ( d 2 elay ( d d ), s/ve	by Rate ( $s$ ), veh/h/ g s), s e Time ( $g c$ ), s attic ( $X$ ) /In (50 th percentile) eh/In (50 th percentile) eh/In (50 th percentile) RQ) (50 th percent RQ) (50 th percent s), s/veh s), s/veh eh	e) tile)	1647 7.6 0.05 83 1.224 184.6 7.1 0.00 69.9 170.5 0.0 240.4	1647 10.7 0.53 1748 0.347 94.6 3.6 0.00 12.0 0.5 0.0 12.6		1674 8.0 0.05 90 0.986 143.4 5.6 0.00 69.5 89.6 0.0 159.2	1730 10.9 0.53 918 0.353 104.7 4.0 0.00 12.0 1.1 0.0 13.1	1693           11.0           11.0           0.53           898           0.354           114.7           4.0           0.00           11.9           1.1           0.0           11.9           1.1	1652 26.1 0.21 678 0.874 286.5 11.4 0.00 57.7 5.7 0.0 63.4	1374 20.7 0.21 282 0.721 212.5 7.3 0.00 55.6 2.1 0.0 57.8		1447 3.6 3.6 0.07 104 0.354 39.7 1.4 0.00 66.3 0.8 0.0 67.0	1730 5.0 0.07 125 0.479 58.2 2.2 0.00 66.9 1.1 0.0 67.9	
Queue Service Cycle Queue C Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service	Time ( $\underline{c}$ learance $\sqrt{C}$ ) veh/h acity Ra (Q), ft/ (Q), ve Ratio ( ( $d_1$ ), s/ elay ( $d_2$ elay ( $d_2$ elay ( $d_3$ ), s/ve e (LOS)	by Rate ( $s$ ), veh/h/ g s), s e Time ( $g c$ ), s atio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percent RQ) (50 th percent s), s/veh s), s/veh eh	e) tile)	1647 7.6 0.05 83 1.224 184.6 7.1 0.00 69.9 170.5 0.0 240.4 F	1647 10.7 0.53 1748 0.347 94.6 3.6 0.00 12.0 0.5 0.0 12.6 B		1674 8.0 0.05 90 0.986 143.4 5.6 0.00 69.5 89.6 0.0 159.2 F	1730 10.9 0.53 918 0.353 104.7 4.0 0.00 12.0 1.1 0.0 13.1 B	<ul> <li>1693</li> <li>110</li> <li>11.0</li> <li>0.53</li> <li>898</li> <li>0.354</li> <li>114.7</li> <li>4.0</li> <li>0.00</li> <li>11.9</li> <li>1.1</li> <li>0.0</li> <li>13.0</li> <li>B</li> </ul>	1652 26.1 0.21 678 0.874 286.5 11.4 0.00 57.7 5.7 0.0 63.4 E	1374 20.7 0.21 282 0.721 212.5 7.3 0.00 55.6 2.1 0.0 57.8 E		1447 3.6 3.6 0.07 104 0.354 39.7 1.4 0.00 66.3 0.8 0.0 67.0 E	1730 5.0 0.07 125 0.479 58.2 2.2 0.00 66.9 1.1 0.0 67.9 E	
Queue Service Cycle Queue C Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service Approach Delay	Time ( $\underline{c}$ learance t/C) veh/h acity Ra ( $Q$ ), ft/ ( $Q$ ), ve Ratio ( $(d_1)$ , si- lay ( $d_2$ elay ( $d_2$ elay ( $d_3$ ), si- ve e (LOS) y, si/veh	by Rate ( $s$ ), veh/h/ g s), s e Time ( $g c$ ), s atio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ)	e) tile)	1647 7.6 0.05 83 1.224 184.6 7.1 0.00 69.9 170.5 0.0 240.4	1647 10.7 0.53 1748 0.347 94.6 3.6 0.00 12.0 0.5 0.0 12.6 B		1674 8.0 8.0 0.05 90 0.986 143.4 5.6 0.00 69.5 89.6 0.0 159.2 F 30.9	1730 10.9 0.53 918 0.353 104.7 4.0 0.00 12.0 1.1 0.0 13.1 B	1693           11.0           11.0           0.53           898           0.354           114.7           4.0           0.00           11.9           1.1           0.0           11.9           1.1	1652 26.1 0.21 678 0.874 286.5 11.4 0.00 57.7 5.7 0.0 63.4	1374 20.7 0.21 282 0.721 212.5 7.3 0.00 55.6 2.1 0.0 57.8 E	E	1447 3.6 3.6 0.07 104 0.354 39.7 1.4 0.00 66.3 0.8 0.0 67.0 E 67.0	1730 5.0 0.07 125 0.479 58.2 2.2 0.00 66.9 1.1 0.0 67.9 E	
Queue Service Cycle Queue C Green Ratio ( g Capacity ( c ), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service Approach Delay	Time ( $\underline{c}$ learance t/C) veh/h acity Ra ( $Q$ ), ft/ ( $Q$ ), ve Ratio ( $(d_1)$ , si- lay ( $d_2$ elay ( $d_2$ elay ( $d_3$ ), si- ve e (LOS) y, si/veh	by Rate ( $s$ ), veh/h/ g s), s e Time ( $g c$ ), s atio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ)	e) tile)	1647 7.6 0.05 83 1.224 184.6 7.1 0.00 69.9 170.5 0.0 240.4 F	1647 10.7 0.53 1748 0.347 94.6 3.6 0.00 12.0 0.5 0.0 12.6 B		1674 8.0 0.05 90 0.986 143.4 5.6 0.00 69.5 89.6 0.0 159.2 F	1730 10.9 0.53 918 0.353 104.7 4.0 0.00 12.0 1.1 0.0 13.1 B	<ul> <li>1693</li> <li>110</li> <li>11.0</li> <li>0.53</li> <li>898</li> <li>0.354</li> <li>114.7</li> <li>4.0</li> <li>0.00</li> <li>11.9</li> <li>1.1</li> <li>0.0</li> <li>13.0</li> <li>B</li> </ul>	1652 26.1 0.21 678 0.874 286.5 11.4 0.00 57.7 5.7 0.0 63.4 E	1374 20.7 0.21 282 0.721 212.5 7.3 0.00 55.6 2.1 0.0 57.8 E		1447 3.6 3.6 0.07 104 0.354 39.7 1.4 0.00 66.3 0.8 0.0 67.0 E	1730 5.0 0.07 125 0.479 58.2 2.2 0.00 66.9 1.1 0.0 67.9 E	
Queue Service Cycle Queue C Green Ratio ( g Capacity ( c ), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service Approach Delay	Time ( $g$ learance t/C) veh/h acity Ra (Q), ft/ (Q), ve Ratio ( ( $d_1$ ), s/ elay ( $d_2$ elay ( $d_3$ ), s/ve e (LOS) y, s/veh lay, s/veh	by Rate ( $s$ ), veh/h/ g s), s e Time ( $g c$ ), s atio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ)	e) tile)	1647 7.6 0.05 83 1.224 184.6 7.1 0.00 69.9 170.5 0.0 240.4 F	1647 10.7 0.53 1748 0.347 94.6 3.6 0.00 12.0 0.5 0.0 12.6 B		1674 8.0 8.0 0.05 90 0.986 143.4 5.6 0.00 69.5 89.6 0.0 159.2 F 30.9	1730 10.9 0.53 918 0.353 104.7 4.0 0.00 12.0 1.1 0.0 13.1 B	<ul> <li>1693</li> <li>110</li> <li>11.0</li> <li>0.53</li> <li>898</li> <li>0.354</li> <li>114.7</li> <li>4.0</li> <li>0.00</li> <li>11.9</li> <li>1.1</li> <li>0.0</li> <li>13.0</li> <li>B</li> </ul>	1652 26.1 0.21 678 0.874 286.5 11.4 0.00 57.7 5.7 0.0 63.4 E	1374 20.7 0.21 282 0.721 212.5 7.3 0.00 55.6 2.1 0.0 57.8 E		1447 3.6 3.6 0.07 104 0.354 39.7 1.4 0.00 66.3 0.8 0.0 67.0 E 67.0	1730 5.0 0.07 125 0.479 58.2 2.2 0.00 66.9 1.1 0.0 67.9 E	
Queue Service Cycle Queue C Green Ratio ( g Capacity ( c ), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service Approach Delay Intersection Delay	Time ( $g$ learance t/C) veh/h acity Ra (Q), ft/ (Q), ve Ratio ( ( $d_1$ ), s/ elay ( $d_2$ elay ( $d_2$ elay ( $d_2$ elay ( $d_3$ , s/ve e (LOS) y, s/veh lay, s/ve sults	by Rate ( $s$ ), veh/h/ g s), s e Time ( $g c$ ), s atio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ)	e) tile)	1647 7.6 0.05 83 1.224 184.6 7.1 0.00 69.9 170.5 0.0 240.4 F	1647 10.7 0.53 1748 0.347 94.6 3.6 0.00 12.0 0.5 0.0 12.6 B 4 EB		1674 8.0 8.0 0.05 90 0.986 143.4 5.6 0.00 69.5 89.6 0.0 159.2 F 30.9	1730 10.9 0.53 918 0.353 104.7 4.0 0.00 12.0 1.1 0.0 13.1 B	<ul> <li>1693</li> <li>110</li> <li>11.0</li> <li>0.53</li> <li>898</li> <li>0.354</li> <li>114.7</li> <li>4.0</li> <li>0.00</li> <li>11.9</li> <li>1.1</li> <li>0.0</li> <li>13.0</li> <li>B</li> </ul>	1652 26.1 0.21 678 0.874 286.5 11.4 0.00 57.7 5.7 0.0 63.4 E	1374 20.7 0.21 282 0.721 212.5 7.3 0.00 55.6 2.1 0.0 57.8 E 0.0 0.0 0.0 0.0 0.0 0.0 0.0		1447 3.6 3.6 0.07 104 0.354 39.7 1.4 0.00 66.3 0.8 0.0 67.0 E 67.0	1730 5.0 0.07 125 0.479 58.2 2.2 0.00 66.9 1.1 0.0 67.9 E 5	D

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HCS7™ Streets Version 7.4

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### EXHIBIT 29 YEAR 2021 PEAK PM HOUR TRAFFIC – Industrial/Sandford Fleming

		HCS	67 Sig	nalize	d Int	erse	ction F	Resu	lts Su	nmar	у				
General Inform	ation								Intersec	tion Inf	ormatic	n		* 1 * 1	J. L
	auon										0.25	511	- 1	τĻ	
Agency						1.		$\rightarrow$	Duration				-		
Analyst							14, 2018		Area Typ	be	Other	-			*
Jurisdiction				Time F		_	PM Hou		PHF		0.92			wite	-
Urban Street		200, 230 & 260 Str		Analys					Analysis	Period	1> 7:(	00	7		
Intersection		Sandford/Industrial		File Na	ame	2021	_tot_pm	.xus						<u> ነነ</u> የ	
Project Descript	tion	OTY Residential De	evelopm	ent									b	4144	14
Demand Inform	nation				EB			W	В		NB			SB	
Approach Move				L	Т	R	L	Т	R	L	Т	R	L	T	R
Demand $(v)$ , v				83	767	_	121	96	_	732		86	57	116	
	011/11				101			00	0 20	102	10	00	01	110	
Signal Informa	tion						ZI I.								L
Cycle, s	150.0	Reference Phase	2	1	F <sup>2</sup>		<b>-</b>		·12		Ľ	<u> </u>	→		Þ
Offset, s	0	Reference Point	Begin	0	0.4		40.4			-		1	2	3	
Uncoordinated	No	Simult. Gap E/W	Off	Green		66.0 3.7	) 13.4 3.3	37. 3.3		0.0		7	4		r†.
Force Mode	Float	Simult. Gap N/S	Off	Red	2.2	2.7	3.1	2.7		0.0		Б	6	7	Y
Timer Results				EBI	-	EBT	WB	L	WBT	NB	L	NBT	SBI	-	SBT
Assigned Phase	Э			5		2	1		6			8			4
Case Number				2.0		4.0	2.0		4.0			10.0			10.0
Phase Duration	, s			14.0	)	72.4	14.0	) (	72.4			43.9			19.8
Change Period,	(Y+R	c), S		6.4		6.4	5.9	,	6.4			6.0			6.4
Max Allow Head				3.1		0.0	3.1		0.0			3.2			3.1
Queue Clearan		<i>,</i> ,,		10.3	3		11.					37.3			13.2
Green Extensio				0.0	_	0.0	0.0		0.0			0.6			0.2
Phase Call Prot		(3-7,-		0.98			1.0	_				1.00			1.00
Max Out Proba				1.00	)		1.0	2				1.00			0.00
	·														
Movement Gro	up Res	ults			EB			WB			NB			SB	
Approach Move	ment			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Move	ment			5	2		1	6	16	3	8	18	7	4	
Adjusted Flow F	Rate ( <i>v</i>	), veh/h		90	834		132	542	535	796	173		62	126	
Adjusted Satura	ation Flo	ow Rate ( s ), veh/h/	'ln	1621	1674		1701	1772	2 1749	1652	1473		1581	1660	
Queue Service	Time ( g	gs), s		8.3	22.6		9.1	31.4	31.4	35.3	14.8		5.5	11.2	
Cycle Queue C	learanc	e Time ( <i>g c</i> ), s		8.3	22.6		9.1	31.4	31.4	35.3	14.8		5.5	11.2	
Green Ratio (g	/C)			0.06	0.45		0.06	0.45	0.45	0.26	0.26		0.10	0.10	
Capacity (c), v	eh/h			93	1494		103	791	781	856	382		151	159	
Volume-to-Capa	acity Ra	itio (X)		0.971	0.558		1.275	0.68	5 0.685	0.929	0.453		0.410	0.794	
		In ( 50 th percentile	)	146	211		227	322.3	3 363.7	412.7	147.6		60.9	131.4	
		eh/In ( 50 th percent		5.5	8.2		9.0	12.7		16.4	5.5		2.3	4.9	
		RQ) (50 th percen		0.00	0.00		0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (	d 1), s	/veh		69.1	21.6		68.9	23.4	23.2	54.2	46.6		63.8	66.4	
Incremental De				83.2	1.5		179.3	4.8	4.9	15.3	0.3		0.7	3.4	
Initial Queue De				0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (	d ), s/ve	eh		152.3	23.1		248.3	28.2	28.0	69.6	46.9		64.5	69.7	
Level of Service	e (LOS)			F	С		F	С	С	E	D		E	E	
Approach Delay	, s/veh	/LOS		35.7	7	D	52.	1	D	65.5	5	E	68.0	)	E
Intersection Del							52.4						D		
Multimodal Re	sults				EB			WB			NB			SB	
Multimodal Ite						0		-	-			0	0.04		D
Pedestrian LOS	Score	/LOS		2.66	<u>j</u>	С	2.2	/	В	2.97		С	3.64		D

### EXHIBIT 30 YEAR 2027 PEAK AM HOUR TRAFFIC – Industrial/Sandford Fleming

		HCS	67 Sig	nalize	ed Int	tersed	ction F	Resu	lts Sur	nmar	у				
General Inform	ation								Intersec	tion Inf	ormatic			4.741	ъų
	auon							$\rightarrow$			0.25	511	- 1	ţι	
Agency				A			4 0040		Duration	,			-		
Analyst						_	4, 2018		Area Typ	e	Other		<u> </u>		*
Jurisdiction				Time F		_	AM Hou		PHF		0.92			wite	-
Urban Street		200, 230 & 260 Str		Analys				_	Analysis	Period	1> 7:0	00	1		
Intersection		Sandford/Industrial		File Na	ame	2027	_tot_am	xus						111	1
Project Descript	tion	OTY Residential De	evelopm	ent										4144	1× 1*
Demand Inform	nation				EB			VVE	3	1	NB			SB	
Approach Move	ement			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), v				105	592	_	87	59	_	578	101	97	51	68	
											101				
Signal Informa	tion						<u> </u>								
Cycle, s	150.0	Reference Phase	2		F'	∕⊣→ `		1	<u>т</u> и		K	_	→		Þ
Offset, s	0	Reference Point	Begin	Green	7 1	76.9	10.0	31.4	17 <b>1</b> 4 0.0	0.0		1	2	3	-
Uncoordinated	No	Simult. Gap E/W	Off	Yellow		3.7	3.3	3.3		0.0	_	7	4		к†з
Force Mode	Float	Simult. Gap N/S	Off	Red	2.2	2.7	3.1	2.7	0.0	0.0		5	6	7	Y
Timer Results				EBI	-	EBT	WB	L	WBT	NB	L	NBT	SBI	-	SBT
Assigned Phase	e			5		2	1		6			8			4
Case Number				2.0		4.0	2.0		4.0			10.0			10.0
Phase Duration	, s			13.0	)	83.3	13.0	)	83.3		:	37.4			16.4
Change Period,	( Y+R	c), S		6.4		6.4	5.9		6.4			6.0			6.4
Max Allow Head	dway(/	ИАН ), s		3.1		0.0	3.1		0.0			3.2			3.1
Queue Clearan	ce Time	e ( g s ), s		9.6			10.1	1				29.6			8.2
Green Extensio		(ge),s		0.0		0.0	0.0		0.0			1.8			0.1
Phase Call Prob	bability			0.99	)		0.98	3			_	1.00			1.00
Max Out Probal	bility			1.00			1.00	)				0.03			0.00
Movement Gro	up Res	ults			EB			WB		_	NB			SB	
Approach Move				L	Т	R	L	Т	R	L	T	R	L	T	R
Assigned Move				5	2		1	6	16	3	8	18	7	4	
Adjusted Flow F		) veh/h	_	114	643		95	347	339	628	215		55	74	
,		ow Rate (s), veh/h/	In	1647	1647		1674	1730		1652	1374		1447	1730	-
Queue Service		<b>X 1</b>		7.6	12.2	_	8.1	12.6		27.6	21.8		5.5	6.2	
Cycle Queue Cl				7.6	12.2		8.1	12.6		27.6	21.8		5.5	6.2	
Green Ratio ( g		e nine (gc), s		0.05	0.52		0.05	0.52		0.22	0.22		0.07	0.2	
Capacity ( c ), v	,			83	1709		90	898	875	713	297		106	126	
Volume-to-Capa		tio (X)		1.367	0.376		1.046		6,0	0.881			0.525	0.585	
i	,	/In ( 50 th percentile)	)	217.1	107.6	_	156.3		_	306.1	225.9		60.6	72.8	
		eh/In ( 50 th percent		8.3	4.1		6.1	4.6	4.5	12.1	7.8		2.1	2.8	
		RQ) (50 th percen		0.00	0.00		0.00	0.00	_	0.00	0.00		0.00	0.00	
Uniform Delay (			,	69.9	13.2		69.6	13.2	_	56.9	54.7		67.0	67.3	
Incremental De				224.4	0.6		107.7	1.3	1.3	6.8	3.0		1.5	1.6	
Initial Queue De	elay ( d	з ), <b>s/veh</b>		0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (	d ), s/ve	eh		294.4	13.8		177.3	14.5	14.4	63.7	57.6		68.5	68.9	
Level of Service	e (LOS)			F	В		F	В	В	E	E		E	E	
Approach Delay	, s/veh	/LOS		56.1		E	34.2	2	С	62.2	2	E	68.7	7	E
Intersection Del	ay, s/ve	eh / LOS				5	2.0						D		
	It-				EB			WB			NB			SB	
Multimodal Re						-						-			
Multimodal Re Pedestrian LOS Bicycle LOS Sc	Score			2.62		C B	2.2		B B	2.82	_	C C	3.58 1.77		D B

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### EXHIBIT 31 YEAR 2027 PEAK PM HOUR TRAFFIC – Industrial/Sandford Fleming

		HCS	7 Sig	nalize	ed Int	ersec	tion F	Resul	ts Sur	nmar	у				
General Inform	ation								Intersec	tion Inf	ormatic	'n		* 1 * 1	Ъų
	ation										0.25	211	- 1	ţζ	
Agency				A	i. D. t	1	4 0040		Duration				-		
Analyst						Jun 1			Area Typ	e	Other		<u> </u>		*
Jurisdiction				Time F			PM Hou		PHF		0.92				-
Urban Street		200, 230 & 260 Str			sis Year			_	Analysis	Period	1> 7:0	00	1		
Intersection		Sandford/Industrial		File Na	ame	2027	_tot_pm	.xus						111	
Project Descripti	ion	OTY Residential De	evelopm	ent									1	4144	1
Demand Inform	nation				EB			WE	3		NB			SB	
Approach Mover	ment			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), ve				102	814	-	128	102	_	777	82	91	70	125	
Signal Informat	tion						<u> </u>					_			
Cycle, s	150.0	Reference Phase	2		Ρe	- → `		7	17		<b>×</b>		→ .		4
Offset, s	0	Reference Point	Begin	Croon	0 1	64.0	14.2			0.0	_	1	2	3	
Uncoordinated	No	Simult. Gap E/W	Off	Green Yellow		64.0 3.7	3.3	39.0	0.0	0.0		7	4		кŤ
Force Mode	Float	Simult. Gap N/S	Off	Red	2.2	2.7	3.1	2.7	0.0	0.0		5	6	7	Y
Timer Results				EBI	-	EBT	WB	L	WBT	NBI	L	NBT	SBI	-	SBT
Assigned Phase	)			5		2	1		6			8			4
Case Number				2.0		4.0	2.0		4.0			10.0			10.0
Phase Duration,	S			14.0	)	70.4	14.0	)	70.4		· · ·	45.0			20.6
Change Period,	(Y+R a	c), S		6.4		6.4	5.9		6.4			6.0			6.4
Max Allow Head	way ( A	//AH ), s		3.1		0.0	3.1		0.0			3.2			3.1
Queue Clearanc				10.6	3		11.1					39.8			14.0
Green Extensior				0.0		0.0	0.0		0.0			0.0			0.2
Phase Call Prob	ability			0.99	9		1.00	)				1.00			1.00
Max Out Probab				1.00	)		1.00	)				1.00			0.00
				_						_					
Movement Grou		ults			EB			WB			NB	-		SB	
Approach Mover				L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Mover	ment			5	2		1	6	16	3	8	18	7	4	
Adjusted Flow R	Rate ( v	), veh/h		111	885		139	584	574	845	188		76	136	
Adjusted Satura	tion Flo	w Rate ( s ), veh/h/	In	1621	1674		1701	1772	1739	1652	1478		1581	1660	
Queue Service 1	Time ( g	ys), s		8.6	25.9		9.1	37.3	37.3	37.8	16.0		6.8	12.0	
Cycle Queue Cle	earance	e Time ( <i>g c</i> ), s		8.6	25.9		9.1	37.3	37.3	37.8	16.0		6.8	12.0	
Green Ratio (g/	(C)			0.06	0.43		0.06	0.43	0.43	0.27	0.27		0.10	0.10	
Capacity ( c ), ve	eh/h			93	1449		103	767	753	881	394		161	169	
Volume-to-Capa	,	· · ·		1.193			1.348		_	0.959	0.477		0.474	0.805	
Back of Queue (	(Q), ft/	In ( 50 th percentile)	)	197.3	245.6		247.5	394.4	443.1	456.2	160.6		75	143.4	
Back of Queue (	(Q), ve	eh/In ( 50 th percent	ile)	7.5	9.6		9.8	15.5	15.3	18.1	5.9		2.8	5.3	
Queue Storage	Ratio (	RQ) (50 th percen	tile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (	d 1), s/	/veh		69.3	23.7		68.9	26.2	25.9	54.2	46.2		63.6	65.9	
Incremental Dela	ay ( d 2	), s/veh		154.3	1.9		207.7	7.0	7.2	20.7	0.3		0.8	4.9	
1 W 10 D	lay ( d	3), s/veh		0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Initial Queue De	d), s/ve	eh		223.6	25.6		276.6	33.2	33.0	74.9	46.5		64.4	70.8	
				F	С		F	С	С	Е	D		E	E	
Control Delay (	(LOS)			47 -	7	D	59.2	2	E	69.8	3	E	68.5	5	E
Control Delay ( a	. ,	/LOS		47.7									-		
Initial Queue De Control Delay ( Level of Service Approach Delay, Intersection Dela	, s/veh			47.7		59	9.6						E		
Control Delay ( d Level of Service Approach Delay, Intersection Dela	, s/veh ay, s/ve			47.7		59	9.6						E		
Control Delay ( d Level of Service Approach Delay, Intersection Dela Multimodal Res	, s/veh ay, s/ve sults	h / LOS			EB			WB			NB			SB	
Control Delay ( d Level of Service Approach Delay, Intersection Dela	, s/veh ay, s/ve sults	h / LOS		2.67	EB	59 C	9.6 2.30	_	В	3.02	_	С	E 3.66	_	D

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### EXHIBIT 32 YEAR 2031 PEAK AM HOUR TRAFFIC – Industrial/Sandford Fleming

		HCS	7 Sig	nalize	d Int	tersec	tion F	Resu	lts Su	mmar	у				
General Informa	ation								Intersed	tion Inf	ormatic	n n	1 12	4.J.4 1	F L
	ation										0.25	л	- 1	ţί	
Agency				A	in Dat		4 0040	_	Duration						
Analyst						_	4, 2018		Area Ty	pe	Other				*
Jurisdiction				Time F		_	AM Hou	ır	PHF		0.92			w t t	-
Urban Street		200, 230 & 260 Stre	eamli	Analys		_			Analysis	Period	1> 7:0	00	7		
Intersection		Sandford/Industrial		File Na	ame	2031	_tot_am	.xus						11 1	
Project Description	on	OTY Residential De	evelopm	ent									h	1 1 4 Y	* (*
Demand Inform	ation				EB			W	B		NB			SB	
Approach Moven	nent			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), ve				111	616	_	90	61	_	602	108	101	50	68	
Signal Informati					1		E IL								
Cycle, s	150.0	Reference Phase	2		F. "	_→		5	17		Ľ		→ <u>,</u>	3	+=
Offset, s	0	Reference Point	Begin	Green	7.1	75.7	10.0	32		0.0			K		
Uncoordinated	No	Simult. Gap E/W	Off	Yellow		3.7	3.3	3.3		0.0		~			×12
Force Mode	Float	Simult. Gap N/S	Off	Red	2.2	2.7	3.1	2.7		0.0		5	6	7	<u> </u>
<b>T D H</b>												NET	0.5		0.07
Timer Results				EBI	-	EBT	WB	L	WBT	NB		NBT	SBI	-	SBT
Assigned Phase				5	_	2	1	-	6			8			4
Case Number				2.0		4.0	2.0		4.0		_	10.0	<u> </u>	_	10.0
Phase Duration,		<u>``</u>		13.0 6.4	,	82.1	13.0		82.1	<u> </u>		38.6	<u> </u>	_	16.4
-	ange Period, ( Y+R c ), s x Allow Headway ( MAH ), s					6.4	5.9	_	6.4		_	6.0	<u> </u>	_	6.4
	• • •					0.0	3.1	_	0.0	<u> </u>		3.2	<u> </u>		3.1
	en Extension Time $(g_s)$ , s en Extension Time $(g_s)$ , s					0.0	10. <sup>4</sup>	_	0.0		-	30.8 1.8			8.2 0.1
Phase Call Proba		(ge),s		0.0		0.0	0.98		0.0			1.00	<u> </u>		1.00
Max Out Probabi				1.00	_		1.00	_				0.05		_	0.00
Wax Out Frobabl	iiity			1.00	,		1.00	5				0.05			0.00
Movement Grou	up Res	ults			EB			WB			NB			SB	
Approach Moven	nent			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Mover	nent			5	2		1	6	16	3	8	18	7	4	
Adjusted Flow Ra	ate ( v	), veh/h		121	670		98	360	352	654	227		54	74	
Adjusted Saturat	ion Flo	w Rate ( s ), veh/h/l	n	1647	1647		1674	1730	1688	1652	1376		1447	1730	
Queue Service T	īme ( g	g s ), s		7.6	13.3		8.1	13.8	13.8	28.8	23.0		5.4	6.2	
Cycle Queue Cle	earance	e Time ( $g$ $_{c}$ ), s		7.6	13.3		8.1	13.8	13.8	28.8	23.0		5.4	6.2	
Green Ratio ( g/0	C)			0.05	0.51		0.05	0.51	0.51	0.22	0.22		0.07	0.07	
Capacity (c), ve	eh/h			83	1684		90	884	863	739	308		106	126	
Volume-to-Capao	,	( )		1.445	0.398		1.082	0.40	_				0.514	0.585	
Back of Queue (	Q ), ft/	In ( 50 th percentile)	)	235.7	117		163.4	130.	6 142.7	320.3	240.4		59.4	72.8	
Back of Queue (	ick of Queue (Q), while of the percentate)			9.1	4.5		6.4	5.0	4.9	12.7	8.3		2.0	2.8	
Queue Storage F	Ratio (	RQ) (50 th percent	tile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay ( a	iform Delay ( $d \tau$ ), s/veh			69.9	14.0		69.6	14.0	) 13.9	56.4	54.1		67.0	67.3	
Incremental Dela				255.4	0.7		118.6	1.4		7.6	3.9		1.4	1.6	
Initial Queue Del		· ·		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay ( d		eh		325.3	14.7		188.2	15.4	_	64.0	58.0		68.4	68.9	
Level of Service	· /			F	В		F	B	В	E	E		E	E	
Approach Delay,				62.1		E	36.2	2	D	62.4	4	E	68.7	7	E
Intersection Dela	iy, s/ve	h / LOS				5	4.5						D		
Multimodal Res	ulte				EB			WE			NB			SB	
Pedestrian LOS		/1.05		2.63	_	С	2.28	_	B	2.8	_	С	3.56	_	D
Bicycle LOS Sco				2.03		В	2.2	_	B	3.0		C	1.77		B
		y of Florida, All Rights	Reserve				<sup>™</sup> Streets	_		3.0			ed: 6/15/2		

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### **EXHIBIT 33** YEAR 2031 PEAK PM HOUR TRAFFIC – Industrial/Sandford Fleming

		HCS	7 Sig	nalize	d Int	ersec	tion F	lesu	lts Sur	nmar	у				
General Inform	ation								Intersec	tion Inf	ormatic	20		4741	b L
	auon							$\rightarrow$			0.25	511	- 1	ţι	
Agency				A	in Date		4 0040	$\rightarrow$	Duration	,			-		
Analyst						Jun 1			Area Typ	e	Other	-	<u> </u>		*
Jurisdiction				Time F			PM Hou		PHF	<b>D</b> · · ·	0.92				*
Urban Street		200, 230 & 260 Str		· ·	sis Year			_	Analysis	Period	1> 7:0	00			
Intersection		Sandford/Industrial		File Na	ame	2031	_tot_pm	xus						<u>ነነ</u> ት	
Project Descript	tion	OTY Residential De	evelopm	ent										4 † 4 Y	11
Demand Inform	nation				EB			W	3		NB			SB	
Approach Move	ment			L	Т	R	L	Т	R	L	Т	R	L	Т	F
Demand (v), v				115	847		134	106	_	808	88	95	63	126	<u> </u>
								i, a		1.0				in a state	
Signal Informa	tion				1		E IL								L.
Cycle, s	150.0	Reference Phase	2		F " "	<b>-⊢</b> `		5	17		Ľ		→ .		Þ
Offset, s	0	Reference Point	Begin	Green	81	63.9	14.3	39.		0.0		1	2	3	
Uncoordinated	No	Simult. Gap E/W	Off	Yellow		3.7	3.3	3.3		0.0		7			ĸ
Force Mode	Float	Simult. Gap N/S	Off	Red	2.2	2.7	3.1	2.7	0.0	0.0		5	6	7	
				_						_					
Timer Results				EBI	-	EBT	WB		WBT	NB		NBT	SBI	-	SBT
Assigned Phase	9			5		2	1		6			8			4
Case Number				2.0		4.0	2.0	_	4.0		_	10.0		_	10.0
Phase Duration				14.0 6.4	)	70.3	14.0		70.3		-	45.0			20.7
-	ange Period, ( Y+R c ), s x Allow Headway ( <i>MAH</i> ), s					6.4	5.9		6.4			6.0			6.4
	Allow Headway ( MAH ), s					0.0	3.1		0.0			3.2			3.1
	ue Clearance Time ( $g_s$ ), s					0.0	11.1	_	0.0			41.8			14.1
Green Extensio		(ge),s		0.0		0.0	0.0		0.0			0.0	<u> </u>		0.2
Phase Call Prot				0.99	_		1.00	_			_	1.00		_	1.00
Max Out Probal	Dility			1.00	)		1.00	)				1.00			0.00
Movement Gro	up Res	ults			EB			WB			NB			SB	
Approach Move				L	Т	R	L	Т	R	L	Т	R	L	Т	F
Assigned Move				5	2		1	6	16	3	8	18	7	4	
Adjusted Flow F		), veh/h		125	921		146	607	597	878	199		68	137	
,		ow Rate (s), veh/h/	In	1621	1674		1701	1772		1652	1480		1581	1660	
Queue Service		<b>X 1</b>		8.6	27.6		9.1	40.0	-	39.8	17.1		6.1	12.1	
Cycle Queue Cl				8.6	27.6		9.1	40.0		39.8	17.1		6.1	12.1	
Green Ratio ( g		5 Ano (9 c), 5		0.06	0.43		0.06	0.43	-	0.27	0.27		0.10	0.10	
Capacity ( c ), v	,			93	1447		103	766	753	881	395		162	170	-
Volume-to-Capa		tio (X)		1.345			1.412		2 0.793	0.997	0.504		0.424	0.807	
	,	/In ( 50 th percentile)	)	235.9	262.3		265.6			504.5	171.4		67	144.9	
		eh/In ( 50 th percent		8.9	10.2		10.5	16.8		20.0	6.3		2.5	5.4	
				0.00	0.00		0.00	0.00	_	0.00	0.00		0.00	0.00	
	ueue Storage Ratio ( <i>RQ</i> ) (50 th percentile)			69.3	24.1		68.9	26.8	_	54.9	46.6		63.2	65.9	
	remental Delay ( <i>d</i> ½), s/veh			211.0	2.1		232.8	8.2	8.4	29.5	0.4		0.7	5.3	
Initial Queue De				0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (				280.2	26.3		301.7	35.0		84.5	47.0		63.8	71.1	
Level of Service	e (LOS)			F	С		F	D	С	F	D		E	E	
Approach Delay	. ,			56.6	3	E	63.8	3	E	77.6	3	E	68.7		E
Intersection Del							6.1						E		
Multimodal Re					EB			WB			NB			SB	
	Score	/105		2.68	3	С	2.30	)	В	3.04	4	С	3.68	3	D
Pedestrian LOS	00010	. 200													

#### **EXHIBIT 34** EXISTING 2015 PEAK AM HOUR TRAFFIC – Industrial/Riverside

	HCS7 Sig	nalize	ed Inte	ersec	tion F	Resul	ts Sur	nmar	у				
General Information							Intersect	ion Inf	ormotic	-		4.4.4.1	b L
										n	- 1		12.
Agency							Duration,		0.25		-		1
Analyst			sis Date		5, 2018	_	Area Typ	e	Other				4 2
Jurisdiction		Time F			AM Hou		PHF		0.92		*		÷
· · · ·	30 & 260 Steamli	Analys	sis Year	2015		/	Analysis	Period	1> 7:0	00	7		1
Intersection Indust	rial/Riverside	File Na	ame	2015_	ex_am.	xus						<u></u>	
Project Description OTY R	Residential Developn	nent									ň	4144	₩[ <b>1</b> "]
Demand Information			EB			WE	3		NB			SB	
Approach Movement		L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), veh/h		22	18	40	430	8	1060	_	1067		883	1069	254
						i, i							
Signal Information			5	215	< <b>₽</b> ₽				₽ ,				
	ence Phase 2		5	P	1 🕇		"	í Fi		<b>`</b>	2	¥ _	
Offset, s 0 Refer	ence Point End	Green	3.9	24.1	51.2	3.8	3.6	20.1		† I			ĸ
Uncoordinated No Simul	t. Gap E/W Off	Yellow		3.7	3.7	3.3	3.3	3.3		<b>_</b>	↑ _	~	
Force Mode Float Simul	t. Gap N/S Off	Red	2.8	2.8	2.7	4.0	6.0	4.0		б	6	7	8
Timer Results		EBI		EBT	WB		WBT	NBI		NBT	SBL		SBT
Assigned Phase		7	-	4	3	-	8	1		6	5	-	2
Case Number		2.0		3.0	2.0		3.0	2.0		4.0	2.0		2
Phase Duration, s		11.1	_	27.4	2.0	_	40.3	10.4	_	4.0 57.6			88.2
		7.3	_			_			_		41.0	, <u> </u>	
• · · · · · ·	nge Period, ( Y+R c ), s Allow Headway ( <i>MAH</i> ), s			7.3	9.3	-	7.3	6.5	_	6.4	6.5		6.4
				3.3	3.1	-	3.3	3.1	_	0.0	3.1		0.0
	ue Clearance Time ( $g_s$ ), s			6.3	17.7	_	30.2	5.1	_		44.0	)	
Green Extension Time (ge),	S	0.0		0.1	0.0		2.8	0.0	_	0.0	0.0		0.0
Phase Call Probability		0.63		0.93	1.00		1.00	0.77	_		1.00	_	
Max Out Probability		0.00	)	0.00	1.00	)	0.17	1.00			1.00	)	
Movement Group Results			EB			WB			NB			SB	
Approach Movement		L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Movement		7	4	14	3	8	18	1	6		5	2	12
Adjusted Flow Rate (v), veh/	h	24	20	43	467	9	1125	35	1160		960	1162	167
Adjusted Saturation Flow Rate		1179	1098	1357	1613	1309		1674	1596		1652	1687	1466
Queue Service Time $(g_s)$ , s		3.0	2.3	4.3	15.7	0.8	28.2	3.1	31.2		42.0	31.9	8.7
Cycle Queue Clearance Time	$(a_{\circ})_{\circ}$	3.0	2.3	4.3	15.7	0.8	28.2	3.1	31.2		42.0	31.9	8.7
Green Ratio ( $g/C$ )	(90), 5	0.03	0.14	0.14	0.10	0.23		0.03	0.35		0.28	0.59	0.59
Capacity ( c ), veh/h		38	154	191	338	296	2106	55	1668		925	2007	810
Volume-to-Capacity Ratio (X)	\	0.636	0.127	0.228	1.385	0.029		0.638	0.696		1.038	0.579	0.207
Back of Queue (Q), ft/In (50		32	22.8	38.8	395.4	8.1	215.8	35.4	320.5		560	313.6	78.6
Back of Queue (Q), while (Co		1.0	0.7	1.5	15.3	0.3	8.1	1.4	12.5	_	22.2	12.3	3.0
Queue Storage Ratio (RQ) (		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Uniform Delay ( <i>d</i> 1), s/veh		71.7	56.9	57.2	67.2	45.6	21.1	71.7	42.4		54.0	20.6	17.0
	h	6.4	0.1	0.2	190.5	0.0	0.1	4.5	2.4		39.8	1.2	0.6
Incremental Delay (d 2), s/ve Initial Queue Delay (d 3), s/ve		0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
	511	78.2	57.0	57.5	257.6	45.6	21.2	76.2	44.9			21.8	17.5
Control Delay ( <i>d</i> ), s/veh Level of Service (LOS)		78.2 E	57.0 E	57.5 E	257.6 F	45.6 D	21.2 C	76.2 E	44.9 D		93.8 F	21.8 C	17.5 B
. , ,										D		_	
Approach Delay, s/veh / LOS		63.1		E	90.3		F	45.8	,	D	51.7		D
				62	2.5						E		
Intersection Delay, s/veh / LOS	5												
	5		EB			WB			NB			SB	
Intersection Delay, s/veh / LOS	5	2.47	_	В	2.88	_	С	2.76	_	С	2.10	_	В

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HCS7™ Streets Version 7.4

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#### EXHIBIT 35 EXISTING 2015 PEAK PM HOUR TRAFFIC – Industrial/Riverside

		HCS	7 Sig	nalize	d Int	ersec	tion F	Resu	lts Sur	nmar	у				
General Inform	ation								Intersec	tion Inf	ormatic			4.441	FU
	ation							$\rightarrow$				211	- 1	1 V V 70	
Agency				<b>A</b>	in Data	1	5 0010	$\rightarrow$	Duration	,	0.25				
Analyst						Jun 1			Area Typ	e	Other				5 IA
Jurisdiction				Time F			PM Hou		PHF		0.92		14		*
Urban Street		200, 230 & 260 Ste	amli		sis Year			_	Analysis	Period	1> 7:0	00	7		1
Intersection		Industrial/Riverside		File Na	ame	2015_	_ex_pm.	xus						- <u></u>	
Project Descript	ion	OTY Residential De	evelopm	ent									h	1 4 1 4 Y	h r
Demand Inform	nation		_		EB	_		W	3		NB	_		SB	_
Approach Move	ment			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), ve				116	13	118	317	31	1313	20	1004		746	898	129
Signal Information	tion				5	JIL	- <b>1</b>				5			_	
Cycle, s	150.0	Reference Phase	2	1	2	1	1 · · •	P	2	Z₽		<u>ר</u> ן ר		<u> </u>	<b>→</b>
Offset, s	0	Reference Point	End	Green	24	18.6	41.8	E 13.	7 5.0	34.5		1	2	3	¥ 4
Uncoordinated	No	Simult. Gap E/W	Off	Yellow		3.7	3.7	3.3		34.0	<u> </u>		1	7	$\rightarrow$
Force Mode	Float	Simult. Gap N/S	Off	Red	2.8	2.8	2.7	4.0		4.0		5	6	7	8
Timer Results				EBI	-	EBT	WB		WBT	NB	-	NBT	SBI	-	SBT
Assigned Phase	9			7		4	3		8	1		6	5	_	2
Case Number				2.0		3.0	2.0	_	3.0	2.0	_	4.0	2.0	_	3.0
Phase Duration,	, S			21.0 7.3	_	41.8	26.0		46.8	8.9	_	48.2	34.0		73.3
Change Period,	ange Period, ( Y+ <i>R c</i> ), s x Allow Headway ( <i>MAH</i> ), s					7.3	9.3		7.3	6.5		6.4	6.5		6.4
Max Allow Head	x Allow Headway ( MAH ), s					3.4	3.1		3.4	3.1		0.0	3.1		0.0
Queue Clearand	KAllow Headway ( <i>MAH</i> ), s eue Clearance Time ( <i>g</i> s ), s					13.2	17.8	3	39.1	4.0			37.0	)	
Green Extension		(g <sub>e</sub> ), s		0.1		0.3	0.0	_	0.3	0.0	_	0.0	0.0		0.0
Phase Call Prob	bability			0.99	)	1.00	1.00	)	1.00	0.60	)		1.00	)	
Max Out Probab	oility			0.09	)	0.00	1.00	)	1.00	1.00	)		1.00	)	
Movement Gro	up Res	ults			EB			WB			NB			SB	
Approach Move	ment			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Mover				7	4	14	3	8	18	1	6		5	2	12
Adjusted Flow F		), veh/h		126	14	128	345	34	1400	22	1091		811	976	32
		w Rate (s), veh/h/l	n	1581	1702	1434	1613	1098		1581	1609		1639	1700	1402
Queue Service				11.7	1.0	11.2	15.8	3.5	37.1	2.0	31.3		35.0	30.5	1.9
Cycle Queue Cl				11.7	1.0	11.2	15.8	3.5	37.1	2.0	31.3		35.0	30.5	1.9
Green Ratio ( g/		5 mile ( g e ), e		0.10	0.24	0.24	0.12	0.27	_	0.02	0.29		0.23	0.50	0.50
Capacity ( c ), v	,			155	403	339	381	296	2191	36	1377		765	1684	634
		tio (X)		0.812	0.035		0.905	0.114	-	0.605	0.793		1.060	0.580	0.050
	blume-to-Capacity Ratio ( $X$ )			140.8	10.7	102.4	198.8	33.1		23.8	331.1		496.2	313.7	17.7
	ack of Queue (Q), ft/ln (50 th percentile)			5.2	0.4	4.0	7.7	0.9	11.2	0.9	13.0		19.5	12.4	0.7
	ack of Queue (Q), veh/ln (50 th percentile)			0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00
auouo otoraye	ueue Storage Ratio ( <i>RQ</i> ) (50 th percentile)			66.3	44.4	48.0	65.3	41.6		72.6	50.0		57.5	29.0	23.0
	niform Delay ( <i>d</i> 1 ), s/veh cremental Delay ( <i>d</i> 2 ), s/veh				0.0	0.3	23.9	0.1	0.5	6.0	4.8		49.8	1.5	0.1
Uniform Delay (		) s/veh		12.2		0.0	20.0								0.0
Uniform Delay ( Incremental Del	<b>ay (</b> <i>d</i> 2			12.2 0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Uniform Delay ( Incremental Del Initial Queue De	ay ( d ₂ elay ( d	3), s/veh		0.0	0.0	0.0 48.2	0.0 89.2	0.0	0.0	0.0 78.6	0.0 54.7		0.0	0.0 30.5	
Uniform Delay ( Incremental Del Initial Queue De Control Delay (	ay ( d ₂ elay ( d d ), s/ve	3), s/veh		0.0 78.5	0.0 44.4	48.2	89.2	41.7	23.9	78.6	54.7		107.3	30.5	23.2
Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service	ay ( <i>d 2</i> elay ( <i>d</i> <i>d</i> ), s/ve e (LOS)	3), s/veh eh		0.0 78.5 E	0.0 44.4 D	48.2 D	89.2 F	41.7 D	23.9 C	78.6 E	54.7 D	F	107.3 F	30.5 C	23.2 C
Uniform Delay ( Incremental Del Initial Queue De Control Delay (	ay ( d 2 elay ( d d ), s/ve e (LOS) v, s/veh	/ LOS		0.0 78.5	0.0 44.4 D	48.2 D E	89.2	41.7 D	23.9	78.6	54.7 D	E	107.3	30.5 C	23.2
Uniform Delay ( Incremental Del Initial Queue Del Control Delay ( Level of Service Approach Delay	ay ( d 2 elay ( d d ), s/ve e (LOS) v, s/veh	/ LOS		0.0 78.5 E	0.0 44.4 D	48.2 D E	89.2 F 36.9	41.7 D	23.9 C	78.6 E	54.7 D		107.3 F 64.6	30.5 C	23.2 C
Uniform Delay ( Incremental Del Initial Queue Del Control Delay ( Level of Service Approach Delay Intersection Delay	ay ( <i>d</i> 2 elay ( <i>d</i> <i>d</i> ), s/ve e (LOS) a, s/veh ay, s/ve sults	3), s/veh eh / LOS h / LOS		0.0 78.5 E	0.0 44.4 D	48.2 D E 52	89.2 F 36.9	41.7 D	23.9 C D	78.6 E	54.7 D		107.3 F 64.6	30.5 C	23.2 C
Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service Approach Delay Intersection Dela	ay ( <i>d</i> 2 elay ( <i>d</i> <i>d</i> ), s/ve e (LOS) a, s/veh ay, s/ve sults	3), s/veh eh / LOS h / LOS		0.0 78.5 E	0.0 44.4 D EB	48.2 D E	89.2 F 36.9	41.7 D	23.9 C D	78.6 E	54.7 D 2 NB		107.3 F 64.6	30.5 C SB	23.2 C

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#### **EXHIBIT 36** YEAR 2021 PEAK AM HOUR TRAFFIC – Industrial/Riverside

		HCS	7 Sig	nalize	ed Int	ersec	tion F	Resul	ts Sur	nmar	у				
General Inform	ation								ntersec	tion Inf	ormativ	20		4741	ыų
	ation										0.25		- 1	1 C C 2	
Agency				0	i. D. t	1	5 0040		Duration						
Analyst						Jun 1			Area Typ	e	Other	·			
Jurisdiction				Time I			AM Hou		PHF		0.92		14		
Urban Street		200, 230 & 260 Ste	amli	<u> </u>	sis Year				Analysis	Period	1> 7:0	00	7		
Intersection		Industrial/Riverside		File N	ame	2021_	_tot_am.	xus							
Project Descript	ion	OTY Residential De	evelopm	ent									1	141144	1
Demand Inform	nation				EB			WE	3		NB			SB	
Approach Move	ment			L	Т	R	L	Т	R	L.	Т	R	L L	Т	R
Demand $(v)$ , ve				29	. 19	46	462	8	1132	_	1133		945	1135	316
Signal Information	tion				5	JUL	- <b>1</b>				5				
Cycle, s	150.0	Reference Phase	2	1	2	1	1	P	2	Fe .		∖∣≮		<b>~</b>	<b>→</b>
Offset, s	0	Reference Point	End	Green	5.5	22.5	48.8	4.4	3.0	22.5		1	2	3	<u>¥</u> 4
Uncoordinated	No	Simult. Gap E/W	Off	Yellow		3.7	3.7	3.3	3.3	3.3	<u> </u>		1	7	4
Force Mode	Float	Simult. Gap N/S	Off	Red	2.8	2.8	2.7	4.0	6.0	4.0		5	6	7	Ę
				_						_			_		
Timer Results				EB	-	EBT	WB		WBT	NB		NBT	SB		SBT
Assigned Phase	•			7		4	3		8	1	_	6	5		2
Case Number				2.0	_	3.0	2.0	_	3.0	2.0	_	4.0	2.0	_	3.0
Phase Duration,	, S			11.7 7.3	_	29.8	24.0		42.1	12.0	_	55.2	41.0	_	84.2
Change Period,	nange Period, (Y+R c), s					7.3	9.3		7.3	6.5		6.4	6.5		6.4
Max Allow Head	ax Allow Headway ( MAH ), s					3.3	3.1		3.3	3.1		0.0	3.1		0.0
Queue Clearand				6.0		6.8	17.7	_	32.2	7.0	_		44.(	_	
Green Extension		(g <sub>e</sub> ), s		0.0	_	0.1	0.0	_	2.7	0.0	_	0.0	0.0	_	0.0
Phase Call Prob				0.73	_	0.95	1.00	_	1.00	0.91	_		1.00	_	
Max Out Probab	oility			0.00	)	0.00	1.00	)	0.33	1.00	)		1.00	)	
Movement Gro	up Res	ults			EB			WB			NB			SB	
Approach Move				L	T	R	L	Т	R	L	Т	R	L	Т	R
Assigned Mover				7	4	14	3	8	18	1	6		5	2	12
Adjusted Flow F		) veh/h		32	21	50	502	9	1203	57	1232		1027	1234	235
		w Rate ( s ), veh/h/l	n	1179	1098	1364	1613	1309		1674	1596		1652	1687	1466
Queue Service				4.0	2.4	4.8	15.7	0.8	30.2	5.0	34.7		42.0	37.4	13.6
				4.0	2.4	4.0	15.7	0.8	30.2	5.0	34.7		42.0	37.4	13.6
Cycle Queue Cl		e fille (gc), s		4.0	0.16	4.8	0.10	0.8	0.52	0.04	0.33		42.0	0.57	0.57
Green Ratio (g/ Capacity (c), v	,			42	172	214	338	313	2153	73	1589		925	1916	770
Volume-to-Capa		tio (X)		0.744	0.120		1.488	0.028	_	0.779	0.775		1.111	0.644	0.305
		( )		42.9	23.6	43.8	448.8	8	230	74.1	361		640.9	373.5	125.1
	ack of Queue (Q), ft/ln (50 th percentile)			1.3	0.7		17.4	0.2	8.6	2.9	14.1		25.4	14.7	4.8
	ack of Queue (Q), veh/ln (50 th percentile)			0.00	0.00	1.7 0.00	0.00	0.2	0.00	0.00	0.00		0.00	0.00	0.00
	ueue Storage Ratio ( <i>RQ</i> ) (50 th percentile) niform Delay ( <i>d</i> 1), s/veh			71.6	54.8	55.4	67.2	44.1	20.5	71.0	45.5		54.0	24.1	20.1
				9.2	0.1	0.2	234.6	0.0	0.1	37.7	3.8		64.8	1.7	1.0
Incremental Del	cremental Delay (d 2), s/veh				0.0	0.2	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
	itial Queue Delay (d 3), s/veh				54.9	55.6	301.8	44.1	20.7	108.7	49.2		118.8	25.8	21.2
Initial Queue De		ontrol Delay ( <i>d</i> ), s/veh					F	D	C	F	D		F	C	С
Initial Queue De Control Delay (	d ), s/ve	eh		80.8 F	D		- F -								
Initial Queue De Control Delay ( Level of Service	d ), s/ve (LOS)			F		F			_			D			F
Initial Queue De Control Delay ( Level of Service Approach Delay	d ), s/ve (LOS) v, s/veh	/LOS				E	103.		F	51.9		D	63.6		E
Initial Queue De Control Delay ( Level of Service	d ), s/ve (LOS) v, s/veh	/LOS		F		E			_						E
Initial Queue De Control Delay ( Level of Service Approach Delay Intersection Dela Multimodal Res	d ), s/ve e (LOS) g, s/veh ay, s/ve sults	/LOS h/LOS		F		E	103.		_				63.6		E
Initial Queue De Control Delay ( Level of Service Approach Delay Intersection Dela	d ), s/ve e (LOS) g, s/veh ay, s/ve sults	/LOS h/LOS		F	2 EB	E	103.	2 WB	_		NB		63.6	3 SB	E B

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#### EXHIBIT 37 YEAR 2021 PEAK PM HOUR TRAFFIC – Industrial/Riverside

		HCS	7 Sig	nalize	d Int	ersec	tion F	Resul	ts Sur	nmar	у				
Conorol Inform										tion Inf			1.10	* 1 * 1	h U
General Inform	ation								ntersec		_	on	- 1		97 Da
Agency									Duration,	,	0.25		-		
Analyst				<u> </u>		Jun 1	,		Area Typ	e	Other				
Jurisdiction				Time F	Period	Peak	PM Hou		PHF		0.92		Y &		
Urban Street		200, 230 & 260 Ste	amli	Analys	sis Year	2021		/	Analysis	Period	1> 7:0	00	14		
Intersection		Industrial/Riverside		File Na	ame	2021_	_tot_pm.	xus							
Project Descrip	tion	OTY Residential De	evelopm	ent									B	(1)+Y	11
Demand Inform	nation				EB			WE	}		NB			SB	
Approach Move				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), v				166	14	141	351	33	_	_	1066		795	954	149
Demand (V), V	en/n			100	14	141	331	- 33	1590	21	1000	,	795	504	149
Signal Informa	tion				5	JL	~ <mark>//</mark>			<u> </u>					
Cycle, s	150.0	Reference Phase	2	1	5	1		P	r⊢ `			$ \leq $		<u> </u>	<b>→</b>
Offset, s	0	Reference Point	End			47.0		E			_	1	2	3	<u> </u>
Uncoordinated	No	Simult. Gap E/W	Off	Green Yellow		17.6 3.7	36.6	16.7 3.3	7 <u>39.7</u> 3.3	0.0	— L		<b>+</b>		- <del>A</del>
Force Mode	Float	Simult. Gap N/S	Off	Red	2.8	2.8	2.7	6.0	4.0	0.0		5	6	7	Ę
	Tiout	cinicial copilitie				12.0	12	1010	1.10	10.0					
Timer Results				EBI	-	EBT	WB	L	WBT	NB	L	NBT	SBI	-	SBT
Assigned Phase	э			7		4	3		8	1		6	5		2
Case Number				2.0		3.0	2.0		3.0	2.0		4.0	2.0		3.0
Phase Duration	, s			26.0	) .	47.0	26.0	)	47.0	9.9		43.0	34.0	)	67.1
Change Period	ange Period, (Y+R c), s					7.3	9.3	_	7.3	6.5	_	6.4	6.5		6.4
-	ange Period, ( Y+R c), s ax Allow Headway ( <i>MAH</i> ), s					3.4	3.1	_	3.4	3.1	_	0.0	3.1		0.0
	x Allow Headway ( <i>MAH</i> ), s eue Clearance Time ( <i>g</i> s ), s					15.0	19.7		43.0	4.8		0.0	37.0	)	0.0
Green Extensio				18.8 0.0	_	0.3	0.0	_	0.0	0.0	_	0.0	0.0	_	0.0
Phase Call Pro		(3-7)-		1.00	_	1.00	1.00	_	1.00	0.7	_		1.00	_	
Max Out Proba	,			1.00	_	0.00	1.00	_	1.00	1.00	_		1.00	_	
Movement Gro		sults			EB			WB			NB			SB	
Approach Move				L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Move				7	4	14	3	8	18	1	6		5	2	12
Adjusted Flow F	Rate ( v	), veh/h		180	15	153	382	36	1492	29	1159		864	1037	53
Adjusted Satura	ation Flo	w Rate ( s ), veh/h/l	n	1581	1702	1440	1613	1098	1311	1581	1609		1639	1700	1401
Queue Service	Time ( 🤉	gs), S		16.8	1.0	13.0	17.7	3.7	41.0	2.8	35.5		35.0	35.9	3.5
Cycle Queue C	learanc	e Time ( <i>g c</i> ), s		16.8	1.0	13.0	17.7	3.7	41.0	2.8	35.5		35.0	35.9	3.5
Green Ratio ( g	/C)			0.13	0.27	0.27	0.12	0.27	0.51	0.03	0.25		0.23	0.45	0.45
Capacity (c), v				208	462	391	381	298	2197	46	1210		765	1545	577
Volume-to-Capa	acity Ra	tio (X)		0.869	0.033	0.392	1.002	0.120	0.679	0.639	0.958		1.130	0.671	0.092
	ack of Queue (Q), ft/ln (50 th percentile)			226.2	11	118.3	249.6	35.2	312.2	31.8	409.6		563.2	377	33
	ack of Queue (Q), while (50 th percentile)			8.4	0.4	4.7	9.7	1.0	12.4	1.2	16.1		22.2	15.0	1.2
Queue Storage	ueue Storage Ratio ( <i>RQ</i> ) (50 th percentile)			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Uniform Delay (	niform Delay ( $d_1$ ), s/veh			63.9	40.5	44.6	66.2	41.5	24.1	72.0	55.9		57.5	34.7	27.0
Incremental De				29.2	0.0	0.2	46.7	0.1	0.7	5.4	17.5		74.6	2.3	0.3
Initial Queue De				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Control Delay (	d ), s/ve	eh		93.1	40.6	44.8	112.9	41.6	24.8	77.4	73.4		132.1	37.0	27.3
Level of Service	e (LOS)			F	D	D	F	D	С	Е	E		F	D	С
Approach Delay	, s/veh	/LOS		69.6	3	E	42.7	7	D	73.5	5	E	78.8	3	E
Approach Delay						64	4.3						E		
Intersection Del	ay, sive														
Intersection De				_			_			_			_		
Intersection Del	sults				EB			WB			NB			SB	
Intersection Del	sults Score			2.46	_	В	2.87	_	C D	2.7	_	С	2.12	_	B

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#### EXHIBIT 38 YEAR 2027 PEAK AM HOUR TRAFFIC – Industrial/Riverside

		HCS	7 Sig	nalize	d Int	ersec	tion F	Resul	ts Sur	nmar	у				
Concernel Inform										tion Inf				4741	h U
General Inform	hation								Intersec			on	- 1		
Agency									Duration	,	0.25		- 2		
Analyst						Jun 1			Area Typ	e	Other				2
Jurisdiction				Time I	Period		AM Hou	_	PHF		0.92		* *		
Urban Street		200, 230 & 260 Ste	amli	Analys	sis Year	2027			Analysis	Period	1> 7:0	00	7		
Intersection		Industrial/Riverside		File N	ame	2027_	_tot_am	xus							
Project Descrip	tion	OTY Residential De	evelopm	ent									1	14144	¥[1]
Demand Inform	nation				EB			WE	3		NB			SB	
Approach Move				L	T	R	L	Т	R	L	T	R	L	T	R
Demand (v), v				34	20	56	497	9	1216	_	1203		1005	· · ·	335
Demand (V), V	eniin				20	50	431	5	1210	, 30	1200		1005	1205	555
Signal Informa	tion				16	1216					<u>_</u>				
Cycle, s	150.0	Reference Phase	2	1	5			P	e-	FL.		5 K	1		
Offset, s	0	Reference Point	End	<u> </u>	<u> </u>			1				1	2	3	
Uncoordinated	No	Simult. Gap E/W	Off	Green		22.5	45.9	5.2	2.2	25.4	¹		•		Ā
Force Mode	Float	Simult. Gap N/S	Off	Yellow Red	2.8	3.7	3.7	3.3 4.0	3.3	3.3 4.0	_	<b>&gt;</b>	6		
T OICE MODE	Tioat	Sinuit. Gap N/S	UII	Reu	2.0	2.0	2.1	4.0	0.0	4.0					
Timer Results				EB	-	EBT	WB	L	WBT	NB	L	NBT	SB	L	SBT
Assigned Phase	e			7		4	3		8	1		6	5		2
Case Number				2.0		3.0	2.0		3.0	2.0		4.0	2.0		3.0
Phase Duration	. s			12.5	_	32.7	24.0	_	44.1	12.0	_	52.3	41.0	_	81.3
	, -	~) s		7.3		7.3	9.3	_	7.3	6.5		6.4	6.5	_	6.4
-	ange Period, ( Y+ <i>R</i> c ), s x Allow Headway ( <i>MAH</i> ), s					3.3	3.1	_	3.3	3.1	_	0.0	3.1	_	0.0
	x Allow Headway ( <i>MAH</i> ), s eue Clearance Time ( <i>g</i> s ), s					7.7	17.7		34.6	7.4		0.0	44.0	_	0.0
Green Extensio				6.7 0.0	_	0.2	0.0		2.2	0.0	_	0.0	0.0	_	0.0
Phase Call Pro		(9, 9), 9		0.79		0.97	1.00	_	1.00	0.92		0.0	1.00	_	0.0
Max Out Proba				0.00	_	0.00	1.00	_	0.66	1.00	_		1.00	_	
Max out roba	onity			0.00		0.00	1.00	-	0.00	1.00	-		1.00	-	
Movement Gro	oup Res	ults			EB			WB			NB			SB	
Approach Move	ement			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Move	ment			7	4	14	3	8	18	1	6		5	2	12
Adjusted Flow F	Rate ( v	), veh/h		37	22	61	540	10	1295	61	1308		1092	1310	255
Adjusted Satura	ation Flo	w Rate ( s ), veh/h/l	n	1179	1098	1371	1613	1309	1264	1674	1596		1652	1687	1466
Queue Service	Time (	ηs), S		4.7	2.5	5.7	15.7	0.8	32.6	5.4	38.7		42.0	42.9	15.6
Cycle Queue C				4.7	2.5	5.7	15.7	0.8	32.6	5.4	38.7		42.0	42.9	15.6
Green Ratio (g		() ()		0.04	0.18	0.18	0.10	0.25	0.53	0.04	0.31		0.28	0.55	0.55
Capacity (c), v	,			49	193	241	338	330	2204	73	1498		925	1852	742
Volume-to-Capa		tio (X)		0.753			1.600	0.030	-	0.839	0.873		1.181	0.707	0.344
				49.8	24.3	52.4	508.1	8.8	247.4	86.2	414		731.1	435.1	145.3
	ack of Queue (Q), ft/ln (50 th percentile) ack of Queue (Q), veh/ln (50 th percentile)			1.5	0.7	2.0	19.7	0.3	9.3	3.4	16.2		29.0	17.1	5.6
				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00
	ueue Storage Ratio ( <i>RQ</i> ) (50 th percentile)			71.1	52.4	53.3	67.2	42.6	20.0	71.2	49.2		54.0	27.3	22.1
	niform Delay ( d ː ), s/veh			8.4	0.1	0.2	283.7	0.0	0.2	52.7	7.3		92.7	2.3	1.3
Incremental De	cremental Delay ( d 2 ), s/veh			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
		tial Queue Delay ( d 3 ), s/veh					350.8	42.6	20.2	123.9	56.5		146.7	29.6	23.4
Initial Queue De	elay ( d				52.5	53.5	0.00.0								
Initial Queue De Control Delay (	elay(d d), s/ve			79.5	52.5 D				С	F	E		F	С	C
Initial Queue De Control Delay ( Level of Service	elay ( d d ), s/ve e (LOS)	eh		79.5 E	D	D	F	D	C	F 59.f	E	F	F 77 <sup>-</sup>	С	F
Initial Queue De Control Delay ( Level of Service Approach Delay	elay ( <i>d</i> <i>d</i> ), s/ve e (LOS) y, s/veh	/ LOS		79.5	D	D E		D	C F	F 59.5		E	F 77.1	С	E
Initial Queue De Control Delay ( Level of Service	elay ( <i>d</i> <i>d</i> ), s/ve e (LOS) y, s/veh	/ LOS		79.5 E	D	D E	F 117.:	D	_			E	77.1	С	
Initial Queue De Control Delay ( Level of Service Approach Delay	elay ( <i>d</i> <i>d</i> ), s/ve e (LOS) y, s/veh lay, s/ve	/ LOS		79.5 E	D	D E	F 117.:	D	_			E	77.1	С	
Initial Queue De Control Delay ( Level of Service Approach Delay Intersection De	elay ( <i>d</i> <i>d</i> ), s/ve e (LOS) y, s/veh lay, s/ve	/ LOS h / LOS		79.5 E	D 4 EB	D E	F 117.:	D 2 WB	_		5 NB	E	77.1	C I SB	

#### EXHIBIT 39 YEAR 2027 PEAK PM HOUR TRAFFIC – Industrial/Riverside

	HCS7	' Sig	nalize	d Int	ersec	tion R	Resu	lts Sur	nmar	у				
Concret Information									tion Inf				4.141	N U
General Information								Intersec		-	n	- 1		
Agency								Duration	,	0.25		-		
Analyst			<u> </u>		Jun 1	,		Area Typ	e	Other				
Jurisdiction			Time F	Period	Peak	PM Hou		PHF		0.92		* *		
Urban Street	200, 230 & 260 Stea	mli	Analys	sis Year	2027			Analysis	Period	1> 7:0	00	7		
Intersection	Industrial/Riverside		File Na	ame	2027_	tot_pm.	xus						N. A. A. A	
Project Description	OTY Residential Dev	/elopm	ent									5	114Y	۴ (*
Demand Information				EB			VVE	3		NB			SB	
Approach Movement			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), veh/h			175	15	153	375	35	_		1132		850	1012	167
			110	10	100	010	00	1102		TTOL		000	TOTE	101
Signal Information				L	JU	J.J.			<u></u>					
Cycle, s 150.0	Reference Phase	2	1	<sup>2</sup>	1642	Ĩ <b>I.</b>		e−⊢→	Ē		$\leq$			
Offset, s 0	Reference Point	End	<u> </u>	<u> </u>	1		E				1	2	3	N A
Uncoordinated No	Simult. Gap E/W	Off	Green		17.1	36.6	16.		0.0	_ l	Ĺ	•		A
Force Mode Float	Simult. Gap N/S	Off	Yellow Red	2.8	3.7 2.8	3.7	3.3		0.0	_	<b>X</b>		<b>~</b> ,	
Force Mode Float	Simult. Gap N/S	Oli	Reu	2.0	2.0	2.1	0.0	4.0	0.0		0		1	
Timer Results			EBI		EBT	WB	L	WBT	NB	-	NBT	SBI	-	SBT
Assigned Phase			7		4	3		8	1		6	5		2
Case Number			2.0		3.0	2.0		3.0	2.0		4.0	2.0		3.0
Phase Duration, s		_	26.0	_	47.0	26.0	_	47.0	10.4		43.0	34.0		66.6
	a) <b>c</b>	_	7.3	_	7.3	9.3	_	7.3	6.5	_	6.4	6.5		6.4
-	aange Period, ( Y+R c ), s ax Allow Headway ( <i>MAH</i> ), s				3.4	3.1	_	3.4	3.1		0.0	3.1		0.0
					3.4 16.3	19.7			5.1		0.0	37.0		0.0
	eue Clearance Time ( $g s$ ), s een Extension Time ( $g g$ ), s				0.4	0.0	_	47.7 0.0	0.0	_	0.0	0.0	_	0.0
Phase Call Probability	(90), 3		0.0	_	1.00	1.00	_	1.00	0.75	_	0.0	1.00	_	0.0
Max Out Probability		_	1.00	_	0.00	1.00	_	1.00	1.00	_		1.00	_	
Max Out Frobability			1.00	,	0.00	1.00	,	1.00	1.00	,		1.00	,	
Movement Group Res	sults			EB			WB			NB			SB	
Approach Movement			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Movement			7	4	14	3	8	18	1	6		5	2	12
Adjusted Flow Rate ( v	), veh/h		190	16	166	408	38	1595	34	1230		924	1100	73
Adjusted Saturation Flo			1581	1702	1440	1613	1098		1581	1609		1639	1700	1401
Queue Service Time (			17.8	1.1	14.3	17.7	3.9	45.7	3.2	37.6		35.0	39.4	4.9
Cycle Queue Clearanc	- /		17.8	1.1	14.3	17.7	3.9	45.7	3.2	37.6		35.0	39.4	4.9
Green Ratio ( $q/C$ )	5 mile (97), 5		0.13	0.27	0.27	0.12	0.27		0.03	0.25		0.23	0.45	0.45
Capacity ( c ), veh/h			208	462	391	381	298	2197	52	1210		765	1533	572
Volume-to-Capacity Ra	atio (X)		0.916		0.426	1.071		3 0.726	0.653	1.017		1.208		0.127
			252.8		129.8	276.3								
	ack of Queue (Q), ft/ln (50 th percentile) ack of Queue (Q), veh/ln (50 th percentile)								36.4	466.6			416.1	46.2
	· ·		9.4	0.4	5.1	10.7	1.1	13.9	1.3	18.4		25.5	16.5	1.7
Queue Storage Ratio (	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	e)	0.00 64.3	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00
	niform Delay ( <i>d</i> 1), s/veh			40.6	45.0	66.2	41.6		71.7	56.2		57.5	36.2	27.7
Incremental Delay ( d a			39.3	0.0	0.3	66.3	0.1	1.1	5.1	30.2		105.8	2.9	0.5
Initial Queue Delay (d	<i>,</i> .		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Control Delay (d), s/v			103.7	40.6	45.3	132.5	41.7		76.8	86.4		163.3	39.1	28.2
Level of Service (LOS)			F	D	D	F	D	С	E	F		F	D	С
Approach Delay, s/veh			74.9	)	E	47.7	7	D	86.1		F	93.4	1	F
	eh / LOS				74	1.5						E		
Intersection Delay, s/ve														
				EB			\A/P			NR			SB	
Multimodal Results	// 05		2 16	EB	B	2 0 7	WB		0.7	NB	C	0.10	SB	B
			2.46	;	B	2.87	7	C D	2.77	7	C A	2.12	2	B

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HCS7™ Streets Version 7.4

## EXHIBIT 40 YEAR 2031 PEAK AM HOUR TRAFFIC – Industrial/Riverside

		HCS	7 Sig	nalize	ed Int	ersec	tion F	Resu	lts Sur	nmar	у				
Concernel Inform										tion Inf				4.741	h U
General Inform	ation							$\rightarrow$	Intersec			on	- 🏾 🛍		
Agency									Duration	,	0.25		-		-
Analyst						e Jun 1			Area Typ	e	Other				
Jurisdiction				Time F			AM Hou		PHF		0.92		* *		
Urban Street		200, 230 & 260 Ste	amli		sis Yea			_	Analysis	Period	1> 7:0	00	1		
Intersection		Industrial/Riverside		File Na	ame	2031_	_tot_am	.xus						2 A A A A	
Project Descrip	tion	OTY Residential De	evelopm	nent									1	1 1 4 Y	ħ[/]
Demand Inform	nation				EB			VVE	3		NB			SB	
Approach Move				L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), v				38	21	62	520			_	1252	_	1047	1254	350
	01111			00		02	020	0	1270	00	TEOL		1011	1201	000
Signal Informa	tion				ΓL	215	R 📕			5	<u> </u>				
Cycle, s	150.0	Reference Phase	2	1	2	1	<b>T</b> .	P	2	ZL→		$ \leq $	1	$\sim$	<b>→</b>
Offset, s	0	Reference Point	End			00.5			45			1	2	3	<u> </u>
Uncoordinated	No	Simult. Gap E/W	Off	Green Yellow		22.5 3.7	44.0 3.7	5.9 3.3		27.3	<u> </u>	L	<b>↑</b>	7	Å
Force Mode	Float	Simult. Gap N/S	Off	Red	2.8	2.8	2.7	4.0		4.0	_	5	6	7	8
. croc mode	i loat	Cirian Gup 10/0	0 II		12.0	2.0		-r.0	0.0	-1.0					
Timer Results				EBI	-	EBT	WB	L	WBT	NB	L	NBT	SB	-	SBT
Assigned Phase	е			7		4	3		8	1		6	5		2
Case Number				2.0		3.0	2.0	,	3.0	2.0		4.0	2.0		3.0
Phase Duration	I, S			13.2	2	34.6	24.0	)	45.4	12.0	)	50.4	41.0	)	79.4
Change Period	ange Period, (Y+R c), s					7.3	9.3		7.3	6.5		6.4	6.5		6.4
-	x Allow Headway ( <i>MAH</i> ), s					3.3	3.1	_	3.3	3.1	_	0.0	3.1	_	0.0
	Allow Headway ( $MAH$ ), s eue Clearance Time ( $g_s$ ), s					8.3	17.7		36.5	7.6		0.0	44.(		0.0
Green Extensio				7.2	_	0.2	0.0	_	1.7	0.0	_	0.0	0.0	_	0.0
Phase Call Pro		(3-7)-		0.82		0.98	1.00	_	1.00	0.93	_		1.00	_	
Max Out Proba				0.00	)	0.00	1.00	)	1.00	1.00	)		1.00	)	
Movement Gro		sults			EB			WB			NB			SB	
Approach Move				L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Move				7	4	14	3	8	18	1	6		5	2	12
Adjusted Flow F	Rate ( v	), veh/h		41	23	67	565	10	1360	63	1361		1138	1363	272
Adjusted Satura	ation Flo	ow Rate ( <i>s</i> ), veh/h/l	n	1179	1098	1374	1613	1309	1264	1674	1596		1652	1687	1466
Queue Service	Time (	g s ), s		5.2	2.6	6.3	15.7	0.8	34.5	5.6	41.7		42.0	47.2	17.3
Cycle Queue C	learanc	e Time ( <i>g c</i> ), s		5.2	2.6	6.3	15.7	0.8	34.5	5.6	41.7		42.0	47.2	17.3
Green Ratio (g	/C)			0.05	0.19	0.19	0.10	0.26	0.54	0.04	0.30		0.28	0.54	0.54
Capacity ( c ), v				54	207	260	338	341	2236	73	1436		925	1808	723
Volume-to-Capa				0.759	0.110		1.674	0.029		0.869	0.948		1.230	0.754	0.376
Back of Queue	( Q ), ft	In ( 50 th percentile)		55.3	25	57.3	547.4	8.7	260.7	92.8	467.4		797.7	484.4	161.9
	ack of Queue (Q), veh/ln (50 th percentile)			1.7	0.7	2.2	21.2	0.3	9.8	3.6	18.3		31.7	19.1	6.2
Queue Storage	ueue Storage Ratio ( RQ ) ( 50 th percentile)			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00
	niform Delay ( d 1 ), s/veh			70.7	50.8	51.9	67.2	41.7	19.7	71.3	51.9		54.0	29.6	23.7
Incremental De		<i>.</i>		7.8	0.1	0.2	316.2	0.0	0.3	61.3	14.2		113.2	3.0	1.5
Initial Queue De				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Control Delay (				78.5	50.9	52.1	383.3	41.7	_	132.6	66.1		167.2	32.6	25.1
Level of Service	. ,			E	D	D	F	D	С	F	E		F	С	С
Approach Delay	y, s/veh	/LOS		60.2	2	E	126.	3	F	69.0	)	E	87.1		F
Intersection De	lay, s/ve	h / LOS				94	4.5						F		
					50			14.05			NID			6.5	
M. 161					EB			WB			NB			SB	
Multimodal Re						-			0			-			-
Multimodal Re Pedestrian LOS Bicycle LOS So	Score			2.47	_	B A	2.87		C D	2.76	_	C A	2.11 2.78		B C

#### EXHIBIT 41 YEAR 2031 PEAK PM HOUR TRAFFIC – Industrial/Riverside

		HCS	7 Sig	nalize	d Int	ersec	tion F	Resu	lts Sur	nmar	у				
Conoral Inform										tion Inf			1.10	4.141	h L
General Inform	ation								Intersec		_	on	- É		97 DA
Agency									Duration	,	0.25		-		
Analyst				<u> </u>		Jun 1	,		Area Typ	e	Other				
Jurisdiction				Time F			PM Hou		PHF		0.92		T 4		
Urban Street		200, 230 & 260 Ste	amli	Analys	sis Year	2031			Analysis	Period	1> 7:0	00	7		
Intersection		Industrial/Riverside		File Na	ame	2031_	_tot_pm.	xus							
Project Descript	tion	OTY Residential De	evelopm	nent									h	4144	ħ[ñ]
Demand Inform	nation				EB			VVE	3		NB			SB	
Approach Move				L	T	R	L	T	_	L	T	R	L	T	R
Demand (v), v				181	15	160	386	36	_	_	1178		888	1053	181
Demand (V), V	en/n			101	15	100	300	30	1544	- 33	1170	<b>)</b>	000	1055	101
Signal Informa	tion		_		5	JL	J.	T		5					
Cycle, s	150.0	Reference Phase	2	1	5	1.1			∠_>	$\neg$		5 K		$\sim$	<b></b>
Offset, s	0	Reference Point	End	<u> </u>	<u> </u>	10.0		1	_		_	1	2	3	Y
Uncoordinated	No	Simult. Gap E/W	Off	Green Yellow		16.8	36.6	16.		<sup>7</sup> 0.0 0.0	— L	L	+		A
Force Mode	Float	Simult. Gap N/S	Off	Red	2.8	3.7 2.8	3.7	3.3		0.0		<b>X</b> 5	6	7	
	Tioat	Sindit Odp 100		- tou	2.0	2.0		0.0	J.J	0.0					
Timer Results	_			EBI	-	EBT	WB	L	WBT	NB	L	NBT	SBI	-	SBT
Assigned Phase	е			7		4	3		8	1		6	5		2
Case Number				2.0		3.0	2.0		3.0	2.0		4.0	2.0		3.0
Phase Duration	s			26.0	_	47.0	26.0	_	47.0	10.7	_	43.0	34.0		66.3
	ange Period,(Y+R c), s					7.3	9.3	_	7.3	6.5	_	6.4	6.5		6.4
	ange Period, ( Y+ <i>R c</i> ), s x Allow Headway ( <i>MAH</i> ), s					3.4	3.1	_	3.4	3.1	_	0.0	3.1		0.0
	x Allow Headway ( <i>MAH</i> ), s eue Clearance Time ( <i>g</i> s ), s					17.0	19.7		49.6	5.4		0.0	37.0		0.0
Green Extensio				20.5	_	0.4	0.0	_	0.0	0.0	_	0.0	0.0	_	0.0
Phase Call Prot		(9,8),3		1.00	_	1.00	1.00	_	1.00	0.78	_	0.0	1.00		0.0
Max Out Probat				1.00	_	0.00	1.00	_	1.00	1.00	_		1.00	_	
Max out roba	Sincy			1.00		0.00	1.00	-	1.00	1.00	-		1.00	,	
Movement Gro	oup Res	ults			EB			WB			NB			SB	
Approach Move	ement			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Move	ment			7	4	14	3	8	18	1	6		5	2	12
Adjusted Flow F	Rate ( v	), veh/h		197	16	174	420	39	1651	36	1280		965	1145	88
Adjusted Satura	ation Flo	w Rate ( <i>s</i> ), veh/h/l	n	1581	1702	1440	1613	1098	1311	1581	1609		1639	1700	1401
Queue Service	Time ( g	gs), s		18.5	1.1	15.0	17.7	4.0	47.6	3.4	37.6		35.0	41.9	6.0
Cycle Queue Cl				18.5	1.1	15.0	17.7	4.0	47.6	3.4	37.6		35.0	41.9	6.0
Green Ratio (g				0.13	0.27	0.27	0.12	0.27	_	0.03	0.25		0.23	0.45	0.45
Capacity (c), v	,			208	462	391	381	298	2197	54	1210		765	1527	569
Volume-to-Capa		tio (X)		0.948		0.445	1.102			0.660	1.058		1.262		0.155
			)	272.9		136.5	290.5	38.5		39.6	502.5		708.5		56.7
	ack of Queue (Q), ft/ln (50 th percentile) ack of Queue (Q), veh/ln (50 th percentile)			10.1	0.4	5.4	11.3	1.1	14.7	1.5	19.8		27.9	17.7	2.1
		RQ) (50 th percent		0.00	0.00	0.00	0.00	0.00	_	0.00	0.00		0.00	0.00	0.00
Uniform Delay (	,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		64.6	40.6	45.3	66.2	41.7	_	71.6	56.2		57.5	37.1	28.2
Incremental Del	. ,.			47.2	0.0	0.3	76.7	0.1	1.3	7.6	42.8		128.4	3.4	0.6
Initial Queue De				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Control Delay (				111.9	40.6	45.6	142.8	41.7		79.1	99.0		185.9	40.6	28.8
				F	D	D	F	D	С	E	F		F	D	С
Level of Service	· /	/LOS		79.1		E	50.4		D	98.5		F	103.		F
Level of Service	proach Delay, s/veh / LOS						2.3		_				F	-	
Level of Service										-					
Level of Service Approach Delay															
Level of Service Approach Delay	lay, s/ve				EB			WB			NB			SB	
Level of Service Approach Delay Intersection Del	lay, s/ve sults	h / LOS		2.46	_	B	2.87	_	С	2.7	_	С	2.12	_	В

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### EXHIBIT 42 EXISTING 2013 PEAK AM HOUR TRAFFIC – Terminal/Railmarket

							Site	Inforr	natio	n						
Analyst	T						Inters	ection			Term	inal/Railı	market			_
Agency/Co.							Jurisd	iction			City c	of Ottawa	а			
Date Performed	11/22	/2017					East/\	Nest Str	eet		Term	inal Aver	านe			
Analysis Year	2013						North	/South !	Street		Railm	arket Pri	ivate			
Time Analyzed	Peak	AM Hou	ır				Peak	Hour Fa	ctor		0.92					_
Intersection Orientation	East-	Nest					Analy	sis Time	Period (	hrs)	0.25					
Project Description	ΟΤΥ Ρ	Resident	ial Devel	opment												
Lanes																
				J 4 1 7 4 5 7 1		ን ና ቀጥ ነ	ነትና	* K	⊆ 							
Vehicle Volumes and Adj	ustme	nts			Majo	r Street: Ea	st-West									
Approach		Eastk	ound			West				North	bound				bound	_
Movement	U	L	T	R	U	L	T	R	U	L	Т	R	U	L	T	
Priority	10	1	2	3	40	4	5	6		7	8	9		10	11	1
Niveshan of Lances	0	0	1	0 TR	0	0	1	0		1	0	1 R		0	0	
Number of Lanes						LT			I	L						
Configuration	-	<u> </u>	127	19		27	270			15				<u> </u>		┝
Configuration Volume, V (veh/h)			127	18		37	279			15		25				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%)			127	18		37 1	279			15 1						
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked			127	18			279			1	0	25				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%)			127	18						1	0	25			10	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%)					vided	1				1	-	25		1	10	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage	eadwa				vided	1				1	-	25			10	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage	eadwa				vided	1				1	-	25			40	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He	eadwa				vided	1 N				1 N	-	25		N	No	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec)	eadwa				vided	1 N 4.1				1 N 7.1	-	25 1 6.2		N	40	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec) Critical Headway (sec)	eadwa				vided	1 N 4.1 4.11				1 N 7.1 6.41	-	25 1 6.2 6.21				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Hea Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		Undi	vided	1 N 4.1 4.11 2.2				1 N 7.1 6.41 3.5	-	25 1 6.2 6.21 3.3				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Hea Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		Undi	vided	1 N 4.1 4.11 2.2				1 N 7.1 6.41 3.5	-	25 1 6.2 6.21 3.3				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, and		ys		Undi	vided	1 N 4.1 4.11 2.2 2.21				1 7.1 6.41 3.5 3.51	-	25 1 6.2 6.21 3.3 3.31				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Headway (sec) Critical Headway (sec) Base Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, and Flow Rate, v (veh/h)		ys		Undi	vided	1 N 4.1 4.11 2.2 2.21 40				1 7.1 6.41 3.5 3.51 16	-	25 1 6.2 6.21 3.3 3.31 27				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Hea Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		Undi	vided	1 N 4.1 4.11 2.2 2.21 40 1427				1 N 7.1 6.41 3.5 3.51 16 496	-	25 1 6.2 6.21 3.3 3.31 27 901				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Hea Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Critical Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Capacity, c (veh/h) v/c Ratio		ys		Undi	vided	1 N 4.1 4.11 2.2 2.21 40 1427 0.03				1 7.1 6.41 3.5 3.51 16 496 0.03	-	25 1 6.2 6.21 3.3 3.31 27 901 0.03				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up Hea</b> Base Critical Headway (sec) Critical Headway (sec) Critical Headway (sec) Follow-Up Headway (sec)		ys		Undi	vided	1 4.1 4.11 2.2 2.21 40 1427 0.03 0.1				1 7.1 6.41 3.5 3.51 16 496 0.03 0.1	-	25 1 6.2 6.21 3.3 3.31 27 901 0.03 0.1				

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### EXHIBIT 43 EXISTING 2013 PEAK PM HOUR TRAFFIC – Terminal/Railmarket

General Information							Sito	Infor	natio	n						_
	1							ection	natio		Torm	inal/Rail	market			
Analyst	+						Juriso					of Ottaw				
Agency/Co. Date Performed	11/25	2/2017						West Str	oot			inal Ave				
Analysis Year	2013	2/2017					· ·	/South			<u> </u>	arket Pr				
Time Analyzed		PM Hou	ır					Hour Fa			0.92	laiket Fi	ivate			
Intersection Orientation	East-V								Period (	hrs)	0.32					
Project Description			ial Devel	onment				515 11110	T enou (		0.23					
Lanes		condern	an berei	opment												
				J 4 4 7 4 1 1 A		ን ቦ ቀ ፕ	1 7 1									
Vehicle Volumes and Ad	justme	ents			Majo	or Street: Ea	ast-West									
Approach		East	oound			West	bound			North	bound			South	bound	_
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	
Priority	10	1	2	3	40	4	5	6		7	8	9		10	11	1
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	
Configuration	<u> </u>			TR		LT				L		R				┢
Volume, V (veh/h)	<u> </u>		289	70		87	220			76		98				+
Percent Heavy Vehicles (%)	<u> </u>					1				1		1				-
Proportion Time Blocked	<u> </u>															
Percent Grade (%)											0					
Right Turn Channelized		1	No				10				10			1	10	
Median Type/Storage				Undi	vided											
Critical and Follow-up H	eadwa	ys														
Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																
Delay, Queue Length, an	d Leve	l of S	ervice													
	T					95				83		107				Г
Flow Rate, v (veh/h)	+					1174				336		694				$\uparrow$
Flow Rate, v (veh/h) Capacity, c (veh/h)			-			0.08				0.25		0.15				T
	-		1	1												-
Capacity, c (veh/h)						0.3				1.0		0.5				
Capacity, c (veh/h) v/c Ratio						0.3 8.3				1.0 19.2		0.5				┢
Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh)																
Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh) Control Delay (s/veh)						8.3 A	.9			19.2 C	4.6	11.1				

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### EXHIBIT 44 YEAR 2021 PEAK AM HOUR TRAFFIC – Terminal/Railmarket

Priority 1U 1 2 3 4U 4 5 6 7 8 9 10 10 11 1	General Information							Site	Inforr	natio	n						
Date Performed       11/2/2017       East WH outpout Network       Paint Merica Network       Item Analysis Time Period (Mr)       Item Induce Network         Intersaction Orientation       East-West       Version Versio Version Version Version Versio Version Ve	Analyst	T						Inters	ection			Term	inal/Railı	market			_
Analysis Year       2021       Verture       Peak Hour Junce	Agency/Co.	+						Jurisd	liction			City o	of Ottawa	a			
Inter-Analyzed Intersection OrientationPeak AW HourImage: Image: Ima	Date Performed	11/22	/2017					East/	West Str	eet		Term	inal Aver	nue			
Intersection Orientation       East-West       Image       <	Analysis Year	2021						North	/South !	Street		Railm	arket Pri	ivate			
Project Description       OF PREsidential Development         Lanes         Martine Lanes         Martine Lanes         Quantic Lanes       Quantic Lanes         Quantic Lanes       Quantic Lanes       Quantic Lanes       Quantic Lanes       Quantic Lanes       Quantic Lanes       Quantic Lanes       Quantic Lanes       Quantic Lanes       Quantic Lanes       Quantic Lanes       Quantic Lanes       Quantic Lanes       Quantic Lanes       Quantic Lanes       Quantic Lanes       Quantic Lanes       Quantic Lanes         Quantic Lanes	Time Analyzed	Peak	AM Hou	ır				Peak	Hour Fa	ctor		0.92					
Intervention of the set of the	Intersection Orientation	East-V	Nest					Analy	sis Time	Period (	(hrs)	0.25					
Image: Sector S	Project Description	ΟΤΥ Ρ	Resident	ial Devel	opment												
Approach         East-u         Vertextextextextextextextextextextextextext	Lanes					۲۴	1.4.4										
ApproachImage: Summation of the symmatry of the symmetry of the symme					→		ΦY '	ttr ist-West	+ + + + +								
MovementULTRUL </td <td>Vehicle Volumes and Ad</td> <td>ljustme</td> <td>nts</td> <td></td>	Vehicle Volumes and Ad	ljustme	nts														
Priority1U1234U45678910111111Number of Lanes0011001010101010101010101010101110101110	Approach		Eastk	ound			West	bound			North	bound			South	bound	
Number of Lanes0010001010101000000ConfigurationII <tdi< td="">IIII</tdi<>	Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	F
ConfigurationImage: Normal SectorImage:	Priority	10	1	2	3	40	4	5	6		7	8	9		10	11	1
Volume, V (veh/h)Image: Normal and Strate Strates Str	Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
Percent Heavy Vehicles (%)       I <thi< th="">       I       I       <thi< <="" td=""><td>Configuration</td><td></td><td></td><td></td><td>TR</td><td></td><td>LT</td><td></td><td></td><td></td><td>L</td><td></td><td>R</td><td></td><td></td><td></td><td></td></thi<></thi<>	Configuration				TR		LT				L		R				
Proportion Time BlockedII <t< td=""><td>Volume, V (veh/h)</td><td></td><td></td><td>150</td><td>21</td><td></td><td>40</td><td>365</td><td></td><td></td><td>26</td><td></td><td>27</td><td></td><td></td><td></td><td></td></t<>	Volume, V (veh/h)			150	21		40	365			26		27				
Percent Grade (%)       I <thi< th="">       I       <thi< th=""></thi<></thi<>	Percent Heavy Vehicles (%)						1				1		1				
Night Turn ChannelizedII <th< td=""><td>Proportion Time Blocked</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	Proportion Time Blocked																
Median Type/Storage         Untivide         Untivide </td <td>Percent Grade (%)</td> <td></td> <td>0</td> <td></td> <td></td> <td></td> <td></td> <td></td>	Percent Grade (%)											0					
Critical and Follow-up Headways         Base Critical Headway (sec)       I<	-		١	10			N	10			Ν	10			Ν	10	
Base Critical Headway (sec)       Image: Constraint of the adway (sec)	Median Type/Storage				Undi	vided											
Critical Headway (sec)       Image: Constraint of the adway (sec)       I	Median Type/Storage																
Base Follow-Up Headway (sec)Image: Constraint of the sector o		eadwa	ys														
Follow-Up Headway (sec)       Image: Constraint of the straint of the s	Critical and Follow-up H	eadwa	ys				4.1				7.1		6.2				-
Delay, Queue Length, and Level of Service         43         0         28         29         0 <td>Critical and Follow-up H Base Critical Headway (sec)</td> <td>eadwa</td> <td>ys</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td><u> </u></td> <td></td> <td></td> <td></td> <td></td>	Critical and Follow-up H Base Critical Headway (sec)	eadwa	ys										<u> </u>				
Flow Rate, v (veh/h)       Image: Constraint of the symbol consymbol constraint of the symbol consymbol co	Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec)	eadwa	ys				4.11				6.41		6.21				
Flow Rate, v (veh/h)       Image: Constraint of the symbol (tem) and tem (tem) and the symbol (	Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)	eadwa	ys				4.11 2.2				6.41 3.5		6.21 3.3				
Capacity, c (veh/h)       Image: Capacity of the dimension of the dimensint dimension of the dimension of the dimension	Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)			ervice			4.11 2.2				6.41 3.5		6.21 3.3				
v/c Ratio       Image: Sector Se	Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, ar			ervice			4.11 2.2 2.21				6.41 3.5 3.51		6.21 3.3 3.31				
95% Queue Length, Q <sub>95</sub> (veh)       Image: Control Delay (s/veh)	Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, ar Flow Rate, v (veh/h)			ervice			4.11 2.2 2.21 43				6.41 3.5 3.51 28		6.21 3.3 3.31 29				
Control Delay (s/veh)         Image:	Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, ar Flow Rate, v (veh/h) Capacity, c (veh/h)			ervice			4.11 2.2 2.21 43 1394				6.41 3.5 3.51 28 417		6.21 3.3 3.31 29 872				
Level of Service, LOS A A A A A A A A A A A A A A A A A A A	Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio			ervice			4.11 2.2 2.21 43 1394 0.03				6.41 3.5 3.51 28 417 0.07		6.21 3.3 3.31 29 872 0.03				
	Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh)			ervice			4.11 2.2 2.21 43 1394 0.03 0.1				6.41 3.5 3.51 28 417 0.07 0.2		6.21 3.3 3.31 29 872 0.03 0.1				
	Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, ar Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh) Control Delay (s/veh)			ervice			4.11 2.2 2.21 43 1394 0.03 0.1 7.7				6.41 3.5 3.51 28 417 0.07 0.2 14.3		6.21 3.3 3.31 29 872 0.03 0.1 9.3				

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### EXHIBIT 45 YEAR 2021 PEAK PM HOUR TRAFFIC – Terminal/Railmarket

General Information							Site	Inform	natio	n						
Analyst	T						Inters	ection			Term	inal/Railr	market			_
Agency/Co.							Jurisd	liction			City c	of Ottawa	a			
Date Performed	11/22	/2017					East/\	West Str	eet		Term	inal Aver	nue			
Analysis Year	2021						North	/South	Street		Railm	arket Pri	vate			
Time Analyzed	Peak	PM Hou	r				Peak	Hour Fa	ctor		0.92					_
Intersection Orientation	East-	Nest					Analy	sis Time	Period (	hrs)	0.25					
Project Description	ΟΤΥ Ρ	Resident	ial Devel	opment												
Lanes																
				J 4 4 7 4 4 4 4 4	\ - 1 4	ነ ሰ ቀጥ	141	*) K								
Vehicle Volumes and Ad	justme	nts			Majo	or Street: Ea	st-West									
Approach		Eastk	ound			West	oound			North	bound			South	bound	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	H
			2	3	40	4	5	6		7	8	9		10	11	1
Priority	10	1	2	<u> </u>				<u> </u>		<u> </u>	<u> </u>					- 1
Number of Lanes	10	0	1	0	0	0	1	0		1	0	1		0	0	(
Number of Lanes Configuration			1	TR	0	LT		0		L	0	R		0	0	
Number of Lanes Configuration Volume, V (veh/h)					0	LT 94	1 253	0		L 83	0	R 106		0	0	
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%)			1	TR	0	LT		0		L	0	R		0	0	
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked			1	TR	0	LT 94		0		L 83 1		R 106		0	0	
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%)		0	1 369	TR	0	LT 94 1	253	0		L 83 1	0	R 106				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized		0	1	TR 84		LT 94	253	0		L 83 1		R 106			0	
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage	0	0	1 369	TR 84	0	LT 94 1	253	0		L 83 1	0	R 106				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Heave	0	0	1 369	TR 84		LT 94 1	253	0		L 83 1	0	R 106				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec)	0	0	1 369	TR 84		LT 94 1	253	0		L 83 1	0	R 106				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec)	0	0	1 369	TR 84		LT 94 1	253			L 83 1	0	R 106				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)	0	0	1 369	TR 84		LT 94 1	253			L 83 1	0	R 106				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)	eadwa	0	1 369 	TR 84		LT 94 1	253			L 83 1	0	R 106				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b>	eadwa	0	1 369 	TR 84		LT 94 1	253			L 83 1	0	R 106 1				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h)	eadwa	0	1 369 	TR 84		LT 94 1 N	253			L 83 1 N	0	R 106 1				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h)	eadwa	0	1 369 	TR 84		LT 94 1 N	253			L 83 1 N 90 271	0	R 106 1				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio	eadwa	0	1 369 	TR 84		LT 94 1 	253			L 83 1 N 90 271 0.33	0	R 106 1 				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up Ha</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)	eadwa	0	1 369 	TR 84		LT 94 1 	253			L 83 1 N 90 271 0.33 1.4	0	R 106 1 				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Fo	eadwa	0	1 369 	TR 84		LT 94 1	253			L 83 1 N 90 271 0.33 1.4 24.8	0	R 106 1				
Number of Lanes Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)	eadwa	0	1 369 	TR 84		LT 94 1	253			L 83 1 N 90 271 0.33 1.4 24.8 C	0	R 106 1 				

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### EXHIBIT 46 YEAR 2027 PEAK AM HOUR TRAFFIC – Terminal/Railmarket

General Information							Site	Inform	natio	n						
Analyst	T						Inters	ection			Term	inal/Railı	market			_
Agency/Co.	+						Jurisd	liction			City o	of Ottawa	a			
Date Performed	11/22	2/2017					East/	West Str	eet		Term	inal Aver	nue			
Analysis Year	2027						North	/South	Street		Railm	arket Pri	ivate			
Time Analyzed	Peak	AM Hou	ır				Peak	Hour Fa	ctor		0.92					
Intersection Orientation	East-\	Nest					Analy	sis Time	Period (	hrs)	0.25					
Project Description	OTY F	Resident	ial Devel	opment												
Vehicle Volumes and Ad	ljustme			1 4 1 Y 4 P 1 A	14	ب ب ۲ Treet: Ea	t t r ist-West	* *	*							
Approach		Eastk	ound			West	oound			North	bound			South	bound	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	F
Priority	10	1	2	3	4U	4	5	6		7	8	9		10	11	1
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	(
Configuration				TR		LT				L		R				
Volume, V (veh/h)			167	23		43	387			27		29				
						1				1		1				
Percent Heavy Vehicles (%)																
Percent Heavy Vehicles (%) Proportion Time Blocked																
											0					
Proportion Time Blocked		N	10			N	lo				0			N	10	
Proportion Time Blocked Percent Grade (%)		N	ło	Undi	vided	N	lo				-			N	10	
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage	eadwa		10	Undi	vided	N	lo				-			N	10	
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage	eadwa		10	Undi	vided	N 4.1	lo				-	6.2		N	10	
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H	eadwa		10	Undi	vided		0			N	-	6.2		N	10	
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec)	eadway			Undi	vided	4.1				N 7.1	-	<u> </u>		N		
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec)	eadwa			Undi	vided	4.1				7.1 6.41	-	6.21		N		
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys			vided	4.1 4.11 2.2				7.1 6.41 3.5	-	6.21 3.3		N		
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b>		ys			vided	4.1 4.11 2.2 2.21				7.1 6.41 3.5 3.51	-	6.21 3.3 3.31				
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h)		ys			vided	4.1 4.11 2.2 2.21 47				7.1 6.41 3.5 3.51	-	6.21 3.3 3.31 32				
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h)		ys			vided	4.1 4.11 2.2 2.21 47 1370				7.1 6.41 3.5 3.51 29 389	-	6.21 3.3 3.31 32 850				
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio		ys			vided	4.1 4.11 2.2 2.21 47 1370 0.03				7.1 6.41 3.5 3.51 29 389 0.08	-	6.21 3.3 3.31 32 850 0.04				
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh)		ys			vided	4.1 4.11 2.2 2.21 47 1370 0.03 0.1				7.1 6.41 3.5 3.51 29 389 0.08 0.2	-	6.21 3.3 3.31 32 850 0.04 0.1				
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys			vided	4.1 4.11 2.2 2.21 47 1370 0.03 0.1 7.7				7.1 6.41 3.5 3.51 29 389 0.08 0.2 15.0	-	6.21 3.3 3.31 32 850 0.04 0.1 9.4				
Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh)		ys			vided	4.1 4.11 2.2 2.21 47 1370 0.03 0.1 7.7 A				7.1 6.41 3.5 3.51 29 389 0.08 0.2 15.0 C	-	6.21 3.3 3.31 32 850 0.04 0.1				

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### EXHIBIT 47 YEAR 2027 PEAK PM HOUR TRAFFIC – Terminal/Railmarket

General Information							Site	Inform	natio	n						
Analyst	T						Inters	ection			Termi	inal/Rail	market			
Agency/Co.	-						Jurisd					of Ottawa				
Date Performed	11/22	/2017					East/	West Str	eet		Termi	inal Aver	nue			
Analysis Year	2027						North	/South	Street		Railm	arket Pr	ivate			
Time Analyzed	Peak	PM Hou	ır				Peak	Hour Fa	ctor		0.92					_
Intersection Orientation	East-\	Nest					Analy	sis Time	Period (	hrs)	0.25					
Project Description	OTY F	Resident	ial Devel	opment												
Lanes					74	14.	* * 4	_								
				J 4 4 1 4 6 1 9		ጎ ሰ ቀጥ י r Street: Ea	t r ist-West	÷	⊾ 							
Vehicle Volumes and Ad	justme	nts														
Approach		East	oound			West	oound			North	bound			South	bound	_
Movement	U	L	Т	R	U	L	Т	R	U	L	T	R	U	L	Т	F
Priority	10	1	2	3	40	4	5	6		7	8	9		10	11	1
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	(
Configuration			202	TR 88		LT 100	276			L 88		R 113				-
Volume, V (veh/h)			393	00		100	276			1		115				-
Percent Heavy Vehicles (%)		<u> </u>				1				1		1				-
											)					
Proportion Time Blocked														N	lo	
Percent Grade (%)		1				N	lo			N					•••	
Percent Grade (%) Right Turn Channelized		1	No	Und	ivided	Ν	lo			Ν	lo					
Percent Grade (%) Right Turn Channelized Median Type/Storage	eadway		١o	Undi	ivided	Ν	lo			N	0					
Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H	eadwa		No	Undi	ivided	N	lo			N						
Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec)	eadwa		10	Undi	ivided						0					
Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec)	eadwa		No	Undi	ivided											
Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)	eadwa		No 	Undi	ivided											
Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys			ivided						0					
Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an		ys			ivided											
Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h)		ys			ivided	109				96		123				
Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h)		ys			ivided	109				96 245		592				
Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio		ys			ivided	109 1048 0.10				96 245 0.39		592 0.21				
Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Capacity, c (veh/h) Capacity, c (veh/h) V/c Ratio 95% Queue Length, Q <sub>95</sub> (veh)		ys			ivided	109 1048 0.10 0.3				96 245 0.39 1.8		592 0.21 0.8				
Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys			ivided	109 1048 0.10 0.3 8.8				96 245 0.39 1.8 28.8		592 0.21 0.8 12.7				
Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh)		ys			Image: state	109 1048 0.10 0.3 8.8 A	lo 			96 245 0.39 1.8 28.8 D	o 	592 0.21 0.8				

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### EXHIBIT 48 YEAR 2031 PEAK AM HOUR TRAFFIC – Terminal/Railmarket

General Information							Site	Inforr	natio	n						
Analyst	T						Inters	ection			Term	inal/Railı	market			_
Agency/Co.	<u> </u>						Jurisd	liction			City o	of Ottawa	а			
Date Performed	11/22	/2017					East/\	West Str	eet		Term	inal Aver	nue			
Analysis Year	2031						North	/South !	Street		Railm	arket Pri	ivate			
Time Analyzed	Peak	AM Hou	ır				Peak	Hour Fa	ctor		0.92					
Intersection Orientation	East-\	Nest					Analy	sis Time	Period (	hrs)	0.25					
Project Description	OTY F	Resident	ial Devel	opment												
Lanes						ţ										
				J 4 1 X 4 5 L 9		<u>ት</u> ተ	t ۴ ř st-West	*****								
Vehicle Volumes and Ad	justme	nts														
Approach		East	oound			West	ound			North	bound			South	bound	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	F
Priority	10	1	2	3	4U	4	5	6		7	8	9		10	11	1
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	C
				TR		LT				L		R				-
Configuration																
Volume, V (veh/h)			192	24	<u> </u>	44	406			28		30				-
Volume, V (veh/h) Percent Heavy Vehicles (%)			192	24		44	406			1		30 1				
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked			192	24			406			1		<u> </u>				
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%)				24		1				1	0	<u> </u>				
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized		1	192 No							1	0	<u> </u>		N	10	
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage					vided	1				1	-	<u> </u>		N	10	
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H	eadwa				vided	1 N				1 N	-	1		N	10	
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec)	eadwa				vided	1 N 4.1				1 N 7.1	-	6.2		N	10	
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec)	eadwa				vided	1 N 4.1 4.11				1 N 7.1 6.41	-	1 6.2 6.21		N		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)	eadwa				vided	1 N 4.1 4.11 2.2				1 N 7.1 6.41 3.5	-	1 6.2 6.21 3.3		N		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys	No	Undi	vided	1 N 4.1 4.11				1 N 7.1 6.41	-	1 6.2 6.21		N		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an		ys	No	Undi	vided	1 N 4.1 4.11 2.2				1 7.1 6.41 3.5 3.51	-	1 6.2 6.21 3.3		N		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys	No	Undi	vided	1 N 4.1 4.11 2.2				1 N 7.1 6.41 3.5	-	1 6.2 6.21 3.3		N		
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an		ys	No	Undi	vided	1 4.1 4.11 2.2 2.21 48 1338				1 7.1 6.41 3.5 3.51 30 362	-	1 6.2 6.21 3.3 3.31 33 820				
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio		ys	No	Undi	vided	1 4.1 4.11 2.2 2.21 48 1338 0.04				1 7.1 6.41 3.5 3.51 30 362 0.08	-	1 6.2 6.21 3.3 3.31 33 820 0.04				
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh)		ys	No	Undi	vided	1 4.1 4.11 2.2 2.21 48 1338 0.04 0.1				1 7.1 6.41 3.5 3.51 30 362 0.08 0.3	-	1 6.2 6.21 3.3 3.31 33 820 0.04 0.1				
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh) Control Delay (s/veh)		ys	No	Undi	vided	1 4.1 4.11 2.2 2.21 48 1338 0.04 0.1 7.8				1 7.1 6.41 3.5 3.51 30 362 0.08 0.3 15.8	-	1 6.2 6.21 3.3 3.31 33 820 0.04 0.1 9.6				
Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>95</sub> (veh)		ys	No	Undi	vided	1 4.1 4.11 2.2 2.21 48 1338 0.04 0.1 7.8 A				1 7.1 6.41 3.5 3.51 30 362 0.08 0.3 15.8 C	-	1 6.2 6.21 3.3 3.31 33 820 0.04 0.1				

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### EXHIBIT 49 YEAR 2031 PEAK PM HOUR TRAFFIC – Terminal/Railmarket

General Information							Site	Inforr	natio	n						
Analyst	1					_		ection			Term	inal/Railı	market			
Agency/Co.	-						Jurisd				<u> </u>	of Ottawa				
Date Performed	11/22	/2017				_		West Str	eet			inal Aver				
Analysis Year	2031							/South !			<u> </u>	arket Pri				
Time Analyzed	Peak	PM Hou	r			_	Peak	Hour Fa	ctor		0.92					
Intersection Orientation	East-V	Nest					Analy	sis Time	Period (	hrs)	0.25					
Project Description	ΟΤΥ Ρ	Resident	ial Devel	opment												
Lanes																
				J 4 1 7 4 1 7 4 7 1 9	ר ז ז	ነ ቦ ቀጥ 1	<u>1</u> 41	* *								
Vehicle Volumes and Ad	ljustme	nts			Majo	r Street: Ea	st-West									
Approach		East	ound			West	ound			North	bound			South	bound	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	F
Priority	10	1	2	3	4U	4	5	6		7	8	9		10	11	1
Number of Lanes	0	0	1	0	0	0	1	0		1	0	1		0	0	0
				TR		LT				L		R				
Configuration			<u> </u>													-
Configuration Volume, V (veh/h)			417	92		104	302			92		117				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%)			417	92		104 1	302			92 1		117 1				E
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked			417	92			302			1		<u> </u>				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%)				92		1				1	0	<u> </u>				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized		1	417		vided					1	0 Io	<u> </u>			10	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage					vided	1				1	-	<u> </u>		N	0	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H	leadwa				vided	1				1	-	<u> </u>		N	lo	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec)	leadwa				vided	1				1	-	<u> </u>		N	0	
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec)	leadwa				vided	1				1	-	<u> </u>		N		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)	leadwa				vided	1				1	-	<u> </u>		N		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		Undi	vided	1				1	-	<u> </u>		N		
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an		ys		Undi	vided	1 N					-					
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		Undi	vided	1 N				1 N	-	1				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec) Follow-Up Headway (sec)		ys		Undi	vided	1 N				1 N 100 222	-	1				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up He Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Pelay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio		ys		Undi	vided	1 N 113 1022 0.11				1 N 100 222 0.45	-	1 1 1 1 1 2 7 571 0.22				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up He</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>55</sub> (veh)		ys		Undi	vided	1 N 113 1022 0.11 0.4				1 N 100 222 0.45 2.2	-	1 1 1 1 1 2 7 5 7 1 0.22 0.8				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (se		ys		Undi	vided	1 N 113 1022 0.11 0.4 9.0				1 N 100 222 0.45 2.2 33.8	-	1 1 1 1 1 2 7 5 7 1 0.22 0.8 1 3.1				
Configuration Volume, V (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type/Storage <b>Critical and Follow-up H</b> Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) <b>Delay, Queue Length, an</b> Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q <sub>55</sub> (veh)		ys		Undi	vided	1 N 113 1022 0.11 0.4 9.0 A				1 N 100 222 0.45 2.2 33.8 D	-	1 1 1 1 1 2 7 5 7 1 0.22 0.8				

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# EXHIBIT 50 EXISTING 2014 PEAK AM HOUR TRAFFIC – Terminal/Trainyards

		HCS	7 Sig	nalize	ed Int	ersec		lesu	Its Su	nmar	у				
General Inform	ation								Intersec	tion Inf	ormativ	nn.		4.741	F U
	auon										0.25		- 1	44	
Agency				A	in Det	40/40	0047	_	Duration	,					
Analyst						e 12/18/			Area Typ	e	Other				
Jurisdiction				Time F			AM Hou	r	PHF		0.90			w t e	*
Urban Street		200, 230 & 260 Ste		Analys					Analysis	Period	1> 7:0	00	14		
Intersection		Traintards/Terminal	i	File Na	ame	2014_	ex_am.	xus						11r	
Project Descript	tion	OTY Residential De	evelopm	ent									1	14149	* 1
Demand Inform	nation				EB			W	В		NB			SB	
Approach Move				L	T	R	L	ТТ	_	L	T	R	L	T	R
Demand (v), v				65	15	36	7	3		79	82	21	1	57	168
Demand (V), V				05	15	- 30	/	3		19	02	21		57	100
Signal Informa	tion				144	5	Ľ	T					4		Б
Cycle, s	80.0	Reference Phase	2	1		1 2	₽₽						<b>V</b>		Y
Offset, s	0	Reference Point	Begin								_	1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Green		2.6	10.1	0.0		0.0					7
Force Mode	Fixed	Simult. Gap N/S	On	Yellow Red	3.3	3.3	3.3	0.0		0.0	_	5		7	-€.
Force Mode	Fixeu	Simult. Gap N/S	On	Reu	3.0	2.1	3.0	0.0	0.0	0.0		0	0	1	
Timer Results				EBI		EBT	WB	L	WBT	NBI	L	NBT	SBI	L	SBT
Assigned Phase						8			4			2			6
Case Number						10.0		$\rightarrow$	12.0			5.0			7.0
Phase Duration	s					16.4			8.6			55.0			55.0
Change Period,		a) s				6.6		-	6.0			6.3			6.3
Max Allow Head				_		3.2		-	3.1			0.0	_		0.0
	2 (					4.4		+	2.5			0.0			0.0
Queue Clearan						4.4 0.2		-				0.0		_	0.0
Green Extensio		( <i>g</i> e), s						-	0.0		_	0.0		_	0.0
Phase Call Prot						0.94		$\rightarrow$	0.24					_	
Max Out Probal	oility		_			0.00			0.00						
Movement Gro	up Res	ults			EB			WE	3		NB			SB	_
Approach Move				L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Move				3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow F					U U	10		· ·			91	1	· ·		
		) veh/h			51			12						64	1 20
			In	72	51			12	7	88		· ·		64	20
	ation Flo	ow Rate (s), veh/h/l	In	72 1600	1548			171	_	1301	1688	1478		1686	1340
Queue Service	ation Flo Time ( g	ow Rate ( <i>s</i> ), veh/h/l g <sub>s</sub> ), s	In	72 1600 1.6	1548 2.4			171 0.5		1301 2.3	1688 1.7	1478 0.0		1686 0.0	1340 0.1
Queue Service Cycle Queue C	ation Flo Time ( g learance	ow Rate ( <i>s</i> ), veh/h/l g <sub>s</sub> ), s	In	72 1600 1.6 1.6	1548 2.4 2.4			171 0.5 0.5		1301 2.3 3.5	1688 1.7 1.7	1478 0.0 0.0		1686 0.0 1.2	1340 0.1 0.1
Queue Service Cycle Queue C Green Ratio ( g	ation Flo Time ( g learance /C )	ow Rate ( <i>s</i> ), veh/h/l g <sub>s</sub> ), s	In	72 1600 1.6 1.6 0.13	1548 2.4 2.4 0.13			171 0.5 0.5		1301 2.3 3.5 0.62	1688 1.7 1.7 0.62	1478 0.0 0.0 0.62		1686 0.0 1.2 0.62	1340 0.1 0.1 0.83
Queue Service Cycle Queue C Green Ratio ( g Capacity ( c ), v	ation Flo Time ( g learance /C ) reh/h	w Rate(s), veh/h/l g s ), s e Time(g c ), s	In 	72 1600 1.6 1.6 0.13 430	1548 2.4 2.4 0.13 208			171 0.5 0.5 0.05 78	5	1301 2.3 3.5 0.62 879	1688 1.7 1.7 0.62 1049	1478 0.0 0.0 0.62 918		1686 0.0 1.2 0.62 1093	1340 0.1 0.1 0.83 1216
Queue Service Cycle Queue C Green Ratio ( <i>g</i> Capacity ( <i>c</i> ), v Volume-to-Capa	ation Flo Time ( g learanco /C ) reh/h acity Ra	w Rate ( <i>s</i> ), veh/h/l g s ), s e Time ( g c ), s tito ( X )		72 1600 1.6 1.6 0.13 430 0.168	1548 2.4 2.4 0.13 208 0.245			1713 0.5 0.5 0.05 78 0.15	5 7	1301 2.3 3.5 0.62 879 0.100	1688 1.7 1.7 0.62 1049 0.087	1478 0.0 0.0 0.62 918 0.001		1686 0.0 1.2 0.62 1093 0.059	1340 0.1 0.83 1216 0.016
Queue Service Cycle Queue C Green Ratio ( <i>g</i> , Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue	ation Flo Time ( <u>c</u> learance /C ) reh/h acity Ra ( Q ), ft/	w Rate ( <i>s</i> ), veh/h/l <i>g s</i> ), s e Time ( <i>g c</i> ), s titio ( <i>X</i> ) /In ( 50 th percentile)	)	72 1600 1.6 0.13 430 0.168 15.6	1548 2.4 2.4 0.13 208 0.245 21.8			1717 0.5 0.5 0.05 78 0.15 5.8	7	1301 2.3 3.5 0.62 879 0.100 15.2	1688 1.7 1.7 0.62 1049 0.087 14.8	1478 0.0 0.0 0.62 918 0.001 0.2		1686 0.0 1.2 0.62 1093 0.059 10.3	1340 0.1 0.83 1216 0.016 0.2
Queue Service Cycle Queue C Green Ratio ( <i>g</i> , Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue Back of Queue	ation Flo Time ( g learance /C ) reh/h acity Ra ( Q ), ft/ ( Q ), ve	w Rate ( $s$ ), veh/h/l gs), s e Time ( $gc$ ), s itio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile)	) iile)	72 1600 1.6 0.13 430 0.168 15.6 0.6	1548 2.4 2.4 0.13 208 0.245 21.8 0.9			1711 0.5 0.05 78 0.15 5.8 0.2	7	1301 2.3 3.5 0.62 879 0.100 15.2 0.6	1688 1.7 1.7 0.62 1049 0.087 14.8 0.6	1478 0.0 0.62 918 0.001 0.2 0.0		1686 0.0 1.2 0.62 1093 0.059 10.3 0.4	1340 0.1 0.83 1216 0.016 0.2 0.0
Queue Service Cycle Queue Cl Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage	ation Flo Time ( <u>g</u> learanco /C ) reh/h acity Ra ( Q ), ft/ ( Q ), ve Ratio (	w Rate ( $s$ ), veh/h/l gs), s e Time ( $gc$ ), s itio ( $X$ ) /In (50 th percentile) eh/ln (50 th percenti RQ) (50 th percent	) iile)	72 1600 1.6 0.13 430 0.168 15.6	1548 2.4 2.4 0.13 208 0.245 21.8			1711 0.5 0.05 78 0.15 5.8 0.2 0.00	7 0 0 0 0 0	1301 2.3 3.5 0.62 879 0.100 15.2	1688 1.7 1.7 0.62 1049 0.087 14.8	1478 0.0 0.0 0.62 918 0.001 0.2		1686 0.0 1.2 0.62 1093 0.059 10.3	1340 0.1 0.83 1216 0.016 0.2
Queue Service Cycle Queue Cl Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay (	ation Flo Time ( g learance /C ) reh/h acity Ra ( Q ), ft/ ( Q ), ve Ratio ( ( d 1 ), so	w Rate ( $s$ ), veh/h/l gs), s e Time ( $gc$ ), s titio ( $X$ ) /In (50 th percentile) eh/ln (50 th percenti RQ) (50 th percentile)	) iile)	72 1600 1.6 0.13 430 0.168 15.6 0.6	1548 2.4 2.4 0.13 208 0.245 21.8 0.9			1711 0.5 0.05 78 0.15 5.8 0.2	7 0 0 0 0 0	1301 2.3 3.5 0.62 879 0.100 15.2 0.6	1688 1.7 1.7 0.62 1049 0.087 14.8 0.6	1478 0.0 0.62 918 0.001 0.2 0.0		1686 0.0 1.2 0.62 1093 0.059 10.3 0.4	1340 0.1 0.83 1216 0.016 0.2 0.0
Queue Service Cycle Queue Cl Green Ratio (g, Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage	ation Flo Time ( g learance /C ) reh/h acity Ra ( Q ), ft/ ( Q ), ve Ratio ( ( d 1 ), so	w Rate ( $s$ ), veh/h/l gs), s e Time ( $gc$ ), s titio ( $X$ ) /In (50 th percentile) eh/ln (50 th percenti RQ) (50 th percentile)	) iile)	72 1600 1.6 0.13 430 0.168 15.6 0.6 0.00	1548 2.4 2.4 0.13 208 0.245 21.8 0.9 0.00			1711 0.5 0.05 78 0.15 5.8 0.2 0.00	7 0 0 0 0 0	1301 2.3 3.5 0.62 879 0.100 15.2 0.6 0.00	1688 1.7 1.7 0.62 1049 0.087 14.8 0.6 0.00	1478 0.0 0.62 918 0.001 0.2 0.0 0.00		1686 0.0 1.2 0.62 1093 0.059 10.3 0.4 0.00	1340 0.1 0.83 1216 0.016 0.2 0.0 0.00
Queue Service Cycle Queue Cl Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay (	ation Flo Time ( $\underline{c}$ learance /C) reh/h acity Ra ( $Q$ ), th ( $Q$ ), ve Ratio ( ( $d_1$ ), so lay ( $d_2$	w Rate ( $s$ ), veh/h/l gs), s e Time ( $gc$ ), s titio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile) /veh	) iile)	72 1600 1.6 0.13 430 0.168 15.6 0.6 0.00 30.7	1548 2.4 2.4 0.13 208 0.245 21.8 0.9 0.00 31.0			1717 0.5 0.05 78 0.15 5.8 0.2 0.00 36.7	7 7 7 7	1301 2.3 3.5 0.62 879 0.100 15.2 0.6 0.00 6.6	1688 1.7 1.7 0.62 1049 0.087 14.8 0.6 0.00 6.1	1478 0.0 0.62 918 0.001 0.2 0.0 0.00 5.7		1686 0.0 1.2 0.62 1093 0.059 10.3 0.4 0.00 6.0	1340 0.1 0.83 1216 0.016 0.2 0.0 0.00 0.00
Queue Service Cycle Queue Cl Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del	ation Flo Time ( $\underline{c}$ learance /C) reh/h acity Ra ( $Q$ ), ft/ ( $Q$ ), ve Ratio ( $(d_1)$ , so lay ( $d_2$ elay ( $d_2$	w Rate ( $s$ ), veh/h/l gs), s e Time ( $gc$ ), s tio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile) QQ) (50 th percentile) QQ) ( $50$ th percentile) QQ	) iile)	72 1600 1.6 0.13 430 0.168 15.6 0.6 0.00 30.7 0.1	1548 2.4 2.4 0.13 208 0.245 21.8 0.9 0.00 31.0 0.2			1717 0.5 0.05 78 0.15 5.8 0.2 0.00 36.7 0.3		1301 2.3 3.5 0.62 879 0.100 15.2 0.6 0.00 6.6 0.2	1688 1.7 1.7 0.62 1049 0.087 14.8 0.6 0.00 6.1 0.2	1478 0.0 0.62 918 0.001 0.2 0.0 0.00 5.7 0.0		1686 0.0 1.2 0.62 1093 0.059 10.3 0.4 0.00 6.0 0.1	1340 0.1 0.83 1216 0.016 0.2 0.0 0.00 0.4 0.0
Queue Service Cycle Queue C Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del Initial Queue De	ation Flo Time ( $\underline{c}$ learance /C) reh/h acity Ra ( $Q$ ), ft/ ( $Q$ ), ve Ratio ( $(d_1)$ , so lay ( $d_2$ elay ( $d_2$ elay ( $d_3$	w Rate ( $s$ ), veh/h/l gs), s e Time ( $gc$ ), s tio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile) Q), s/veh s), s/veh eh	) iile)	72 1600 1.6 0.13 430 0.168 15.6 0.6 0.00 30.7 0.1 0.0	1548 2.4 2.4 0.13 208 0.245 21.8 0.9 0.00 31.0 0.2 0.0			1717 0.5 0.05 78 0.15 5.8 0.2 0.00 36.7 0.3 0.0		1301 2.3 3.5 0.62 879 0.100 15.2 0.6 0.00 6.6 0.2 0.0	1688 1.7 1.7 0.62 1049 0.087 14.8 0.6 0.00 6.1 0.2 0.0	1478 0.0 0.62 918 0.001 0.2 0.0 0.00 5.7 0.0 0.0 0.0		1686 0.0 1.2 0.62 1093 0.059 10.3 0.4 0.00 6.0 0.1 0.0	1340 0.1 0.83 1216 0.016 0.2 0.0 0.00 0.4 0.0 0.0
Queue Service Cycle Queue C Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay (	ation Flc Time ( $\underline{c}$ learance /C) reh/h acity Ra (Q), ft/ (Q), ve Ratio ( (d), s/ve elay (d) d), s/ve $\underline{c}$ (LOS)	by Rate ( $s$ ), veh/h/l g s), s e Time ( $g c$ ), s tio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile) RQ) (50 th percentile) s), s/veh s), s/veh eh	) iile)	72 1600 1.6 0.13 430 0.168 15.6 0.6 0.00 30.7 0.1 0.0 30.7	1548 2.4 2.4 0.13 208 0.245 21.8 0.9 0.00 31.0 0.2 0.0 31.2 C	C	37.1	1711 0.5 0.5 78 0.15 5.8 0.2 0.00 36.7 0.3 0.0 37.1 D		1301 2.3 3.5 0.62 879 0.100 15.2 0.6 0.00 6.6 0.2 0.0 6.9	1688 1.7 0.62 1049 0.087 14.8 0.6 0.00 6.1 0.2 0.0 6.2 A	1478 0.0 0.62 918 0.001 0.2 0.0 0.00 5.7 0.0 0.0 0.0 5.7	4.7	1686 0.0 1.2 0.62 1093 0.059 10.3 0.4 0.00 6.0 0.1 0.0 6.1 A	1340 0.1 0.83 1216 0.016 0.2 0.0 0.00 0.4 0.0 0.0 0.0 0.4
Queue Service Cycle Queue C Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service	ation Flc Time ( $\underline{c}$ learance /C) reh/h acity Ra (Q), ft/ (Q), ve Ratio ( $\underline{c}$ (d), s/ve acity (d) acity (d) aci	w Rate ( $s$ ), veh/h/l gs), s e Time ( $gc$ ), s tio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile) RQ) (50 th percentile) RQ) (50 th percentile) RQ), s/veh s), s/veh eh /LOS	) iile)	72 1600 1.6 0.13 430 0.168 15.6 0.6 0.00 30.7 0.1 0.0 30.7 C	1548 2.4 2.4 0.13 208 0.245 21.8 0.9 0.00 31.0 0.2 0.0 31.2 C	C	37.1	1711 0.5 0.5 78 0.15 5.8 0.2 0.00 36.7 0.3 0.0 37.1 D	Image: state	1301 2.3 3.5 0.62 879 0.100 15.2 0.6 0.00 6.6 0.2 0.0 6.9 A	1688 1.7 0.62 1049 0.087 14.8 0.6 0.00 6.1 0.2 0.0 6.2 A	1478 0.0 0.62 918 0.001 0.2 0.0 0.00 5.7 0.0 0.0 0.0 0.0 5.7 A A	4.7	1686 0.0 1.2 0.62 1093 0.059 10.3 0.4 0.00 6.0 0.1 0.0 6.1 A	1340 0.1 0.83 1216 0.016 0.2 0.0 0.00 0.4 0.0 0.0 0.4 A
Queue Service Cycle Queue C Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Back of Queue Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service Approach Delay	ation Flc Time ( $\underline{c}$ learance /C) reh/h acity Ra (Q), ft/ (Q), ve Ratio ( $\underline{c}$ (d), s/ve acity (d) acity (d) aci	w Rate ( $s$ ), veh/h/l gs), s e Time ( $gc$ ), s tio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile) RQ) (50 th percentile) RQ) (50 th percentile) RQ), s/veh s), s/veh eh /LOS	) iile)	72 1600 1.6 0.13 430 0.168 15.6 0.6 0.00 30.7 0.1 0.0 30.7 C	1548 2.4 2.4 0.13 208 0.245 21.8 0.9 0.00 31.0 0.2 0.0 31.2 C	C		1711 0.5 0.05 78 0.15 5.8 0.2 0.00 36.7 0.3 0.0 37.1 D	Image: Constraint of the sector of	1301 2.3 3.5 0.62 879 0.100 15.2 0.6 0.00 6.6 0.2 0.0 6.9 A	1688 1.7 0.62 1049 0.087 14.8 0.6 0.00 6.1 0.2 0.0 6.2 A	1478 0.0 0.62 918 0.001 0.2 0.0 0.00 5.7 0.0 0.0 0.0 0.0 5.7 A A		1686 0.0 1.2 0.62 1093 0.059 10.3 0.4 0.00 6.0 0.1 0.0 6.1 A	1340 0.1 0.83 1216 0.016 0.2 0.0 0.00 0.4 0.0 0.0 0.4 A
Queue Service Cycle Queue C Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Back of Queue Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service Approach Delay	ation Flc Time ( $\underline{c}$ learance /C) reh/h acity Ra ( $Q$ ), ft/ ( $Q$ ), ve Ratio ( $(Q)$ , ft/ ( $Q$ ), ve Ratio ( $(d_1)$ , sub- lay ( $d_2$ elay ( $d_2$ ), s/ve elay ( $d_2$ ), s/ve	w Rate ( $s$ ), veh/h/l gs), s e Time ( $gc$ ), s tio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile) RQ) (50 th percentile) RQ) (50 th percentile) RQ), s/veh s), s/veh eh /LOS	) iile)	72 1600 1.6 0.13 430 0.168 15.6 0.6 0.00 30.7 0.1 0.0 30.7 C	1548 2.4 2.4 0.13 208 0.245 21.8 0.9 0.00 31.0 0.2 0.0 31.2 C	C 14		1711 0.5 0.5 78 0.15 5.8 0.2 0.00 36.7 0.3 0.0 37.1 D	Image: Constraint of the sector of	1301 2.3 3.5 0.62 879 0.100 15.2 0.6 0.00 6.6 0.2 0.0 6.9 A	1688 1.7 0.62 1049 0.087 14.8 0.6 0.00 6.1 0.2 0.0 6.2 A	1478 0.0 0.62 918 0.001 0.2 0.0 0.00 5.7 0.0 0.0 0.0 0.0 5.7 A A		1686 0.0 1.2 0.62 1093 0.059 10.3 0.4 0.00 6.0 0.1 0.0 6.1 A	1340 0.1 0.83 1216 0.016 0.2 0.0 0.00 0.4 0.0 0.0 0.4 A
Queue Service Cycle Queue C Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service Approach Delay Intersection Delay	ation Flc Time ( $\underline{c}$ learance /C) reh/h acity Ra ( $Q$ ), ft/ ( $Q$ ), ve Ratio ( $(Q)$ , ft/ ( $Q$ ), ve Ratio ( $(d_1)$ , sub- lay ( $d_2$ lay ( $d_2$	by Rate ( $s$ ), veh/h/l g s), s e Time ( $g c$ ), s tio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile) RQ) (50 th percentile) RQ) (50 th percentile) RQ), s/veh s), s/veh eh /LOS eh /LOS	) iile)	72 1600 1.6 0.13 430 0.168 15.6 0.6 0.00 30.7 0.1 0.0 30.7 C	1548 2.4 2.4 0.13 208 0.245 21.8 0.9 0.00 31.0 0.2 0.0 31.2 C EB	C		1711 0.5 0.5 78 0.15 5.8 0.2 0.00 36.7 0.3 0.0 37.1 D	Image: Constraint of the sector of	1301 2.3 3.5 0.62 879 0.100 15.2 0.6 0.00 6.6 0.2 0.0 6.9 A	1688 1.7 1.7 0.62 1049 0.087 14.8 0.6 0.00 6.1 0.2 0.0 6.2 A NB	1478 0.0 0.62 918 0.001 0.2 0.0 0.00 5.7 0.0 0.0 0.0 0.0 5.7 A A		1686 0.0 1.2 0.62 1093 0.059 10.3 0.4 0.00 6.0 0.1 0.0 6.1 A	1340 0.1 0.83 1216 0.016 0.2 0.0 0.00 0.4 0.0 0.0 0.4 A

## EXHIBIT 51 EXISTING 2014 PEAK PM HOUR TRAFFIC – Terminal/Trainyards

		HCS	67 Sig	nalize	d In	Itei	rsect	ion R	lesu	lts Su	mmar	у				
Comourt										Into	tion In f					N U
General Inform	nation								_		tion Inf		on	- 🏻 📫	1	
Agency										Duratior	,	0.25		- 2		
Analyst				Analys		-	12/18/			Area Ty	ре	Other				
Jurisdiction				Time F	Period			PM Hou	_	PHF		0.90		* *		*
Urban Street		200, 230 & 260 Ste	amli	Analys	sis Ye	ar	2014			Analysis	Period	1> 7:0	00	7		
Intersection		Traintards/Terminal	l	File Na	ame		2014_	ex_pm.:	xus						5tr	
Project Descrip	tion	OTY Residential De	evelopm	ent										The second se	4149	۲. ۲
Demand Inform	nation				EE	3			WE	3		NB			SB	
Approach Move				L	Т	_	R	L	Т	R	L	T	R	L	T	R
Demand (v), v				99	2	_	53	4	1	0	41	117	8	4	105	187
Demand (V), V	en/m			33	2		55	4		0	41	117	0	4	105	107
Signal Informa	ation				1.40		2	e	T					. 4		<u> </u>
Cycle, s	80.0	Reference Phase	2	1			2	₽						<b>V</b>		Y
Offset, s	0	Reference Point	Begin			In	4 7					_	1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Green		(	1.7	11.1	0.0		0.0					-
Force Mode	Fixed	Simult. Gap N/S	On	Yellow Red	3.3	_	3.3 2.7	3.3	0.0		0.0		6	8	7	-€ ,
Force Mode	Fixed	Simult. Gap N/S	OII	Reu	3.0		2.1	3.0	0.0	0.0	0.0		0	0	,	
Timer Results				EBI	-	E	BT	WBI	L	WBT	NB	L	NBT	SBI	-	SBT
Assigned Phase	e					1	8			4			2			6
Case Number	-				-	1(	0.0			12.0			5.0			7.0
Phase Duration					-		7.4			7.7			55.0			55.0
Change Period		-) 6			-		.6			6.0	-		6.3			6.3
-					-		_					_			_	
Max Allow Head					-		.2 .7			3.1 2.2	<u> </u>		0.0	<u> </u>		0.0
Queue Clearan Green Extensio					-		.1		-	0.0			0.0			0.0
Phase Call Pro		(90), 3			-	_	. <del>-</del> 97			0.12			0.0			0.0
Max Out Proba	,			_	-		00			0.00	-					
Max Out 110ba	onity					0.	00			0.00						
Movement Gro	oup Res	sults			EB	;			WB			NB			SB	
Approach Move	ement			L	Т		R	L	Т	R	L	Т	R	L	Т	R
Assigned Move	ment			3	8	Т	18	7	4	14	5	2	12	1	6	16
Adjusted Flow F	Rate ( v	), veh/h		110	56				6		46	130	3		121	41
Adjusted Satura	ation Flo	w Rate (s), veh/h/	In	1470	148	3			1731		1284	1730	1486		1707	1200
Queue Service	Time (	g s ), S		2.7	2.7				0.2	<u> </u>	1.2	2.5	0.1		0.0	0.2
Cycle Queue C				2.7	2.7				0.2		3.5	2.5	0.1		2.3	0.2
Green Ratio ( g		(0, ), -		0.15	0.15				0.03	-	0.62	0.62	0.62		0.62	0.84
	,					_	_		58		850	1074	923		1106	1107
Capacity (c)	/eh/h			432	218	5							0.004			0.037
Capacity (c), v Volume-to-Capa		atio (X)		432 0.255	218 0.25	_			0.096	3	0.054	0.121			0.109	
Volume-to-Capa	acity Ra	. ,	)	0.255	0.25	5			0.096	3	0.054	0.121			0.109	0.6
Volume-to-Cap Back of Queue	acity Ra ( Q ), ft	/In ( 50 th percentile)		0.255 25.6	0.25 23.4	5 4			2.7	3	7.8	21.2	0.5	_	19.8	0.6
Volume-to-Capa Back of Queue Back of Queue	acity Ra (Q), ft (Q), vo	/In ( 50 th percentile) eh/In ( 50 th percent	ile)	0.255 25.6 0.9	0.25 23.4 0.9	-5 4	_		2.7 0.1		7.8 0.3	21.2 0.8	0.5 0.0		19.8 0.8	0.0
Volume-to-Capa Back of Queue Back of Queue Queue Storage	acity Ra (Q), ft (Q), vo Ratio (	/In ( 50 th percentile) eh/In ( 50 th percent <i>RQ</i> ) ( 50 th percen	ile)	0.255 25.6 0.9 0.00	0.25 23.4 0.9 0.00	5 4 ) 0	_		2.7 0.1 0.00		7.8 0.3 0.00	21.2 0.8 0.00	0.5 0.0 0.00		19.8 0.8 0.00	0.0 0.00
Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay	acity Ra (Q), ft (Q), vo Ratio ( (d1), s	/In ( 50 th percentile) eh/In ( 50 th percent <i>RQ</i> ) ( 50 th percen /veh	ile)	0.255 25.6 0.9 0.00 30.2	0.25 23.4 0.9 0.00 30.2	5 4 ) ) 2			2.7 0.1 0.00 37.5		7.8 0.3 0.00 6.9	21.2 0.8 0.00 6.2	0.5 0.0 0.00 5.8		19.8 0.8 0.00 6.2	0.0 0.00 0.3
Volume-to-Cap Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De	acity Ra (Q), ft (Q), vo Ratio ( (d1), s lay (d2	/In ( 50 th percentile) eh/In ( 50 th percent <i>RQ</i> ) ( 50 th percent /veh e), s/veh	ile)	0.255 25.6 0.9 0.00 30.2 0.1	0.25 23.4 0.9 0.00 30.2 0.2	5 4 2 2			2.7 0.1 0.00 37.5 0.3		7.8 0.3 0.00 6.9 0.1	21.2 0.8 0.00 6.2 0.2	0.5 0.0 0.00 5.8 0.0		19.8 0.8 0.00 6.2 0.2	0.0 0.00 0.3 0.1
Volume-to-Cap Back of Queue Back of Queue Queue Storage Uniform Delay of Incremental De Initial Queue Do	acity Ra (Q), ft (Q), vo Ratio ( (d1), s lay (d2 elay (d	/In ( 50 th percentile) eh/In ( 50 th percent <i>RQ</i> ) ( 50 th percent /veh e), s/veh g), s/veh	ile)	0.255 25.6 0.9 0.00 30.2 0.1 0.0	0.25 23.4 0.9 0.00 30.2 0.2 0.0	.5 4 2 2			2.7 0.1 0.00 37.5 0.3 0.0		7.8 0.3 0.00 6.9 0.1 0.0	21.2 0.8 0.00 6.2 0.2 0.0	0.5 0.0 5.8 0.0 0.0		19.8 0.8 0.00 6.2 0.2 0.0	0.0 0.00 0.3 0.1 0.0
Volume-to-Capi Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay (	acity Ra (Q), ft (Q), vo Ratio ( (d1), s lay (d2 elay (d d), s/vo	/In ( 50 th percentile) eh/In ( 50 th percent <i>RQ</i> ) ( 50 th percent /veh e), s/veh e), s/veh eh	ile)	0.255 25.6 0.9 0.00 30.2 0.1 0.0 30.4	0.25 23.4 0.9 0.00 30.2 0.2 0.0 30.5	.5 4 2 2			2.7 0.1 0.00 37.5 0.3 0.0 37.8		7.8 0.3 0.00 6.9 0.1 0.0 7.0	21.2 0.8 0.00 6.2 0.2 0.0 6.4	0.5 0.0 5.8 0.0 0.0 5.8		19.8 0.8 0.00 6.2 0.2 0.0 6.4	0.0 0.00 0.3 0.1 0.0 0.3
Volume-to-Capi Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service	acity Ra (Q), ft (Q), vo Ratio ( (d1), s lay (d2 elay (d2 d), s/vo e (LOS)	/In ( 50 th percentile, eh/In ( 50 th percent <i>RQ</i> ) ( 50 th percent /veh e), s/veh eh	ile)	0.255 25.6 0.9 0.00 30.2 0.1 0.0 30.4 C	0.25 23.4 0.9 0.00 30.2 0.0 30.5 C	.5 4 2 2 5 5 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		27 0	2.7 0.1 0.00 37.5 0.3 0.0 37.8 D		7.8 0.3 0.00 6.9 0.1 0.0 7.0 A	21.2 0.8 0.00 6.2 0.2 0.0 6.4 A	0.5 0.0 5.8 0.0 0.0 5.8 5.8 A		19.8 0.8 0.00 6.2 0.2 0.0 6.4 A	0.0 0.00 0.3 0.1 0.0 0.3 A
Volume-to-Cap Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue Do Control Delay ( Level of Service Approach Delay	acity Ra (Q), ft (Q), vo Ratio ( (d1), s lay (d2 elay (d d), s/vo e (LOS) y, s/veh	/In ( 50 th percentile, eh/In ( 50 th percent <i>RQ</i> ) ( 50 th percent /veh a), s/veh a), s/veh eh	ile)	0.255 25.6 0.9 0.00 30.2 0.1 0.0 30.4	0.25 23.4 0.9 0.00 30.2 0.0 30.5 C	.5 4 2 2 5 5 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	C 14	37.8	2.7 0.1 0.00 37.5 0.3 0.0 37.8 D		7.8 0.3 0.00 6.9 0.1 0.0 7.0	21.2 0.8 0.00 6.2 0.2 0.0 6.4 A	0.5 0.0 5.8 0.0 0.0 5.8 5.8 A A	4.9	19.8 0.8 0.00 6.2 0.2 0.0 6.4 A	0.0 0.00 0.3 0.1 0.0 0.3
Volume-to-Capi Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service	acity Ra (Q), ft (Q), vo Ratio ( (d1), s lay (d2 elay (d d), s/vo e (LOS) y, s/veh	/In ( 50 th percentile, eh/In ( 50 th percent <i>RQ</i> ) ( 50 th percent /veh a), s/veh a), s/veh eh	ile)	0.255 25.6 0.9 0.00 30.2 0.1 0.0 30.4 C	0.25 23.4 0.9 0.00 30.2 0.0 30.5 C	.5 4 2 2 5 5 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	C 14		2.7 0.1 0.00 37.5 0.3 0.0 37.8 D		7.8 0.3 0.00 6.9 0.1 0.0 7.0 A	21.2 0.8 0.00 6.2 0.2 0.0 6.4 A	0.5 0.0 5.8 0.0 0.0 5.8 5.8 A A	4.9 B	19.8 0.8 0.00 6.2 0.2 0.0 6.4 A	0.0 0.00 0.3 0.1 0.0 0.3 A
Volume-to-Cap Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue Do Control Delay ( Level of Service Approach Delay	acity Ra (Q), ft (Q), vo Ratio ( (d1), s lay (d2 elay (d d), s/vo e (LOS) y, s/veh lay, s/ve	/In ( 50 th percentile, eh/In ( 50 th percent <i>RQ</i> ) ( 50 th percent /veh a), s/veh a), s/veh eh	ile)	0.255 25.6 0.9 0.00 30.2 0.1 0.0 30.4 C	0.25 23.4 0.9 0.00 30.2 0.0 30.5 C	5 4 2 2 5 5 (	_		2.7 0.1 0.00 37.5 0.3 0.0 37.8 D	D	7.8 0.3 0.00 6.9 0.1 0.0 7.0 A	21.2 0.8 0.00 6.2 0.2 0.0 6.4 A	0.5 0.0 5.8 0.0 0.0 5.8 5.8 A A		19.8 0.8 0.00 6.2 0.2 0.0 6.4 A	0.0 0.00 0.3 0.1 0.0 0.3 A
Volume-to-Cap Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue Do Control Delay ( Level of Service Approach Delay Intersection De	acity Ra (Q), ft (Q), vo Ratio ( (d1), s lay (d2 elay (d d), s/vo e (LOS) y, s/veh lay, s/ve	/In ( 50 th percentile, eh/In ( 50 th percent <i>RQ</i> ) ( 50 th percent /veh 3), s/veh a), s/veh eh /LOS bh / LOS	ile)	0.255 25.6 0.9 0.00 30.2 0.1 0.0 30.4 C	0.25 23.4 0.9 0.00 30.2 0.2 0.0 30.5 C	5 4 2 2 3 3 4 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	_		2.7 0.1 0.00 37.5 0.3 0.0 37.8 D 3 WB	D	7.8 0.3 0.00 6.9 0.1 0.0 7.0 A	21.2 0.8 0.00 6.2 0.2 0.0 6.4 A	0.5 0.0 5.8 0.0 0.0 5.8 5.8 A A		19.8 0.8 0.00 6.2 0.0 6.4 A SB	0.0 0.00 0.3 0.1 0.0 0.3 A

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## FIGURE 52 YEAR 2021 PEAK AM HOUR TRAFFIC – Terminal/Trainyards

		HCS	7 Sig	nalize	d In	tersec	tion F	Resul	ts Sur	nmar	у				
General Inform	ation								ntersec	tion Inf	ormatio	n		4.J.++	b lu
	auon								Duration		0.25	511		14	
Agency				Analyz		0 12/10	/2017			,			-		
Analyst				· ·		e 12/18			Area Typ	e	Other		<u> </u>		2
Jurisdiction				Time F			AM Hou		PHF	<b>D</b> : 1	0.90				
Urban Street		200, 230 & 260 Stea	amlı	Analys		_			Analysis	Period	1> 7:0	00			
Intersection		Traintards/Terminal		File Na	ame	2021	_tot_am.	.xus						<u>117</u>	
Project Descript	ion	OTY Residential De	velopm	ent									1	141144	<u>۲</u>
Demand Inform	nation				EB			WB	;		NB			SB	
Approach Move	ment		_	L	Т	R	L	Т	R	L.	Т	R	L	Т	R
Demand $(v)$ , ve				78	16	43	8	3	1	122		23	1	61	206
Signal Information	tion				144	2									<u> </u>
Cycle, s	80.0	Reference Phase	2			<sup>ي</sup> ا	°₩						Ý-		Y
Offset, s	0	Reference Point	Begin	Green	100	2.8	10.3	0.0	0.0	0.0		1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow		3.3	3.3	0.0	0.0	0.0					7
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	2.7	3.0	0.0	0.0	0.0		б	6	7	★ *
Timer Results				EBI	-	EBT	WB	L	WBT	NBI	-	NBT	SB	-	SBT
Assigned Phase	)					8			4			2			6
Case Number						10.0			12.0			5.0			7.0
Phase Duration,	s					16.6			8.8			54.6			54.6
Change Period,	( Y+R	c ), S				6.6			6.0			6.3			6.3
Max Allow Head	lway ( <i>I</i>	<i>MAH</i> ), s				3.2			3.1			0.0			0.0
Queue Clearand	ce Time	(gs),s				4.8			2.6						
Green Extension		(ge), s				0.3			0.0			0.0			0.0
Phase Call Prob						0.96			0.26						
Max Out Probab	oility		_			0.00			0.00						
Movement Gro	up Res	ults			EB			WB			NB			SB	
Approach Move			_	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Mover			_	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow F		) veh/h	_	87	60	10		13		136	98	3	<u> </u>	69	62
-		w Rate (s), veh/h/lr	、 、	1600	1540			1717		1295	1688	1478		1686	1340
			-		2.8	·				3.7		0.1		0.0	0.4
Queue Service				1.9				0.6			1.9	0.1			
Cycle Queue Cl		e nine (gc), s		1.9	2.8	-		0.6		5.1	1.9			1.3	0.4
Green Ratio (g/	,			0.14	0.14			0.05		0.62	0.62	0.62	<u> </u>	0.62	0.83
Capacity ( c ), v		tio (X)		440	212			82		867	1040	910		1084	1213
Volume-to-Capa		( )		0.197	0.283			0.163		0.156		0.004		0.064	0.051
		In (50 th percentile)		18.7	25.6			6.3		25.2	16.4	0.5		11.3	0.8
Back of Queue		eh/In ( 50 th percentil		0.7	1.0			0.3		1.0	0.6	0.0	<u> </u>	0.4	0.0
	Ratio (	RQ) (50 th percenti	ie)	0.00	0.00			0.00		0.00	0.00	0.00		0.00	0.00
Queue Storage	,	h la			30.9	1		36.6		7.2	6.3	5.9		6.1	0.4
Queue Storage Uniform Delay (	d 1), s			30.6				0.0						0.4	. () 1
Queue Storage Uniform Delay ( Incremental Del	d 1), s ay (d 2	), s/veh		0.1	0.3	-		0.3		0.4	0.2	0.0	<u> </u>	0.1	
Queue Storage Uniform Delay ( Incremental Del Initial Queue De	d ₁), s ay ( d ₂ elay ( d	), s/veh 3 ), s/veh		0.1 0.0	0.3 0.0			0.0		0.0	0.0	0.0		0.0	0.0
Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay (	d 1 ), s ay ( d 2 elay ( d d ), s/ve	), s/veh 3 ), s/veh		0.1 0.0 30.7	0.3 0.0 31.2			0.0 36.9		0.0 7.5	0.0 6.4	0.0 5.9		0.0 6.3	0.0 0.5
Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service	d 1 ), s, ay ( d 2 elay ( d d ), s/ve e (LOS)	), s/veh 3 ), s/veh eh		0.1 0.0 30.7 C	0.3 0.0 31.2 C			0.0 36.9 D		0.0 7.5 A	0.0 6.4 A	0.0 5.9 A		0.0 6.3 A	0.0 0.5 A
Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service Approach Delay	d 1), s ay ( d 2 elay ( d d ), s/ve (LOS) r, s/veh	), s/veh 3 ), s/veh 9h / LOS		0.1 0.0 30.7	0.3 0.0 31.2 C	C	36.9	0.0 36.9 D	D	0.0 7.5	0.0 6.4 A	0.0 5.9 A A	3.5	0.0 6.3 A	0.0 0.5
Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service	d 1), s ay ( d 2 elay ( d d ), s/ve (LOS) r, s/veh	), s/veh 3 ), s/veh 9h / LOS		0.1 0.0 30.7 C	0.3 0.0 31.2 C	C	36.9 3.6	0.0 36.9 D	D	0.0 7.5 A	0.0 6.4 A	0.0 5.9 A A	3.5 B	0.0 6.3 A	0.0 0.5 A
Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service Approach Delay Intersection Dela	d 1), s ay ( d 2 elay ( d d ), s/ve (LOS) c, s/veh ay, s/ve	), s/veh 3 ), s/veh 9h / LOS		0.1 0.0 30.7 C	0.3 0.0 31.2 C	C	_	0.0 36.9 D	D	0.0 7.5 A	0.0 6.4 A	0.0 5.9 A A		0.0 6.3 A	0.0 0.5 A
Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service Approach Delay	d 1), s, ay ( d 2 elay ( d d ), s/ve e (LOS) e (LOS) e, s/veh ay, s/ve sults	), s/veh 3 ), s/veh h / LOS h / LOS		0.1 0.0 30.7 C	0.3 0.0 31.2 C EB	C	_	0.0 36.9 D	B	0.0 7.5 A	0.0 6.4 A NB	0.0 5.9 A A		0.0 6.3 A SB	0.0 0.5 A

## FIGURE 53 YEAR 2021 PEAK PM HOUR TRAFFIC – Terminal/Trainyards

		HCS	7 Sig	nalize	d In	ter	sect	ion R	esul	ts Sur	nmar	у				
O	41										ti a un lun f			1.1	4.441	N U
General Inform	nation									ntersec			on	- 🏻	1	4" 's
Agency										Duration	,	0.25		- 2		
Analyst				Analys		_				Area Typ	e	Other				
Jurisdiction				Time F	Period			PM Hou		PHF		0.90		4 - <b>*</b>		*
Urban Street		200, 230 & 260 Ste	amli	Analys	sis Yea	ar   2	2021		/	Analysis	Period	1> 7:0	00	14		1
Intersection		Traintards/Terminal		File Na	ame	2	2021_	tot_pm.:	xus						htr	
Project Descrip	tion	OTY Residential De	evelopm	ent										h	4149	¥ [1]
Demand Inform	nation				EB	3			WB	}		NB			SB	
Approach Move	ement			L	Т	T	R	L	Т	R	L.	Т	R	L	Т	R
Demand (v), v				130	2	+	89	4	1	0	51	125	_	4	113	208
Demand (V), V	CI III			100	-		00	-		Ū	01	120	0		110	200
Signal Informa	tion				ЦŪ,	. 1	5	Ľ								К
Cycle, s	80.0	Reference Phase	2	1			E	₽						×Φ Ľ		7
Offset, s	0	Reference Point	Begin	L	1								1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Green			1.7	11.2	0.0	0.0	0.0					-
Force Mode	Fixed	Simult. Gap N/S	On	Yellow Red	3.3	_	3.3 2.7	3.3	0.0	0.0	0.0				7	÷
	r ixed	official Gap N/S	UII	Reu	0.0		<u> </u>	0.0	0.0	0.0	0.0			0	,	
Timer Results				EBL		EE	3T	WBI	-	WBT	NBI	L	NBT	SBI	-	SBT
Assigned Phase	e					8	;			4			2			6
Case Number					-	10	.0			12.0			5.0			7.0
Phase Duration	I S					17				7.7			54.8			54.8
Change Period		c) S			+	6.	_			6.0			6.3			6.3
Max Allow Head					-	3.	_			3.1	-		0.0			0.0
Queue Clearan	2 (				-	6.	_			2.2			0.0			0.0
Green Extensio		(0 ),				0.	_			0.0			0.0			0.0
Phase Call Pro		(99), 3			-	1.0	_			0.12			0.0	<u> </u>		0.0
					-	0.0	_			0.00						
Max Out Proba	Dinty			L		0.0	0			0.00	-					
Movement Gro	oup Res	ults			EB				WB			NB			SB	
Approach Move	ement			L	Т	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Move				3	8	+	18	7	4	14	5	2	12	1	6	16
Adjusted Flow F		) veh/h	_	144	96				6		57	139	4		130	64
-		ow Rate (s), veh/h/	In	1470	1479	a 🗖	_		1731		1274	1730	1486		1707	1200
Queue Service				3.5	4.7	_			0.2		1.5	2.7	0.1		0.0	0.4
Cycle Queue C		- ,		3.5	4.7	_	_		0.2		4.0	2.7	0.1		2.5	0.4
		e fille ( <i>g c</i> ), s				_	_									
Green Ratio (g				0.15	0.15	_	_		0.03		0.62	0.62	0.62		0.62	0.84
Capacity (c), v				439	221	_			58		838	1070	919		1103	1108
Volume-to-Capa		. ,		0.329	0.43		_		0.096		0.068	0.130	0.005		0.118	0.058
		In (50 th percentile)		33.9	41.4	_			2.7		10	23	0.7		21.5	0.9
Back of Queue	<b>x</b> · <b>y</b> ·	eh/In ( 50 th percent	,	1.2	1.6	_	_		0.1		0.4	0.9	0.0		0.8	0.0
	Ratio (	RQ) (50 th percent	tile)	0.00	0.00	_			0.00		0.00	0.00	0.00		0.00	0.00
Queue Storage		1 1		30.4	31.0				37.5		7.1	6.3	5.8		6.3	0.3
Queue Storage Uniform Delay (									0.2	1	0.2	0.3	0.0		0.2	0.1
Queue Storage Uniform Delay ( Incremental De	lay ( d 2	), s/veh		0.2	0.5	_			0.3							0.0
Queue Storage Uniform Delay (	lay ( d 2	), s/veh			0.5 0.0	_			0.3		0.0	0.0	0.0		0.0	0.0
Queue Storage Uniform Delay ( Incremental De	lay ( d 2 elay ( d	), s/veh 3 ), s/veh		0.2			_								0.0 6.5	0.4
Queue Storage Uniform Delay ( Incremental De Initial Queue De	lay ( d 2 elay ( d d ), s/ve	), s/veh ₃), s/veh eh		0.2 0.0	0.0		_		0.0		0.0	0.0	0.0			
Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay (	lay ( d z elay ( d d ), s/ve e (LOS)	י), s/veh з ), s/veh eh		0.2 0.0 30.6	0.0 31.4 C		;	37.8	0.0 37.8 D	D	0.0 7.3	0.0 6.6 A	0.0 5.8	4.5	6.5 A	0.4
Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service	lay ( d 2 elay ( d d ), s/vo e (LOS) y, s/veh	), s/veh 3), s/veh eh / LOS		0.2 0.0 30.6 C	0.0 31.4 C	4	; 15		0.0 37.8 D	D	0.0 7.3 A	0.0 6.6 A	0.0 5.8 A	4.5 B	6.5 A	0.4 A
Queue Storage Uniform Delay ( Incremental De Initial Queue Do Control Delay ( Level of Service Approach Delay Intersection De	lay ( <i>d</i> 2 elay ( <i>d</i> <i>d</i> ), s/ve e (LOS) y, s/veh lay, s/ve	), s/veh 3), s/veh eh / LOS		0.2 0.0 30.6 C	0.0 31.4 C		_		0.0 37.8 D	D	0.0 7.3 A	0.0 6.6 A	0.0 5.8 A		6.5 A	0.4 A
Queue Storage Uniform Delay ( Incremental De Initial Queue Do Control Delay ( Level of Service Approach Delay Intersection De Multimodal Re	lay ( <i>d</i> 2 elay ( <i>d</i> <i>d</i> ), s/ve e (LOS) y, s/veh lay, s/ve	r), s/veh 3), s/veh eh / LOS eh / LOS		0.2 0.0 30.6 C 30.9	0.0 31.4 C EB		15	.4	0.0 37.8 D		0.0 7.3 A 6.8	0.0 6.6 A NB	0.0 5.8 A A	B	6.5 A SB	0.4 A
Queue Storage Uniform Delay ( Incremental De Initial Queue Do Control Delay ( Level of Service Approach Delay Intersection De	lay ( d 2 elay ( d d ), s/ve e (LOS) y, s/veh lay, s/ve sults S Score	/ LOS		0.2 0.0 30.6 C	0.0 31.4 C EB		15		0.0 37.8 D WB	B A	0.0 7.3 A	0.0 6.6 A NB	0.0 5.8 A		6.5 A SB	0.4 A

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## FIGURE 54 YEAR 2027 PEAK AM HOUR TRAFFIC – Terminal/Trainyards

		HCS	7 Sig	nalize	d In	ter	sect	ion R	esu	lts Sur	nmar	у				
General Inform	ation									Intersec	tion Inf	ormatio	n		**	la la
	lation									Duration		0.25	<i>,</i>		11	
Agency				Analys		to 1	10/10/	2017	_		,					
Analyst				Analys		_				Area Typ	be	Other				
Jurisdiction				Time F				M Hou	_	PHF	<b>D</b> : 1	0.90				
Urban Street		200, 230 & 260 Ste		Analys			2027		_	Analysis	Period	1> 7:0	00	- E		
Intersection		Traintards/Terminal		File Na	ame	2	2027_1	tot_am.	xus						<u>117</u>	
Project Descript	tion	OTY Residential De	evelopm	lent											4144	<u>۲</u>
Demand Inforn	nation				EE	3			WE	3		NB			SB	
Approach Move	ment			L	Т		R	L	Т	R	L	Т	R	L	Т	R
Demand $(v)$ , v				91	17	_	45	8	3	1	127	93	24	1	65	220
	01111						10			·	121					
Signal Informa	tion				14		~	Ľ						. 4		5
Cycle, s	80.0	Reference Phase	2	1			2	₽						<b>V</b>		Y
Offset, s	0	Reference Point	Begin	-		In I						_	1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Green Yellow		_	2.8 3.3	10.4 3.3	0.0	0.0	0.0					7
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	_	3.3 2.7	3.0	0.0	0.0	0.0		5	6	7	<b>↔</b>
Timer Results				EBL	-	EE	ЗТ	WBI	-	WBT	NB	L	NBT	SBI	-	SBT
Assigned Phase	Э					8	3			4			2			6
Case Number						10	.0			12.0			5.0			7.0
Phase Duration	, s					16	.7			8.8			54.5			54.5
Change Period,	( Y+R	c), S				6.	6			6.0			6.3			6.3
Max Allow Head						3.	2			3.1			0.0			0.0
Queue Clearand					-	5.	0		-	2.6						
Green Extensio	n Time	(ge), s				0.	3			0.0			0.0			0.0
Phase Call Prot	oability					0.9	97			0.26						
Max Out Probat	bility					0.0	00			0.00						
					50							ND			0.0	
Movement Gro		SUITS		L	EB	; 	R	L	WB T	R	L	NB T	R	L	SB T	R
Approach Move				3	8	-	18	7	4	14	5	2	12	1	6	16
Assigned Move		)					10	1		14						
Adjusted Flow F				101	63	_	_		13		141	103	4		73	78
		w Rate (s), veh/h/l	In	1600	1540	_	_		1717		1290	1688	1477		1686	1340
Queue Service				2.2	3.0	_	_		0.6		4.0	2.0	0.1		0.0	0.5
Cycle Queue Cl		e Time ( <i>g ₀</i> ), s		2.2	3.0	_	_		0.6		5.4	2.0	0.1		1.4	0.5
Green Ratio (g	,			0.14	0.14	_			0.05		0.61	0.61	0.61		0.61	0.83
Capacity (c), v				445	214	_			82		860	1037	908		1082	1213
Volume-to-Capa		. ,		0.227	0.29	_	_		0.163	3	0.164		0.005		0.068	0.064
Back of Queue	( Q ), ft	In ( 50 th percentile)	)	21.9	27.1	1			6.3		26.6	17.4	0.7		12.1	1
		eh/In ( 50 th percent	,	0.8	1.1				0.3		1.0	0.7	0.0		0.5	0.0
Queue Storage	Ratio (	RQ) (50 th percent	tile)	0.00	0.00	)			0.00		0.00	0.00	0.00		0.00	0.00
Uniform Delay (				30.6	30.9	9			36.6		7.3	6.3	6.0		6.2	0.4
Incremental Del	lay ( <i>d</i> 2	), s/veh		0.1	0.3				0.3		0.4	0.2	0.0		0.1	0.1
Initial Queue De	elay ( d	3), s/veh		0.0	0.0				0.0		0.0	0.0	0.0		0.0	0.0
Control Delay (	d ), s/v	eh		30.7	31.2	2			36.9		7.7	6.5	6.0		6.3	0.5
Level of Service	e (LOS)			С	С				D		А	А	Α		А	A
Approach Delay				30.9	)	C	;	36.9		D	7.2		А	3.3		A
Intersection Del							13	.6						В		
	sults				EB				WB			NB			SB	
Multimodal Res																
Multimodal Res Pedestrian LOS Bicycle LOS Sc	Score			2.14	+	B	3	2.32		В	1.69	)	В	2.11		В

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## **FIGURE 55** YEAR 2027 PEAK PM HOUR TRAFFIC – Terminal/Trainyards

HCS7 Sig	nalize	d Inte	ersect	tion F	Result	ts Sur	nmar	<u>/</u>				
				-								
	<b>с</b> . ж. ч	2 <b>4</b> 4 2	an an	1996 Fr			- 2-7-1		ير ۲۰۱۹	NGT TH		
			د. بغیر کر میں								<u></u>	
								TATEL		AND AN AVENUE		
Phase Call Probability			1.00			0.14						
Phase Call Probability Max Out Probability		_	1.00	_	_	0.14						
Max Out Probability												
Max Out Probability Movement Group Results		EB	0.00		WB	0.00		NB			SB	
Max Out Probability Movement Group Results Approach Movement	L	EB	0.00 R	L	WB T	0.00 R	L	Т	R	L	Т	R
Max Out Probability Movement Group Results Approach Movement Assigned Movement	3	EB T 8	0.00	L 7	WB T 4	0.00	5	T 2	12	L 1	Т 6	16
Max Out Probability Movement Group Results Approach Movement Assigned Movement Adjusted Flow Rate ( v ), veh/h	3 158	EB T 8 99	0.00 R		WB T 4 7	0.00 R	5 60	T 2 148	12 4	_	T 6 138	16 88
Max Out Probability Movement Group Results Approach Movement Assigned Movement Adjusted Flow Rate ( v ), veh/h Adjusted Saturation Flow Rate ( s ), veh/h/ln	3 158 1470	EB T 8 99 1479	0.00 R		WB T 4 7 1728	0.00 R	5 60 1266	T 2 148 1730	12 4 1486	_	T 6 138 1704	16 88 1200
Max Out Probability Movement Group Results Approach Movement Assigned Movement Adjusted Flow Rate ( $v$ ), veh/h Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln Queue Service Time ( $gs$ ), s	3 158 1470 3.9	EB T 8 99 1479 4.9	0.00 R		WB T 4 7 1728 0.3	0.00 R	5 60 1266 1.7	T 2 148 1730 2.9	12 4 1486 0.1	_	T 6 138 1704 0.0	16 88 1200 0.5
Max Out Probability Movement Group Results Approach Movement Assigned Movement Adjusted Flow Rate ( $v$ ), veh/h Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln Queue Service Time ( $gs$ ), s Cycle Queue Clearance Time ( $gc$ ), s	3 158 1470 3.9 3.9	EB T 8 99 1479 4.9 4.9	0.00 R		WB T 4 7 1728 0.3 0.3	0.00 R	5 60 1266 1.7 4.4	T 2 148 1730 2.9 2.9	12 4 1486 0.1 0.1	_	T 6 138 1704 0.0 2.7	16 88 1200 0.5 0.5
Max Out Probability Movement Group Results Approach Movement Assigned Movement Adjusted Flow Rate ( $v$ ), veh/h Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln Queue Service Time ( $gs$ ), s Cycle Queue Clearance Time ( $gc$ ), s Green Ratio ( $g/C$ )	3 158 1470 3.9 3.9 0.15	EB T 8 99 1479 4.9 4.9 0.15	0.00 R		WB T 4 7 1728 0.3 0.3 0.04	0.00 R	5 60 1266 1.7 4.4 0.62	T 2 148 1730 2.9 2.9 0.62	12 4 1486 0.1 0.1 0.62	_	T 6 138 1704 0.0 2.7 0.62	16 88 1200 0.5 0.5 0.84
Max Out Probability Movement Group Results Approach Movement Assigned Movement Adjusted Flow Rate ( $v$ ), veh/h Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln Queue Service Time ( $gs$ ), s Cycle Queue Clearance Time ( $gc$ ), s Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h	3 158 1470 3.9 3.9 0.15 439	EB T 8 99 1479 4.9 0.15 221	0.00 R		WB T 4 7 1728 0.3 0.3 0.04 62	0.00 R	5 60 1266 1.7 4.4 0.62 827	T 2 148 1730 2.9 2.9 0.62 1065	12 4 1486 0.1 0.1 0.62 915	_	T 6 138 1704 0.0 2.7 0.62 1096	16 88 1200 0.5 0.5 0.84 1104
Max Out Probability Movement Group Results Approach Movement Assigned Movement Adjusted Flow Rate ( $v$ ), veh/h Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln Queue Service Time ( $g_s$ ), s Cycle Queue Clearance Time ( $g_c$ ), s Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ratio ( $X$ )	3 158 1470 3.9 3.9 0.15 439 0.359	EB T 8 99 1479 4.9 0.15 221 0.448	0.00 R		WB T 4 77 1728 0.3 0.3 0.04 62 0.107	0.00 R	5 60 1266 1.7 4.4 0.62 827 0.073	T 2 148 1730 2.9 0.62 1065 0.139	12 4 1486 0.1 0.1 0.62 915 0.005	_	T 6 138 1704 0.0 2.7 0.62 1096 0.126	16 88 1200 0.5 0.5 0.84 1104 0.075
Max Out Probability Movement Group Results Approach Movement Assigned Movement Adjusted Flow Rate ( $v$ ), veh/h Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln Queue Service Time ( $g_s$ ), s Cycle Queue Clearance Time ( $g_c$ ), s Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ratio ( $X$ ) Back of Queue ( $Q$ ), ft/ln (50 th percentile)	3 158 1470 3.9 0.15 439 0.359 37.2	EB T 8 99 1479 4.9 0.15 221 0.448 43	0.00 R		WB T 4 77 1728 0.3 0.3 0.04 62 0.107 3.2	0.00 R	5 60 1266 1.7 4.4 0.62 827 0.073 10.8	T 2 148 1730 2.9 0.62 1065 0.139 24.9	12 4 1486 0.1 0.1 0.62 915 0.005 0.7	_	T 6 138 1704 0.0 2.7 0.62 1096 0.126 23.2	16 88 1200 0.5 0.5 0.84 1104 0.079 1.3
Max Out Probability Movement Group Results Approach Movement Assigned Movement Adjusted Flow Rate ( $v$ ), veh/h Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln Queue Service Time ( $g_s$ ), s Cycle Queue Clearance Time ( $g_c$ ), s Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ratio ( $X$ ) Back of Queue ( $Q$ ), tf/ln (50 th percentile) Back of Queue ( $Q$ ), veh/ln (50 th percentile)	3 158 1470 3.9 0.15 439 0.359 37.2 1.3	EB T 8 99 1479 4.9 0.15 221 0.448 43 1.7	0.00 R		WB T 4 77 1728 0.3 0.3 0.04 62 0.107 3.2 0.1	0.00 R	5 60 1266 1.7 4.4 0.62 827 0.073 10.8 0.4	T 2 148 1730 2.9 0.62 1065 0.139 24.9 1.0	12 4 1486 0.1 0.62 915 0.005 0.7 0.0	_	T 6 138 1704 0.0 2.7 0.62 1096 0.126 23.2 0.9	16 88 1200 0.5 0.5 0.84 1104 0.079 1.3 0.0
Max Out Probability Movement Group Results Approach Movement Assigned Movement Adjusted Flow Rate ( $v$ ), veh/h Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln Queue Service Time ( $g_s$ ), s Cycle Queue Clearance Time ( $g_c$ ), s Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ratio ( $X$ ) Back of Queue ( $Q$ ), tf/ln (50 th percentile) Back of Queue ( $Q$ ), veh/ln (50 th percentile) Queue Storage Ratio ( $RQ$ ) (50 th percentile)	3 158 1470 3.9 0.15 439 0.359 37.2 1.3 0.00	EB T 8 99 1479 4.9 4.9 0.15 221 0.448 43 1.7 0.00	0.00 R		WB           T           4           7           1728           0.3           0.04           62           0.107           3.2           0.1	0.00 R	5 60 1266 1.7 4.4 0.62 827 0.073 10.8 0.4 0.00	T 2 148 1730 2.9 0.62 1065 0.139 24.9 1.0 0.00	12 4 1486 0.1 0.62 915 0.005 0.7 0.0 0.00	_	T 6 138 1704 0.0 2.7 0.62 1096 0.126 23.2 0.9 0.00	16 88 1200 0.5 0.5 0.84 1104 0.079 1.3 0.0 0.00
Max Out Probability Movement Group Results Approach Movement Assigned Movement Adjusted Flow Rate ( $v$ ), veh/h Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln Queue Service Time ( $g_s$ ), s Cycle Queue Clearance Time ( $g_c$ ), s Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ratio ( $X$ ) Back of Queue ( $Q$ ), ft/ln (50 th percentile) Back of Queue ( $Q$ ), veh/ln (50 th percentile) Queue Storage Ratio ( $RQ$ ) (50 th percentile) Jniform Delay ( $d_1$ ), s/veh	3 158 1470 3.9 0.15 439 0.359 37.2 1.3 0.00 30.6	EB T 8 99 1479 4.9 0.15 221 0.448 43 1.7 0.00 31.0	0.00 R		WB           T           4           7           1728           0.3           0.04           62           0.107           3.2           0.1           0.00           37.3	0.00 R	5 60 1266 1.7 4.4 0.62 827 0.073 10.8 0.4 0.00 7.3	T 2 148 1730 2.9 0.62 1065 0.139 24.9 1.0 0.00 6.5	12 4 1486 0.1 0.62 915 0.005 0.7 0.0 0.00 5.9	_	T 6 138 1704 0.0 2.7 0.62 1096 0.126 23.2 0.9 0.00 6.4	16 88 1200 0.5 0.5 0.84 1104 0.075 1.3 0.0 0.00 0.3
Max Out Probability Movement Group Results Approach Movement Assigned Movement Adjusted Flow Rate ( $v$ ), veh/h Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln Queue Service Time ( $g_s$ ), s Cycle Queue Clearance Time ( $g_c$ ), s Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ratio ( $X$ ) Back of Queue ( $Q$ ), ft/ln (50 th percentile) Back of Queue ( $Q$ ), veh/ln (50 th percentile) Queue Storage Ratio ( $RQ$ ) (50 th percentile) Uniform Delay ( $d_z$ ), s/veh	3 158 1470 3.9 0.15 439 0.359 37.2 1.3 0.00 30.6 0.2	EB T 8 99 1479 4.9 0.15 221 0.448 43 1.7 0.00 31.0 0.5	0.00 R		WB           T           4           7           1728           0.3           0.04           62           0.107           3.2           0.1           0.00           37.3           0.3	0.00 R	5 60 1266 1.7 4.4 0.62 827 0.073 10.8 0.4 0.00 7.3 0.2	T 2 148 1730 2.9 0.62 1065 0.139 24.9 1.0 0.00 6.5 0.3	12 4 1486 0.1 0.62 915 0.005 0.7 0.0 0.00 5.9 0.0	_	T 6 138 1704 0.0 2.7 0.62 1096 0.126 23.2 0.9 0.00 6.4 0.2	16 88 1200 0.5 0.5 0.84 1104 0.075 1.3 0.0 0.00 0.3 0.1
Max Out Probability Movement Group Results Approach Movement Assigned Movement Adjusted Flow Rate ( $v$ ), veh/h Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln Queue Service Time ( $g_s$ ), s Cycle Queue Clearance Time ( $g_c$ ), s Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ratio ( $X$ ) Back of Queue ( $Q$ ), ft/ln (50 th percentile) Back of Queue ( $Q$ ), veh/ln (50 th percentile) Queue Storage Ratio ( $RQ$ ) (50 th percentile) Uniform Delay ( $d_s$ ), s/veh Initial Queue Delay ( $d_s$ ), s/veh	3 158 1470 3.9 0.15 439 0.359 37.2 1.3 0.00 30.6 0.2 0.0	EB T 8 99 1479 4.9 4.9 0.15 221 0.448 43 1.7 0.00 31.0 0.5 0.0	0.00 R		WB           T           4           7           1728           0.3           0.04           62           0.107           3.2           0.1           0.00           37.3           0.3           0.0	0.00 R	5 60 1266 1.7 4.4 0.62 827 0.073 10.8 0.4 0.00 7.3	T 2 148 1730 2.9 0.62 1065 0.139 24.9 1.0 0.00 6.5	12 4 1486 0.1 0.62 915 0.005 0.7 0.00 0.00 5.9 0.00 0.00 0.00	_	T 6 138 1704 0.0 2.7 0.62 1096 0.126 23.2 0.9 0.00 6.4	16 88 1200 0.5 0.5 0.84 1104 0.075 1.3 0.0 0.00 0.3
Max Out Probability Movement Group Results Approach Movement Assigned Movement Adjusted Flow Rate ( $v$ ), veh/h Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln Queue Service Time ( $g_s$ ), s Cycle Queue Clearance Time ( $g_c$ ), s Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ratio ( $X$ ) Back of Queue ( $Q$ ), ft/ln (50 th percentile) Back of Queue ( $Q$ ), veh/ln (50 th percentile) Queue Storage Ratio ( $RQ$ ) (50 th percentile) Uniform Delay ( $d_s$ ), s/veh Incremental Delay ( $d_s$ ), s/veh Control Delay ( $d_s$ ), s/veh	3 158 1470 3.9 0.15 439 0.359 37.2 1.3 0.00 30.6 0.2	EB T 8 99 1479 4.9 0.15 221 0.448 43 1.7 0.00 31.0 0.5	0.00 R		WB           T           4           7           1728           0.3           0.04           62           0.107           3.2           0.1           0.00           37.3           0.3	0.00 R	5 60 1266 1.7 4.4 0.62 827 0.073 10.8 0.4 0.00 7.3 0.2 0.0 7.5	T 2 148 1730 2.9 0.62 1065 0.139 24.9 1.0 0.00 6.5 0.3 0.3	12 4 1486 0.1 0.62 915 0.005 0.7 0.0 0.00 5.9 0.0	_	T 6 138 1704 0.0 2.7 0.62 1096 0.126 23.2 0.9 0.00 6.4 0.2 0.0	16 88 1200 0.5 0.5 0.84 1104 0.079 1.3 0.0 0.00 0.3 0.1 0.0
Max Out Probability Movement Group Results Approach Movement Assigned Movement Adjusted Flow Rate ( $v$ ), veh/h Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln Queue Service Time ( $g \circ$ ), s Cycle Queue Clearance Time ( $g \circ$ ), s Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ratio ( $X$ ) Back of Queue ( $Q$ ), ft/ln (50 th percentile) Back of Queue ( $Q$ ), veh/ln (50 th percentile) Queue Storage Ratio ( $RQ$ ) (50 th percentile) Uniform Delay ( $d \circ$ ), s/veh Incremental Delay ( $d \circ$ ), s/veh Control Delay ( $d \circ$ ), s/veh Level of Service (LOS)	3 158 1470 3.9 0.15 439 0.359 37.2 1.3 0.00 30.6 0.2 0.0 30.8	EB T 8 99 4.9 4.9 0.15 221 0.448 43 1.7 0.00 31.0 0.5 0.0 31.5 C	0.00 R		WB           T           4           7           1728           0.3           0.04           62           0.107           3.2           0.1           0.00           37.3           0.0           37.6           D	0.00 R	5 60 1266 1.7 4.4 0.62 827 0.073 10.8 0.4 0.00 7.3 0.2 0.0	T 2 148 1730 2.9 0.62 1065 0.139 24.9 1.0 0.00 6.5 0.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	12 4 1486 0.1 0.62 915 0.005 0.7 0.0 0.00 5.9 0.0 0.0 0.0 0.0 0.0 5.9	_	T 6 138 1704 0.0 2.7 0.62 1096 0.126 23.2 0.9 0.00 6.4 0.2 0.0 6.7 A	16 88 1200 0.5 0.5 0.84 1104 0.075 1.3 0.0 0.00 0.3 0.1 0.0 0.5
Max Out Probability Movement Group Results Approach Movement Assigned Movement Adjusted Flow Rate ( $v$ ), veh/h Adjusted Saturation Flow Rate ( $s$ ), veh/h/In Queue Service Time ( $g \circ$ ), s Cycle Queue Clearance Time ( $g \circ$ ), s Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ratio ( $X$ ) Back of Queue ( $Q$ ), ft/ln (50 th percentile) Back of Queue ( $Q$ ), veh/ln (50 th percentile) Queue Storage Ratio ( $RQ$ ) (50 th percentile) Uniform Delay ( $d \circ$ ), s/veh Incremental Delay ( $d \circ$ ), s/veh Control Delay ( $d \circ$ ), s/veh Level of Service (LOS) Approach Delay, s/veh / LOS	3 158 1470 3.9 0.15 439 0.359 37.2 1.3 0.00 30.6 0.2 0.0 30.8 C	EB T 8 99 4.9 4.9 0.15 221 0.448 43 1.7 0.00 31.0 0.5 0.0 31.5 C	0.00		WB           T           4           7           1728           0.3           0.04           62           0.107           3.2           0.1           0.00           37.3           0.0           37.6           D	0.00	5 60 1266 1.7 4.4 0.62 827 0.073 10.8 0.4 0.00 7.3 0.2 0.0 7.5 A	T 2 148 1730 2.9 0.62 1065 0.139 24.9 1.0 0.00 6.5 0.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	12 4 1486 0.1 0.62 915 0.005 0.7 0.0 0.00 5.9 0.0 0.0 0.0 0.0 0.0 5.9 0.0 0.0 5.9 0.0 4 A		T 6 138 1704 0.0 2.7 0.62 1096 0.126 23.2 0.9 0.00 6.4 0.2 0.0 6.7 A	16 88 1200 0.5 0.5 0.84 1104 0.079 1.3 0.0 0.00 0.3 0.1 0.0 0.5 A
Max Out Probability Movement Group Results Approach Movement Assigned Movement Adjusted Flow Rate ( $v$ ), veh/h Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln Queue Service Time ( $g_s$ ), s Cycle Queue Clearance Time ( $g_c$ ), s Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ratio ( $X$ ) Back of Queue ( $Q$ ), ft/ln (50 th percentile) Back of Queue ( $Q$ ), veh/ln (50 th percentile) Queue Storage Ratio ( $RQ$ ) (50 th percentile) Uniform Delay ( $d_c$ ), s/veh Incremental Delay ( $d_c$ ), s/veh Lortol Delay ( $d_c$ ), s/veh Level of Service (LOS) Approach Delay, s/veh / LOS	3 158 1470 3.9 0.15 439 0.359 37.2 1.3 0.00 30.6 0.2 0.0 30.8 C	EB T 8 99 4.9 4.9 0.15 221 0.448 43 1.7 0.00 31.0 0.5 0.0 31.5 C	0.00	37.6	WB           T           4           7           1728           0.3           0.04           62           0.107           3.2           0.1           0.00           37.3           0.0           37.6           D	0.00	5 60 1266 1.7 4.4 0.62 827 0.073 10.8 0.4 0.00 7.3 0.2 0.0 7.5 A	T 2 148 1730 2.9 0.62 1065 0.139 24.9 1.0 0.00 6.5 0.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	12 4 1486 0.1 0.62 915 0.005 0.7 0.0 0.00 5.9 0.0 0.0 0.0 0.0 0.0 5.9 0.0 0.0 5.9 0.0 4 A	4.2	T 6 138 1704 0.0 2.7 0.62 1096 0.126 23.2 0.9 0.00 6.4 0.2 0.0 6.7 A	16 88 1200 0.5 0.84 1104 0.079 1.3 0.0 0.00 0.3 0.1 0.0 0.5 A
Max Out Probability <b>Movement Group Results</b> Approach Movement Assigned Movement Adjusted Flow Rate ( $v$ ), veh/h Adjusted Saturation Flow Rate ( $s$ ), veh/h/In Queue Service Time ( $g s$ ), s Cycle Queue Clearance Time ( $g c$ ), s Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ratio ( $X$ ) Back of Queue ( $Q$ ), ft/In (50 th percentile) Back of Queue ( $Q$ ), veh/In (50 th percentile) Queue Storage Ratio ( $RQ$ ) (50 th percentile) Uniform Delay ( $d z$ ), s/veh Incremental Delay ( $d z$ ), s/veh Incremental Delay ( $d z$ ), s/veh Level of Service (LOS) Approach Delay, s/veh / LOS Intersection Delay, s/veh / LOS <b>Multimodal Results</b>	3 158 1470 3.9 0.15 439 0.359 37.2 1.3 0.00 30.6 0.2 0.0 30.8 C 31.1	EB T 8 99 4.9 4.9 4.9 0.15 221 0.448 43 1.7 0.00 31.0 0.5 0.0 31.5 C 1	0.00	37.6	WB         T         4         7         1728         0.3         0.04         62         0.107         3.2         0.1         0.00         37.3         0.3         0.37.6         D         S	0.00 R 14 	5 60 1266 1.7 4.4 0.62 827 0.073 10.8 0.4 0.00 7.3 0.2 0.0 7.5 A 6.9	T 2 148 1730 2.9 0.62 1065 0.139 24.9 1.0 0.00 6.5 0.3 0.0 0.0 0.0 0.0 0.0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 4 1486 0.1 0.62 915 0.005 0.7 0.0 0.00 5.9 0.0 0.0 0.0 5.9 A A		T 6 138 1704 0.0 2.7 0.62 1096 0.126 23.2 0.9 0.00 6.4 0.2 0.0 6.7 A 5 8	16 88 1200 0.5 0.84 1104 0.079 1.3 0.0 0.00 0.3 0.1 0.0 0.5 A A
Max Out Probability <b>Movement Group Results</b> Approach Movement Assigned Movement Adjusted Flow Rate ( $v$ ), veh/h Adjusted Saturation Flow Rate ( $s$ ), veh/h/ln Queue Service Time ( $g_s$ ), s Cycle Queue Clearance Time ( $g_c$ ), s Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ratio ( $X$ ) Back of Queue ( $Q$ ), ft/ln (50 th percentile) Back of Queue ( $Q$ ), veh/ln (50 th percentile) Queue Storage Ratio ( $RQ$ ) (50 th percentile) Uniform Delay ( $d_s$ ), s/veh Incremental Delay ( $d_s$ ), s/veh Lortol Delay ( $d_s$ ), s/veh Level of Service (LOS) Approach Delay, s/veh / LOS	3 158 1470 3.9 0.15 439 0.359 37.2 1.3 0.00 30.6 0.2 0.0 30.8 C	EB T 8 99 4.9 4.9 0.15 221 0.448 43 1.7 0.00 31.0 0.5 0.0 31.5 C 1 1 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2	0.00	37.6	IT         4         7         1728         0.3         0.04         62         0.107         3.2         0.10         37.3         0.3         0.0         37.6         D         5	0.00	5 60 1266 1.7 4.4 0.62 827 0.073 10.8 0.4 0.00 7.3 0.2 0.0 7.5 A	T 2 148 1730 2.9 0.62 1065 0.139 24.9 1.0 0.00 6.5 0.3 0.0 6.7 A 0.0 0 6.7 A	12 4 1486 0.1 0.62 915 0.005 0.7 0.0 0.00 5.9 0.0 0.0 0.0 0.0 0.0 5.9 0.0 0.0 5.9 0.0 4 A	4.2	T 6 138 1704 0.0 2.7 0.62 1096 0.126 23.2 0.9 0.00 6.4 0.2 0.0 6.7 A	16 88 1200 0.5 0.84 1104 0.079 1.3 0.0 0.00 0.3 0.1 0.0 0.5 A

# FIGURE 56 YEAR 2031 PEAK AM HOUR TRAFFIC – Terminal/Trainyards

		HCS	7 Sig	nalize	d In	ntei	rsect	ion R	lesul	ts Sur	nmar	у				
General Inform	ation									Intersec	tion Inf	ormatio	n		4.4.4.1	b lu
Agency	lation									Duration		0.25			14	
Analyst				Analys		to	10/10/	2017	_	Area Typ	,	Other				
•				Time F		_		AM Hou	_	PHF						*
Jurisdiction		200, 220, 8, 200, 04-	a mali	· · ·				NVI HOU	_		Devied	0.90	20			
Urban Street		200, 230 & 260 Ste	amii	Analys		$\rightarrow$	2031			Analysis	Репоа	1> 7:0	50	-		_
Intersection		Traintards/Terminal		File Na	ame		2031_1	tot_am.	xus					_	<u>111</u>	
Project Descript	tion	OTY Residential De	evelopm	ent											1 4 1 4 4	<u> 1</u>
Demand Inform	nation				EE	3			WE	3		NB			SB	
Approach Move	ment			L	Т	·	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), v	eh/h			101	18	3	59	8	4	1	135	97	25	1	67	230
Signal Informa					14	• ]	Ę							+++++++++++++++++++++++++++++++++++++++	ן ג	- <del></del>
Cycle, s	80.0	Reference Phase	2		ľ N	t7	Ľ	R					1	$\mathbf{Y}_{2}$ -		× ,
Offset, s	0	Reference Point	Begin	Green	47.9	9	3.0	10.5	0.0	0.0	0.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow			3.3	3.3	0.0	0.0	0.0					Δ
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0		2.7	3.0	0.0	0.0	0.0		б	6	7	N a
Timer Results				EBL		E	BT	WBI		WBT	NB		NBT	SB		SBT
					-+-		8	VD		4			2	30		6
Assigned Phase	5			<u> </u>	-		-		-		<u> </u>					-
Case Number					$\rightarrow$		0.0		_	12.0			5.0			7.0
Phase Duration	,				-		5.8		_	9.0	<u> </u>	_	54.2	<u> </u>	_	54.2
Change Period,					$\rightarrow$		.6			6.0			6.3			6.3
Max Allow Head					_	-	.2			3.1		_	0.0			0.0
Queue Clearan					+		.8		_	2.6			0.0			0.0
Green Extensio Phase Call Prot		(ge), s			-	_	.4 99		-	0.0 0.27			0.0	<u> </u>		0.0
							_								_	
Max Out Proba	onity					0.	00			0.00						
Movement Gro	up Res	ults			EB	3			WB			NB			SB	
Approach Move	ment			L	Т	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Move	ment			3	8	Т	18	7	4	14	5	2	12	1	6	16
Adjusted Flow F	Rate ( v	), veh/h		112	80				14		150	108	6		76	89
Adjusted Satura	ation Flo	w Rate (s), veh/h/l	n	1600	1526	6			1723		1288	1688	1477		1686	1340
Queue Service				2.5	3.8	3			0.6		4.3	2.1	0.1		0.0	0.6
Cycle Queue C				2.5	3.8	_			0.6		5.8	2.1	0.1		1.5	0.6
Green Ratio ( g				0.14	0.14	_			0.05		0.61	0.61	0.61		0.61	0.83
Capacity ( c ), v	,			450	215	_			86		853	1031	903		1076	1210
Volume-to-Capa		tio (X)		0.249	0.37	_			0.169		0.176	0.105	0.006		0.070	0.073
		In ( 50 th percentile)		24.3	34.6	_			6.8		29	18.5	0.000		12.7	1.1
		h/ln ( 50 th percentie)		0.9	1.4	_			0.3		1.1	0.7	0.9		0.5	0.0
		RQ) (50 th percent	,	0.9	0.00	_			0.00		0.00	0.00	0.00		0.00	0.00
Uniform Delay (	,	,, ,		30.6	31.2	_			36.4		7.5	6.5	6.1		6.3	0.00
Incremental Del				0.1	0.4	_			0.3		0.4	0.5	0.0		0.3	0.4
Initial Queue De				0.0	0.0	_			0.0		0.0	0.0	0.0		0.0	0.0
Control Delay (				30.7	31.6	_			36.8		8.0	6.7	6.1		6.5	0.5
Level of Service				C	C				D		A	A	A		A	A
		/105		31.1	_	- (	<b>C</b>	36.8		D	7.4		A	3.3		A
Annroach Lieiai				51.1			- 14			D	7.4			B 3.3		A
Approach Delay Intersection Del								-								
Intersection Del	.,															
					EB	3			WB			NB			SB	
Intersection Del	sults	/LOS		2.14	_		В	2.32	_	В	1.69	_	В	2.11	_	В

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# FIGURE 57 YEAR 2031 PEAK PM HOUR TRAFFIC – Terminal/Trainyards

		HCS	7 Sig	nalize	d In	Ite	rsect	ion R	lesu	lts Su	mmar	у				
General Inform	ation									Intoreo	tion Inf	ormatic	n		4444	k L
	lation								$\rightarrow$			0.25		- 1	11	
Agency				A	i. D.	4.	40/40/	047	$\rightarrow$	Duratio	,					-
Analyst				Analys		-				Area Ty	pe	Other				
Jurisdiction				Time F				M Hou	_	PHF		0.90			w+s B	*
Urban Street		200, 230 & 260 Ste		Analys			2031		_	Analysi	s Period	1> 7:(	00	7		
Intersection		Traintards/Terminal		File Na	ame		2031_t	ot_pm.	xus						11r	
Project Descrip	tion	OTY Residential De	evelopm	ent										1	(* 1)+ Y	1
Demand Inform	nation				EE	3			W	B		NB			SB	
Approach Move				L	Т	_	R	L	Т	_	L	T	R	L	T	R
Demand (v), v				149	2	_	102	5	1	_	67	139	9	5	124	242
Demand (V), V	CH/H			140	2		102			0	01	100	0	U	124	272
Signal Informa	tion				1.45		2	Ľ						. 4		<u> </u>
Cycle, s	80.0	Reference Phase	2	1		• 7	2	¥.						Ý-		Y
Offset, s	0	Reference Point	Begin			m	1.0						1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Green Yellow		5	1.9 3.3	11.3 3.3	0.0							7
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	_	2.7	3.0	0.0				б	6	7	-€,
					1						1 - 1 -					
Timer Results				EBL	-	E	BT	WBI	-	WBT	NB	L	NBT	SBI	-	SBT
Assigned Phase	е						8			4			2			6
Case Number	•					1(	0.0			12.0			5.0			7.0
Phase Duration	, s					1	7.6			7.9			54.6			54.6
Change Period,	(Y+R	c), <b>s</b>			-	6	.6			6.0			6.3			6.3
Max Allow Head						_	.3			3.1			0.0			0.0
Queue Clearan					-		.5		+	2.3			0.0			0.0
Green Extensio		(0 )/					.6			0.0			0.0			0.0
Phase Call Pro		(3 • ), •			-	_	00		+	0.14			0.0			
Max Out Proba			_				00			0.00						
										0.00						
Movement Gro	oup Res	ults			EB	;			WB			NB			SB	
Approach Move	ement			L	Т		R	L	Т	R	L	Т	R	L	Т	R
Assigned Move	ment			3	8		18	7	4	14	5	2	12	1	6	16
Adjusted Flow F	Rate ( v	), veh/h		166	110	)			7		74	154	4		143	102
Adjusted Satura	ation Flo	w Rate ( s ), veh/h/	In	1470	1478	8			1728	3	1260	1730	1486		1705	1200
Queue Service	Time ( g	gs), s		4.1	5.5				0.3		2.1	3.0	0.1		0.0	0.6
Cycle Queue C				4.1	5.5				0.3		4.9	3.0	0.1		2.8	0.6
Green Ratio ( g				0.15	0.15	5			0.04		0.62	0.62	0.62		0.62	0.84
Capacity (c), v	,			440	221	_			62		821	1065	915		1097	1104
		f= ( )( )	_	0.377	0.49	_			0.10	7	0.091	0.145	0.005		0.131	0.093
Volume-to-Capa	αυιιν κα					<u> </u>				_		26.2	0.7		24.2	1.5
Volume-to-Capa Back of Queue		. ,	)	39.1	48.3	3			3.2		13.7	Z0.Z				0.1
Back of Queue	( Q ), ft	In ( 50 th percentile)		39.1	48.3	-					_		0.0		0.9	
Back of Queue Back of Queue	(Q), ft (Q), v	/In ( 50 th percentile) eh/In ( 50 th percent	ile)	39.1 1.4	48.3 1.9				0.1		0.5	1.0	0.0		0.9	
Back of Queue Back of Queue Queue Storage	(Q), ft (Q), v Ratio (	In ( 50 th percentile) h/In ( 50 th percent RQ ) ( 50 th percent	ile)	39.1 1.4 0.00	48.3 1.9 0.00	) )			0.1 0.00		0.5 0.00	1.0 0.00	0.00		0.00	0.00
Back of Queue Back of Queue Queue Storage Uniform Delay (	(Q), ft (Q), vo Ratio ( (d1), s	In ( 50 th percentile) h/ln ( 50 th percent RQ ) ( 50 th percen /veh	ile)	39.1 1.4 0.00 30.7	48.3 1.9 0.00 31.3	) ) 3			0.1 0.00 37.3		0.5 0.00 7.5	1.0 0.00 6.5	0.00 5.9		0.00 6.4	0.00 0.3
Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De	(Q), ft (Q), vo Ratio ( (d1), s lay (d2	In ( 50 th percentile) eh/In ( 50 th percent RQ ) ( 50 th percen /veh ), s/veh	ile)	39.1 1.4 0.00 30.7 0.2	48.3 1.9 0.00 31.3 0.6	3			0.1 0.00 37.3 0.3		0.5 0.00 7.5 0.2	1.0 0.00 6.5 0.3	0.00 5.9 0.0		0.00 6.4 0.2	0.00 0.3 0.2
Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De	(Q), ft (Q), vo Ratio ( (d1), s lay (d2 elay (d	In ( 50 th percentile) eh/In ( 50 th percent RQ ) ( 50 th percent /veh ), s/veh β ), s/veh	ile)	39.1 1.4 0.00 30.7 0.2 0.0	48.3 1.9 0.00 31.3 0.6 0.0	3			0.1 0.00 37.3 0.3 0.0		0.5 0.00 7.5 0.2 0.0	1.0 0.00 6.5 0.3 0.0	0.00 5.9 0.0 0.0		0.00 6.4 0.2 0.0	0.00 0.3 0.2 0.0
Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay (	(Q), ft (Q), vo Ratio ( (d1), s lay (d2 elay (d d), s/vo	In ( 50 th percentile) eh/In ( 50 th percent RQ ) ( 50 th percent /veh ), s/veh 3), s/veh eh	ile)	39.1 1.4 0.00 30.7 0.2 0.0 30.9	48.3 1.9 0.00 31.3 0.6 0.0 31.9	3			0.1 0.00 37.3 0.3 0.0 37.6		0.5 0.00 7.5 0.2 0.0 7.7	1.0 0.00 6.5 0.3 0.0 6.8	0.00 5.9 0.0 0.0 5.9		0.00 6.4 0.2 0.0 6.7	0.00 0.3 0.2 0.0 0.5
Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service	(Q), ft (Q), vo Ratio ( (d1), s lay (d2 elay (d d), s/vo e (LOS)	In ( 50 th percentile) eh/In ( 50 th percent RQ ) ( 50 th percent /veh ), s/veh ₃ ), s/veh eh	ile)	39.1 1.4 0.00 30.7 0.2 0.0 30.9 C	48.3 1.9 0.00 31.3 0.6 0.0 31.9 C			37.6	0.1 0.00 37.3 0.3 0.0 37.6 D		0.5 0.00 7.5 0.2 0.0 7.7 A	1.0 0.00 6.5 0.3 0.0 6.8 A	0.00 5.9 0.0 0.0 5.9 A		0.00 6.4 0.2 0.0 6.7 A	0.00 0.3 0.2 0.0 0.5 A
Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service Approach Delay	(Q), ft (Q), va Ratio ( (d1), s lay (d2 elay (d d), s/va e (LOS) y, s/veh	/In ( 50 th percentile, eh/In ( 50 th percent <i>RQ</i> ) ( 50 th percent /veh ), s/veh 3), s/veh eh	ile)	39.1 1.4 0.00 30.7 0.2 0.0 30.9	48.3 1.9 0.00 31.3 0.6 0.0 31.9 C		C 15	37.6	0.1 0.00 37.3 0.3 0.0 37.6 D		0.5 0.00 7.5 0.2 0.0 7.7	1.0 0.00 6.5 0.3 0.0 6.8 A	0.00 5.9 0.0 5.9 A A	4.1 B	0.00 6.4 0.2 0.0 6.7 A	0.00 0.3 0.2 0.0 0.5
Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service	(Q), ft (Q), va Ratio ( (d1), s lay (d2 elay (d d), s/va e (LOS) y, s/veh	/In ( 50 th percentile, eh/In ( 50 th percent <i>RQ</i> ) ( 50 th percent /veh ), s/veh 3), s/veh eh	ile)	39.1 1.4 0.00 30.7 0.2 0.0 30.9 C	48.3 1.9 0.00 31.3 0.6 0.0 31.9 C		C 15		0.1 0.00 37.3 0.3 0.0 37.6 D		0.5 0.00 7.5 0.2 0.0 7.7 A	1.0 0.00 6.5 0.3 0.0 6.8 A	0.00 5.9 0.0 5.9 5.9 A A	4.1 B	0.00 6.4 0.2 0.0 6.7 A	0.00 0.3 0.2 0.0 0.5 A
Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service Approach Delay	(Q), ft (Q), ve Ratio ( (d1), s lay (d2 elay (d d), s/ve e (LOS) y, s/veh lay, s/ve	/In ( 50 th percentile, eh/In ( 50 th percent <i>RQ</i> ) ( 50 th percent /veh ), s/veh 3), s/veh eh	ile)	39.1 1.4 0.00 30.7 0.2 0.0 30.9 C	48.3 1.9 0.00 31.3 0.6 0.0 31.9 C		_		0.1 0.00 37.3 0.3 0.0 37.6 D	i I	0.5 0.00 7.5 0.2 0.0 7.7 A	1.0 0.00 6.5 0.3 0.0 6.8 A	0.00 5.9 0.0 5.9 5.9 A A		0.00 6.4 0.2 0.0 6.7 A	0.00 0.3 0.2 0.0 0.5 A
Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service Approach Delay Intersection Delay	(Q), ft. (Q), vo Ratio ( (d1), s lay (d2 elay (d d), s/vo e (LOS) y, s/veh lay, s/ve sults	/In ( 50 th percentile, eh/In ( 50 th percent <i>RQ</i> ) ( 50 th percent /veh ), s/veh 3 ), s/veh bh / LOS bh / LOS	ile)	39.1 1.4 0.00 30.7 0.2 0.0 30.9 C	48.3 1.9 0.00 31.3 0.6 0.0 31.9 C 3 EB		_		0.1 0.00 37.3 0.3 37.6 D 37.6 WB	i I	0.5 0.00 7.5 0.2 0.0 7.7 A	1.0 0.00 6.5 0.3 0.0 6.8 A	0.00 5.9 0.0 5.9 A A		0.00 6.4 0.2 0.0 6.7 A SB	0.00 0.3 0.2 0.0 0.5 A

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# FIGURE 58 EXISTING 2018 PEAK AM HOUR TRAFFIC – Trainyards/Belfast

		HCS	57 Sig	nalize	d Int	ersec	tion F	Resul	ts Sur	nmary	/	_	_		
General Inform	nation								Intersec	tion Infe	ormatic	n		4741	БŲ
	lauon	1										л	- 📋		
Agency				A 1	la D-f	1	E 0040		Duration	,	0.25				
Analyst						Jun 1			Area Typ	e	Other				:
Jurisdiction				Time F			AM Hou		PHF		0.90				*
Urban Street		200, 230 & 260 Str	eamli	· ·	sis Year				Analysis	Period	1> 7:0	00	14 14		
Intersection		Trainyards/Belfast		File Na	ame	2018	_ex_am.	xus						111	
Project Descript	tion	OTY Residential De	evelopm	ent									h	4 1 4 4	17
Demand Inform	nation				EB			WE	3		NB			SB	
Approach Move	ement			L	Т	R	L	Т	R	L	Т	R	L	Т	F
Demand (v), v				<u> </u>	197	201	142	167	_	176	<u> </u>	106	<u> </u>	<u> </u>	+
Signal Informa	tion														
Cycle, s	80.0	Reference Phase	2		l è	"⊨⇒ "		2			Ľ	`-→ -¬	<b>→</b> .		
Offset, s	0	Reference Point	Begin	Green	49	47.3	7.7	0.0	0.0	0.0	_	1		3	
Uncoordinated	No	Simult. Gap E/W	Off	Yellow		3.3	3.3	0.0	0.0	0.0					ĸ
Force Mode	Float	Simult. Gap N/S	Off	Red	2.8	3.8	3.6	0.0	0.0	0.0		Б	6	7	
Timer Results				EBI	-	EBT	WB		WBT	NBL	·	NBT	SBL	_	SBT
Assigned Phase	e					2	1		6			8		_	
Case Number						7.3	1.0		4.0			9.0			
Phase Duration						54.4	11.0	_	65.4			14.6			
Change Period,						7.1	6.1	_	7.1			6.9			
Max Allow Head						0.0	3.1	_	0.0			3.3			
Queue Clearan							3.3	_				7.1			
Green Extensio		(ge),s				0.0	0.1	_	0.0			0.6			
Phase Call Prot							0.97	_			_	1.00			
Max Out Probal	bility						0.19	)				0.00			
Movement Gro	oup Res	ults			EB			WB			NB			SB	
Approach Move				L	T	R	L	T	R	L	T	R	L	T	F
Assigned Move				_	2	12	1	6		3		18			+
Adjusted Flow F		), veh/h			219	112	158	186		196		118		-	1
,		ow Rate (s), veh/h/	In		1758	1500	1581	1687		1639		1305			+
Queue Service					4.5	2.6	1.3	1.2		4.5		5.1			-
Cycle Queue Cl					4.5	2.6	1.3	1.2		4.5		5.1			+
Green Ratio ( g		e nine (g c), s			4.5	0.60	0.85	0.74		4.5 0.11		0.27			+
	,				1062	906	1005	2499		358		470			+
Capacity ( c ), v		tio (X)			_										-
Volume-to-Capa Rock of Quoup			)			0.124	0.157	0.074		0.546		0.251			-
		In (50 th percentile)			39.7	19.3	0.6	7.1		44.7		41			+
		eh/In (50 th percent			1.6	0.8	0.0	0.3		1.8		1.5			+-
-		RQ) (50 th percent	ulle)		0.00	0.00	0.00	0.00		0.00		0.00			-
Uniform Delay (					7.2	6.8	1.2	3.0		33.8		18.3			-
Incremental Del					0.4	0.3	0.0	0.1		0.5		0.1			-
Initial Queue De		,. ,.			0.0	0.0	0.0	0.0		0.0 34.2		0.0			+
Control Delay (					7.6	7.1	1.3	3.0				18.4			-
Level of Service	· /	11.00			A	A	A	A	0	C		В	0.0		
Approach Delay				7.4		A	2.2		A	28.3		С	0.0		
Internet C. D. 1	iay, s/ve	en / LOS				12	2.2					ł	3		
Intersection Del				_	50			WB			NB			SB	
	sults				EB			VVL						00	
Intersection Del Multimodal Re Pedestrian LOS		/LOS		2.34	_	В	0.84	_	A	2.46	_	В	2.54	30	С

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### FIGURE 59 EXISTING 2018 PEAK PM HOUR TRAFFIC – Trainyards/Belfast

		HCS	7 Sig	nalize	d Int	ersec	tion R	lesul	ts Sur	nmary	/				
General Inform	ation								ntersec	tion Info	rmatic	n	2	4 7 4 1	Ъų
	auon										0.25	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
Agency				Anal	via Deta	1. I. m. 4.	5 2040		Duration,						
Analyst						Jun 1	,	_	Area Typ	e	Other		<b>→</b>		:
Jurisdiction				Time F			PM Hou		PHF	<u> </u>	0.90		N N		*
Urban Street		200, 230 & 260 Str	eamli	· ·	sis Year				Analysis	Period	1> 7:0	00			
Intersection		Trainyards/Belfast		File Na	ame	2018	ex_pm.	xus						<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>	
Project Descript	tion	OTY Residential De	evelopm	ent									1	4144	1 1
Demand Inform	nation				EB			WB	}		NB			SB	
Approach Move				L	T	R	L	T	R	L	Т	R	L	T	F
Demand (v), v				<u> </u>	207	314	182	277	_	341	<u> </u>	167	<u> </u>	<u> </u>	+
Signal Informa	tion					_									
Cycle, s	80.0	Reference Phase	2		l è	. ⊨⇒ *	٦.	7			<b>×</b>	`⊢⊣¬	<b>→</b> .		
Offset, s	0	Reference Point	Begin	Green	49	43.1	11.9	0.0	0.0	0.0				3	
Uncoordinated	No	Simult. Gap E/W	Off	Yellow		3.3	3.3	0.0	0.0	0.0		•	7		K
Force Mode	Float	Simult. Gap N/S	Off	Red	2.8	3.8	3.6	0.0	0.0	0.0		5	6	7	
Timer Results				EBI	-	EBT	WB	L	WBT	NBL		NBT	SBL		SBT
Assigned Phase	e					2	1		6			8			
Case Number						7.3	1.0		4.0		_	9.0			
Phase Duration						50.2	11.0	)	61.2		_	18.8			
Change Period,						7.1	6.1		7.1			6.9			
Max Allow Head						0.0	3.1		0.0			3.2			
Queue Clearan							4.4				_	10.8			
Green Extensio		(ge),s				0.0	0.1		0.0		_	1.1			
Phase Call Prot							0.99	_			_	1.00			
Max Out Probal	bility						0.71					0.02			
Movement Gro	up Res	ults			EB			WB			NB			SB	
Approach Move	-			L	T	R	L	T	R	L	Т	R	L	T	F
Assigned Move				_	2	12	1	6		3	-	18			
Adjusted Flow F		) veh/h			230	238	202	308		379	_	186		_	
,		ow Rate ( s ), veh/h/	In		1758	1472	1514	1446		1639		1395			
Queue Service					5.4	6.9	2.4	3.0		8.8		7.3			
Cycle Queue Cl					5.4	6.9	2.4	3.0		8.8		7.3			-
Cycle Queue C		e fille ( <i>g c</i> ), s			0.55	0.55	0.80	0.69		0.0		0.32			-
Green Patio ( a					0.55		895	1993		528		575			-
	/p				060	811		1993		520					-
Capacity (c), v		tio (X)			969	811		0 154		0 719	1	I U 333 ■			1
Capacity(c), v Volume-to-Capa	acity Ra				0.237	0.293	0.226			0.718		0.323			
	acity Ra (Q), ft/	In ( 50 th percentile)			0.237 50.6	0.293 54.3	0.226 8.3	20.3		85.9		57.5			
Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue Back of Queue	acity Ra (Q), ft/ (Q), ve	'In ( 50 th percentile) eh/In ( 50 th percent	ile)		0.237 50.6 2.0	0.293 54.3 2.2	0.226 8.3 0.3	20.3 0.7		85.9 3.4		57.5 2.2			
Capacity ( c ), v Volume-to-Capa Back of Queue Back of Queue Queue Storage	acity Ra (Q), ft (Q), ve Ratio (	In ( 50 th percentile) h/ln ( 50 th percent RQ ) ( 50 th percen	ile)		0.237 50.6 2.0 0.00	0.293 54.3 2.2 0.00	0.226 8.3 0.3 0.00	20.3 0.7 0.00		85.9 3.4 0.00		57.5 2.2 0.00			
Capacity ( c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay (	acity Ra (Q), ft/ (Q), vo Ratio ( (d1), s	In ( 50 th percentile) h/In ( 50 th percent <i>RQ</i> ) ( 50 th percen /veh	ile)		0.237 50.6 2.0 0.00 9.3	0.293 54.3 2.2 0.00 9.6	0.226 8.3 0.3 0.00 2.2	20.3 0.7 0.00 4.5		85.9 3.4 0.00 31.8		57.5 2.2 0.00 16.2			
Capacity ( c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del	acity Ra (Q), ft/ (Q), vo Ratio ( (d1), s lay (d2	In ( 50 th percentile) eh/In ( 50 th percent RQ ) ( 50 th percen /veh ), s/veh	ile)		0.237 50.6 2.0 0.00 9.3 0.6	0.293 54.3 2.2 0.00 9.6 0.9	0.226 8.3 0.3 0.00 2.2 0.0	20.3 0.7 0.00 4.5 0.2		85.9 3.4 0.00 31.8 0.7		57.5 2.2 0.00 16.2 0.1			
Capacity ( c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del Initial Queue De	acity Ra (Q), ftu (Q), vo Ratio ( (d1), s lay (d2 elay (d	In ( 50 th percentile, eh/In ( 50 th percent RQ ) ( 50 th percen /veh ), s/veh 3 ), s/veh	ile)		0.237 50.6 2.0 0.00 9.3 0.6 0.0	0.293 54.3 2.2 0.00 9.6 0.9 0.0	0.226 8.3 0.3 0.00 2.2 0.0 0.0	20.3 0.7 0.00 4.5 0.2 0.0		85.9 3.4 0.00 31.8 0.7 0.0		57.5 2.2 0.00 16.2 0.1 0.0			
Capacity ( c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay (	acity Ra (Q), ft/ (Q), vo Ratio ( (d1), s lay (d2 elay (d d), s/vo	In ( 50 th percentile, eh/In ( 50 th percent RQ ) ( 50 th percen /veh ), s/veh 3 ), s/veh	ile)		0.237 50.6 2.0 0.00 9.3 0.6 0.0 9.9	0.293 54.3 2.2 0.00 9.6 0.9 0.9 0.0 10.5	0.226 8.3 0.3 0.00 2.2 0.0 0.0 2.3	20.3 0.7 0.00 4.5 0.2 0.0 4.7		85.9 3.4 0.00 31.8 0.7 0.0 32.5		57.5 2.2 0.00 16.2 0.1 0.0 16.3			
Capacity ( c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service	acity Ra (Q), ft (Q), ve Ratio ( (d), s lay (d) alay (d) d), s/ve e (LOS)	In ( 50 th percentile, eh/In ( 50 th percent RQ ) ( 50 th percent /veh ), s/veh ₃ ), s/veh ₅h	ile)		0.237 50.6 2.0 0.00 9.3 0.6 0.0 9.9 A	0.293 54.3 2.2 0.00 9.6 0.9 0.0 10.5 B	0.226 8.3 0.3 0.00 2.2 0.0 0.0 2.3 A	20.3 0.7 0.00 4.5 0.2 0.0 4.7 A		85.9 3.4 0.00 31.8 0.7 0.0 32.5 C		57.5 2.2 0.00 16.2 0.1 0.0 16.3 B			
Capacity ( c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service Approach Delay	acity Ra (Q), ft (Q), va Ratio ( (d), sva elay (d) elay (d) (LOS) v, s/veh	In ( 50 th percentile, eh/In ( 50 th percent RQ ) ( 50 th percent /veh ), s/veh 3 ), s/veh eh	ile)	10.2	0.237 50.6 2.0 0.00 9.3 0.6 0.0 9.9 A	0.293 54.3 2.2 0.00 9.6 0.9 0.0 10.5 B	0.226 8.3 0.3 0.00 2.2 0.0 0.0 2.3 A 3.7	20.3 0.7 0.00 4.5 0.2 0.0 4.7 A	A	85.9 3.4 0.00 31.8 0.7 0.0 32.5		57.5 2.2 0.00 16.2 0.1 0.0 16.3 B C	0.0		
Capacity ( c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service Approach Delay	acity Ra (Q), ft (Q), va Ratio ( (d), sva elay (d) elay (d) (LOS) v, s/veh	In ( 50 th percentile, eh/In ( 50 th percent RQ ) ( 50 th percent /veh ), s/veh 3 ), s/veh eh	ile)	10.2	0.237 50.6 2.0 0.00 9.3 0.6 0.0 9.9 A	0.293 54.3 2.2 0.00 9.6 0.9 0.0 10.5 B	0.226 8.3 0.3 0.00 2.2 0.0 0.0 2.3 A	20.3 0.7 0.00 4.5 0.2 0.0 4.7 A		85.9 3.4 0.00 31.8 0.7 0.0 32.5 C		57.5 2.2 0.00 16.2 0.1 0.0 16.3 B C	0.0		
Capacity ( c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service Approach Delay Intersection Del	acity Ra (Q), ft (Q), ve Ratio ( $(d_1)$ , s lay ( $d_2$ elay ( $d_2$ elay ( $d_3$ ), s/ve (LOS) $\gamma$ , s/veh lay, s/ve	In ( 50 th percentile, eh/In ( 50 th percent RQ ) ( 50 th percent /veh ), s/veh 3 ), s/veh eh	ile)	10.2	0.237 50.6 2.0 0.00 9.3 0.6 0.0 9.9 A 2	0.293 54.3 2.2 0.00 9.6 0.9 0.0 10.5 B	0.226 8.3 0.3 0.00 2.2 0.0 0.0 2.3 A 3.7	20.3 0.7 0.00 4.5 0.2 0.0 4.7 A		85.9 3.4 0.00 31.8 0.7 0.0 32.5 C		57.5 2.2 0.00 16.2 0.1 0.0 16.3 B C		SB	
Capacity ( c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service Approach Delay	acity Ra (Q), ft (Q), vo Ratio ( (d), sv alay (d) alay (d) (d), s/vo ⇒ (LOS) y, s/veh lay, s/ves	In (50 th percentile, eh/in (50 th percent <i>RQ</i> ) (50 th percent /veh ), s/veh 3), s/veh eh / LOS th / LOS	ile)	10.2	0.237 50.6 2.0 0.00 9.3 0.6 0.0 9.9 A 2 EB	0.293 54.3 2.2 0.00 9.6 0.9 0.0 10.5 B	0.226 8.3 0.3 0.00 2.2 0.0 0.0 2.3 A 3.7	20.3 0.7 0.00 4.5 0.2 0.0 4.7 A WB		85.9 3.4 0.00 31.8 0.7 0.0 32.5 C	NB	57.5 2.2 0.00 16.2 0.1 0.0 16.3 B C		SB	C

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HCS7™ Streets Version 7.4

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### FIGURE 60 YEAR 2021 PEAK AM HOUR TRAFFIC – Trainyards/Belfast

	HCS	7 Sig	nalize	d Int	ersec	tion R	lesul	ts Sur	nmary	/				
General Information								ntorees	tion Info	rmatia	20	1	* 7 * 1	ЪЦ
	1										on	- 🏥		
Agency					1			Duration	,	0.25		-		
Analyst					Jun 1		_	Area Typ	e	Other				+
Jurisdiction			Time F			AM Hou		PHF		0.90		* <b>~</b>		-
Urban Street	200, 230 & 260 Stre	amli	Analys	sis Year	_			Analysis	Period	1> 7:0	00	7		
Intersection	Trainyards/Belfast		File Na	ame	2021_	tot_am.	xus						111	
Project Description	OTY Residential De	velopm	ent									1	4144	1
Demand Information	1			EB			WB	•		NB			SB	
Approach Movement			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), veh/h			-	203	215	164	172		183	-	115			<u> </u>
														in a
Signal Information					•									
Cycle, s 80.0	Reference Phase	2			∃ *	5	2			Ľ		₹ 2	3	
Offset, s 0	Reference Point	Begin	Green	4.9	46.8	8.2	0.0	0.0	0.0	_		<b>_</b> ~		_
Uncoordinated No	Simult. Gap E/W	Off	Yellow		3.3	3.3	0.0	0.0	0.0					ĸ
Force Mode Float	Simult. Gap N/S	Off	Red	2.8	3.8	3.6	0.0	0.0	0.0		Б	6	7	
Timor Booult-			EDI		EDT				ND		NRT	CDI		CDT
Timer Results Assigned Phase			EBI	-	EBT 2	WB		WBT 6	NBL	·	NBT 8	SBL		SBT
					_	<u> </u>			<u> </u>				_	
Case Number					7.3	1.0		4.0			9.0	_		
Phase Duration, s					53.9	11.0		64.9	<u> </u>		15.1		$\rightarrow$	
Change Period, (Y+F	,				7.1	6.1		7.1			6.9			
Max Allow Headway (					0.0	3.1		0.0			3.3			
Queue Clearance Tim					0.0	3.6		0.0			7.5		-	
Green Extension Time					0.0	0.1		0.0	<u> </u>	_	0.7		$\rightarrow$	
Phase Call Probability			_			0.98	_		_	_	1.00	_	$\rightarrow$	
Max Out Probability						0.29	)				0.00			
Movement Group Re	sults			EB			WB			NB			SB	
Approach Movement			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Movement				2	12	1	6		3		18			
Adjusted Flow Rate (	v ), veh/h			226	128	182	191		203		128			1
	low Rate (s), veh/h/lr	1		1758	1500	1581	1687		1639		1305			<u> </u>
Queue Service Time		_		4.7	3.0	1.6	1.3		4.7		5.5			1
Cycle Queue Clearan				4.7	3.0	1.6	1.3		4.7		5.5			1
Green Ratio ( $g/C$ )	55 millo ( 9 c ), 5	_		0.60	0.60	0.85	0.74		0.11		0.28			<u> </u>
Capacity ( <i>c</i> ), veh/h				1050	896	992	2480		377		478			1
Volume-to-Capacity R	atio (X)				0.143	0.184	0.077		0.540		0.267			-
	ft/In ( 50 th percentile)			42.3	22.8	1.5	7.7		46.2		44.2			+
	veh/ln ( 50 th percentil	e)		1.7	0.9	0.1	0.3		1.8		1.6			1
	(RQ) (50 th percentil			0.00	0.00	0.00	0.00		0.00		0.00			+
Uniform Delay ( d 1 ),		10)		7.4	7.1	1.4	3.1		33.4		18.1			-
Incremental Delay ( d 1 ),				0.5	0.3	0.0	0.1		0.4		0.1			+
Initial Queue Delay (		_		0.0	0.0	0.0	0.0		0.4		0.1			1
Control Delay (d), s/				7.9	7.4	1.4	3.2		33.9		18.2			1
Level of Service (LOS		_		A	A	A	A		C		B			-
Approach Delay, s/vel	,		7.7		A	2.3		A	27.8		C	0.0		1
Intersection Delay, s/ve		_	1.1			2.3 2.1		~	21.0			B		
					12									
Multimodal Results				EB			WB			NB			SB	
	(1.00		2.36	3	В	0.84	L I	А	2.47		В	2.56		С
Pedestrian LOS Score	e/LOS			· · · · · · · · · · · · · · · · · · ·										

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## FIGURE 61 YEAR 2021 PEAK PM HOUR TRAFFIC – Trainyards/Belfast

	HCS7	Sig	nalize	d Inte	ersec	tion R	lesul	ts Sur	nmary	,				
General Information									tion Info	um ati a		1	4.741	b U
	1										n	- 🗎		
Agency						- 0010		Duration		0.25		-		
Analyst					Jun 1		_	Area Typ	е	Other				+
Jurisdiction			Time F			PM Hou		PHF		0.90		T is		~
Urban Street	200, 230 & 260 Strea	mli	Analys	sis Year	2021		/ A	Analysis	Period	1> 7:0	00	4		
Intersection	Trainyards/Belfast		File Na	ame	2021	tot_pm.	xus						111	
Project Description	OTY Residential Dev	elopm	ent									h	4144	1 1
Demand Information				EB			WB			NB			SB	
Approach Movement		_	L	Т	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				213	326	192	285	_	359	-	187	-		
Demand (V), Ven/m				213	320	192	200		309		107			
Signal Information						8								
Cycle, s 80.0	Reference Phase	2		1 2	⁼ <mark> _→</mark> ₽	7	7					→		
Offset, s 0	Reference Point E	Begin		7				-			1	2	3	
Uncoordinated No	Simult. Gap E/W	Off	Green		42.5	12.4	0.0	0.0	0.0			-		-
Force Mode Float	Simult. Gap N/S	Off	Yellow Red	2.8	3.3	3.3	0.0	0.0	0.0		5	6	7	
	Olimait. Cap 14/C	011	ricu	2.0	0.0	0.0	0.0	0.0	0.0		-	-		
Timer Results			EBI	-	EBT	WB	L	WBT	NBL		NBT	SBL		SBT
Assigned Phase					2	1		6			8			
Case Number					7.3	1.0		4.0			9.0			
Phase Duration, s					49.6	11.1		60.7			19.3			
Change Period, (Y+R	c). S	_	<u> </u>		7.1	6.1	_	7.1			6.9			
Max Allow Headway (		_			0.0	3.1	_	0.0			3.2			
Queue Clearance Time		_			0.0	4.7	_	0.0		+	11.2			
Green Extension Time		_			0.0	0.1	_	0.0			1.2			
Phase Call Probability	(90), 5	_			0.0	0.99	_	0.0			1.00			
Max Out Probability		_				0.91	_				0.03			
max out robubility						0.0					0.00			
Movement Group Res	sults			EB			WB			NB			SB	
Approach Movement			L	Т	R	L	Т	R	L	Т	R	L	Т	R
												L	1	
Assigned Movement				2	12	1	6		3		18	-	1	
0	<sup>,</sup> ), veh/h		-	2 237	12 251		6 317		3 399		18 208		1	-
Adjusted Flow Rate ( v						1	-							
Assigned Movement Adjusted Flow Rate ( v Adjusted Saturation Flo Queue Service Time (	ow Rate (s), veh/h/ln			237	251	1 213	317		399		208			
Adjusted Flow Rate ( v Adjusted Saturation Flo Queue Service Time ( )	ow Rate ( <i>s</i> ), veh/h/ln <i>g</i> <sub>s</sub> ), s			237 1758	251 1472	1 213 1514	317 1446		399 1639		208 1395			
Adjusted Flow Rate ( v Adjusted Saturation Flo Queue Service Time ( Cycle Queue Clearance	ow Rate ( <i>s</i> ), veh/h/ln <i>g</i> <sub>s</sub> ), s			237 1758 5.7	251 1472 7.5	1 213 1514 2.7	317 1446 3.1		399 1639 9.2		208 1395 8.2			
Adjusted Flow Rate ( v Adjusted Saturation Flo Queue Service Time ( ) Cycle Queue Clearanc Green Ratio ( g/C )	ow Rate ( <i>s</i> ), veh/h/ln <i>g</i> <sub>s</sub> ), s			237 1758 5.7 5.7 0.54	251 1472 7.5 7.5 0.54	1 213 1514 2.7 2.7 0.80	317 1446 3.1 3.1 0.68		399 1639 9.2 9.2 0.17		208 1395 8.2 8.2 0.33			
Adjusted Flow Rate ( $v$ Adjusted Saturation Flo Queue Service Time ( $y$ Cycle Queue Clearanc Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h	w Rate ( <i>s</i> ), veh/h/ln g s ), s e Time ( g c ), s			237 1758 5.7 5.7 0.54 957	251 1472 7.5 7.5 0.54 801	1 213 1514 2.7 2.7	317 1446 3.1 3.1 0.68 1974		399 1639 9.2 9.2 0.17 549		208 1395 8.2 8.2 0.33 584			
Adjusted Flow Rate ( $v$ Adjusted Saturation Flo Queue Service Time ( Cycle Queue Clearanc Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ra	by Rate ( $s$ ), veh/h/ln gs), s e Time ( $gc$ ), s atio ( $X$ )			237 1758 5.7 5.7 0.54 957 0.247	251 1472 7.5 0.54 801 0.314	1 213 1514 2.7 2.7 0.80 882 0.242	317 1446 3.1 3.1 0.68 1974 0.160		399 1639 9.2 9.2 0.17 549 0.726		208 1395 8.2 8.2 0.33 584 0.356			
Adjusted Flow Rate ( $v$ Adjusted Saturation Flo Queue Service Time ( $g$ Cycle Queue Clearanc Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ra Back of Queue ( $Q$ ), ft	by Rate ( $s$ ), veh/h/ln $g_s$ ), $s$ e Time ( $g_c$ ), $s$ atio ( $X$ ) /In (50 th percentile)			237 1758 5.7 0.54 957 0.247 53.3	251 1472 7.5 7.5 0.54 801 0.314 59.3	1 213 1514 2.7 2.7 0.80 882 0.242 10	317 1446 3.1 3.1 0.68 1974 0.160 21.8		399 1639 9.2 9.2 0.17 549 0.726 90		208 1395 8.2 8.2 0.33 584 0.356 64.8			
Adjusted Flow Rate ( $v$ Adjusted Flow Rate ( $v$ Adjusted Saturation Flo Queue Service Time ( $g$ Cycle Queue Clearanc Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ra Back of Queue ( $Q$ ), the Back of Queue ( $Q$ ), vert	w Rate ( $s$ ), veh/h/ln $g_s$ ), s e Time ( $g_c$ ), s atio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile)	·		237 1758 5.7 0.54 957 0.247 53.3 2.1	251 1472 7.5 0.54 801 0.314 59.3 2.4	1 213 1514 2.7 2.7 0.80 882 0.242 10 0.4	317 1446 3.1 3.1 0.68 1974 0.160 21.8 0.8		399 1639 9.2 9.2 0.17 549 0.726 90 3.5		208 1395 8.2 0.33 584 0.356 64.8 2.4			
Adjusted Flow Rate ( $v$ Adjusted Saturation Flo Queue Service Time ( $g$ Cycle Queue Clearance Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ra Back of Queue ( $Q$ ), ft Back of Queue ( $Q$ ), v Queue Storage Ratio (	by Rate ( $s$ ), veh/h/ln $g_s$ ), s e Time ( $g_c$ ), s atio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile	·		237 1758 5.7 0.54 957 0.247 53.3 2.1 0.00	251 1472 7.5 0.54 801 0.314 59.3 2.4 0.00	1 213 1514 2.7 2.7 0.80 882 0.242 10 0.4 0.00	317 1446 3.1 0.68 1974 0.160 21.8 0.8 0.00		399 1639 9.2 9.2 0.17 549 0.726 90 3.5 0.00		208 1395 8.2 0.33 584 0.356 64.8 2.4 0.000			
Adjusted Flow Rate ( $v$ Adjusted Saturation Flo Queue Service Time ( $g$ Cycle Queue Clearanc Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ra Back of Queue ( $Q$ ), v Queue Storage Ratio ( Uniform Delay ( $d \tau$ ), s	by Rate ( $s$ ), veh/h/ln $g_s$ ), s e Time ( $g_c$ ), s atio ( $X$ ) /ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile /veh	·		237 1758 5.7 0.54 957 0.247 53.3 2.1 0.00 9.6	251 1472 7.5 0.54 801 0.314 59.3 2.4 0.00 10.0	1 213 1514 2.7 2.7 0.80 882 0.242 10 0.4 0.00 2.4	317 1446 3.1 0.68 1974 0.160 21.8 0.8 0.00 4.7		399 1639 9.2 9.2 0.17 549 0.726 90 3.5 0.00 31.6		208 1395 8.2 0.33 584 0.356 64.8 2.4 0.00 16.1			
Adjusted Flow Rate ( $v$ Adjusted Saturation Flo Queue Service Time ( $g$ Cycle Queue Clearance Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ra Back of Queue ( $Q$ ), the Back of Queue ( $Q$ ), ve Queue Storage Ratio ( Uniform Delay ( $d t$ ), s Incremental Delay ( $d t$ )	w Rate ( $s$ ), veh/h/ln $g_s$ ), s e Time ( $g_c$ ), s atio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile /veh $r_2$ ), s/veh	·		237 1758 5.7 0.54 957 0.247 53.3 2.1 0.00 9.6 0.6	251 1472 7.5 0.54 801 0.314 59.3 2.4 0.00 10.0 1.0	1 213 1514 2.7 0.80 882 0.242 10 0.4 0.00 2.4 0.1	317 1446 3.1 3.1 0.68 1974 0.160 21.8 0.8 0.00 4.7 0.2		399 1639 9.2 9.2 0.17 549 0.726 90 3.5 0.00 31.6 0.7		208 1395 8.2 0.33 584 0.356 64.8 2.4 0.00 16.1 0.1			
Adjusted Flow Rate ( $v$ Adjusted Saturation Flo Queue Service Time ( $g$ Cycle Queue Clearanc Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ra Back of Queue ( $Q$ ), v Queue Storage Ratio ( Uniform Delay ( $d t$ ), s Incremental Delay ( $d t$ Initial Queue Delay ( $d$	by Rate ( $s$ ), veh/h/ln $g_s$ ), s e Time ( $g_c$ ), s atio ( $X$ ) /ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile RQ), (50 th percentile) s), s/veh s), s/veh	·		237 1758 5.7 0.54 957 0.247 53.3 2.1 0.00 9.6 0.6 0.6	251 1472 7.5 0.54 801 0.314 59.3 2.4 0.00 10.0 1.0 0.0	1 213 1514 2.7 2.7 0.80 882 0.242 10 0.4 0.00 2.4 0.1 0.0	317 1446 3.1 0.68 1974 0.160 21.8 0.8 0.00 4.7 0.2 0.0		399           1639           9.2           9.2           0.17           549           0.726           90           3.5           0.00           31.6           0.7           0.00		208 1395 8.2 0.33 584 0.356 64.8 2.4 0.00 16.1 0.1 0.1 0.0			
Adjusted Flow Rate ( $v$ Adjusted Saturation Flo Queue Service Time ( Cycle Queue Clearanc Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ra Back of Queue ( $Q$ ), vf Back of Queue ( $Q$ ), v Queue Storage Ratio ( Uniform Delay ( $d \tau$ ), s Incremental Delay ( $d z$ Initial Queue Delay ( $d$ ), s/v	by Rate ( $s$ ), veh/h/ln gs), s e Time ( $gc$ ), s atio ( $X$ ) /ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile /veh s), s/veh s), s/veh eh	·		237 1758 5.7 0.54 957 0.247 53.3 2.1 0.00 9.6 0.6 0.0 10.2	251 1472 7.5 0.54 801 0.314 59.3 2.4 0.00 10.0 1.0 0.0 11.0	1 213 1514 2.7 2.7 0.80 882 0.242 10 0.4 0.00 2.4 0.1 0.0 2.5	317 1446 3.1 0.68 1974 0.160 21.8 0.8 0.00 4.7 0.2 0.0 4.9		399           1639           9.2           9.7           0.17           549           0.726           90           3.5           0.00           31.6           0.7           0.00           31.6           0.7           3.5		208 1395 8.2 0.33 584 0.356 64.8 2.4 0.00 16.1 0.1 0.1 0.0 16.2			
Adjusted Flow Rate ( v Adjusted Flow Rate ( v Adjusted Saturation Flo Queue Service Time ( g Cycle Queue Clearanot Green Ratio ( g/C ) Capacity ( c ), veh/h Volume-to-Capacity Ra Back of Queue ( Q ), vt Back of Queue ( Q ), v Queue Storage Ratio ( Uniform Delay ( d r ), s Incremental Delay ( d Control Delay ( d ), s/v Level of Service (LOS)	by Rate ( $s$ ), veh/h/ln gs), s e Time ( $gc$ ), s atio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile /veh s), s/veh s), s/veh eh	·		237 1758 5.7 0.54 957 0.247 53.3 2.1 0.00 9.6 0.6 0.6 0.0 10.2 B	251 1472 7.5 0.54 801 0.314 59.3 2.4 0.00 10.0 1.0 0.0 11.0 B	1 213 1514 2.7 2.7 0.80 882 0.242 10 0.4 0.00 2.4 0.1 0.0 2.5 A	317 1446 3.1 3.1 0.68 1974 0.160 21.8 0.8 0.00 4.7 0.2 0.0 4.9 A		399 1639 9.2 9.2 0.17 549 0.726 90 3.5 0.00 31.6 0.7 0.0 32.3 C		208 1395 8.2 0.33 584 0.356 64.8 2.4 0.00 16.1 0.1 0.1 0.0 16.2 B			
Adjusted Flow Rate ( v Adjusted Flow Rate ( v Adjusted Saturation Flo Queue Service Time ( g Cycle Queue Clearanot Green Ratio ( g/C ) Capacity ( c ), veh/h Volume-to-Capacity Ra Back of Queue ( Q ), vt Back of Queue ( Q ), v Queue Storage Ratio ( Uniform Delay ( d r ), s Incremental Delay ( d r Initial Queue Delay ( d Control Delay ( d ), s/v Level of Service (LOS) Approach Delay, s/veh	by Rate ( $s$ ), veh/h/ln gs), s e Time ( $gc$ ), s atio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile) RQ) (50 th percentile) s), s/veh s), s/veh eh /LOS	·		237 1758 5.7 0.54 957 0.247 53.3 2.1 0.00 9.6 0.6 0.6 0.0 10.2 B	251 1472 7.5 0.54 801 0.314 59.3 2.4 0.00 10.0 1.0 0.0 11.0 B B	1 213 1514 2.7 2.7 0.80 882 0.242 10 0.4 0.24 0.00 2.4 0.1 0.0 2.5 A 3.9	317 1446 3.1 3.1 0.68 1974 0.160 21.8 0.8 0.00 4.7 0.2 0.0 4.9 A	A	399           1639           9.2           9.7           0.17           549           0.726           90           3.5           0.00           31.6           0.7           0.00           31.6           0.7           3.5		208 1395 8.2 0.33 584 0.356 64.8 2.4 0.00 16.1 0.1 0.0 16.2 B C			
Adjusted Flow Rate ( v Adjusted Saturation Flo Queue Service Time ( g Cycle Queue Clearanc Green Ratio ( g/C ) Capacity ( c ), veh/h Volume-to-Capacity Ra Back of Queue ( Q ), v Queue Storage Ratio ( Uniform Delay ( d 1), s Incremental Delay ( d Initial Queue Delay ( d Control Delay ( d ), s/v Level of Service (LOS) Approach Delay, s/veh	by Rate ( $s$ ), veh/h/ln gs), s e Time ( $gc$ ), s atio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile) RQ) (50 th percentile) s), s/veh s), s/veh eh /LOS	·		237 1758 5.7 0.54 957 0.247 53.3 2.1 0.00 9.6 0.6 0.6 0.0 10.2 B	251 1472 7.5 0.54 801 0.314 59.3 2.4 0.00 10.0 1.0 0.0 11.0 B B	1 213 1514 2.7 2.7 0.80 882 0.242 10 0.4 0.00 2.4 0.1 0.0 2.5 A	317 1446 3.1 3.1 0.68 1974 0.160 21.8 0.8 0.00 4.7 0.2 0.0 4.9 A	A	399 1639 9.2 9.2 0.17 549 0.726 90 3.5 0.00 31.6 0.7 0.0 32.3 C		208 1395 8.2 0.33 584 0.356 64.8 2.4 0.00 16.1 0.1 0.0 16.2 B C			
Adjusted Flow Rate ( v Adjusted Flow Rate ( v Adjusted Saturation Flo Queue Service Time ( g Cycle Queue Clearanco Green Ratio ( g/C ) Capacity ( c ), veh/h Volume-to-Capacity Ra Back of Queue ( Q ), vt Back of Queue ( Q ), v Queue Storage Ratio ( Uniform Delay ( d r ), s Incremental Delay ( d r Initial Queue Delay ( d Control Delay ( d ), s/v Level of Service (LOS) Approach Delay, s/ve Intersection Delay, s/ve	by Rate ( $s$ ), veh/h/ln gs), s e Time ( $gc$ ), s atio ( $X$ ) /In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile) RQ) (50 th percentile) s), s/veh s), s/veh eh /LOS	·		237 1758 5.7 0.54 957 0.247 53.3 2.1 0.00 9.6 0.6 0.6 0.0 10.2 B	251 1472 7.5 0.54 801 0.314 59.3 2.4 0.00 10.0 1.0 0.0 11.0 B B	1 213 1514 2.7 2.7 0.80 882 0.242 10 0.4 0.24 0.00 2.4 0.1 0.0 2.5 A 3.9	317 1446 3.1 3.1 0.68 1974 0.160 21.8 0.8 0.00 4.7 0.2 0.0 4.9 A	A	399 1639 9.2 9.2 0.17 549 0.726 90 3.5 0.00 31.6 0.7 0.0 32.3 C		208 1395 8.2 0.33 584 0.356 64.8 2.4 0.00 16.1 0.1 0.0 16.2 B C			
Adjusted Flow Rate ( $v$ Adjusted Flow Rate ( $v$ Adjusted Saturation Flo Queue Service Time ( $g$ Cycle Queue Clearance Green Ratio ( $g/C$ ) Capacity ( $c$ ), veh/h Volume-to-Capacity Ra Back of Queue ( $Q$ ), the Back of Queue ( $Q$ ), vert	by Rate ( $s$ ), veh/h/ln $g_s$ ), s e Time ( $g_c$ ), s atio ( $X$ ) /ln (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile) RQ) (50 th percentile) r(x), s/veh s), s/veh eh /LOS r(x)	·		237 1758 5.7 0.54 957 0.247 53.3 2.1 0.00 9.6 0.6 0.0 10.2 B 0.2 8 0.6	251 1472 7.5 0.54 801 0.314 59.3 2.4 0.00 10.0 1.0 0.0 11.0 B B	1 213 1514 2.7 2.7 0.80 882 0.242 10 0.4 0.24 0.00 2.4 0.1 0.0 2.5 A 3.9	317 1446 3.1 3.1 0.68 1974 0.160 21.8 0.8 0.00 4.7 0.2 0.0 4.9 A A ■	A	399 1639 9.2 9.2 0.17 549 0.726 90 3.5 0.00 31.6 0.7 0.0 32.3 C	NB	208 1395 8.2 0.33 584 0.356 64.8 2.4 0.00 16.1 0.1 0.0 16.2 B C		SB	C

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# FIGURE 62 YEAR 2027 PEAK AM HOUR TRAFFIC – Trainyards/Belfast

		HCS	67 Sig	nalize	d Int	ersec	tion R	Resul	ts Sur	nmary	/				
General Inform	otion								ntersec	tion Info	, ma oti c		1 0	4741	b. L
	ation										0.25	n	-		
Agency				Analus	in Data	Lun di	5 0010		Duration						
Analyst				Analys					Area Typ	e	Other				+
Jurisdiction				Time F			AM Hou		PHF		0.90		¥ _		-
Urban Street		200, 230 & 260 Str	eamli		sis Year			_	Analysis	Period	1> 7:0	00			
Intersection		Trainyards/Belfast		File Na	ame	2027	tot_am.	.xus						111	
Project Descript	ion	OTY Residential De	evelopm	ent									h	4 † 4 Y	14
Demand Inform	nation				EB			WE	3		NB			SB	
Approach Move	ment			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), ve	eh/h				216	229	175	183	3	198		128			
Signal Informat					l e	- •	_								
Cycle, s	80.0	Reference Phase	2			.]≓ "	15	2			×	`⊢ ┤─¬	<b>→</b> ,	3	
Offset, s	0	Reference Point	Begin	Green	4.9	46.1	8.9	0.0	0.0	0.0	_	•	<b>_</b> ~		
Uncoordinated	No	Simult. Gap E/W	Off	Yellow		3.3	3.3	0.0	0.0	0.0					κ.
Force Mode	Float	Simult. Gap N/S	Off	Red	2.8	3.8	3.6	0.0	0.0	0.0		Б	6	7	<u> </u>
Timer Results				EBL	-	EBT	WB		WBT	NBL		NBT	SBL		SBT
Assigned Phase	;					2	1		6			8		_	
Case Number					_	7.3	1.0		4.0	<u> </u>	_	9.0			
Phase Duration,		```		<u> </u>		53.2	11.0	_	64.2		_	15.8		_	
Change Period,						7.1	6.1		7.1	<u> </u>		6.9			
Max Allow Head				<u> </u>	_	0.0	3.1	_	0.0		_	3.3		_	
Queue Clearand					_	0.0	3.8	_	0.0	<u> </u>	_	8.2	<u> </u>		
Green Extension		(ge),s			_	0.0	0.1	_	0.0		_	0.7		_	
Phase Call Prob							0.99	_			_	1.00		_	
Max Out Probab	oility						0.37	/				0.00			
Movement Gro	up Res	ults			EB			WB			NB			SB	
Approach Move	ment			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Mover	nent				2	12	1	6		3		18			
Adjusted Flow R		), veh/h			240	143	194	203		220		142		_	
		w Rate (s), veh/h/	In		1758	1500	1581	1687		1639		1306			-
Queue Service					5.2	3.5	1.8	1.4		5.0		6.2			
Cycle Queue Cle					5.2	3.5	1.8	1.4		5.0		6.2			-
Green Ratio ( g/					0.59	0.59	0.84	0.73		0.12		0.28			
Capacity ( c ), ve					1035	883	968	2451		404		490			-
Volume-to-Capa		tio (X)			0.232		0.201	0.083		0.544		0.290			-
	,	(In ( 50 th percentile)			46.9	26.8	2.8	8.7		49.7		48.9			
		eh/In ( 50 th percent			1.8	1.1	0.1	0.3		2.0		1.7			
		RQ) (50 th percent			0.00	0.00	0.00	0.00		0.00		0.00			
Uniform Delay (					7.8	7.5	1.6	3.3		32.9		17.8			
Incremental Dela					0.5	0.4	0.0	0.1		0.4		0.1			
Initial Queue De		,			0.0	0.0	0.0	0.0		0.0		0.0		-	
Control Delay (					8.4	7.9	1.6	3.4		33.4		17.9			
Level of Service					A	A	A	A		С		В			
Approach Delay	· /			8.2		A	2.5		A	27.3		C	0.0		-
				5.2			2.3						B		
Intersection Dela															
											NID				
	sults				EB			WB			NB			SB	
Intersection Dela		/LOS		2.38	_	В	0.84	_	A	2.49	_	В	2.57	_	С

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HCS7™ Streets Version 7.4

Generated: 6/18/2018 11:06:07 AM

# FIGURE 63 YEAR 2027 PEAK PM HOUR TRAFFIC – Trainyards/Belfast

	HCS7 S	Signa	alize	d Inte	ersec	tion R	lesul	ts Sur	nmary	/				
General Information								Intersec	tion Inf-	rm eti -	20	1	4 J 4 1	ЪŲ
											on	- 📫		
Agency						- 0010		Duration,		0.25		-		
Analyst					Jun 1			Area Typ	е	Other				t
Jurisdiction			Fime F			PM Hou		PHF		0.90		1 H		-
Urban Street	200, 230 & 260 Stream	li A	Analys	is Year	2027		/	Analysis	Period	1> 7:0	00	1		
Intersection	Trainyards/Belfast		ile Na	ame	2027_	tot_pm.	xus						111	
Project Description	OTY Residential Develo	opmer	nt									1	4 1 4 1	1
Demand Information				EB			WE	3		NB			SB	
Approach Movement			L	Т	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		-	L.	226	350	209	303	_	382		203			
Demand (V), Ven/m				220	350	209	300	,	302		203			
Signal Information						1								
Cycle, s 80.0	Reference Phase 2	2		2	∃_→ ¥	2	2			<b>×</b>		→		
Offset, s 0	Reference Point Be	gin		2							1	2	3	
Uncoordinated No		- C	Green		41.7	13.1 3.3	0.0	0.0	0.0	-		-		_
Force Mode Float			Yellow Red	2.8	3.3	3.3	0.0	0.0	0.0		5	6	7	Ŷ
	onnuit. Cap 14/0		lou	2.0	0.0	0.0	0.0	0.0	0.0					
Timer Results			EBL		EBT	WB	L	WBT	NBL		NBT	SBL		SBT
Assigned Phase					2	1		6			8			
Case Number					7.3	1.0		4.0			9.0			
Phase Duration, s					48.8	11.3	3	60.0			20.0			
Change Period, (Y+R	c). S				7.1	6.1		7.1			6.9			
Max Allow Headway (				_	0.0	3.1		0.0			3.2			
Queue Clearance Time					5.5	5.1		0.0			11.8			
Green Extension Time					0.0	0.1		0.0			1.2			
Phase Call Probability	(3 ) ) 0				5.0	0.99	_	0.0			1.00			
Max Out Probability						1.00	_			_	0.05			
						1.00								
Movement Group Res	sults			EB			WB			NB			SB	
Approach Movement			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Movement				2	12	1	6		3		18			
Adjusted Flow Rate ( v	), veh/h			251	278	232	337		424		226			
Adjusted Saturation Flo	ow Rate ( s ), veh/h/ln			1758	1471	1514	1446		1639		1396			
Queue Service Time (	g s ), s			6.2	8.7	3.1	3.4		9.8		8.9			
Cycle Queue Clearanc				6.2	8.7	3.1	3.4		9.8		8.9			
Green Ratio $(g/C)$				0.53	0.53	0.79	0.67		0.18		0.34			
Capacity ( c ), veh/h				938	785	861	1950		576		599			
Volume-to-Capacity Ra	atio (X)				0.354	0.270	0.173		0.737		0.376			
	/In ( 50 th percentile)			59.1	69.5	12.5	24.3		95.6		69.8			
	( oo ar percentile)			2.3	2.8	0.4	0.8		3.8		2.6			
	eh/ln ( 50 th percentile)			د.ي			0.00		0.00		0.00			
Back of Queue (Q), v	eh/ln (50 th percentile)	+		0.00		0 00			0.00		0.00			
Back of Queue ( Q ), v Queue Storage Ratio (	RQ) (50 th percentile)	+		0.00	0.00	0.00								
Back of Queue ( Q ), v Queue Storage Ratio ( Uniform Delay ( d 1), s	RQ) ( 50 th percentile) /veh	+		10.2	10.7	2.7	5.0		31.2		15.8			
Back of Queue (Q), v Queue Storage Ratio ( Uniform Delay (d 1), s Incremental Delay (d 2)	RQ) (50 th percentile) /veh ), s/veh			10.2 0.7	10.7 1.3	2.7 0.1	5.0 0.2		31.2 0.7		15.8 0.1			
Back of Queue (Q), v Queue Storage Ratio ( Uniform Delay (d 1), s Incremental Delay (d 2 Initial Queue Delay (d	RQ) ( 50 th percentile) /veh ), s/veh 3), s/veh			10.2 0.7 0.0	10.7 1.3 0.0	2.7 0.1 0.0	5.0 0.2 0.0		31.2 0.7 0.0		15.8 0.1 0.0			
Back of Queue (Q), v Queue Storage Ratio ( Uniform Delay (d 1), s Incremental Delay (d 2 Initial Queue Delay (d Control Delay (d), s/v	RQ) ( 50 th percentile) /veh ), s/veh 3), s/veh eh			10.2 0.7 0.0 10.9	10.7 1.3 0.0 12.0	2.7 0.1 0.0 2.7	5.0 0.2 0.0 5.2		31.2 0.7 0.0 31.9		15.8 0.1 0.0 15.9			
Back of Queue (Q), v Queue Storage Ratio ( Uniform Delay (d 1), s Incremental Delay (d 2 Initial Queue Delay (d Control Delay (d), s/v Level of Service (LOS)	RQ) ( 50 th percentile) /veh y), s/veh 3), s/veh eh			10.2 0.7 0.0 10.9 B	10.7 1.3 0.0 12.0 B	2.7 0.1 0.0 2.7 A	5.0 0.2 0.0 5.2 A		31.2 0.7 0.0 31.9 C		15.8 0.1 0.0 15.9 B			
Back of Queue (Q), v Queue Storage Ratio ( Uniform Delay (d 1), s Incremental Delay (d 2 Initial Queue Delay (d Control Delay (d), s/v Level of Service (LOS) Approach Delay, s/veh	RQ) ( 50 th percentile) /veh /), s/veh 3), s/veh eh / LOS		11.4	10.2 0.7 0.0 10.9 B	10.7 1.3 0.0 12.0 B B	2.7 0.1 0.0 2.7 A 4.2	5.0 0.2 0.0 5.2 A	A	31.2 0.7 0.0 31.9		15.8 0.1 0.0 15.9 B C	0.0		
Back of Queue (Q), v Queue Storage Ratio ( Uniform Delay (d 1), s Incremental Delay (d 2 Initial Queue Delay (d Control Delay (d), s/v Level of Service (LOS) Approach Delay, s/veh	RQ) ( 50 th percentile) /veh /), s/veh 3), s/veh eh / LOS		11.4	10.2 0.7 0.0 10.9 B	10.7 1.3 0.0 12.0 B B	2.7 0.1 0.0 2.7 A	5.0 0.2 0.0 5.2 A	A	31.2 0.7 0.0 31.9 C		15.8 0.1 0.0 15.9 B C	0.0		
Back of Queue (Q), v Queue Storage Ratio ( Uniform Delay (d 1), s Incremental Delay (d 2 Initial Queue Delay (d Control Delay (d), s/v Level of Service (LOS) Approach Delay, s/veh Intersection Delay, s/veh	RQ) ( 50 th percentile) /veh /), s/veh 3), s/veh eh / LOS		11.4	10.2 0.7 0.0 10.9 B	10.7 1.3 0.0 12.0 B B	2.7 0.1 0.0 2.7 A 4.2	5.0 0.2 0.0 5.2 A	A	31.2 0.7 0.0 31.9 C		15.8 0.1 0.0 15.9 B C		SB	
Back of Queue (Q), v Queue Storage Ratio ( Uniform Delay (d 1), s Incremental Delay (d 2 Initial Queue Delay (d Control Delay (d), s/v Level of Service (LOS) Approach Delay, s/veh	RQ) ( 50 th percentile) /veh ), s/veh 3), s/veh eh / LOS eh / LOS		11.4	10.2 0.7 10.9 B EB	10.7 1.3 0.0 12.0 B B	2.7 0.1 0.0 2.7 A 4.2	5.0 0.2 0.0 5.2 A WB	A	31.2 0.7 0.0 31.9 C	NB	15.8 0.1 0.0 15.9 B C		SB	C

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# FIGURE 64 YEAR 2031 PEAK AM HOUR TRAFFIC – Trainyards/Belfast

	HCS7 S	bigna	alize	d Int	ersec	tion R	lesul	ts Sur	nmary	/				
General Information								Intersec	tion Inf.	rmotia	20		* 7 * †	ъų
										0.25	n	- 1		
Agency			Anches	in Data	Jun 1	5 2010		Duration	,			1		
Analyst		_					_	Area Typ	e	Other		<b>→</b>		÷
Jurisdiction		_	Time P			AM Hou		PHF		0.90		N N		5
Urban Street	200, 230 & 260 Stream	_		is Year	_			Analysis	Period	1> 7:0	00			
Intersection	Trainyards/Belfast	_	File Na	ame	2031_	tot_am.	xus						111	
Project Description	OTY Residential Develo	opmer	nt									h	* † * Y	1× 1*
Demand Information	1			EB			WE	3		NB			SB	
Approach Movement		-	L	Т	R	L	T	R	L	Т	R	L	T	R
Demand (v), veh/h		-		224	239	183	190	_	208	<u> </u>	137	-	<u> </u>	
					200	100	100	-	200		101			
Signal Information				_										
Cycle, s 80.0	Reference Phase 2	2		l è	−⊨⇒ ¥		2			×	-→	→		
Offset, s 0	Reference Point Beg	gin	Green	40	45.6	9.3	0.0	0.0	0.0		1	2	3	
Uncoordinated No	Simult. Gap E/W 0		Yellow		3.3	3.3	0.0	0.0	0.0		·   ·			ĸ
Force Mode Floa			Red	2.8	3.8	3.6	0.0	0.0	0.0		5	6	7	Ŷ
Timer Results			EBL		EBT	WB	L	WBT	NBL		NBT	SBL		SBT
Assigned Phase		_			2	1		6			8			
Case Number					7.3	1.0		4.0			9.0			
Phase Duration, s					52.7	11.0	)	63.8			16.2			
Change Period, (Y+	₹c), s				7.1	6.1		7.1			6.9			
Max Allow Headway	( <i>MAH</i> ), s				0.0	3.1		0.0			3.3			
Queue Clearance Tir	ne ( <i>g</i> s ), s					4.0					8.6			
Green Extension Tim	e ( g e ), s				0.0	0.1		0.0			0.8			
Phase Call Probabilit	у					0.99	)				1.00			
Max Out Probability						0.44	F				0.00			
N		-		50					_	ND	_		00	
Movement Group R		-		EB	D		WB T	R		NB	R	L	SB T	
Approach Movement		-	L		R	L		ĸ	L	1		L	1	R
Assigned Movement	× • • •	-		2	12	1	6		3		18			
Adjusted Flow Rate (	1.	_		249	154	203	211		231		152			
	low Rate (s), veh/h/ln	_		1758	1500	1581	1687		1639		1306			
Queue Service Time	(0 )/			5.5	3.8	2.0	1.5		5.3		6.6			
Cycle Queue Clearar	nce Time ( $g \circ$ ), s			5.5	3.8	2.0	1.5		5.3		6.6			
Green Ratio ( g/C )				0.58	0.58	0.83	0.72		0.13		0.29			
Capacity ( c ), veh/h				1024	874	953	2432		424		498			
Volume-to-Capacity F	Ratio (X)			0.243	0.177	0.213	0.087		0.546		0.306			
Back of Queue (Q),	ft/In ( 50 th percentile)			49.8	29.6	3.5	9.5		51.9		52.4			
Back of Queue (Q),	veh/ln ( 50 th percentile)			1.9	1.2	0.1	0.4		2.0		1.9			
Queue Storage Ratio	(RQ) (50 th percentile)			0.00	0.00	0.00	0.00		0.00		0.00			
Uniform Delay ( d 1),	s/veh			8.1	7.8	1.7	3.5		32.6		17.6			
Incremental Delay ( a	/ 2 ), s/veh			0.6	0.4	0.0	0.1		0.4		0.1			
Initial Queue Delay (	d ₃), s/veh			0.0	0.0	0.0	0.0		0.0		0.0			
Control Delay (d), s	/veh			8.7	8.2	1.7	3.5		33.0		17.8			
Level of Service (LOS	6)			А	Α	Α	А		С		В			
Approach Delay, s/ve	h/LOS		8.5		А	2.7		А	27.0		С	0.0		
Intersection Delay, s/	veh / LOS				12	2.4						3		
				EB			WB			NB			SB	
Multimodal Results														_
Multimodal Results Pedestrian LOS Scor	e / LOS		2.39	_	В	0.84	L L	А	2.50		С	2.59		С

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HCS7™ Streets Version 7.4

Generated: 6/18/2018 11:07:09 AM

# FIGURE 65 YEAR 2031 PEAK PM HOUR TRAFFIC – Trainyards/Belfast

	HCS	7 Sig	nalize	d Int	ersec	tion R	Resul	ts Sur	nmary	/				
General Information								Intersec	tion Info	rmotic			4741	ЪU
	·										n	- 🏢		
Agency						- 0010		Duration		0.25				
Analyst					Jun 1		_	Area Typ	e	Other				÷
Jurisdiction			Time F			PM Hou		PHF		0.90		- ¥ - Y		5
Urban Street	200, 230 & 260 Stre	amli	Analys	sis Year	2031		/	Analysis	Period	1> 7:0	00	1		
Intersection	Trainyards/Belfast		File Na	ame	2031_	_tot_pm.	xus						110	
Project Description	OTY Residential De	velopm	ent									h	4 1 4 1	1
Demand Informatio	n			EB			WE	2		NB			SB	
Approach Movement			L	T	R	L	T	R	L	T	R	L	T	R
Demand ( v ), veh/h			<u> </u>	236	365	220	315	_	398		213		<u> </u>	
Demand (V), Ven/II				230	305	220	310	,	390		213			
Signal Information				6		1								
Cycle, s 80.0	Reference Phase	2	1	1 2	∃_→ ¥	2	2			<b>×</b>		→		
Offset, s 0	Reference Point	Begin		2							1	2	3	
Uncoordinated No	Simult. Gap E/W	Off	Green		40.9	13.5	0.0	0.0	0.0	-				_
Force Mode Floa	· · · ·	Off	Yellow Red	2.8	3.3	3.3	0.0	0.0	0.0		Б	<b>K</b> 6	7	Ŷ
		011	rtou	2.0	0.0	0.0	0.0	10.0	0.0					•
Timer Results			EBI	-	EBT	WB	L	WBT	NBL		NBT	SBL		SBT
Assigned Phase					2	1		6			8			
Case Number					7.3	1.0		4.0			9.0			
Phase Duration, s		_			48.0	11.6	3	59.6			20.4			
Change Period, (Y+	Rala				7.1	6.1	_	7.1			6.9			
Max Allow Headway					0.0	3.1	_	0.0			3.2			_
Queue Clearance Tir	. ,				5.5	5.4	_	0.0			12.2			
Green Extension Tim		_	-		0.0	0.1	_	0.0			1.3			
Phase Call Probabilit		_	<u> </u>		0.0	1.00	_	0.0		-	1.00		+	
Max Out Probability	y	_				1.00	_			_	0.06			
						1.00	, L				0.00			
Movement Group R	esults			EB			WB			NB			SB	
Approach Movement			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Movement				2	12	1	6		3		18			
Adjusted Flow Rate (	v ), veh/h			262	294	244	350		442		237			
	Flow Rate ( s ), veh/h/lr	1		1758	1471	1514	1446		1639		1396			
Queue Service Time				6.7	9.5	3.4	3.6		10.2		9.2			1
Cycle Queue Clearar				6.7	9.5	3.4	3.6		10.2		9.2			<u> </u>
Green Ratio ( $g/C$ )				0.52	0.52	0.78	0.67		0.18		0.35			1
Capacity ( <i>c</i> ), veh/h				922	771	846	1934		594		612			<u> </u>
Volume-to-Capacity I	Ratio (X)	_		0.284	_	0.289	0.181		0.745		0.387			1
				64					99.4					-
	ft/ln ( 50 th percentile)				77 3.1	14.1	26.1				72.3			
	veh/ln ( 50 th percentil	· .		2.5		0.5	0.9		3.9		2.7			+
	(RQ) (50 th percenti	ie)		0.00	0.00	0.00	0.00		0.00		0.00			
Uniform Delay (d 1),				10.6	11.3	2.9	5.2		31.0		15.4			
Incremental Delay (				0.8	1.4	0.1	0.2		0.7		0.1			
Initial Queue Delay (				0.0	0.0	0.0	0.0		0.0		0.0			-
Control Delay (d), s				11.4	12.7	2.9	5.4		31.7		15.6			
Level of Service (LO	,			В	В	Α	A		C		В			
Approach Delay, s/ve			12.1		В	4.4		A	26.1		С	0.0		
Intersection Delay, s/	veh / LOS				14	4.8					ł	В		
				ED						ND			60	
Multimendel Deservit				EB			WB			NB			SB	
Multimodal Results					0			•						~
Multimodal Results Pedestrian LOS Scor Bicycle LOS Score /			2.55		C B	0.84	_	A B	2.59		C F	2.75		С

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### FIGURE 66 EXISTING 2014 PEAK AM HOUR TRAFFIC – Trainyards/Railmarket

	HCS7 S			nalize	d Int	ersec	tion F	Resu	lts Su	mmar	у				
General Inform	ation								Intersed	tion Inf	ormatic	'n		4.741	k u
	auon										0.25		- 1	111	
Agency				A	in Det	1	5 0040	_	Duration	,					
Analyst						Jun 1			Area Ty	pe	Other		-		*
Jurisdiction				Time F			AM Hou	ır	PHF		0.90			nțe	-
Urban Street		200, 230 & 260 Stea			sis Yea				Analysis	Period	1> 7:0	00			
Intersection		Traintards/Railmark		File Na	ame	2014_	ex_am.	xus						11	
Project Descript	ion	OTY Residential De	velopm	nent									1	14144	t r
Demand Inform	nation				EB			W	В		NB			SB	
Approach Move				L	 	R	L	T	_	L	T	R	L	T	R
Demand $(v)$ , ve				16	27	53	31	2		73	66	23	23	106	31
	011/11			10	2.7	00	01			10	00	20	20	100	01
Signal Informa	tion				144	ΓL	5								
Cycle, s	80.0	Reference Phase	2	1		2						$\mathbf{Y} \mid \mathbf{A}$		_	
Offset, s	0	Reference Point	End	Green							_	1	2	3	<b>Y</b> 4
Uncoordinated	No	Simult. Gap E/W	Off	Green Yellow		4.9	8.9 3.3	0.0		0.0	— L		KŤ 3		$\rightarrow$
Force Mode	Fixed	Simult. Gap N/S	Off	Red	2.5	2.5	2.4	0.0		0.0		5	Y <sub>6</sub>	7	8
Timer Results				EBI	-	EBT	WB	L	WBT	NB	L	NBT	SB	L	SBT
Assigned Phase	)					4			8	1		6	5		2
Case Number						6.0			6.0	1.4		4.0	1.4		3.0
Phase Duration	, S					14.6			14.6	10.7	7	54.6	10.8	3	54.6
Change Period,	( Y+R	c ), S				5.7			5.7	5.8		5.8	5.8		5.8
Max Allow Head	lway ( I	<i>MAH</i> ), s				3.3			3.3	3.1		0.0	3.1		0.0
Queue Clearand	ce Time	(gs),s				5.9			8.0	2.0	-		2.0		
Green Extensio	n Time	(ge), s				0.2			0.1	0.0		0.0	0.0		0.0
Phase Call Prob	ability					0.89			0.83	0.99	9		0.99	9	
Max Out Probat	oility					0.00			0.00	0.90	)		0.83	3	
	-				50			10/15			ND			0.0	
Movement Gro		ults			EB			WE			NB T	D	L	SB	D
Approach Move				L	T	R	L	T	R 18	L		R	L L .	T	R
Assigned Mover	ment				4		2					40		2	
A 11 A 1 EL E		> 1 <i>1</i>		7	4	14	3	8	10	1	6	16	5	2	12
Adjusted Flow F	Rate ( v			7 18	83	14	34	46		81	97	16	5 26	118	1
Adjusted Satura	Rate ( <i>v</i> ition Flo	w Rate (s), veh/h/li	n	7 18 1319	83 1564	14	34 1283	46 163		81 1701	97 1684	16	5 26 1647	118 1660	1 1478
Adjusted Satura Queue Service	Rate( <i>v</i> ition Flo Time(g	ow Rate ( <i>s</i> ), veh/h/li g <sub>s</sub> ), s	n	7 18 1319 1.0	83 1564 3.9	14	34 1283 2.0	46 163 2.0		81 1701 0.0	97 1684 1.8	16	5 26 1647 0.0	118 1660 2.3	1 1478 0.0
Adjusted Satura Queue Service Cycle Queue Cl	Rate ( <i>v</i> Ition Flo Time ( g earance	ow Rate ( <i>s</i> ), veh/h/li g <sub>s</sub> ), s	n	7 18 1319 1.0 3.0	83 1564 3.9 3.9	14	34 1283 2.0 6.0	46 163 2.0 2.0	5	81 1701 0.0 0.0	97 1684 1.8 1.8	16	5 26 1647 0.0 0.0	118 1660 2.3 2.3	1 1478 0.0 0.0
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio ( <i>g</i>	Rate( <i>v</i> ition Flo Time(g earanc ⁄C)	ow Rate ( <i>s</i> ), veh/h/li g <sub>s</sub> ), s	n	7 18 1319 1.0 3.0 0.12	83 1564 3.9 3.9 0.12	14	34 1283 2.0 6.0 0.12	46 163 2.0 2.0 0.12	5	81 1701 0.0 0.0 0.80	97 1684 1.8 1.8 0.62	16	5 26 1647 0.0 0.0 0.80	118 1660 2.3 2.3 0.62	1 1478 0.0 0.0 0.62
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio ( <i>g</i> / Capacity ( <i>c</i> ), v	Rate ( <i>v</i> Ition Flo Time ( g earanc /C ) eh/h	w Rate(s), veh/h/li g s ), s e Time(g c ), s	n	7 18 1319 1.0 3.0 0.12 221	83 1564 3.9 3.9 0.12 194		34 1283 2.0 6.0 0.12 186	46 163 2.0 2.0 0.12 203	5	81 1701 0.0 0.0 0.80 1147	97 1684 1.8 1.8 0.62 1048	16	5 26 1647 0.0 0.0 0.80 1136	118 1660 2.3 2.3 0.62 1033	1 1478 0.0 0.0 0.62 920
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio ( <i>g</i> , Capacity ( <i>c</i> ), v Volume-to-Capa	Rate ( v ation Flo Time ( g earance /C ) eh/h acity Ra	w Rate ( <i>s</i> ), veh/h/li gs), s e Time ( <i>gc</i> ), s tio ( <i>X</i> )		7 18 1319 1.0 3.0 0.12 221 0.080	83 1564 3.9 3.9 0.12 194 0.429	14	34 1283 2.0 6.0 0.12 186 0.185	46 163 2.0 2.0 0.12 203 0.22	4	81 1701 0.0 0.0 0.80 1147 0.071	97 1684 1.8 1.8 0.62 1048 0.092	16	5 26 1647 0.0 0.0 0.80 1136 0.022	118 1660 2.3 2.3 0.62 1033 0.114	1 1478 0.0 0.0 0.62 920 0.001
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio ( <i>g</i> / Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue	Rate ( <i>v</i> Ition Flo Time ( g earance /C ) eh/h acity Ra ( Q ), ft/	w Rate ( <i>s</i> ), veh/h/li <i>g</i> <sub>s</sub> ), s e Time ( <i>g</i> <sub>c</sub> ), s tio ( <i>X</i> ) In ( 50 th percentile)		7 18 1319 1.0 3.0 0.12 221	83 1564 3.9 3.9 0.12 194		34 1283 2.0 6.0 0.12 186	46 163 2.0 2.0 0.12 203	4	81 1701 0.0 0.0 0.80 1147	97 1684 1.8 1.8 0.62 1048		5 26 1647 0.0 0.0 0.80 1136	118 1660 2.3 2.3 0.62 1033	1 1478 0.0 0.0 0.62 920
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio ( <i>g</i> / Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue Back of Queue	Rate ( <i>v</i> tion Flo Time (g earance (C) eh/h acity Ra (Q), ft/ (Q), ve	tio ( $X$ ) tio ( $S$ ), s tio ( $X$ ) ln ( 50 th percentile) eh/ln ( 50 th percentile)	le)	7 18 1319 1.0 3.0 0.12 221 0.080	83 1564 3.9 3.9 0.12 194 0.429		34 1283 2.0 6.0 0.12 186 0.185	46 163 2.0 2.0 0.12 203 0.22	4	81 1701 0.0 0.0 0.80 1147 0.071	97 1684 1.8 1.8 0.62 1048 0.092		5 26 1647 0.0 0.0 0.80 1136 0.022	118 1660 2.3 2.3 0.62 1033 0.114	1 1478 0.0 0.0 0.62 920 0.001
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio ( <i>g</i> / Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue Back of Queue	Rate ( <i>v</i> tion Flo Time (g earance (C) eh/h acity Ra (Q), ft/ (Q), ve	w Rate ( <i>s</i> ), veh/h/li <i>g</i> <sub>s</sub> ), s e Time ( <i>g</i> <sub>c</sub> ), s tio ( <i>X</i> ) In ( 50 th percentile)	le)	7 18 1319 1.0 3.0 0.12 221 0.080 8	83 1564 3.9 0.12 194 0.429 37.9 1.5 0.00		34 1283 2.0 6.0 0.12 186 0.185 16.3 0.6 0.00	46 163 2.0 2.0 0.12 203 0.22 19.4 0.8 0.00	4	81 1701 0.0 0.80 1147 0.071 4.2	97 1684 1.8 1.8 0.62 1048 0.092 15.2		5 26 1647 0.0 0.0 0.80 1136 0.022 1.2	118 1660 2.3 2.3 0.62 1033 0.114 19.8	1 1478 0.0 0.0 0.62 920 0.001 0.2
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio ( <i>g</i> / Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue Back of Queue	Rate ( <i>v</i> tition Flo Time ( ( earance (C) eh/h acity Ra (Q), ft/ (Q), ve Ratio (	w Rate ( $s$ ), veh/h/li $g_s$ ), s e Time ( $g_c$ ), s tio ( $X$ ) 'In (50 th percentile) eh/ln (50 th percenti RQ) (50 th percent	le)	7 18 1319 1.0 3.0 0.12 221 0.080 8 0.3	83 1564 3.9 0.12 194 0.429 37.9 1.5		34 1283 2.0 6.0 0.12 186 0.185 16.3 0.6	46 1633 2.0 2.0 0.12 203 0.22 19.4 0.8	4	81 1701 0.0 0.80 1147 0.071 4.2 0.2	97 1684 1.8 1.8 0.62 1048 0.092 15.2 0.6		5 26 1647 0.0 0.80 1136 0.022 1.2 0.0	118 1660 2.3 2.3 0.62 1033 0.114 19.8 0.7	1 1478 0.0 0.0 920 0.001 0.2 0.0
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio ( <i>g</i> / Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue Back of Queue Queue Storage	Rate ( $v$ tition Flo Time ( $g$ earance C) eh/h acity Ra ( $Q$ ), ft/ ( $Q$ ), ve Ratio ( $d_1$ ), so	w Rate ( $s$ ), veh/h/li $g_s$ ), s e Time ( $g_c$ ), s tio ( $X$ ) 'In (50 th percentile) eh/ln (50 th percenti RQ) (50 th percent /veh	le)	7 18 1319 1.0 3.0 0.12 221 0.080 8 0.3 0.00	83 1564 3.9 0.12 194 0.429 37.9 1.5 0.00		34 1283 2.0 6.0 0.12 186 0.185 16.3 0.6 0.00	46 163 2.0 2.0 0.12 203 0.22 19.4 0.8 0.00	4	81 1701 0.0 0.80 1147 0.071 4.2 0.2 0.00	97 1684 1.8 0.62 1048 0.092 15.2 0.6 0.00		5 26 1647 0.0 0.80 1136 0.022 1.2 0.0 0.00	118 1660 2.3 2.3 0.62 1033 0.114 19.8 0.7 0.00	1 1478 0.0 0.62 920 0.001 0.2 0.0 0.00
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio ( <i>g</i> / Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay (	Rate ( $v$ tition Flo Time ( $g$ earance C) eh/h acity Ra ( $Q$ ), fb ( $Q$ ), vo Ratio ( $d_1$ ), s ay ( $d_2$	w Rate ( $s$ ), veh/h/li $g_s$ ), s e Time ( $g_c$ ), s tio ( $X$ ) In (50 th percentile) eh/ln (50 th percenti RQ) (50 th percent /veh ), s/veh	le)	7 18 1319 1.0 3.0 0.12 221 0.080 8 0.3 0.00 32.9	83 1564 3.9 0.12 194 0.429 37.9 1.5 0.00 32.4		34 1283 2.0 6.0 0.12 186 0.185 16.3 0.6 0.00 35.2	46 163 2.0 2.0 0.12 203 0.22 19.4 0.8 0.00 31.6	4	81 1701 0.0 0.80 1147 0.071 4.2 0.2 0.00 2.2	97 1684 1.8 0.62 1048 0.092 15.2 0.6 0.00 6.1		5 26 1647 0.0 0.80 1136 0.022 1.2 0.0 0.00 2.0	118 1660 2.3 2.3 0.62 1033 0.114 19.8 0.7 0.00 6.3	1 1478 0.0 0.62 920 0.001 0.2 0.0 0.00 5.7
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio ( <i>g</i> / Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del	Rate ( $v$ tition Flo Time ( $g$ earance C) eh/h acity Ra ( $Q$ ), ftr ( $Q$ ), ve Ratio ( $d\tau$ ), s ay ( $dz$ elay ( $dz$	w Rate ( $s$ ), veh/h/li $g_s$ ), s e Time ( $g_c$ ), s tio ( $X$ ) (In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percenti RQ) (50 th percent /veh ), s/veh s), s/veh	le)	7 18 1319 1.0 3.0 0.12 221 0.080 8 0.3 0.00 32.9 0.1	83 1564 3.9 0.12 194 0.429 37.9 1.5 0.00 32.4 0.6		34 1283 2.0 6.0 0.12 186 0.185 16.3 0.6 0.00 35.2 0.2	46 163 2.0 0.12 203 0.22 19.4 0.8 0.00 31.6 0.2	5	81 1701 0.0 0.80 1147 0.071 4.2 0.2 0.00 2.2 0.0	97 1684 1.8 0.62 1048 0.092 15.2 0.6 0.00 6.1 0.2		5 26 1647 0.0 0.80 1136 0.022 1.2 0.0 0.00 2.0 0.00	118 1660 2.3 2.3 0.62 1033 0.114 19.8 0.7 0.00 6.3 0.2	1 1478 0.0 0.62 920 0.001 0.2 0.0 0.00 5.7 0.0
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio ( <i>g</i> / Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del Initial Queue De	Rate ( $v$ tition Flo Time ( $g$ earance C) eh/h acity Ra ( $Q$ ), ft/ ( $Q$ ), vo Ratio ( $d$ d), s. ay ( $d$ $z$ elay ( $d$ d), s./ve	w Rate ( $s$ ), veh/h/li $g_s$ ), s e Time ( $g_c$ ), s tio ( $X$ ) (In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percenti RQ) (50 th percent /veh ), s/veh s), s/veh	le)	7 18 1319 1.0 3.0 0.12 221 0.080 8 0.3 0.00 32.9 0.1 0.0	83 1564 3.9 0.12 194 0.429 37.9 1.5 0.00 32.4 0.6 0.0		34 1283 2.0 6.0 0.12 186 0.185 16.3 0.6 0.00 35.2 0.2 0.2 0.0	46 1633 2.0 0.12 203 0.22 19.4 0.8 0.00 31.6 0.2 0.0	5	81 1701 0.0 0.80 1147 0.071 4.2 0.2 0.00 2.2 0.00 2.2 0.0 0.0	97 1684 1.8 0.62 1048 0.092 15.2 0.6 0.00 6.1 0.2 0.0		5 26 1647 0.0 0.80 1136 0.022 1.2 0.0 0.00 2.0 0.00 0.0 0.0	118 1660 2.3 2.3 0.62 1033 0.114 19.8 0.7 0.00 6.3 0.2 0.0	1 1478 0.0 0.62 920 0.001 0.2 0.0 0.00 5.7 0.0 0.0 0.0
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio ( <i>g</i> / Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay (	Rate ( $v$ tition Flo Time ( $g$ earance C) eh/h acity Ratio ( $Q$ ), flo ( $Q$ ), vo Ratio ( $d_1$ ), so ay ( $d_2$ elay ( $d_2$ elay ( $d_3$	w Rate ( $s$ ), veh/h/li $g_s$ ), s e Time ( $g_c$ ), s tio ( $X$ ) (In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percenti RQ) (50 th percent Q), (50 th percent $g_s$ ), s/veh sh	le)	7 18 1319 1.0 3.0 0.12 221 0.080 8 0.3 0.00 32.9 0.1 0.0 33.0	83 1564 3.9 0.12 194 0.429 37.9 1.5 0.00 32.4 0.6 0.0 33.0 C	14	34 1283 2.0 6.0 0.12 186 0.185 16.3 0.6 0.00 35.2 0.2 0.0 35.3	46 163 2.0 0.12 203 0.22 19.4 0.8 0.00 31.6 0.2 0.0 0.3 1.6 C	5	81 1701 0.0 0.80 1147 0.071 4.2 0.2 0.00 2.2 0.00 0.0 2.2	97 1684 1.8 1.8 0.62 1048 0.092 15.2 0.6 0.00 6.1 0.2 0.0 6.2 A	16	5 26 1647 0.0 0.80 1136 0.022 1.2 0.0 0.00 2.0 0.0 0.0 0.0 0.0 2.0	118           1660           2.3           0.62           1033           0.114           19.8           0.7           0.00           6.3           0.2           0.0           6.5           A	1 1478 0.0 0.62 920 0.001 0.2 0.0 0.00 5.7 0.0 0.0 5.7
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio (g/ Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service	Rate ( $v$ tition Fld Time ( $g$ earance C) eh/h acity Ra ( $Q$ ), ft/ ( $Q$ ), ve Ratio ( $d_2$ ), ft/ ( $Q$ ), ve Ratio ( $d_2$ ), s/ve elay ( $d_2$ elay ( $d_2$ ) elay ( $d_2$ ), s/ve (LOS) v, s/veh	w Rate ( $s$ ), veh/h/li $g_s$ ), s e Time ( $g_c$ ), s tio ( $X$ ) (In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percent RQ) (50 th percent $g_s$ ), s/veh sh / LOS	le)	7 18 1319 1.0 3.0 0.12 221 0.080 8 0.3 0.00 32.9 0.1 0.0 33.0 C	83 1564 3.9 0.12 194 0.429 37.9 1.5 0.00 32.4 0.6 0.0 33.0 C	C	34 1283 2.0 6.0 0.12 186 0.185 16.3 0.6 0.00 35.2 0.2 0.2 0.0 35.3 D	46 163 2.0 0.12 203 0.22 19.4 0.8 0.00 31.6 0.2 0.0 0.3 1.6 C	-         -           5         -           5         -           6         -           7         -           8         -           9         -           10         -           11         -           12         -           13         -           14         -           15         -           16         -           16         -	81 1701 0.0 0.80 1147 0.071 4.2 0.2 0.00 2.2 0.00 2.2 0.0 0.0 2.2 A	97 1684 1.8 1.8 0.62 1048 0.092 15.2 0.6 0.00 6.1 0.2 0.0 6.2 A	A	5 26 1647 0.0 0.80 1136 0.022 1.2 0.0 0.00 2.0 0.0 0.0 0.0 0.0 2.0 A	118           1660           2.3           0.62           1033           0.114           19.8           0.7           0.00           6.3           0.2           0.0           6.5           A	1 1478 0.0 0.62 920 0.001 0.2 0.0 0.00 5.7 0.0 0.0 5.7 A
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio ( <i>g</i> / Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service Approach Delay	Rate ( $v$ tition Fld Time ( $g$ earance C) eh/h acity Ra ( $Q$ ), ft/ ( $Q$ ), ve Ratio ( $d_1$ ), so ay ( $d_2$ elay ( $d_2$ elay ( $d_2$ elay ( $d_3$ (LOS) v, s/veh ay, s/veh	w Rate ( $s$ ), veh/h/li $g_s$ ), s e Time ( $g_c$ ), s tio ( $X$ ) (In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percent RQ) (50 th percent $g_s$ ), s/veh sh / LOS	le)	7 18 1319 1.0 3.0 0.12 221 0.080 8 0.3 0.00 32.9 0.1 0.0 33.0 C	83 1564 3.9 3.9 0.12 194 0.429 37.9 1.5 0.00 32.4 0.6 0.0 33.0 C	C	34 1283 2.0 6.0 0.12 186 0.185 16.3 0.6 0.00 35.2 0.2 0.2 0.0 35.3 D 33.3	46 1633 2.0 2.0 0.12 203 0.22 19.4 0.8 0.00 31.6 0.2 0.0 31.6 C	4 4 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7	81 1701 0.0 0.80 1147 0.071 4.2 0.2 0.00 2.2 0.00 2.2 0.0 0.0 2.2 A	97 1684 1.8 0.62 1048 0.092 15.2 0.6 0.00 6.1 0.2 0.0 6.2 A	A	5 26 1647 0.0 0.80 1136 0.022 1.2 0.0 0.00 2.0 0.0 0.0 0.0 2.0 A 5.7	118 1660 2.3 2.3 0.62 1033 0.114 19.8 0.7 0.00 6.3 0.2 0.0 6.5 A	1 1478 0.0 0.62 920 0.001 0.2 0.0 0.00 5.7 0.0 0.0 5.7 A
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio ( <i>g</i> / Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service Approach Delay Intersection Del	Rate ( $v$ tition Flo Time ( $g$ earance C) eh/h acity Ra ( $Q$ ), ft/ ( $Q$ ), ft/( $Q$ ), ft/ ( $Q$ ), ft/( $Q$ ), ft/( $Q$ ), ft/ ( $Q$ ), ft/( $Q$ ),	ww Rate ( $s$ ), veh/h/li $g_s$ ), s e Time ( $g_c$ ), s tio ( $X$ ) (In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile) RQ) (50 th percentile) $g_s$ , s/veh $g_s$ , s/veh eh /LOS th /LOS	le)	7 18 1319 1.0 3.0 0.12 221 0.080 8 0.3 0.00 32.9 0.1 0.0 33.0 C	83 1564 3.9 0.12 194 0.429 37.9 1.5 0.00 32.4 0.6 0.0 33.0 C	C	34 1283 2.0 6.0 0.12 186 0.185 16.3 0.6 0.00 35.2 0.2 0.2 0.0 35.3 D 33.3	46 163 2.0 0.12 203 0.22 19.4 0.8 0.00 31.6 0.2 0.0 0.3 1.6 C	4 4 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7	81 1701 0.0 0.80 1147 0.071 4.2 0.2 0.00 2.2 0.00 2.2 0.0 0.0 2.2 A	97 1684 1.8 1.8 0.62 1048 0.092 15.2 0.6 0.00 6.1 0.2 0.0 6.2 A	A	5 26 1647 0.0 0.80 1136 0.022 1.2 0.0 0.00 2.0 0.0 0.0 0.0 2.0 A 5.7	118           1660           2.3           0.62           1033           0.114           19.8           0.7           0.00           6.3           0.2           0.0           6.5           A	1 1478 0.0 0.62 920 0.001 0.2 0.0 0.00 5.7 0.0 0.0 5.7 A
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio ( <i>g</i> / Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental Del Initial Queue De Control Delay ( Level of Service Approach Delay	Rate ( $v$ tition Flo Time ( $g$ earance C) eh/h acity Ra ( $Q$ ), ft/ ( $Q$ ), ft/( $Q$ ), ft/ ( $Q$ ), ft/( $Q$ ), ft/( $Q$ ), ft/ ( $Q$ ), ft/( $Q$ ),	ww Rate ( $s$ ), veh/h/li $g_s$ ), s e Time ( $g_c$ ), s tio ( $X$ ) (In (50 th percentile) eh/ln (50 th percentile) eh/ln (50 th percentile) RQ) (50 th percentile) RQ) (50 th percentile) $g_s$ , s/veh $g_s$ , s/veh eh /LOS th /LOS	le)	7 18 1319 1.0 3.0 0.12 221 0.080 8 0.3 0.00 32.9 0.1 0.0 33.0 C	83 1564 3.9 3.9 0.12 194 0.429 37.9 1.5 0.00 32.4 0.6 0.0 33.0 C 0 C 0 0 0 C	C	34 1283 2.0 6.0 0.12 186 0.185 16.3 0.6 0.00 35.2 0.2 0.2 0.0 35.3 D 33.3	46 1633 2.0 0.12 203 0.22 19.4 0.8 0.00 31.6 0.2 0.0 31.6 C 3 WE	4 4 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7	81 1701 0.0 0.80 1147 0.071 4.2 0.2 0.00 2.2 0.00 2.2 0.0 0.0 2.2 A	97 1684 1.8 0.62 1048 0.092 15.2 0.6 0.00 6.1 0.2 0.0 6.2 A 	A	5 26 1647 0.0 0.80 1136 0.022 1.2 0.0 0.00 2.0 0.0 0.0 0.0 2.0 A 5.7	118 1660 2.3 0.62 1033 0.114 19.8 0.7 0.00 6.3 0.2 0.0 6.5 A SB	1 1478 0.0 0.62 920 0.001 0.2 0.0 0.00 5.7 0.0 0.0 5.7 A

# FIGURE 67 EXISTING 2014 PEAK PM HOUR TRAFFIC – Trainyards/Railmarket

	HCS7 S	Bignalize	ed In	tersec	tion F	lesu	lts Sur	nmar	у				
Concerned by formation	-						1	ti a sa las f			1.1	* 1 * 1	NU
General Information	n					$\rightarrow$	Intersec			on	- 1	JļĻ	4*   14
Agency						$\rightarrow$	Duration	,	0.25		- 2		
Analyst				te Jun 1	,		Area Typ	e	Other				
Jurisdiction			Period		PM Hou	_	PHF		0.90		*		~ <sup>*</sup>
Urban Street	200, 230 & 260 Steamli	i Analy	sis Yea	ar 2014			Analysis	Period	1> 7:0	00	7		V 7
Intersection	Traintards/Railmarket	File N	ame	2014_	_ex_pm.	xus						11	
Project Description	OTY Residential Develo	opment									h	4144	* 1
Demand Informatio	n	_	EB			W	З		NB			SB	
Approach Movemen	t	L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), veh/h	•	47	56	_	107	89		179		111	57	133	41
				101	101							100	
Signal Information			14	5	5	_							
Cycle, s 80.	0 Reference Phase	2				7				$\mathbf{Y}$		_	
Offset, s 0	Reference Point Er	nd Crear	25.0		21.9	0.0	0.0	0.0	_	1	2	3	<u> </u>
Uncoordinated No	Simult. Gap E/W C	off Yellov	1 35.8 / 3.3	3.3	3.3	0.0		0.0	— L		512		$\rightarrow$
Force Mode Fixe		off Red	2.5	2.5	2.4	0.0		0.0		5	Y	7	8
Timer Results		EB	L	EBT	WB	L	WBT	NB	L	NBT	SB	-	SBT
Assigned Phase				4			8	1		6	5		2
Case Number				6.0			6.0	1.4		4.0	1.4		3.0
Phase Duration, s				27.6			27.6	10.8	3 .	41.6	10.8	3	41.6
Change Period, ( Y+	R c ), s			5.7			5.7	5.8		5.8	5.8		5.8
Max Allow Headway	( <i>MAH</i> ), s			3.3			3.4	3.1		0.0	3.1		0.0
Queue Clearance Ti	me ( g s ), s			13.4			21.7	2.0			2.0		
Green Extension Tin	ne ( g e ), s			0.6			0.3	0.2		0.0	0.0		0.0
Phase Call Probabili	ty			1.00			1.00	1.00	)		1.00	)	
Max Out Probability				0.00			0.07	0.02	2		0.00	)	
			50						ND			0.0	
Movement Group R		- · · ·	EB			WB		<u> </u>	NB			SB	
Approach Movemen		L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate	· /·	52	261		119	131		199	228		63	148	12
	Flow Rate (s), veh/h/ln	1270	1570		1103	1707	/	1688	1557		1714	1758	1483
Queue Service Time		2.7	11.4		8.3	4.8		0.0	7.4		0.0	4.0	0.4
Cycle Queue Cleara	nce Time ( $g_c$ ), s	7.4	11.4		19.7	4.8		0.0	7.4		0.0	4.0	0.4
Green Ratio (g/C)		0.29	0.29		0.29	0.29		0.64	0.46		0.64	0.46	0.46
Capacity (c), veh/h		378	448		248	487		892	717		815	810	683
Volume-to-Capacity	· · · ·	0.138			0.479			0.223			0.078	0.182	0.018
	, ft/ln ( 50 th percentile)	19.3		3	55.3	45.7		35.9	67.6		11.6	39.5	3
	veh/In (50 th percentile)	0.8	4.1		2.2	1.8		1.4	2.6		0.5	1.5	0.1
	o (RQ) (50 th percentile)	0.00	0.00		0.00	0.00	_	0.00	0.00		0.00	0.00	0.00
Uniform Delay ( d 1)		25.0	24.5		32.9	22.1		7.9	13.6		8.5	13.0	11.7
Incremental Delay (		0.1	0.4		0.5	0.1		0.0	1.2		0.0	0.5	0.0
Initial Queue Delay (		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (d), s		25.0	24.9		33.4	22.2		7.9	14.8		8.6	13.5	11.8
Level of Service (LO	,	С	С		С	С		Α	В		A	В	В
Approach Delay, s/ve	eh / LOS	25.	0	С	27.6	3	С	11.6	3	В	12.0	)	В
L.C. B.L.	/veh / LOS			18	8.4						В		
Intersection Delay, s													
						14/2			A UD			00	
Multimodal Results			EB	<b>D</b>		WB		10	NB		1.01	SB	
	re / LOS	1.9	4	B	2.17	7	B	1.94	1	B	1.95	5	B

# FIGURE 68 YEAR 2021 PEAK AM HOUR TRAFFIC – Trainyards/Railmarket

		HCS	7 Sig	nalize	ed In	tersed	tion F	Resu	ılts Su	mmar	у				
Conoral Inform	ation								Interes	ation Inf				4741	h L
General Inform	ation									ction Inf		on	- 1	JĮĹ	
Agency									Duratio	,	0.25		-		-
Analyst				<u> </u>		_	15, 2018		Area Ty	ре	Other		-		*
Jurisdiction				Time F		_	AM Hou	ır	PHF		0.90				-
Urban Street		200, 230 & 260 Ste		Analys					Analysi	s Period	1> 7:(	00	1		
Intersection		Traintards/Railmark	et	File Na	ame	2021	_tot_am	.xus						11	
Project Descript	ion	OTY Residential De	velopm	ent										14144	14
Demand Inform	nation		_		EB			W	'B		NB	_		SB	_
Approach Move	ment			L	Т	R	L	1	R	L	Т	R	L	Т	R
Demand (v), ve				17	29	59	33	2	_	_	111	25	29	119	33
Signal Informat	tion				144			<u> </u>							
Cycle, s	80.0	Reference Phase	2		51	7 1						∖ ľ	ta 🛛		4
Offset, s	0	Reference Point	End	Green			9.2	0.0	0.0	0.0	_	1	2	3	<b>Y</b> 4
Uncoordinated	No	Simult. Gap E/W	Off	Yellow		3.3	3.3	0.0			— L		512		$\rightarrow$
Force Mode	Fixed	Simult. Gap N/S	Off	Red	2.5	2.5	2.4	0.0				5		7	
Timer Results				EBI	-	EBT	WB	L	WBT	NB	L	NBT	SB	L _	SBT
Assigned Phase	)					4			8	1		6	5		2
Case Number						6.0			6.0	1.4		4.0	1.4		3.0
Phase Duration,						14.9			14.9	10.	3	54.4	10.8	3	54.4
Change Period,	nange Period, (Y+R c), s					5.7			5.7	5.8		5.8	5.8		5.8
Max Allow Head	way ( I	<i>MAH</i> ), s				3.3			3.3	3.1		0.0	3.1		0.0
Queue Clearand	e Time	e ( g s ), s				6.4			8.6	2.0			2.0		
Green Extension	n Time	(g <sub>e</sub> ), s				0.2			0.1	0.0		0.0	0.0		0.0
Phase Call Prob	ability					0.92			0.85	1.0	D C		1.00	)	
Max Out Probab	oility					0.00			0.00	0.9	1		0.88	3	
News	D.	u l ta		_	50			10/5	2		ND			00	
Movement Gro	•	suits		L	EB T	R	L	WE T	R	L	NB T	R	L	SB T	R
Approach Move				7	4	14	3	8	18	1	6	16	5		
Assigned Mover		<u> </u>				14						16	-	2	12
Adjusted Flow R				19	92		37	50	_	98	149		32	132	3
		w Rate (s), veh/h/l	n	1314	1561	-	1273	163	_	1701	1705		1647	1660	1478
Queue Service				1.1	4.4		2.2	2.2	_	0.0	2.9		0.0	2.6	0.1
Cycle Queue Cl		e Time ( <i>g c</i> ), s		3.2	4.4		6.6	2.2	_	0.0	2.9		0.0	2.6	0.1
Green Ratio (g/				0.13	0.13		0.13	0.13	_	0.80	0.62		0.80	0.62	0.62
Capacity (c), ve				221	198		182	207	_	1128	1056		1080	1028	915
Volume-to-Capa		. ,		0.086		5	0.202	0.24		0.087	0.141		0.030	0.129	0.004
Back of Queue (	( Q ), ft/	In ( 50 th percentile)		8.5	42.1		17.4	21.3	3	5.6	24.4		1.8	22.7	0.5
		eh/In ( 50 th percenti		0.3	1.6		0.7	0.9		0.2	1.0		0.1	0.8	0.0
		RQ) (50 th percent	ile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	0.00
Uniform Delay (				32.9	32.4		35.5	31.5	5	2.3	6.3		2.3	6.5	5.8
Incremental Dela				0.1	0.6		0.2	0.2		0.0	0.3		0.0	0.3	0.0
Initial Queue De	lay ( d	з ), s/veh		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (				33.0	33.0		35.7	31.7	7	2.3	6.6		2.3	6.7	5.8
Level of Service	(LOS)			С	С		D	С		Α	A		А	A	A
Approach Delay	, s/veh	/LOS		33.0	)	С	33.4	4	С	4.9		А	5.9		А
Intersection Dela	ay, s/ve	h / LOS				1	4.3						В		
					55			14/5	,		ND			0.0	
Multimer del D	ultimodal Results				EB			WE	5		NB			SB	
						<b>D</b>	0.44	7	P	4.0	4	D	1.01		
Multimodal Res Pedestrian LOS Bicycle LOS Sco	Score			1.94 0.67		B A	2.1	_	B A	1.94 0.89		B	1.95 0.76		B

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# FIGURE 69 YEAR 2021 PEAK PM HOUR TRAFFIC – Trainyards/Railmarket

		HCS	7 Sig	nalize	ed In	tersec	tion F	Resu	lts Su	mmar	у				
Concerned lasfo									1	tion Inf				4741	NU
General Inform	ation							$\rightarrow$	Intersec			on	- 1	JIL	
Agency								$\rightarrow$	Duration	,	0.25		- 2		
Analyst						e Jun 1			Area Typ	be	Other				*
Jurisdiction				Time F	Period	_	PM Hou	_	PHF		0.90		*		~ ·
Urban Street		200, 230 & 260 Ste	amli	Analys	sis Yea	ar 2021			Analysis	Period	1> 7:0	00	1		1
Intersection		Traintards/Railmark	et	File Na	ame	2021	_tot_pm	xus						11	
Project Descript	tion	OTY Residential De	velopm	ent									Б	1144	*[1]
Demand Inform	nation				EB			W	B		NB			SB	
Approach Move				L	T	R	L	Τ	_	L	T	R	L	T	R
Demand $(v)$ , v				50	60	205	_	95		193		119	61	175	44
Demand (V), V	en/m			50	00	200	115	50	5 00	135	110	113	01	175	44
Signal Informa	tion				114	L.	5	_							
Cycle, s	80.0	Reference Phase	2	1								$\mathbf{Y}$		_	
Offset, s	0	Reference Point	End		1						_	1	2	3	<b>Y</b> 4
Uncoordinated	No	Simult. Gap E/W	Off	Green Yellow		5.0 3.3	23.8 3.3	0.0		0.0	— l		-		$\rightarrow$
Force Mode	Fixed	Simult. Gap N/S	Off	Red	2.5	2.5	2.4	0.0		0.0		5	$\mathbf{Y}_{6}$	7	×.
	1 IXCU	Carrielle Cap 14/0	0 II	1.00	12.0	2.0	E.7	0.0	10.0	0.0					
Timer Results				EBI	-	EBT	WB	L	WBT	NB	L	NBT	SBI	-	SBT
Assigned Phase	э					4			8	1		6	5		2
Case Number						6.0			6.0	1.4		4.0	1.4		3.0
	nase Duration, s					29.5			29.5	10.8	3	39.7	10.8	3	39.7
	hase Duration, s hange Period, ( Y+R c ), s					5.7			5.7	5.8	_	5.8	5.8		5.8
Max Allow Head	·	,, .				3.3			3.5	3.1	_	0.0	3.1		0.0
Queue Clearan						14.5		-	23.6	2.0		0.0	2.0		0.0
Green Extensio					-	0.7		-	0.3	0.2	_	0.0	0.0	_	0.0
Phase Call Prot		(98), 3			-	1.00		-	1.00	1.00	_	0.0	1.00	_	0.0
Max Out Probat	,			_		0.00			0.34	0.02	_		0.00	_	
Max Out 1 10bai	onity					0.00			0.04	0.02	-		0.00	,	
Movement Gro	up Res	ults			EB			WB			NB			SB	
Approach Move	ment			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Move	ment			7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow F	Rate ( v	), veh/h		56	289		128	140	1	214	252		68	194	16
		w Rate (s), veh/h/l	n	1261	1569		1076	1707	7	1688	1561		1714	1758	1482
Queue Service				2.8	12.5		9.1	4.9	-	0.0	8.7		0.0	5.6	0.5
Cycle Queue Cl				7.7	12.5		21.6	4.9	-	0.0	8.7		0.0	5.6	0.5
Green Ratio ( g				0.31	0.31		0.31	0.31	-	0.62	0.44		0.62	0.44	0.44
Capacity ( c ), v				403	486		256	529		816	682		759	768	647
Volume-to-Capa		tio (X)		0.138		5	0.500	0.26	_	0.263			0.089	0.253	0.024
		( )							5						
		In (50 th percentile)		19.9	109.8	>	59.3	47	-	46.2	81.2		14.1	57	4
		eh/In (50 th percenti		0.8	4.4		2.3	1.9		1.8	3.1		0.6	2.2	0.2
		RQ) (50 th percent	iie)	0.00	0.00		0.00	0.00	_	0.00	0.00		0.00	0.00	0.00
Uniform Delay (				23.7	23.4		32.5	20.8		9.9	15.1		10.2	14.6	12.8
Incremental Del				0.1	0.4		0.6	0.1		0.1	1.5		0.0	0.8	0.1
Initial Queue De				0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (				23.7	23.8		33.1	20.9		10.0	16.7		10.2	15.4	12.9
Level of Service	e (LOS)			С	С		С	С		Α	В		В	В	В
Approach Delay	, s/veh	/LOS		23.8	3	С	26.7	7	С	13.6	3	В	14.0	)	В
	ay, s/ve	h / LOS				1	8.8						В		
Intersection Del															
Multimodal Re					EB			WB			NB			SB	
	Score			1.94	_	В	2.17	_	B	1.94	_	В	1.95	_	В

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# FIGURE 70 YEAR 2027 PEAK AM HOUR TRAFFIC – Trainyards/Railmarket

	HCS	7 Sig	nalize	d Int	terse	ction F	Resu	lts Sı	ımmaı	у				
General Information	on							Intorec	ction In	ormativ	nn.		4 1 4 1	F U
-								Duratio		0.25	511	- 1	JIL	
Agency			Amelia	in Dat	a luna i	15 0040			,					
Analyst					_	15, 2018		Area T	/pe	Other	-	- H		4
Jurisdiction			Time F		_	AM Hou	ır	PHF		0.90		1	. is	-
Urban Street	200, 230 & 260 Ste		Analys		_			Analys	s Period	1> 7:	00			
Intersection	Traintards/Railmark		File Na	ame	2027	_tot_am	.xus						11	
Project Description	OTY Residential De	velopm	nent									ĥ	14144	¥. (*)
Demand Informati	ion			EB			W	В		NB			SB	
Approach Moveme	nt		L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), veh/h			18	31	62	35	2	5 24	4 93	112	26	31	125	35
Signal Information				14	15	2 8	4					L I		-
Cycle, s 80	0.0 Reference Phase	2		51	<u>- 5</u>	' <u>1</u>					ר"∖ (*		-	- <b>↔</b> _
Offset, s	0 Reference Point	End	Green		5.0	9.3	0.0	0.0	0.0	_	•			 K
Uncoordinated N	lo Simult. Gap E/W	Off	Yellow		3.3	3.3	0.0					512		$\rightarrow$
Force Mode Fix	ked Simult. Gap N/S	Off	Red	2.5	2.5	2.4	0.0				6	6	7	8
Times Desults			EDI		EDT			WDT.	ND		NDT	CD		ODT
Timer Results			EBI	-	EBT	WB		WBT	NB	L .	NBT	SBI	-	SBT
Assigned Phase					4		_	8	1		6	5	_	2
Case Number					6.0			6.0	1.4	_	4.0	1.4	_	3.0
Phase Duration, s	,				15.0			15.0	10.	_	54.2	10.8		54.2
Change Period, ( Y	hange Period, ( $Y+R_c$ ), s				5.7			5.7	5.8	3	5.8	5.8		5.8
Max Allow Headwa	y (MAH), s				3.3			3.3	3.1		0.0	3.1		0.0
Queue Clearance 1	Гіте ( <i>g</i> s ), s				6.7			9.0	2.0	)		2.0		
Green Extension Ti	ime ( <i>g</i> <sub>e</sub> ), s				0.2			0.1	0.0	)	0.0	0.0		0.0
Phase Call Probabi	ility				0.93			0.87	1.0	0		1.00	)	
Max Out Probability	y				0.00			0.00	0.9	1		0.88	3	
Movement Group	Results			EB			WE			NB			SB	
Approach Moveme		_	L	T	R	L	T	R	L	Т	R	L	T	R
Assigned Movemer			7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate			20	98	14	39	52	10	103	151		34	139	6
-		-	1312	1562	-	1267	1634	1	1701	1703	<u> </u>	1647	1660	1478
	n Flow Rate (s), veh/h/l				-			+						
Queue Service Tim			1.1	4.7	-	2.4	2.3	-	0.0	3.0		0.0	2.8	0.1
Cycle Queue Clear			3.4	4.7		7.0	2.3	_	0.0	3.0		0.0	2.8	0.1
Green Ratio (g/C)			0.13	0.13		0.13	0.13	_	0.80	0.62		0.80	0.62	0.62
Capacity ( c ), veh/			221	201		179	210	_	1119	1053		1076	1026	913
Volume-to-Capacity	, , ,		0.091	0.488	5	0.217	0.24	_	0.092			0.032	0.135	0.006
	), ft/ln ( 50 th percentile)		9	44.8		18.6	22.3	_	6	24.9		2	24.1	0.8
	), veh/ln ( 50 th percenti		0.3	1.7		0.7	0.9	_	0.2	1.0		0.1	0.9	0.0
	tio (RQ) (50 th percent	ile)	0.00	0.00		0.00	0.00	_	0.00	0.00		0.00	0.00	0.00
Uniform Delay ( d 1			32.9	32.4		35.7	31.4	_	2.4	6.4		2.3	6.6	5.9
Incremental Delay			0.1	0.7		0.2	0.2	_	0.0	0.3		0.0	0.3	0.0
Initial Queue Delay			0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (d),			33.0	33.1		35.9	31.6	5	2.4	6.7		2.3	6.8	5.9
Level of Service (Le	OS)		С	С		D	С		Α	A		A	A	A
Approach Delay, s/	veh / LOS		33.1		С	33.4	4	С	5.0	)	А	5.9		А
Intersection Delay,	s/veh / LOS				1	4.4						В		
Multimodal Result	te			EB			WE			NB			SB	
			1.04	_	P	2.4	_		1.0		P	1.05	_	P
	DIE/LUS		1.94		В	2.1	<u>ر</u>	В	1.9	4	В	1.95	,	В
	strian LOS Score / LOS le LOS Score / LOS				А	0.64	4	Α	0.9	4	А	0.78	<b>,</b>	А

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# FIGURE 71 YEAR 2027 PEAK PM HOUR TRAFFIC – Trainyards/Railmarket

		HCS	7 Sig	nalize	ed In	tersec	tion F	Resu	lts Su	nmar	у				
General Inform	antie-								Interes	tion laf	ormeti	n	(1)	41.41	ыų
	nation							$\rightarrow$	Intersec			n	- 🏼	JĮĹ	
Agency								_	Duration	,	0.25		- 2		
Analyst				<u> </u>		te Jun 1	,		Area Typ	e	Other				*
Jurisdiction				Time I	Period	Peak	PM Hou		PHF		0.90		*		
Urban Street		200, 230 & 260 Ste	amli	Analys	sis Yea	ar 2027			Analysis	Period	1> 7:0	00	1		1
Intersection		Traintards/Railmark	et	File N	ame	2027	_tot_pm	xus						11	
Project Descrip	tion	OTY Residential De	evelopm	nent									ň	114Y1	ř (*
Demand Inform	nation				EB	1		W	В		NB			SB	
Approach Move				L	T	R	L	T	_	L	T	R	L	T	R
Demand (v), v				53	64	_	122	10		205	116	126	65	183	47
Demand (V), V	eniin			55	04	217	122	10	1 33	200	110	120	05	105	47
Signal Informa	ation				120	L L	5	_							
Cycle, s	80.0	Reference Phase	2	1								5 4		_	
Offset, s	0	Reference Point	End	C	1 22 6				-	-		1	2	3	<b>Y</b> 4
Uncoordinated	No	Simult. Gap E/W	Off	Green Yellow		5.0	25.1 3.3	0.0		0.0	— l		512		$\rightarrow$
Force Mode	Fixed	Simult. Gap N/S	Off	Red	2.5	2.5	2.4	0.0		0.0	_	5	Y	7	× .
T OICE MODE	Tixeu	ointait. Cap N/C	Oll	Tteu	2.0	2.5	2.7	10.0	0.0	0.0					
Timer Results	_		_	EB	L	EBT	WB	L	WBT	NBI	L	NBT	SBL	-	SBT
Assigned Phase	е					4			8	1		6	5		2
Case Number						6.0			6.0	1.4		4.0	1.4		3.0
	hase Duration, s					30.8			30.8	10.8	_	38.4	10.8		38.4
	nase Duration, s nange Period, ( Y+R c ), s				-	5.7		-	5.7	5.8		5.8	5.8		5.8
	nange Period, ( Y+R c ), s ax Allow Headway ( <i>MAH</i> ), s					3.3		-	3.5	3.1	_	0.0	3.1		0.0
					-	15.1	<u> </u>	-		2.0		0.0			0.0
Queue Clearan					-	0.7		-	24.9 0.2	0.2	_	0.0	2.0 0.0		0.0
Green Extensio		(ge),s		<u> </u>	-		<u> </u>	-			_	0.0			0.0
Phase Call Pro	,			<u> </u>	_	1.00			1.00	1.00	_		1.00	_	
Max Out Proba	bility					0.00			0.96	0.02	2		0.00	)	
Movement Gro	oup Res	ults			EB	_		WB			NB			SB	
Approach Move				L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Move				7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow F		) veh/h		59	307		136	149		228	267		72	203	19
-		ow Rate ( s ), veh/h/l	n	1251	1570		1059	1707		1688	1561		1714	1758	1482
-				2.9	13.1	_	9.8	5.1	-	0.0	9.6	_	0.0	6.1	0.6
Queue Service Cycle Queue C		- /		8.1	13.1		22.9	5.1		0.0	9.6		0.0	6.1	0.6
Green Ratio (g		e fille (g c), s		0.1			22.9			0.60	9.6		0.60	0.42	0.6
				0.00	0.00		0.22	0 22			U4/		0.00	4/	∎ U.42
				0.33	0.33		0.33	0.33							
Capacity (c), v	/eh/h	+ ( )( )		418	512		262	557		786	655		722	738	622
Capacity ( <i>c</i> ), v Volume-to-Capa	/eh/h acity Ra	· · /		418 0.141	512 0.599	9	262 0.517	557 0.26	7	786 0.290	655 0.407		722 0.100	738 0.275	622 0.030
Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue	veh/h acity Ra ( Q ), ft	/In ( 50 th percentile)		418 0.141 20.7	512 0.599 115.4	9	262 0.517 62.7	557 0.26 48.7	7	786 0.290 53.5	655 0.407 90.7		722 0.100 16.3	738 0.275 62.5	622 0.030 5.1
Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue Back of Queue	veh/h acity Ra (Q), ft (Q), ve	/In ( 50 th percentile) eh/In ( 50 th percenti	le)	418 0.141 20.7 0.8	512 0.599 115.4 4.6	9 4	262 0.517 62.7 2.4	557 0.26 48.7 1.9	7	786 0.290 53.5 2.1	655 0.407 90.7 3.5		722 0.100 16.3 0.7	738 0.275 62.5 2.4	622 0.030 5.1 0.2
Capacity ( <i>c</i> ), v Volume-to-Capa Back of Queue Back of Queue Queue Storage	veh/h acity Ra (Q), ft (Q), ve Ratio (	/In ( 50 th percentile) eh/In ( 50 th percenti <i>RQ</i> ) ( 50 th percent	le)	418 0.141 20.7 0.8 0.00	512 0.599 115.4 4.6 0.00	9 4 1	262 0.517 62.7 2.4 0.00	557 0.26 48.7 1.9 0.00	7	786 0.290 53.5 2.1 0.00	655 0.407 90.7 3.5 0.00		722 0.100 16.3 0.7 0.00	738 0.275 62.5 2.4 0.00	622 0.030 5.1 0.2 0.00
Capacity ( c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay (	veh/h acity Ra (Q), ft (Q), vo Ratio ( (d1), s	/In ( 50 th percentile) eh/In ( 50 th percenti RQ ) ( 50 th percent /veh	le)	418 0.141 20.7 0.8 0.00 22.9	512 0.598 115.4 4.6 0.00 22.6	9 4 1	262 0.517 62.7 2.4 0.00 32.2	557 0.267 48.7 1.9 0.00 19.9	7	786 0.290 53.5 2.1 0.00 11.1	655 0.407 90.7 3.5 0.00 16.2		722 0.100 16.3 0.7 0.00 11.4	738 0.275 62.5 2.4 0.00 15.5	622 0.030 5.1 0.2 0.00 13.6
Capacity ( c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De	veh/h acity Ra (Q), ft (Q), vo Ratio ( (d1), s lay (d2	/In ( 50 th percentile) eh/In ( 50 th percentile) RQ ) ( 50 th percent /veh ·), s/veh	le)	418 0.141 20.7 0.8 0.00	512 0.599 115.4 4.6 0.00 22.6 0.7	9 4 1	262 0.517 62.7 2.4 0.00 32.2 0.6	557 0.267 48.7 1.9 0.00 19.9 0.1	7	786 0.290 53.5 2.1 0.00 11.1 0.1	655 0.407 90.7 3.5 0.00 16.2 1.9		722 0.100 16.3 0.7 0.00	738 0.275 62.5 2.4 0.00 15.5 0.9	622 0.030 5.1 0.2 0.00 13.6 0.1
Capacity ( c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay (	veh/h acity Ra (Q), ft (Q), vo Ratio ( (d1), s lay (d2	/In ( 50 th percentile) eh/In ( 50 th percentile) RQ ) ( 50 th percent /veh ·), s/veh	le)	418 0.141 20.7 0.8 0.00 22.9	512 0.598 115.4 4.6 0.00 22.6	9 4 1	262 0.517 62.7 2.4 0.00 32.2	557 0.26 48.7 1.9 0.00 19.9 0.1 0.0	Image: Constraint of the second sec	786 0.290 53.5 2.1 0.00 11.1	655 0.407 90.7 3.5 0.00 16.2		722 0.100 16.3 0.7 0.00 11.4	738 0.275 62.5 2.4 0.00 15.5	622 0.030 5.1 0.2 0.00 13.6
Capacity ( c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De	veh/h acity Ra (Q), ft (Q), vo Ratio ( (d1), s lay (d2 elay (d	/In ( 50 th percentile) eh/In ( 50 th percentile) RQ ) ( 50 th percent /veh ·), s/veh β ), s/veh	le)	418 0.141 20.7 0.8 0.00 22.9 0.1	512 0.599 115.4 4.6 0.00 22.6 0.7	<ul> <li>A</li> <li>A&lt;</li></ul>	262 0.517 62.7 2.4 0.00 32.2 0.6	557 0.267 48.7 1.9 0.00 19.9 0.1	Image: Constraint of the second sec	786 0.290 53.5 2.1 0.00 11.1 0.1	655 0.407 90.7 3.5 0.00 16.2 1.9		722 0.100 16.3 0.7 0.00 11.4 0.0	738 0.275 62.5 2.4 0.00 15.5 0.9	622 0.030 5.1 0.2 0.00 13.6 0.1
Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De	veh/h acity Ra (Q), ft (Q), ve Ratio ( (d1), s lay (d2 elay (d d), s/ve	/In ( 50 th percentile) eh/In ( 50 th percentile) eh/In ( 50 th percenti <i>RQ</i> ) ( 50 th percent /veh :), s/veh s), s/veh eh	le)	418 0.141 20.7 0.8 0.00 22.9 0.1 0.0	512 0.599 115.4 4.6 0.00 22.6 0.7 0.0	<ul> <li>A</li> <li>A&lt;</li></ul>	262 0.517 62.7 2.4 0.00 32.2 0.6 0.0	557 0.26 48.7 1.9 0.00 19.9 0.1 0.0	Image: Constraint of the second sec	786 0.290 53.5 2.1 0.00 11.1 0.1 0.0	655 0.407 90.7 3.5 0.00 16.2 1.9 0.0		722 0.100 16.3 0.7 0.00 11.4 0.0 0.0	738 0.275 62.5 2.4 0.00 15.5 0.9 0.0	622 0.030 5.1 0.2 0.00 13.6 0.1 0.0
Capacity ( c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay (	veh/h acity Ra (Q), ft (Q), vo Ratio ( (d1), s lay (d2 elay (d d), s/vo e (LOS)	/In ( 50 th percentile) eh/In ( 50 th percentile) eh/In ( 50 th percenti <i>RQ</i> ) ( 50 th percent /veh ), s/veh 3), s/veh eh	le)	418 0.141 20.7 0.8 0.00 22.9 0.1 0.0 22.9	512 0.599 115.4 4.6 0.00 22.6 0.7 0.0 23.3 C	<ul> <li>A</li> <li>A&lt;</li></ul>	262 0.517 62.7 2.4 0.00 32.2 0.6 0.0 32.8	557 0.267 48.7 1.9 0.00 19.9 0.1 0.0 20.0 B	Image: Constraint of the second sec	786 0.290 53.5 2.1 0.00 11.1 0.1 0.0 11.2	655 0.407 90.7 3.5 0.00 16.2 1.9 0.0 18.1 B	B	722 0.100 16.3 0.7 0.00 11.4 0.0 0.0 11.4	738 0.275 62.5 2.4 0.00 15.5 0.9 0.0 16.4 B	622 0.030 5.1 0.2 0.00 13.6 0.1 0.0 13.7
Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service	veh/h acity Ra (Q), ft (Q), vo Ratio ( (d1), s lay (d2 elay (d2 elay (d d), s/vo e (LOS) y, s/veh	/In ( 50 th percentile) eh/In ( 50 th percentile) eh/In ( 50 th percenti <i>RQ</i> ) ( 50 th percent /veh o), s/veh o), s/veh eh	le)	418 0.141 20.7 0.8 0.00 22.9 0.1 0.0 22.9 C	512 0.599 115.4 4.6 0.00 22.6 0.7 0.0 23.3 C	Image: state	262 0.517 62.7 2.4 0.00 32.2 0.6 0.0 32.8 C	557 0.267 48.7 1.9 0.00 19.9 0.1 0.0 20.0 B	7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	786 0.290 53.5 2.1 0.00 11.1 0.0 11.2 B	655 0.407 90.7 3.5 0.00 16.2 1.9 0.0 18.1 B		722 0.100 16.3 0.7 0.00 11.4 0.0 0.0 11.4 B	738 0.275 62.5 2.4 0.00 15.5 0.9 0.0 16.4 B	622 0.030 5.1 0.2 0.00 13.6 0.1 0.0 13.7 B
Capacity ( c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service Approach Delay	veh/h acity Ra (Q), ft (Q), vo Ratio ( (d1), s lay (d2 elay (d2 elay (d d), s/vo e (LOS) y, s/veh	/In ( 50 th percentile) eh/In ( 50 th percentile) eh/In ( 50 th percenti <i>RQ</i> ) ( 50 th percent /veh o), s/veh o), s/veh eh	le)	418 0.141 20.7 0.8 0.00 22.9 0.1 0.0 22.9 C	512 0.599 115.4 4.6 0.00 22.6 0.7 0.0 23.3 C	Image: state	262 0.517 62.7 2.4 0.00 32.2 0.6 0.0 32.8 C 26.	557 0.267 48.7 1.9 0.00 19.9 0.1 0.0 20.0 B	7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	786 0.290 53.5 2.1 0.00 11.1 0.0 11.2 B	655 0.407 90.7 3.5 0.00 16.2 1.9 0.0 18.1 B		722 0.100 16.3 0.7 0.00 11.4 0.0 0.0 11.4 B 15.0	738 0.275 62.5 2.4 0.00 15.5 0.9 0.0 16.4 B	622 0.030 5.1 0.2 0.00 13.6 0.1 0.0 13.7 B
Capacity ( c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service Approach Delay Intersection Delay	veh/h         acity Ra         (Q), ft         (Q), ft	/In ( 50 th percentile) eh/In ( 50 th percentile) eh/In ( 50 th percenti <i>RQ</i> ) ( 50 th percent /veh 3), s/veh 3), s/veh eh /LOS eh /LOS	le)	418 0.141 20.7 0.8 0.00 22.9 0.1 0.0 22.9 C	512 0.599 115.4 4.6 0.00 22.6 0.7 0.0 23.3 C	9	262 0.517 62.7 2.4 0.00 32.2 0.6 0.0 32.8 C 26.	557 0.267 48.7 1.9 0.00 19.9 0.1 0.0 20.0 B	7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	786 0.290 53.5 2.1 0.00 11.1 0.0 11.2 B	655 0.407 90.7 3.5 0.00 16.2 1.9 0.0 18.1 B		722 0.100 16.3 0.7 0.00 11.4 0.0 0.0 11.4 B 15.0	738 0.275 62.5 2.4 0.00 15.5 0.9 0.0 16.4 B	622 0.030 5.1 0.2 0.00 13.6 0.1 0.0 13.7 B
Capacity ( c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service Approach Delay Intersection Delay	veh/h         acity Ra         (Q), ft         (Q), ft	/In ( 50 th percentile) eh/In ( 50 th percentile) eh/In ( 50 th percenti <i>RQ</i> ) ( 50 th percent /veh 3), s/veh 3), s/veh eh /LOS eh /LOS	le)	418 0.141 20.7 0.8 0.00 22.9 0.1 0.0 22.9 C	512 0.599 115.4 4.6 0.00 22.6 0.7 0.0 23.3 C 2 EB	Image: state	262 0.517 62.7 2.4 0.00 32.2 0.6 0.0 32.8 C 26.	557 0.267 48.7 1.9 0.00 19.9 0.1 0.0 20.0 B	7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	786 0.290 53.5 2.1 0.00 11.1 0.0 11.2 B	655 0.407 90.7 3.5 0.00 16.2 1.9 0.0 18.1 B B		722 0.100 16.3 0.7 0.00 11.4 0.0 0.0 11.4 B 15.0	738 0.275 62.5 2.4 0.00 15.5 0.9 0.0 16.4 B 0 0 16.4 B	622 0.030 5.1 0.2 0.00 13.6 0.1 0.0 13.7 B

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# FIGURE 72 YEAR 2031 PEAK AM HOUR TRAFFIC – Trainyards/Railmarket

	HCS7 Sig	nalize	d Int	ersec	tion F	Resu	lts Su	nmar	у				
General Information	1						Intersec	tion Inf	ormatic	n		4444	la la
	•					$\rightarrow$	Duration		0.25	<i>,</i> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		JIL	
Agency		Analy	ie Det	lun 1	5 2019			,	Other		-		
Analyst				e Jun 1			Area Typ	be					*
Jurisdiction	200, 200 8, 200 Charmli	Time I			AM Hou		PHF	Devied	0.90	20			~ ~
Urban Street	200, 230 & 260 Steamli		sis Yea				Analysis	Period	1> 7:0	00			
Intersection	Traintards/Railmarket	File N	ame	2031	_tot_am.	xus					_	11	
Project Description	OTY Residential Developm	nent										14144	<u> </u>
Demand Information	n		EB			W	3	1.1	NB			SB	
Approach Movement		L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), veh/h		19	32	65	37	26	25	96	119	27	32	142	37
Signal Information			1	5	3 4						K		-
Cycle, s 80.0	Reference Phase 2		51	<b>N</b>						<mark>`</mark> 」「	• • ·	3	-€ ,
Offset, s 0	Reference Point End	Green		5.0	9.4	0.0	0.0	0.0					K
Uncoordinated No	Simult. Gap E/W Off	Yellow		3.3	3.3	0.0		0.0			52		7
Force Mode Fixed	d Simult. Gap N/S Off	Red	2.5	2.5	2.4	0.0	0.0	0.0		5	6	7	8
Timer Results		EB		EBT	WB		WBT	ND		NBT	SBI		SBT
		ED	-		VVD			NB	-			-	
Assigned Phase			_	4			8	1		6	5	_	2
Case Number	ase Number hase Duration, s			6.0			6.0	1.4	_	4.0	1.4	_	3.0
, .				15.1			15.1	10.8	_	54.2	10.8		54.2
Change Period, (Y+I	nange Period,(Y+R c), s			5.7			5.7	5.8	_	5.8	5.8		5.8
Max Allow Headway				3.3			3.3	3.1	_	0.0	3.1		0.0
Queue Clearance Tin	(0)			6.9			9.4	2.0			2.0		
Green Extension Tim	e ( g e ), s			0.2			0.1	0.0		0.0	0.0		0.0
Phase Call Probabilit	у			0.94			0.88	1.00	)		1.00	)	
Max Out Probability				0.00			0.00	0.91	1		0.87	7	
Movement Group R	esults		EB			WB			NB			SB	
Approach Movement		L	T	R	L	Т	R	L	T	R	L	T	R
Assigned Movement		7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate (	v) veb/b	21	102		41	54	10	107	160	10	36	158	8
,	Flow Rate ( s ), veh/h/ln	1309	1561		1262	1634		1701	1704		1647	1660	1478
			4.9			2.4		0.0	3.2		0.0	3.2	0.2
Queue Service Time Cycle Queue Clearar	( <b>-</b> )	1.2			2.5								
	ice fille (gc), s	3.6	4.9		7.4	2.4		0.0	3.2		0.0	3.2	0.2
Green Ratio (g/C)		0.13	0.13		0.13	0.13		0.80	0.62		0.80	0.62	0.62
Capacity (c), veh/h		220	202		176	211	7	1098	1051		1066	1024	911
Volume-to-Capacity F	· · ·	0.096	0.506		0.233	0.25		0.097	0.152		0.033	0.154	0.009
	ft/In ( 50 th percentile)	9.5	46.9		19.8	23.2		6.7	26.8		2.2	27.9	1.2
	veh/ln ( 50 th percentile)	0.4	1.8		0.8	0.9	-	0.3	1.0		0.1	1.0	0.0
<u> </u>	(RQ) (50 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	0.00
Uniform Delay (d1),		33.0	32.4		35.9	31.4		2.5	6.5		2.4	6.7	5.9
Incremental Delay ( d		0.1	0.7		0.2	0.2		0.0	0.3		0.0	0.3	0.0
Initial Queue Delay (		0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (d), s/		33.0	33.2		36.1	31.6		2.6	6.8		2.4	7.0	5.9
Level of Service (LOS		С	С		D	С		A	A		A	A	A
Approach Delay, s/ve		33.1		С	33.5	5	С	5.1		А	6.1		А
Intersection Delay, s/	veh / LOS			14	4.4						В		
Multimodal Results			EB			WB			NB			SB	
		1.04	_	В	0.45	_		1.04	_	B	1.04		B
Pedestrian LOS Scor		1.94	•	D	2.17	·	В	1.94	•	В	1.95	,	В
Bicycle LOS Score / I	100	0.69		А	0.65		A	0.93	2	А	0.82	,	А

# FIGURE 73 YEAR 2031 PEAK PM HOUR TRAFFIC – Trainyards/Railmarket

		HCS	7 Sig	nalize	ed In	tersed	tion F	Resu	lts Su	nmar	у				
O	4'									41 a				4.1.4.1.1	N E
General Inform	nation								Intersec			on	- É	JĮĹ	
Agency							5 0010		Duration	,	0.25		-		
Analyst						_	5, 2018		Area Typ	e	Other				حم
Jurisdiction				Time F		_	PM Hou		PHF		0.90		*		~
Urban Street		200, 230 & 260 Ste	amli	Analys	sis Yea	ar 2031			Analysis	Period	1> 7:0	00	7		
Intersection		Traintards/Railmark	et	File Na	ame	2031	_tot_pm	xus						ጎተ	
Project Descrip	tion	OTY Residential De	evelopm	nent									h	1100Y	1
Demand Inform	nation				EB			WE	3		NB			SB	
Approach Move	ement			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), v				56	66	_		10	_	213	132	131	67	196	49
	011/11			00	00	LLC	127	100	01	210	102	101	01	100	10
Signal Informa	ation				14			<u> </u>							
Cycle, s	80.0	Reference Phase	2	1	1			7				$\sum 4$		_	<b>-</b>
Offset, s	0	Reference Point	End	Groon			26.0	0.0	0.0	0.0	-	1	2	3	<b>Y</b> 4
Uncoordinated	No	Simult. Gap E/W	Off	Green Yellow		3.3	3.3	0.0	0.0	0.0	— L		512		$\rightarrow$
Force Mode	Fixed	Simult. Gap N/S	Off	Red	2.5	2.5	2.4	0.0	0.0	0.0		6	6	7	8
Timer Results				EBI	L	EBT	WB	L	WBT	NB	L	NBT	SBI	-	SBT
Assigned Phase	е					4			8	1		6	5		2
Case Number						6.0			6.0	1.4		4.0	1.4		3.0
Phase Duration	nase Duration, s					31.7			31.7	10.8	3 :	37.5	10.8	3	37.5
Change Period	nange Period, ( Y+ $R_c$ ), s					5.7			5.7	5.8		5.8	5.8		5.8
Max Allow Head	dway ( /	MAH), s				3.3			3.5	3.1		0.0	3.1		0.0
Queue Clearan	2.					15.5			25.9	2.0			2.0		
Green Extensio						0.7			0.2	0.3		0.0	0.0		0.0
Phase Call Pro						1.00			1.00	1.00	_		1.00	)	
Max Out Proba	,					0.00			1.00	0.02	_		0.00	_	
Movement Gro		sults			EB			WB			NB	-		SB	
Approach Move				L	T	R	L	T	R	L	T	R	L	T	R
Assigned Move				7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow F	Rate ( v	), veh/h		62	319		141	156		237	290		74	218	21
Adjusted Satura	ation Flo	ow Rate ( <i>s</i> ), veh/h/l	n	1244	1570	)	1048	1706		1688	1567		1714	1758	1482
Queue Service	Time (	g s ), S		3.1	13.5		10.3	5.3		0.0	10.7		0.0	6.7	0.7
Cycle Queue C	learanc	e Time ( <i>g c</i> ), s		8.4	13.5		23.9	5.3		0.0	10.7		0.0	6.7	0.7
Green Ratio (g	/C)			0.34	0.34		0.34	0.34		0.59	0.41		0.59	0.41	0.41
Capacity ( c ), v	/eh/h			427	531		267	577		758	640		685	718	605
Volume-to-Capa	acity Ra	itio (X)		0.146	0.60	1	0.529	0.270	)	0.312	0.453		0.109	0.303	0.035
Deals of C	(0) ff	(In ( 50 th percentile)	1	21.6	119.3	3	65.3	50		59.7	103.7		18	69.5	5.8
Back of Queue	(Q), it	( Jo in percentile)					2.5	2.0		2.4	4.0		0.7	2.7	0.2
Back of Queue Back of Queue		eh/In ( 50 th percentie)		0.9	4.8	1	2.0			_					0.00
Back of Queue	(Q), v	eh/In ( 50 th percenti	le)	0.9	4.8 0.00		0.00	0.00		0.00	0.00		0.00	0.00	0.00
Back of Queue	( Q ), v Ratio (	eh/ln ( 50 th percenti <i>RQ</i> ) ( 50 th percent	le)					0.00 19.3	_	0.00	0.00		0.00	0.00	14.2
Back of Queue Queue Storage	(Q), v Ratio( ( <i>d</i> 1 ), s	eh/In ( 50 th percenti <i>RQ</i> ) ( 50 th percent /veh	le)	0.00	0.00		0.00		_						
Back of Queue Queue Storage Uniform Delay (	(Q), v Ratio ( (d1), s lay (d2	eh/ln ( 50 th percenti RQ ) ( 50 th percent /veh ·), s/veh	le)	0.00 22.4	0.00		0.00 31.9	19.3	_	12.2	17.2		12.7	16.3	14.2
Back of Queue Queue Storage Uniform Delay of Incremental De	(Q), v Ratio ( (d1), s lay (d2 elay (d	eh/ln ( 50 th percenti RQ ) ( 50 th percent /veh ·), s/veh β ), s/veh	le)	0.00 22.4 0.1	0.00 22.0 0.9		0.00 31.9 0.6	19.3 0.1		12.2 0.1	17.2 2.3		12.7 0.0	16.3 1.1	14.2 0.1
Back of Queue Queue Storage Uniform Delay Incremental De Initial Queue De	(Q), v Ratio ( (d1), s lay (d2 elay (d d), s/v	eh/ln ( 50 th percenti RQ ) ( 50 th percent /veh ·), s/veh β ), s/veh eh	le)	0.00 22.4 0.1 0.0	0.00 22.0 0.9 0.0		0.00 31.9 0.6 0.0	19.3 0.1 0.0		12.2 0.1 0.0	17.2 2.3 0.0		12.7 0.0 0.0	16.3 1.1 0.0	14.2 0.1 0.0
Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue Do Control Delay ( Level of Service	(Q), v Ratio ( (d1), s lay (d2 elay (d d), s/v e (LOS)	eh/ln ( 50 th percenti RQ ) ( 50 th percent /veh ·), s/veh 3 ), s/veh eh	le)	0.00 22.4 0.1 0.0 22.4 C	0.00 22.0 0.9 0.0 22.9 C		0.00 31.9 0.6 0.0 32.5 C	19.3 0.1 0.0 19.4 B		12.2 0.1 0.0 12.3 B	17.2 2.3 0.0 19.5 B	B	12.7 0.0 0.0 12.7 B	16.3 1.1 0.0 17.4 B	14.2 0.1 0.0 14.3
Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay (	(Q), v Ratio ( (d1), s lay (d2 elay (d d), s/v e (LOS) y, s/veh	eh/In ( 50 th percenti RQ ) ( 50 th percent /veh ), s/veh 3 ), s/veh eh / LOS	le)	0.00 22.4 0.1 0.0 22.4	0.00 22.0 0.9 0.0 22.9 C	C	0.00 31.9 0.6 0.0 32.5	19.3 0.1 0.0 19.4 B		12.2 0.1 0.0 12.3	17.2 2.3 0.0 19.5 B		12.7 0.0 0.0 12.7	16.3 1.1 0.0 17.4 B	14.2 0.1 0.0 14.3 B
Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service Approach Delay	(Q), v Ratio ( (d1), s lay (d2 elay (d d), s/v e (LOS) y, s/veh	eh/In ( 50 th percenti RQ ) ( 50 th percent /veh ), s/veh 3 ), s/veh eh / LOS	le)	0.00 22.4 0.1 0.0 22.4 C	0.00 22.0 0.9 0.0 22.9 C	C	0.00 31.9 0.6 0.0 32.5 C 25.6	19.3 0.1 0.0 19.4 B		12.2 0.1 0.0 12.3 B	17.2 2.3 0.0 19.5 B		12.7 0.0 0.0 12.7 B 16.1	16.3 1.1 0.0 17.4 B	14.2 0.1 0.0 14.3 B
Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue De Control Delay ( Level of Service Approach Delay	(Q), v/ Ratio ( (d1), s lay (d2 elay (d d), s/v/ e (LOS) y, s/veh lay, s/veh	eh/In ( 50 th percenti RQ ) ( 50 th percent /veh ), s/veh 3 ), s/veh eh / LOS	le)	0.00 22.4 0.1 0.0 22.4 C	0.00 22.0 0.9 0.0 22.9 C	C	0.00 31.9 0.6 0.0 32.5 C 25.6	19.3 0.1 0.0 19.4 B		12.2 0.1 0.0 12.3 B	17.2 2.3 0.0 19.5 B		12.7 0.0 0.0 12.7 B 16.1	16.3 1.1 0.0 17.4 B	14.2 0.1 0.0 14.3 B
Back of Queue Queue Storage Uniform Delay ( Incremental De Initial Queue Do Control Delay ( Level of Service Approach Delay Intersection De	(Q), vo Ratio ( (d1), s lay (d2 elay (d d), s/vo e (LOS) y, s/veh lay, s/ve	eh/In ( 50 th percenti RQ ) ( 50 th percent /veh ·), s/veh 3 ), s/veh eh / LOS eh / LOS	le)	0.00 22.4 0.1 0.0 22.4 C	0.00 22.0 0.9 0.0 22.9 C 3 EB	C	0.00 31.9 0.6 0.0 32.5 C 25.6	19.3 0.1 0.0 19.4 B 5		12.2 0.1 0.0 12.3 B	17.2 2.3 0.0 19.5 B 2 NB		12.7 0.0 0.0 12.7 B 16.1	16.3 1.1 0.0 17.4 B SB	14.2 0.1 0.0 14.3 B

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### FIGURE 74 EXISTING 2015 PEAK AM HOUR TRAFFIC – Industrial/Trainyards

		HCS	7 Sig	nalize	ed Int	ersec	tion F	Resul	ts Sun	nmar	у				
General Inform	ation								ntersect	ion Inf	ormatic	n		4.441	ЪЦ
Agency	auon								Duration,		0.25	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		41	
				Analy		lun 1	5 2019								
Analyst						Jun 1		_	Area Typ PHF	3	Other				*
Jurisdiction				Time I			AM Hou			<u> </u>	0.90				-
Urban Street		200, 230 & 260 Stre			sis Yea				Analysis	Period	1> 7:0	00			
Intersection		Industrial/Trainyard		File N	ame	2015	_ex_am.	xus					_	*	
Project Descript	tion	OTY Residential De	evelopm	ent										4144	14
Demand Inform	nation				EB			WB	}		NB			SB	
Approach Move	ment			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand $(v)$ , ve				66	711	0	7	647	_	0	0	0	68	0	26
	01111			00		0		011	TOL	Ū	Ū		00	Ū	20
Signal Information	tion														I
Cycle, s	85.0	Reference Phase	2	1	₩.		5.4	7					<b>4</b>	1	$\Phi$
Offset, s	0	Reference Point	Begin	0						-		1	2	3	
Uncoordinated	No	Simult. Gap E/W	On	Green Yellow		52.3 3.7	9.9	0.0	0.0	0.0		7	$\rightarrow$		rt.
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.7	2.7	2.6	0.0	0.0	0.0		Б	6	7	Y
i di seconda di second															
Timer Results				EB	L	EBT	WB	L	WBT	NB	-	NBT	SB	-	SBT
Assigned Phase						2			6			8			4
Case Number	ase Number					4.0			6.3			8.0			6.0
Phase Duration,	ase Duration, s				5	69.2			58.7			15.8			15.8
Change Period,	ase Duration, s ange Period, ( Y+ <i>R</i> c ), s					6.4			6.4			5.9			5.9
Max Allow Head				3.1		0.0			0.0			0.0			3.1
Queue Clearand				2.5											5.5
Green Extension				0.1	_	0.0			0.0			0.0			0.1
Phase Call Prob		(3-7,-		0.82											0.92
Max Out Probab			_	0.0	_									_	0.00
	·														
Movement Gro		ults			EB			WB			NB			SB	
Approach Move	ment			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Mover	ment			5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow F	Rate ( <i>v</i>	), veh/h		73	790	0	8	443	445		0		76	29	
Adjusted Satura	ation Flo	w Rate ( s ), veh/h/l	In	1688	1562	0	686	1599	1604		0		1684	1515	
Queue Service	Time ( g	ys), S		0.5	5.0	0.0	0.4	12.1	12.2		0.0		3.5	1.4	
Cycle Queue Cl	learance	e Time ( <i>g c</i> ), s		0.5	5.0	0.0	0.4	12.1	12.2		0.0		3.5	1.4	
Green Ratio ( g/	/C)			0.86	0.83		0.63	0.63	0.63				0.13	0.13	
Capacity (c), v	,			664	2582		515	1003	1006				300	193	
Volume-to-Capa		tio (X)		0.111	0.306	0.000	0.015	0.442	0.442		0.000		0.252	0.149	
•		In ( 50 th percentile)	)	1.8	16.3	0	1.3	100.8	112.8		0		35.5		
		h/ln ( 50 th percent		0.1	0.6	0.0	0.1	3.9	3.9		0.0		1.4	0.5	
		RQ) ( 50 th percent		0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	
Uniform Delay (		.,,		2.2	2.4	0.00	6.0	8.2	8.2		0.00		33.9	33.0	
Incremental Del				0.0	0.3	0.0	0.0	1.4	1.4		0.0		0.2	0.1	
Initial Queue De				0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	
				2.2	2.7		6.0	9.6	9.6				34.0	33.1	
Control Delay (				A	A		A	A	A				C	C	
Control Delay (				2.6		A	9.5		A	0.0			33.8		С
Level of Service	. ,	/105		2.0			_		~	0.0			A 33.0		0
Level of Service Approach Delay	, s/veh					7	.7						A		
Level of Service	, s/veh					7	.7						A		
Level of Service Approach Delay	v, s/veh ay, s/ve				EB	7	.7	WB			NB			SB	
Level of Service Approach Delay Intersection Dela	v, s/veh ay, s/ve sults	h/LOS		1.7	_	7 B	2.17	_	В	2.85	_	С	2.7	_	С

# FIGURE 75 EXISTING 2015 PEAK PM HOUR TRAFFIC – Industrial/Trainyards

	HCS	7 Sig	nalize	ed Int	ersec	tion F	Resu	lts Sur	nmar	у				
General Information	n						-	Intersect	ion Inf	ormatic	n	1 V	4.741	k L
										0.25	511	- 1	44	
Agency				·	1	- 0040		Duration,						
Analyst			<u> </u>		Jun 1			Area Typ	e	Other	_			*
Jurisdiction			Time F			PM Hou		PHF		0.90		4-4		5
Urban Street	200, 230 & 260 Stre		<u> </u>	sis Year			_	Analysis	Period	1> 7:(	00			
Intersection	Industrial/Trainyard		File N	ame	2015_	_ex_pm.	xus						*	
Project Description	OTY Residential De	evelopm	lent									1	4149	۴ (*
Demand Informatio	on			EB			VVE	3		NB			SB	
Approach Movemer			L	T	R	L	T		L	T	R	L	T	R
Demand (v), veh/h			149	589	0	6	62		0	0	1	306	1	160
Demand (V), Venin			143	505	0	0	02.	5 135	U	0		500		100
Signal Information														1
Cycle, s 85		2	1	E3		247	_					<u> </u>	<b>1</b>	<u>Ф</u>
Offset, s 0		Begin	L				í 🔔				1	<b>Y</b> 2	3	
Uncoordinated No		On	Green		39.3	22.1	0.0		0.0	_		$\rightarrow$		
Force Mode Fixe		On	Yellow Red	2.7	3.7	3.3 2.6	0.0		0.0			×	7	Y
Force Mode Fix		OII	Reu	2.1	2.1	2.0	0.0	0.0	0.0		0	0		
Timer Results			EBI	_	EBT	WB	L	WBT	NB	L	NBT	SBI	-	SBT
Assigned Phase			5		2			6			8			4
	ase Number				4.0			6.3			8.0			6.0
	nase Duration, s				57.0			45.7			28.0			28.0
,	nase Duration, s nange Period, ( Y+R c ), s				6.4			6.4			5.9			5.9
			6.4 3.1	_	0.0			0.4			3.2			3.2
Max Allow Headway Queue Clearance T	. ,			_	0.0	<u> </u>	-	0.0		_		<u> </u>		
			4.6	_	0.0			0.0		_	2.0		_	21.5
Green Extension Tir			0.2		0.0	<u> </u>	-	0.0		_	1.0 1.00	<u> </u>		0.6
Phase Call Probabil			0.98	_						_		<u> </u>	_	
Max Out Probability			0.01								0.00			0.25
Movement Group	Results			EB	_		WB	_		NB	_		SB	_
Approach Movemer			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Movemen			5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate			166	654	0	7	448	459		0	10	340	179	
•	Flow Rate (s), veh/h/l	In	1688	1305	0	482	1515	_		0		1423	1507	
Queue Service Time			2.6	9.0	0.0	0.6	18.8	_		0.0		19.4	8.3	
Cycle Queue Cleara	(0 ))		2.6	9.0	0.0	0.6	18.8			0.0		19.4	8.3	
	$(g_c), s$		0.72		0.0	_		_		0.0		_		
Green Ratio $(g/C)$				0.68		0.47	0.47					0.27	0.27	
Capacity ( c ), veh/h			531	1779	0.000	313	718	735 4 0.624		0.000		471	410 0.436	
Volume-to-Capacity	. ,		0.312			0.021	0.624	_		0.000		0.722		
	, ft/ln ( 50 th percentile)		16.9		0	2.6	178			0		168	72.2	
	, veh/ln ( 50 th percenti	,	0.7	2.1	0.0	0.1	6.7	6.9		0.0		6.7	2.9	
0	o (RQ) (50 th percent	tile)	0.00	0.00	0.00	0.00	0.00			0.00		0.00	0.00	
Uniform Delay ( d 1	•		7.2	7.0		11.9	16.7					29.6	25.6	
Incremental Delay (			0.1	0.6	0.0	0.1	4.1	4.0		0.0		2.8	0.3	
Initial Queue Delay	, ,		0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	
Control Delay (d),			7.4	7.6		12.1	20.8					32.4	25.8	
Level of Service (LC			A	A		В	С	С				С	С	
Approach Delay, s/v			7.5		А	20.7	7	С	22.5	5	С	30.2	2	С
Intersection Delay, s	/veh / LOS				18	3.1						В		
				EB			LA ID			ND			0.0	
Multime edial Description	ultimodal Results						WB			NB			SB	
Multimodal Result					<b>D</b>	0.11		<b>D</b>	0.01	7	0	0.55		~
Multimodal Results Pedestrian LOS Score Bicycle LOS Score	ore / LOS		1.71 2.24		B B	2.41 2.31		B B	2.87 1.56		C B	2.72		C B

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# FIGURE 76 YEAR 2021 PEAK AM HOUR TRAFFIC – Industrial/Trainyards

	HCS7	' Sig	nalize	d Int	ersec	tion R	Resul	lts Sun	nmar	у				
General Information								Intersect	ion Inf	ormatic	n		4.444	b L
Agency								Duration,		0.25	<i>"</i>		41	
			Analy		lun 1	5 2019		,		Other				×
Analyst					Jun 1			Area Typ PHF	e					
Jurisdiction	000 000 0 000 0	P	Time F			AM Hou			D - vi - d	0.90	20			<b>•</b>
Urban Street	200, 230 & 260 Strea			sis Year			_	Analysis	Period	1> 7:0	00			-
Intersection	Industrial/Trainyards		File Na	ame	2021	_tot_am.	xus					_	*	
Project Description	OTY Residential Dev	/elopm	ent										4144	P C
Demand Information				EB			WE	3		NB			SB	
Approach Movement		_	L	T	R	L	Т	R	L	Т	R	L	T	R
Demand (v), veh/h			70	761	0	7	689		0	0	0	72	0	28
Bomana (17), tonim			10	101	Ū		000						Ū	20
Signal Information						- J.K.								I
Cycle, s 85.0	Reference Phase	2	1	Ľ₽	- 📑 R		2					<b>4</b>		$\Phi$
Offset, s 0	Reference Point	Begin	0			10.0		0.0		_	1	<b>Y</b> 2	3	4
Uncoordinated No	Simult. Gap E/W	On	Green Yellow		52.1 3.7	10.0 3.3	0.0	0.0	0.0		7	$\rightarrow$		st-
Force Mode Fixed	· · · ·	On	Red	2.7	2.7	2.6	0.0	0.0	0.0		Б	6	7	Y
Timer Results			EBI	-	EBT	WB	L	WBT	NB	L	NBT	SBI	-	SBT
Assigned Phase			5		2			6			8			4
Case Number					4.0			6.3			8.0			6.0
Phase Duration, s	ase Duration, s				69.1			58.5			15.9			15.9
Change Period, ( Y+R	ase Duration, s ange Period, ( Y+R c), s				6.4			6.4			5.9			5.9
Max Allow Headway (			3.1		0.0			0.0			0.0			3.1
Queue Clearance Tim			2.6											5.7
Green Extension Time		_	0.1		0.0			0.0			0.0			0.2
Phase Call Probability			0.84	1										0.93
Max Out Probability		_	0.00	_									_	0.00
			_											
Movement Group Re	sults			EB			WB	_		NB	_		SB	
Approach Movement			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Movement			5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (	v ), veh/h		78	846	0	8	487	458		0		80	31	
Adjusted Saturation F	low Rate ( s ), veh/h/ln	1	1688	1672	0	651	1703	1600		0		1684	1515	
Queue Service Time (	g s ), s		0.6	5.0	0.0	0.4	12.8	12.8		0.0		3.7	1.6	
Cycle Queue Clearan	ce Time ( $g$ $_{c}$ ), s		0.6	5.0	0.0	0.4	12.8	12.8		0.0		3.7	1.6	
Green Ratio ( g/C )			0.86	0.83		0.62	0.62	0.62				0.13	0.13	
Capacity ( c ), veh/h			642	2759		492	1064	1000				302	196	
Volume-to-Capacity R			0.121		0.000	0.016		3 0.458		0.000		0.265	0.159	
Back of Queue (Q), f	t/In ( 50 th percentile)		2.4	17.6	0	1.4	112.5	5 118.7		0		37.6	14.1	
Back of Queue (Q), v	eh/ln ( 50 th percentile	e)	0.1	0.7	0.0	0.1	4.3	4.1		0.0		1.5	0.6	
Queue Storage Ratio		le)	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	
Uniform Delay ( d 1 ),			2.3	2.4		6.1	8.4	8.4				33.8	32.9	
Incremental Delay ( d			0.0	0.3	0.0	0.1	1.4	1.5		0.0		0.2	0.1	
Initial Queue Delay ( a			0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	
Control Delay ( d ), s/			2.4	2.7		6.1	9.8	9.9				34.0	33.1	
Level of Service (LOS	)		Α	A		Α	Α	A				С	С	
Approach Delay, s/vel	n/LOS		2.7		А	9.8		А	0.0			33.7	7	С
Interaction Delay at	eh / LOS				7	.8						A		
Intersection Delay, s/v														
							1.2.07							
Multimodal Results				EB	_		WB			NB	-		SB	
			1.71 2.32	1	B	2.18	3	B	2.88	3	C B	2.74		C B

# FIGURE 77 YEAR 2021 PEAK PM HOUR TRAFFIC – Industrial/Trainyards

		HCS	57 Sig	nalize	d Int	ersec	tion R	Resul	lts Sun	nmar	у				
Conoral Inform										: If			1.0	*	h L
General Inform	ation								Intersect			n	- 1	44	
Agency									Duration,		0.25		- 2		
Analyst				<u> </u>		Jun 1		_	Area Typ	e	Other				*
Jurisdiction				Time F			PM Hou	ır I	PHF		0.90				-
Urban Street		200, 230 & 260 Str	eamli	Analys	sis Year	2021			Analysis	Period	1> 7:0	00	14		
Intersection		Industrial/Trainyard	ls	File Na	ame	2021_	tot_pm.	xus						*	
Project Descript	tion	OTY Residential De	evelopm	ent									5	4147	1
Demand Inform	nation				EB			WE	3		NB			SB	
Approach Move				L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand $(v)$ , v				158	624	0	6	666	_	0	0	1	365	1	170
Demana (V), V	CIMI			100	024	Ū	Ū	000	210	Ū	U		000		110
Signal Informa	tion		_				UI.	1							1
Cycle, s	85.0	Reference Phase	2	1	L2	- <u></u>	242	_					2	i	$\Phi$
Offset, s	00.0	Reference Point	Begin					<u>í</u>				1	2	3	
Uncoordinated	No	Simult. Gap E/W	On	Green	5.2	35.4	25.6	0.0		0.0	_	_	Ð_		
				Yellow		3.7	3.3	0.0		0.0			× _		Ψ
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.7	2.7	2.6	0.0	0.0	0.0		0	6	1	
Timer Results				EBI		EBT	WB		WBT	NB		NBT	SBI		SBT
Assigned Phase	e			5		2			6			8			4
Case Number	-			1.0		4.0			6.3			8.0			6.0
	nase Duration, s				3	53.5			41.8			31.5			31.5
					,						_		<u> </u>		
-	nange Period, ( Y+R c ), s				_	6.4			6.4			5.9			5.9
Max Allow Head				3.1	_	0.0	<u> </u>	_	0.0		_	3.2		_	3.2
Queue Clearan				5.2								2.0			25.3
Green Extensio		(ge), s		0.1		0.0		_	0.0			1.2	<u> </u>		0.3
Phase Call Prot				0.98	_						_	1.00		_	1.00
Max Out Probal	bility			0.46	6				_			0.00			1.00
Movement Gro	oup Res	ults			EB			WB	_		NB			SB	_
Approach Move	ement			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Move				5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow F		) veh/h		176	693	0	7	500	477		0		406	190	
•	· ·	ow Rate (s), veh/h/	In	1688	1382	0	465	1619	_		0		1423	1509	
Queue Service				3.2	10.2	0.0	0.7	21.7	_		0.0		23.3	8.4	
				3.2	10.2	0.0	0.7	21.7	_		0.0		23.3	8.4	
Cycle Queue Cl		e fille ( <i>g</i> c), s		-	-	0.0	_				0.0		-		-
Green Ratio (g	,			0.68	0.64		0.43	0.43					0.31	0.31	
Capacity (c), v				478	1771	0.000	284	694	661		0.000		530	473	-
Volume-to-Capa		. ,	、 、	0.367	0.391	0.000	0.023		_		0.000		0.765	0.402	
		In (50 th percentile)		23	67.2	0	2.9		3 243.2		0		207.4		
		eh/In ( 50 th percent	,	0.9	2.6	0.0	0.1	8.7	8.4		0.0		8.2	2.9	
		RQ) (50 th percent	tile)	0.00	0.00	0.00	0.00	0.00			0.00		0.00	0.00	
Uniform Delay (				9.7	8.8		14.1	20.1					28.1	22.9	
Incremental Del				0.2	0.7	0.0	0.2	6.4	6.7		0.0		5.3	0.2	
Initial Queue De	elay(d	з ), s/veh		0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	
Control Delay (	d ), s/v	eh		9.9	9.4		14.2	26.4	26.7				33.4	23.1	
Level of Service	e (LOS)			Α	А		В	С	С				С	С	
Approach Delay	, s/veh	/LOS		9.5		A	26.5	5	С	20.1	1	С	30.1		С
							1.3						С		
Intersection Del															
Intersection Del				_											
Intersection Del					EB			WB			NB			SB	
Intersection Del		/LOS		1.71	_	В	2.45	_	В	2.91	_	С	2.74	_	С

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# FIGURE 78 YEAR 2027 PEAK AM HOUR TRAFFIC – Industrial/Trainyards

HCS7 Sig	Inalize	ed Int	ersec	tion R	Resul	ts Sun	nmar	у				
General Information						ntersect	ion Inf	ormatic		1.0	4.444	ыų
Agency						Duration,		0.25	<i>,</i> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		41	
• /	Analy	aia Data	lun 1	5 2019		,						×
Analyst		sis Date			_	Area Typ	3	Other				
Jurisdiction		Period		AM Hou		PHF		0.90				
Urban Street 200, 230 & 260 Streamli		sis Year			_	Analysis	Period	1> 7:0	00			-
Intersection Industrial/Trainyards	File N	ame	2027	_tot_am.	xus						*	
Project Description OTY Residential Develop	nent									1	4 1 4 11	11
Demand Information		EB			WE	}		NB			SB	
Approach Movement	L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), veh/h	74	823	0	8	731	_	0	0	0	83	0	29
Signal Information												I
Cycle, s 85.0 Reference Phase 2	1	E	- 🚔 🔮	- 54	7					<b>4</b>	•	$\Phi$
Offset, s 0 Reference Point Begin	Croon		<u> </u>	10.2		0.0	0.0	_	1	<b>Y</b> 2	3	4
Uncoordinated No Simult. Gap E/W On	Green Yellow		51.9 3.7	10.2 3.3	0.0	0.0	0.0		7	$\rightarrow$		st a
Force Mode Fixed Simult. Gap N/S On	Red	2.7	2.7	2.6	0.0	0.0	0.0		Б	6	7	Y
Timer Results	EB	L	EBT	WB	L	WBT	NBI	-	NBT	SBL	-	SBT
Assigned Phase	5		2			6			8			4
Case Number	1.0		4.0			6.3			8.0			6.0
Phase Duration, s	10.	7	68.9			58.3			16.1			16.1
Change Period, (Y+R c), s	6.4		6.4			6.4			5.9			5.9
Max Allow Headway ( <i>MAH</i> ), s	3.1		0.0			0.0			0.0			3.1
Queue Clearance Time $(g_s)$ , s	2.6											6.3
Green Extension Time ( $g_e$ ), s	0.1		0.0			0.0			0.0			0.2
Phase Call Probability	0.86	3										0.95
Max Out Probability	0.0	D										0.00
		50				_		ND		_	0.0	
Movement Group Results		EB	D		WB		1	NB	D		SB	D
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	82	914	0	9	552	502		0		92	32	
Adjusted Saturation Flow Rate (s), veh/h/ln	1688	1758	0	610	1730	_		0		1684	1515	
Queue Service Time (g s), s	0.6	5.3	0.0	0.5	15.1	15.1		0.0		4.3	1.6	
Cycle Queue Clearance Time ( $g \circ$ ), s	0.6	5.3	0.0	0.5	15.1	15.1		0.0		4.3	1.6	
Green Ratio (g/C)	0.86	0.82		0.62	0.62	0.62				0.13	0.13	
Capacity ( <i>c</i> ), veh/h	595	2893		464	1076					306	199	
Volume-to-Capacity Ratio (X)	0.138		0.000	0.019		0.514		0.000		0.302	0.162	
Back of Queue (Q), ft/In (50 th percentile)	4.2	19.9	0	1.6		139.8		0		43.6	14.5	
Back of Queue (Q), veh/ln (50 th percentile)	0.2	0.8	0.0	0.1	5.2	4.8		0.0		1.7	0.6	
Queue Storage Ratio ( <i>RQ</i> ) (50 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	
Uniform Delay ( <i>d</i> 1), s/veh	2.9	2.5		6.2	8.9	8.9				33.9	32.8	
Incremental Delay ( <i>d</i> <sub>2</sub> ), s/veh	0.0	0.3	0.0	0.1	1.8	1.9		0.0		0.2	0.1	
Initial Queue Delay (d 3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	
Control Delay ( d ), s/veh	3.0	2.8		6.2	10.7	10.9				34.1	32.9	
Level of Service (LOS)	A	A		A	В	В				C	С	
			А	10.7	/	В	0.0			33.8	3	С
Approach Delay, s/veh / LOS	2.8											
Approach Delay, s/veh / LOS Intersection Delay, s/veh / LOS	2.8		8	.4						A		
Intersection Delay, s/veh / LOS	2.8		8	.4	\//P			NB		A	SB	
Intersection Delay, s/veh / LOS Multimodal Results		EB			WB	B	2.03	NB			SB	C
Intersection Delay, s/veh / LOS	2.8 1.7 2.38	EB 1	B	2.21		B	2.93	3	CB	A 2.77 1.76	7	C

# FIGURE 79 YEAR 2027 PEAK PM HOUR TRAFFIC – Industrial/Trainyards

		HCS	67 Sig	nalize	d Int	ersec	tion R	lesu	lts Sur	nmar	у				
Conord Inform													1.0	*	N U
General Inform	ation							$\rightarrow$	Intersec			on	- 1	44	
Agency									Duration,		0.25		- 2		N.
Analyst				<u> </u>		Jun 1	,	_	Area Typ	e	Other		<u>م -</u>		~ <mark>8</mark>
Jurisdiction				Time F			PM Hou	ır	PHF		0.90				ţ
Urban Street		200, 230 & 260 Str	eamli	Analys	sis Year	2027			Analysis	Period	1> 7:0	00	14		
Intersection		Industrial/Trainyard	ls	File Na	ame	2027_	tot_pm.	xus						*	
Project Descript	tion	OTY Residential De	evelopm	ient									5	4147	in r
Demand Inform	nation				EB			VVE	3		NB			SB	
Approach Move				L	T	R	L	Т		L	T	R	L	T	R
Demand (v), v				168	671	0	7	71	_	0	0	1	385	1	180
Demand (V), V	en/m			100	0/1	0	· ·	113	5 220	U	0		505		100
Signal Informa	tion							1.1							1
Cycle, s	85.0	Reference Phase	2	1	R.		E 4 3	_					<b>Z</b>	P	$\Phi$
Offset, s	0	Reference Point	Begin	L				ŰL_				1	2	3	1
Uncoordinated	No	Simult. Gap E/W	On	Green		34.0	26.8	0.0		0.0	_		<del>A</del>		
		Simult. Gap N/S		Yellow		3.7	3.3	0.0		0.0			× _	7	Ψ
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.7	2.7	2.6	0.0	0.0	0.0		0		1	
Timer Results				EBI		EBT	WB		WBT	NB		NBT	SBL		SBT
Assigned Phase	Э			5		2			6			8			4
Case Number	-			1.0		4.0			6.3			8.0			6.0
	hase Duration, s			12.0	)	52.3			40.4			32.7			32.7
				6.4	, 	6.4			6.4			5.9			5.9
-	ange Period, ( Y+R c ), s ax Allow Headway ( <i>MAH</i> ), s			3.1		0.0			0.4			3.2			3.2
Queue Clearan				5.6		0.0			0.0			2.0			26.7
Green Extensio				0.1		0.0			0.0			1.3			0.1
Phase Call Prot		(ge), s		0.99		0.0			0.0			1.00	<u> </u>		1.00
Max Out Probal				1.00	_						_	0.00		_	1.00
Max Out Probai	Jiirty			1.00	,							0.00			1.00
Movement Gro	up Res	ults			EB			WB			NB	_		SB	_
Approach Move	ment			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Move	ment			5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow F		) veh/h		187	746	0	8	551	499		0		428	201	
•		ow Rate (s), veh/h/	In	1688	1486	0	443	1702			0		1423	1510	
Queue Service				3.6	10.6	0.0	0.9	23.9			0.0		24.6	8.8	
Cycle Queue Cl				3.6	10.6	0.0	0.9	23.9			0.0		24.7	8.8	
Green Ratio (g		o nino ( g e ), s		0.66	0.63	0.0	0.9	0.41			0.0		0.33	0.0	
Capacity ( c ), v				452	1865		267	700	634				549	493	
Volume-to-Capa		tio (X)		452		0.000	0.029	0.787			0.000		0.780	493 0.408	
		lio ( X ) /In ( 50 th percentile	)	30.5	76	0.000	3.5	277			0.000		221.6	74.9	
	<b>x</b> • <b>y</b> •	eh/In (50 th percent	,	1.2	3.0	0.0	0.1	10.5			0.0		8.8	3.0	
		RQ) (50 th percen	ule)	0.00	0.00	0.00	0.00	0.00			0.00		0.00	0.00	
Uniform Delay (				11.5	9.4	0.0	15.0	21.8			0.0		27.6	22.2	
Incremental Del				0.2	0.6	0.0	0.2	8.7	9.6		0.0		6.3	0.2	
Initial Queue De				0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	
Control Delay (				11.7	10.0		15.2	30.5					33.9	22.4	
Level of Service	· · /			В	A		В	С	С				С	С	
Approach Delay				10.3	3	В	30.8	3	С	19.3	3	В	30.2	2	С
Intersection Del	ay, s/ve	eh / LOS				23	3.4						С		
	oulto				ED						ND			CD.	
Multime edal D	Iltimodal Results				EB			WB			NB			SB	
		(1.00		4 74		D	0.40	,	D	0.01		0	0.77	, 1	<u> </u>
Multimodal Rea Pedestrian LOS Bicycle LOS Sc	Score			1.71 2.33		B B	2.48	_	B	2.98 1.56	_	C B	2.77	_	C C

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### FIGURE 80 YEAR 2031 PEAK AM HOUR TRAFFIC – Industrial/Trainyards

		HCS	7 Sig	nalize	ed Int	ersec	tion R	lesul	ts Sun	nmar	у				
General Inform	ation								ntersect	ion Inf	ormatic	n	1.1	4.441	4 L
	auon								Intersection Information Duration, h 0.25			<i></i>		41	
Agency Analyst				Analysis Date Jun 15, 2018				Area Type		Other		2			
								_		8					*
Jurisdiction				Time F			AM Hou	_	PHF	<u> </u>	0.90				~
Urban Street		200, 230 & 260 Stre		· ·	sis Year	_			Analysis	Period	1> 7:0	00			
Intersection		Industrial/Trainyard		File N	ame	2031	tot_am.	xus						*	
Project Descript	ion	OTY Residential De	evelopm	ent										14144	1
Demand Inform	nation				EB			WE	3		NB			SB	
Approach Move				L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand $(v)$ , ve				77	854	0	8	760	_	0	0	0	98	0	30
Signal Informa	tion						- J.K.								I
Cycle, s	85.0	Reference Phase	2	1	E		5 B.A	_				_	4	1	$\mathbf{\Phi}$
Offset, s	0	Reference Point	Begin	Crass		51.6	10.0	100		0.0		1	2	3	
Uncoordinated	No	Simult. Gap E/W	On	Green Yellow		51.6 3.7	10.3 3.3	0.0	0.0	0.0		7	$\rightarrow$		-
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.7	2.7	2.6	0.0	0.0	0.0		Б	6	7	Y
					1								I		
Timer Results				EB	-	EBT	WB	L	WBT	NB	L	NBT	SB	-	SBT
Assigned Phase	9			5		2			6			8			4
Case Number				1.0		4.0			6.3			8.0			6.0
Phase Duration	, s			10.7	7	68.8			58.0			16.2			16.2
Change Period,	,	.). s		6.4 6		6.4			6.4			5.9			5.9
				3.1		0.0	0		0.0			0.0			3.1
Max Allow Headway ( $MAH$ ), s Queue Clearance Time ( $gs$ ), s				2.7		0.0			0.0			0.0			7.1
Green Extension Time $(g_e)$ , s				0.1		0.0			0.0			0.0			0.2
Phase Call Prot		(90), 5		0.87	7	0.0			0.0			0.0			0.97
Max Out Probat				0.00	_									_	0.00
	Jinty			0.00											5.00
Movement Gro	up Res	ults			EB			WB			NB			SB	
Approach Move	ment			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Mover				5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow F		) veh/h		86	949	0	9	575	524	-	0		109	33	
		w Rate (s), veh/h/l	In	1688	1758	0	591	1730	_		0		1684	1515	<u> </u>
Queue Service				0.7	5.6	0.0	0.5	16.1	16.2		0.0		5.1	1.7	<u> </u>
Cycle Queue Cl				0.7	5.6	0.0	0.5	16.1	16.2		0.0		5.1	1.7	-
		s nine ( <i>g</i> c), s				0.0			_		0.0		_		
Green Ratio (g	,			0.86	0.82		0.62	0.62	0.62				0.13	0.13	
Capacity ( c ), v		tio (X)		576	2886	0.000	451	1071	973		0.000		309	202	
Volume-to-Capa				0.148			0.020		_		0.000		0.352	0.165	
		In (50 th percentile)		5.2	22	0	1.6		150.4		0		51.9	15	
		eh/In ( 50 th percent		0.2	0.9	0.0	0.1	5.6	5.2		0.0		2.0	0.6	
		RQ) (50 th percent	tile)	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	
Uniform Delay ( d 1 ), s/veh			3.3	2.6		6.3	9.2	9.2				34.1	32.6	<u> </u>	
Incremental Delay ( d 2 ), s/veh		0.0	0.3	0.0	0.1	1.9	2.1		0.0		0.3	0.1			
Initial Queue Delay ( d 3), s/veh			0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0		
Control Delay ( d ), s/veh			3.3	2.9		6.3	11.2	11.4				34.4	32.8		
Level of Service (LOS)			Α	Α		Α	В	В				С	С		
Approach Delay, s/veh / LOS			2.9		А	11.2	2	В	0.0			34.0	)	С	
Intersection Del						8	.9						A		
Multimodal Results					EB			WB			NB			SB	
Multimodal Res	Pedestrian LOS Score / LOS					-	0.00		D	2.01	-	0	0.70		0
	Score	/LOS		1.7		В	2.23	\$	В	2.95		С	2.79	)	С

# **FIGURE 81** YEAR 2031 PEAK PM HOUR TRAFFIC – Industrial/Trainyards

		HCS	7 Sig	nalize	d Int	ersec	tion F	Resul	ts Sun	nmar	у				
General Inform	ation								Intersection Information			- i		te la	
Agency									Duration,	h	0.25				R
Analyst				Analysis Date Jun 15, 2018			/	Area Typ	e	Other		± _•		A-0	
Jurisdiction	Jurisdiction				Period	Peak	PM Hou	ır	PHF		0.90				- <b>-</b>
Urban Street 200, 230 & 260 Streamli				Analys	sis Year	2031		/	Analysis	Period	1> 7:0	00	7 4		
Intersection		Industrial/Trainyard	s	File N	ame	2031_	_tot_pm.	xus						*	
Project Descript	tion	OTY Residential De	evelopm	ent										4149	1
Demand Inform	nation				EB			WE	3		NB			SB	
Approach Move				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), v				175	688	0	7	747		0	0	1	406	1	188
Demand (V), V	CHI/H			175	000	U	,	141	243	0	U		400		100
Signal Informa	tion		_					1							1
Cycle, s	85.0	Reference Phase	2	1	L3		- KAR						<b>Z</b>	<b>1</b>	$\Phi$
Offset, s	0	Reference Point	Begin			<b>```</b>	<u> </u>					1	<b>Y</b> 2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Green		33.4	27.1	0.0	0.0	0.0	_	_	Ð_		
Force Mode		Simult. Gap N/S		Yellow	2.7	3.7	3.3 2.6	0.0	0.0	0.0			Υ.	7	·Ψ
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.1	2.7	2.0	0.0	0.0	0.0		0	6	1	
Timer Results				EBI		EBT	WB	L	WBT	NB	L	NBT	SBI		SBT
Assigned Phase				5		2			6			8			4
Case Number	-			1.0		4.0			6.3			8.0			6.0
Phase Duration	6			12.2		52.0			39.8			33.0			33.0
Change Period,	,	a) 6		6.4		6.4			6.4		-	5.9			5.9
				3.1		0.0			0.4			_			3.2
Max Allow Head						0.0	7.0		0.0	).0		3.2			
Queue Clearan				5.8		0.0			0.0			2.0		_	28.5
Green Extensio		(ge),s		0.1		0.0			0.0				<u> </u>		0.0
Phase Call Pro				0.99	_		<u> </u>	_			_	1.00	<u> </u>	_	1.00
Max Out Proba	bility			1.00	)				_			0.00			1.00
Movement Gro	un Res	aults			EB			WB	_		NB			SB	
Approach Move				L	T	R	L	Т	R	L	T	R	L	T	R
Assigned Move				5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow F		) voh/h		194	764	0	8	579	523	5	0	10	451	210	14
		ow Rate (s), veh/h/	la	1688	1524	0	435	1702			0		1423	1510	<u> </u>
					_	_	_	_					_	_	
Queue Service				3.8	10.7	0.0	0.9	26.1	26.1		0.0		26.4	9.2	<u> </u>
Cycle Queue C		e Time ( <i>g c</i> ), s		3.8	10.7	0.0	0.9	26.1	26.1		0.0		26.5	9.2	
Green Ratio (g	,			0.66	0.62		0.40	0.40					0.33	0.33	
Capacity ( c ), v				435	1900	0.634	261	689	622		0.611		555	499	
Volume-to-Capa		. ,		0.447		0.000	0.030		0.842		0.000		0.813	0.421	
		In ( 50 th percentile		38.4	79	0	3.6		316.8		0		244.4	78	
	<b>(</b> · <i>II</i>	eh/In ( 50 th percent	,	1.5	3.1	0.0	0.1	11.9	10.9		0.0		9.7	3.1	
		RQ) (50 th percen	tile)	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	0.00	
Uniform Delay ( <i>d</i> 1), s/veh			13.0	9.5		15.3	22.8	22.8				27.9	22.1		
Incremental Delay ( d 2 ), s/veh			0.3	0.6	0.0	0.2	11.8	13.0		0.0		8.4	0.2		
Initial Queue Delay ( d 3 ), s/veh			0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0		
Control Delay ( d ), s/veh			13.3	10.2		15.5	34.6	35.8				36.4	22.3		
Level of Service (LOS)			В	В		В	С	D				D	С		
Level of Service	Approach Delay, s/veh / LOS			10.8	3	В	35.1		D	19.1	1	В	31.9	)	С
	Intersection Delay, s/veh / LOS			25.8			5.8						С		
Approach Delay	ay, s/ve	eh / LOS													
Approach Delay Intersection Del		eh / LOS						10.00						67	
Approach Delay Intersection Del Multimodal Re	sults				EB			WB			NB			SB	
Approach Delay Intersection Del	sults Score	/LOS		1.71	1	B	2.51		CB	2.97	7	CB	2.79	)	C C

### EXHIBIT 82 STEAMLINE STREET – PLOS Segment Evaluation

STREET	Steamline Street
FROM	Sandford Fleming Avenue
ТО	Terminal Avenue
YEAR	2031
DIRECTION	Eastbound-Westbound
MMLOS MODE	PLOS

SEGMENT SCORE A

		Motor Vehicle			Segme	nt PLOS				
Sidewalk Width (m)	Boulevard Width (m)	Traffic Volume	Presence of On- street Parking	Operating Speed (km/h)						
(11)	(11)	(AADT)	Succi i aikiiig	≤30	>30 or 50	>50 or 60	>60 <sup>1</sup>			
		≤ 3000	N/A	A	А	А	В			
	> 2	> 3000	Yes	A	В	В	N/A			
		> 3000	No	A	В	С	D			
		≤ 3000	N/A	A	A	А	В			
2.0 or more	0.5 to 2	> 2000	Yes	A	В	С	N/A			
		> 3000	No	A	С	D	E			
		≤ 3000	NA	A	В	С	D			
	0	> 3000	Yes	В	В	D	N/A			
		> 3000	No	В	С	Е	F			
		≤ 3000	N/A	А	А	А	В			
	> 2	> 3000	Yes	A	В	С	N/A			
			No	A	С	D	E			
		≤ 3000	N/A	A	В	В	D			
1.8	0.5 to 2	> 3000	Yes	А	С	С	N/A			
		> 3000	No	В	С	Е	E			
	0	≤ 3000	N/A	A	В	С	D			
			Yes	В	С	D	N/A			
		> 3000	No	С	D	F	F			
					≤ 3000	N/A	С	С	С	С
	> 2	2000	Yes	С	С	D	N/A			
		> 3000	No	С	D	E	E			
1.5		≤ 3000	N/A	С	С	С	D			
	0.5 to 2	. 2000	Yes	С	С	D	N/A			
		> 3000	No	D	E	E	E			
	0	N	/A	D	E	F <sup>2</sup>	F <sup>2</sup>			
<1.5		N/A		F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>			
No sidewalk		N/A		C <sup>4</sup>	F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>			

### EXHIBIT 83 SANDFORD FLEMING AVENUE – PLOS Segment Evaluation

STREET	Sandford Fleming Avenue
FROM	Industrial Avenue
ТО	Terminal Avenue
YEAR	2031
DIRECTION	Northbound-Southbound
MMLOS MODE	PLOS

SEGMENT SCORE C

		MakasMakiala			Segme	nt PLOS			
Sidewalk Width (m)	Boulevard Width (m)	Motor Vehicle Traffic Volume	Presence of On- street Parking	Operating Speed (km/h)					
(11)	(11)	(AADT)	Succi i aikiiig	≤30	>30 or 50	>50 or 60	>60 <sup>1</sup>		
		≤ 3000	N/A	A	A	А	В		
	> 2	> 3000	Yes	A	В	В	N/A		
		> 5000	No	A	В	С	D		
		≤ 3000	N/A	А	A	А	В		
2.0 or more	0.5 to 2	> 3000	Yes	A	В	С	N/A		
		> 3000	No	A	С	D	E		
		≤ 3000	NA	A	В	С	D		
	0	> 2000	Yes	В	В	D	N/A		
		> 3000	No	В	С	E	F		
	> 2	≤ 3000	N/A	A	A	А	В		
		> 3000	Yes	A	В	С	N/A		
			No	A	С	D	E		
		≤ 3000	N/A	A	В	В	D		
1.8	0.5 to 2	> 3000	Yes	A	С	С	N/A		
		> 3000	No	В	С	E	E		
	0	≤ 3000	N/A	A	В	С	D		
		> 3000	Yes	В	С	D	N/A		
			No	С	D	F	F		
				≤ 3000	N/A	С	С	С	С
	> 2	> 3000	Yes	С	С	D	N/A		
		> 3000	No	С	D	E	Е		
1.5		≤ 3000	N/A	С	С	С	D		
	0.5 to 2	> 3000	Yes	С	С	D	N/A		
		> 2000	No	D	E	E	Е		
	0	N	/A	D	E	F <sup>2</sup>	F <sup>2</sup>		
<1.5		N/A		F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>		
No sidewalk		N/A		C <sup>4</sup>	F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>		

## EXHIBIT 84 TERMINAL AVENUE – PLOS Segment Evaluation

STREET	Terminal Avenue
FROM	Sandford Fleming Avenue
ТО	Railmarket Private
YEAR	2031
DIRECTION	Eastbound-Westbound
MMLOS MODE	PLOS

SEGMENT SCORE D

		Motor Vehicle			Segme	nt PLOS			
Sidewalk Width (m)	Boulevard Width (m)	Traffic Volume	Presence of On- street Parking	Operating Speed (km/h)					
(11)	(11)	(AADT)	Succiraining	≤30	>30 or 50	>50 or 60	>60 <sup>1</sup>		
		≤ 3000	N/A	A	A	А	В		
	> 2	> 3000	Yes	A	В	В	N/A		
		> 5000	No	A	В	С	D		
		≤ 3000	N/A	A	A	А	В		
2.0 or more	0.5 to 2	> 3000	Yes	А	В	С	N/A		
		> 3000	No	A	С	D	E		
		≤ 3000	NA	А	В	С	D		
	0	> 3000	Yes	В	В	D	N/A		
			No	В	С	E	F		
	> 2	≤ 3000	N/A	А	А	А	В		
		> 3000	Yes	А	В	С	N/A		
			No	А	С	D	E		
		≤ 3000	N/A	А	В	В	D		
1.8	0.5 to 2	> 3000	Yes	А	С	С	N/A		
		> 3000	No	В	С	E	E		
	0	≤ 3000	N/A	А	В	С	D		
		> 3000	Yes	В	С	D	N/A		
			No	С	D	F	F		
				≤ 3000	N/A	С	С	С	С
	> 2	> 3000	Yes	С	С	D	N/A		
		> 5000	No	С	D	E	E		
1.5		≤ 3000	N/A	С	С	С	D		
	0.5 to 2	> 3000	Yes	С	С	D	N/A		
		> 3000	No	D	E	E	E		
	0	N	/A	D	E	F <sup>2</sup>	F <sup>2</sup>		
<1.5		N/A		F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>		
No sidewalk		N/A		C <sup>4</sup>	F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>		

### EXHIBIT 85 INDUSTRIAL AVENUE – PLOS Segment Evaluation

STREET	Industrial Avenue
FROM	Riverside Drive
ТО	Trainyards Drive
YEAR	2031
DIRECTION	Eastbound-Westbound
MMLOS MODE	PLOS

SEGMENT SCORE  ${f E}$ 

					Segme	nt PLOS			
Sidewalk Width (m)	Boulevard Width (m)	Motor Vehicle Traffic Volume	Presence of On- street Parking	Operating Speed (km/h)					
(11)	(11)	(AADT)	Sueet Parking	≤30	>30 or 50	>50 or 60	>60 <sup>1</sup>		
		≤ 3000	N/A	A	A	А	В		
	> 2	2000	Yes	A	В	В	N/A		
		> 3000	No	A	В	С	D		
		≤ 3000	N/A	А	A	А	В		
2.0 or more	0.5 to 2	> 3000	Yes	A	В	С	N/A		
		> 2000	No	А	С	D	E		
		≤ 3000	NA	A	В	С	D		
	0	. 2000	Yes	В	В	D	N/A		
		> 3000	No	В	С	Е	F		
	> 2	≤ 3000	N/A	А	A	А	В		
		> 3000	Yes	A	В	С	N/A		
			No	A	С	D	Е		
		≤ 3000	N/A	A	В	В	D		
1.8	0.5 to 2	> 3000	Yes	A	С	С	N/A		
		> 3000	No	В	С	E	E		
	0	≤ 3000	N/A	A	В	С	D		
		> 3000	Yes	В	С	D	N/A		
		> 3000	No	С	D	F	F		
				≤ 3000	N/A	С	С	С	С
	> 2	> 3000	Yes	С	С	D	N/A		
		> 3000	No	С	D	E	E		
1.5		≤ 3000	N/A	С	С	С	D		
	0.5 to 2	> 3000	Yes	С	С	D	N/A		
		> 3000	No	D	E	E	Е		
	0	N	/A	D	E	F <sup>2</sup>	F <sup>2</sup>		
<1.5		N/A		F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>		
No sidewalk	N/A			C <sup>4</sup>	F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>		

### EXHIBIT 86 TRAINYARDS DRIVE – PLOS Segment Evaluation

STREET	Trainyards Drive
FROM	Belfast Road
ТО	Industrial Avenue
YEAR	2031
DIRECTION	Northbound-Southbound
MMLOS MODE	PLOS

SEGMENT SCORE D

		Motor Vehicle			Segme	nt PLOS						
Sidewalk Width (m)	Boulevard Width (m)	Traffic Volume	Presence of On- street Parking	Operating Speed (km/h)								
(11)	(11)	(AADT)	Sueerraiking	≤30	>30 or 50	>50 or 60	>60 <sup>1</sup>					
		≤ 3000	N/A	A	A	A	В					
	> 2	> 3000	Yes	A	В	В	N/A					
			No	A	В	С	D					
		≤ 3000	N/A	A	А	A	В					
2.0 or more	0.5 to 2	> 3000	Yes	A	В	С	N/A					
		> 3000	No	A	С	D	E					
		≤ 3000	NA	A	В	С	D					
	0	> 3000	Yes	В	В	D	N/A					
		> 3000	No	В	С	E	F					
	> 2	≤ <b>3000</b>	N/A	А	А	А	В					
		> 3000	Yes	А	В	С	N/A					
			No	А	С	D	E					
		≤ 3000	N/A	А	В	В	D					
1.8	0.5 to 2	> 3000	Yes	A	С	С	N/A					
		> 3000	No	В	С	E	E					
	0	≤ 3000	N/A	A	В	С	D					
		> 3000	Yes	В	С	D	N/A					
		> 3000	No	С	D	F	F					
			-				≤ 3000	N/A	С	С	С	С
	> 2	> 3000	Yes	С	С	D	N/A					
		> 3000	No	С	D	E	E					
1.5		<b>≤ 3000</b>	N/A	С	С	С	D					
	0.5 to 2	> 3000	Yes	С	С	D	N/A					
		> 3000	No	D	E	E	E					
	0	N	/A	D	E	F <sup>2</sup>	F <sup>2</sup>					
<1.5		N/A		F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>					
No sidewalk		N/A		C <sup>4</sup>	F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>					

### EXHIBIT 87 INDUSTRIAL/SANDFORD FLEMING – PLOS Signalized Intersection Evaluation

MAIN STREET	Industrial Avenue
MINOR STREET	Sandford Fleming Avenue
APPROACHES	All
YEAR	2031
DIRECTION	All
MMLOS MODE	PLOS

MMLOS MODE PLOS	North Approc		Souti Approc		East Approc	
	Comment	Points	Comment	Points	Comment	Points
5.1 Crossing Distance & Conditions						
Median?	No		No		Yes	
Total Travel Lanes Crossed	3	105	3	105	5	75
Island Refuge	No	-4	No	-4	No	-4
5.2 Signal Phasing & Timing Features						
Left Turn Conflict	Protected	0	Protected	0	Protected	0
Right Turn Conflict	Permissive/ or Yield Control	-5	Permissive/ or Yield Control	-5	Permissive/ or Yield Control	-5
Right Turns on Red	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3
Leading Ped Interval	No	-2	No	-2	No	-2
5.3 Corner Radius						
Radius	> 10m to 15m	-8	> 15m to 25m	-8	> 15m to 25m	-8
Right Turn	Right Turn Channel	-3	Right Turn Channel	-3	No Channelization	0
5.4 Crosswalk Treatment	Standard Transverse Markings	-7	Standard Transverse Markings	-7	Standard Transverse Markings	-7
TOTAL PETSI SCORE		73		73		46
DELAY SCORE From Signal Timing Plan		65		65		68
PETSI SCORE		С		С		D
DELAY SCORE		$\mathbf{F}$		$\mathbf{F}$		F
OVERALL APPROACH SCORE		F		F		F

OVERALL INTERSECTION SCORE  $\, {f F} \,$ 

### EXHIBIT 88 INDUSTRIAL/RIVERSIDE – PLOS Signalized Intersection Evaluation

MAIN STREET	Riverside Drive
MINOR STREET	Industrial Avenue
APPROACHES	All
YEAR	2031
DIRECTION	All
MMLOS MODE	PLOS

MMLOS MODE PLOS	North Approc		Sout! Approc		East Approc		West Approc		
	Comment	Points	Comment	Points	Comment	Points	Comment	Points	
5.1 Crossing Distance & Conditions									
Median?	No		No		No		No		
Total Travel Lanes Crossed	8	23	7	39	6	55	5	72	
Island Refuge	No	-4	Yes	0	No	-4	No	-4	
5.2 Signal Phasing & Timing Features									
Left Turn Conflict	Protected	0	Protected	0	Protected	0	Protected	0	
Right Turn Conflict	Permissive/ or Yield Control	-5	No Right Turn	0	Permissive/ or Yield Control	-5	Permissive/ or Yield Control	-5	
Right Turns on Red	RTOR Allowed	-3	RTOR Prohibited	0	RTOR Allowed	-3	RTOR Allowed	-3	
Leading Ped Interval	No	-2	No	-2	No	-2	No	-2	
5.3 Corner Radius									
Radius	> 15m to 25m	-8	> 15m to 25m	-8	> 15m to 25m	-8	> 10m to 15m	-6	
Right Turn	No Channelization	0	Channel With Receiving	-3	No Channelization	0	No Right Turn	0	
5.4 Crosswalk Treatment	Standard Transverse Markings	-7	Standard Transverse Markings	-7	Standard Transverse Markings	-7	Standard Transverse Markings	-7	
TOTAL PETSI SCORE		0		19		26		45	
DELAY SCORE		68		68		68		68	
From Signal Timing Plan									
PETSI SCORE		$\mathbf{F}$		F		F		D	
DELAY SCORE		$\mathbf{F}$		F		F		F	
OVERALL APPROACH SCORE		F		F		F		F	

OVERALL INTERSECTION SCORE  $\, {f F}$ 

### EXHIBIT 89 TERMINAL/TRAINYARDS – PLOS Signalized Intersection Evaluation

MAIN STREET	Trainyards Drive
MINOR STREET	Terminal Avenue
APPROACHES	All
YEAR	2031
DIRECTION	All
MMLOS MODE	PLOS

MMLOS MODE PLOS	North Approc		Sout! Approc		West Approc	
	Comment	Points	Comment	Points	Comment	Points
5.1 Crossing Distance & Conditions Median?	No		No		No	
Total Travel Lanes Crossed	5	88	4	88	4	88
Island Refuge	No	-4	No	-4	No	-4
5.2 Signal Phasing & Timing Features Left Turn Conflict	Permissive	-8	Permissive	-8	Permissive	-8
Right Turn Conflict	Protected	0	Permissive/ or Yield Control	-5	Permissive/ or Yield Control	-5
Right Turns on Red	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3
Leading Ped Interval	No	-2	No	-2	No	-2
5.3 Corner Radius						
Radius	> 15m to 25m	-8	> 15m to 25m	-8	> 15m to 25m	-8
Right Turn	No Channelization	0	No Channelization	0	No Channelization	0
5.4 Crosswalk Treatment	Standard Transverse Markings	-7	Standard Transverse Markings	-7	Standard Transverse Markings	-7
TOTAL PETSI SCORE		0		51		51
DELAY SCORE From Signal Timing Plan		33		33		33
PETSI SCORE		D		С		C
DELAY SCORE		D		D		D
OVERALL APPROACH SCORE		D		D		D

OVERALL INTERSECTION SCORE  $\, D \,$ 

### **EXHIBIT 90** SANDFORD FLEMING AVENUE – BLOS Segment Evaluation

STREET	Steamline Street
FROM	Sandford Fleming Avenue
ТО	Terminal Avenue
YEAR	2031
DIRECTION	Eastbound-Weastbound
MMLOS MODE	BLOS

SEGMENT SCORE **B** 

Type of Bikeway		LOS
	tracks, protected bike lanes and multi-use paths). Physical separation refers to, but is not	А
limited to, curbs, raised medians, bol	lards and parking lanes (adjacent to the bike lane along the travelled way i.e. not curbside).	A
Bike Lanes Not Adjacent Parking La	ne - Select Worst Scoring Criteria	
	1 travel lane in each direction	Α
No. of Travel Lanes	2 travel lanes in each direction separated by a raised median	В
No. of Travel Lanes	2 travel lanes in each direction without a separating median	С
	More than 2 travel larges in each direction	D
	≥ 1.8 m wide C ks. (a) e nclude n arker b fer in Caves a to iddt C	A
Bike Lane Width	≥1.5 m to <1.8 m wide bike lane (includes marked buffer and paved gutter width)	В
	≥1.2 m to <1.5 m wide bike lane (includes marked buffer and paved gutter width)	С
	≤ 50 km/h operating speed	A
Operating Speed	60 km/h operating speed	С
	> 70 km/h operating speed	E
Bike lane blockage	Rare	Α
(commercial areas)	Frequent	С
	rking Lane - Select Worst Scoring Criteria	-
	1 travel lane in each direction	A
No. of Travel Lanes	2 or more travel lanes in each direction	C
	4.5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)	A
		В
Bike Lane and Parking Lane Width	4.25 m wide bike late plus parking late (includes marked buffer and paved gutter width)	
	< 4.0 m wide bike rahe plus parking lane (includes marked builer and paved gutter width)	С
	< 40 km/h operating speed	Α
Operating Speed	50 km/h operating speed	В
operating opeed	60 km/h operating speed	D
	≥ 70 km/h operating speed	F
Bike lane blockage	Rare	A
(commercial areas)	Frequent	С
Mixed Traffic		
	2 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential	Α
	2 to 3 travel lanes; ≤ 40 km/h	B
	2 travel lanes; 50 km/h; no marked centerline or classified as residential	В
No. of Travel Lanes and Operating	2 to 3 travel lanes; 50 km/h	D
Speed	4 to 5 travel lanes; ≤ 40 km/h	D
	4 to 5 travel lanes; ≥ 50 km/h	E
	6 or more travel lanes; ≤ 40 km/h	E
	≥ 60 km/h	F
Unsignalized Crossing along Route:	no median refuge	
* * *	3 or less lanes being crossed; ≤ 40 km/h	Α
	4 to 5 lanes being crossed; ≤ 40 km/h	в
	3 or less lanes being crossed; 50 km/h	В
	4 to 5 lanes being crossed; 50 km/h	С
No. of Travel Lanes on Side Street	3 or less lanes being crossed; 60 km/h	С
and Operating Speed	4 to 5 lanes being crossed; 60 km/h	D
	6 or more lanes being crossed; ≤ 40 km/h	E
	3 or less lanes being crossed; ≥ 65 km/h	E
	6 or more lanes being crossed; ≥ 50 km/h	F
	4 to 5 lanes being crossed; ≥ 65 km/h	F
Unsignalized Crossing along Route:	with median refuge (> 1.8 m wide)	
	5 or less lanes being crossed; ≤ 40 km/h	A
	3 or less lanes being crossed; 50 km/h	Α
	6 or more lanes being crossed; ≤ 40 km/h	В
	4 to 5 lanes being crossed: 50 km/h	В
	3 or less lanes of inder see A0 m/hPLICABLE	В
No. of Travel Lanes on Side Street	6 or more lanes being crossed; 50 km/h	С
and Operating Speed	4 to 5 lanes being crossed; 60 km/h	С
	3 or less lanes being crossed; ≥ 65 km/h	D
	6 or more lanes being crossed; 60 km/h	E
	4 to 5 lanes being crossed; $\ge 65$ km/h	E
	6 or more lanes being crossed; $\geq$ 65 km/h	F
	of more lande soning blodded, E de knim	,

### EXHIBIT 91 SANDFORD FLEMING AVENUE – BLOS Segment Evaluation

STREETSandford Fleming AvenueFROMIndustrial AvenueTOTerminal AvenueYEAR2031DIRECTIONNorthbound-SouthboundMMLOS MODEBLOS

SEGMENT SCORE D

Physically Separated Bikeway (cycle tracks, protected bike lanes and mul-see parks). Physical separation refers to, but is not.         A           Bike Lanes Not Adjacent Parking Lane - Select Worst Scoring Offeria         A           Bike Lanes Not Adjacent Parking Lane - Select Worst Scoring Offeria         A           No. of Travel Lanes         1 travel lane in each direction separated by a raised median         B           2 travel lanes in each direction separated by a raised median         B         B           2 travel lanes in each direction separated by a raised median         B         B           2 travel lanes in each direction separated by a raised median         B         B           2 travel lanes in each direction separated buffer and paved guter width)         C         A           5 00 km/h operating speed         C         A           Bike Lane Width         5 00 km/h operating speed         C           Bike Lanes Adjacent to curbide         Prequent         C           Bike Lanes Adjacent to curbide         Prequent         C           Bike Lane and Parking Lane - Select Worst Scoring Criteria         A           A 2m wide bike lane (nection         A           A 2m wide bike lane (nection         A           A 2m wide bike lane bin each direction         A           A 2m wide bike lane bin each direction         C	Type of Bikeway		LOS
Imited to curbs, reset metalins, bollards and parking lanes (adjacent to the tike lane along the travelled way i.e. not curbside).     A       Bike Lanes Not Adjacent Parking Lanes. Select Worst Scoring Criteria     A       2 travel lanes in each direction separated by a raised median     B       2 travel lanes in each direction whout a separating median     C       More than 2 travel lanes in each direction whout a separating median     C       2 travel lanes in each direction whout a separating median     C       3 travel lanes in each direction whout a separating median     C       2 travel lanes in each direction whout a separating median     C       2 trave lanes in each direction whout a separating median     C       2 trave lanes in each direction whout a separating median     C       2 trave lanes in wide bike lane (includes marked buffer and paved gutter width)     B       2 trave in travel lane wide bike lane (includes marked buffer and paved gutter width)     C       2 trave in travel lane in each direction     A       2 trave in travel lanes in each direction     A       2 travel lanes     C     C       3 travel lanes     C     C       4 travel lane in each direction     A       4 travel lane in each direction     A       4 travel lane in each direction     A       4 travel lanes in each direction     A       2 travel lanes in each direction     A<		e tracks, protected bike lanes and multi-use paths). Physical separation refers to, but is not	
Bite Lanes Not Adjacent Parking Lane - Select Worst Scoring Criteria         A           No. of Travel Lanes         1 travel lane is each direction separated by a raised median         B           A 2 travel lanes in each direction separated by a raised median         B         C           Bike Lane Width         2.15 m ot.18 mode bike lane (includes marked buffer and paved gutter width)         B           2.15 m ot.18 mode bike lane (includes marked buffer and paved gutter width)         C         C           So trint) operating speed         C         C         C           So trint) operating speed         C         C         C           Bike Lane blockage         Rate         A         C           Bike Lane and Parking Lane - Select Worst Scoring Criteria         C         C           No. of Travel Lanes         1 travel lanes in each direction         A           A 4.25 m wide bike lane function         A         A           A 5 m wide bike lane function         A         C           Direct Lanes         1 travel lanes in each direction         A           A 4.25 m wide bike lane function         A         A           A 4.25 m wide bike lane function         A         A           A 4.25 m wide bike lane function         A         A           A 4.26 m wide bike lane function<	· · · · · ·		A
No. of Travel Lanes         1 trave lares in each direction separated by a raised median         A           2 travel lanes in each direction without a separating median         C           More than 2 travel lanes in each direction without a separating median         C           More than 2 travel lanes in each direction without a separating median         C           Bike Lane Width         2.15 m to 2.18 m wide bike lane (includes marked buffer and paved gutter width)         B           2.15 m to 2.18 m wide bike lane (includes marked buffer and paved gutter width)         C         A           2.16 m to 2.18 m wide bike lane (includes marked buffer and paved gutter width)         C         A           2.16 m to 2.18 m wide bike lane (includes marked buffer and paved gutter width)         C         A           2.16 m to 2.18 m wide bike lane (includes marked buffer and paved gutter width)         C         C           Bike Lanes Adjacent to curbside Parking Lane - Select Worst Scoring Criteria         -         C           Bike Lanes and Parking Lane S         2 or more travel lanes in each direction         A           4.5 m Wide bike lane (includes marked buffer and paved gutter width)         C         C           2.16 m US bike lane (blocking in parking lane (includes marked buffer and paved gutter width)         A         A           2.5 more travel lanes in each direction         A         A         C <td< td=""><td></td><td></td><td></td></td<>			
No. of Travel Lanes     2 travel lanes in each direction separated by a raised median     B       2 travel lanes in each direction without a separating median     C       More fran 2 provide near direction without a separating median     C       3 Rike Lane Width     2.1 5 m wide bike lane (includes marked buffer and paved gutter width)     B       2 1.2 m wide bike lane (includes marked buffer and paved gutter width)     C     A       Operating Speed     50 km/h operating speed     C     A       Sike lane blockage     Rae     C     C       Bike lane shockage     Rae     C     C       No. of Travel Lanes     2 or more trave lanes in each direction     A       4.5 m wide bike lane includes marked buffer and paved gutter width)     A       Bike Lane Adjacent to curbside Parking Lane - Select Worst Scoring Criteria     C       No. of Travel Lanes     2 or more travel lanes in each direction     A       4.25 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)     A       4.36 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)     A       6.40 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)     A       6.50 km/h operating speed     A     C       0 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)     A       2 a travel lanes; 5 40 km/h; no marked c			Α
No. of Travel Lanes         2 travel lanes in each direction without a separating median         C           Bike Lane Width         21.6 m widd bike lane (includes marked buffer and paved guter width)         B           21.8 m widd bike lane (includes marked buffer and paved guter width)         B         C           21.8 m widd bike lane (includes marked buffer and paved guter width)         B         C           21.8 m bit 3.8 m wide bike lane (includes marked buffer and paved guter width)         C         C           5 00 km/h operating speed         C         C         C           00 km/h operating speed         C         C         C           18 m widd bike lane (includes marked buffer and paved guter width)         A         C           18 m widd bike lane plus parking lane (includes marked buffer and paved guter width)         A         A           18 m widd bike lane plus parking lane (includes marked buffer and paved guter width)         A         A           20 rr more travel lanes in each direction         A         A         C           19 ke Lanes and Parking Lane Width         4.4 m widd bike lane plus parking lane (includes marked buffer and paved guter width)         A           4.4 m widd bike lane plus parking lane (includes marked buffer and paved guter width)         A         A           0 perating Speed         50 km/h operating speed         A         <			
More than 2 trape large in each direction         D           2 18 m widd With         2 18 m widd With With Not De tail Court of the	No. of Travel Lanes		-
Bike Lane Widh       2 1.6 m wide Number Budge Budge Widhs       A         2.1 5 m to <1.5 m wide bike lane (includes marked buffer and paved guter widh)		2 laver lailes in each direction without a separating median	
Bike Lane Width       21.5 m to <1.8 m wide bike lane (includes marked buffer and paved gufter width)			
21.2 m b < 1.5 m wide bike lane (includes marked buffer and paved gutter width)	Direction Middle		
Speed       50 km/h operating speed       C         Operating Speed       C       C         Site lane blockage       Rare       A         commercial areas)       Frequent       C         Bite Lanes Adjacent to curbside Parking Lane - Select Worst Scoring Criteria       A         No. of Travel Lanes       1 travel lane in each direction       A         2 or more travel lanes in each direction       A       A         Bike Lane Adjacent to curbside Parking Lane - Select Worst Scoring Criteria       A       A         2 or more travel lanes in each direction       A       A         Bike Lane and Parking Lane Width       A       C       C         4.5 m wide bike lane plus parking lane (includes marked buffer and paved gutler width)       A         4.5 m wide bike lane plus parking lane (includes marked buffer and paved gutler width)       C         4.6 m wide bike lane plus parking lane (includes marked buffer and paved gutler width)       C         4.0 m wide bike lane plus parking lane (includes marked buffer and paved gutler width)       C         Commercial areas)       Frequent       A         Commercial areas)       Frequent       A         Commercial areas)       Frequent       A         Viet Traffic       2 to 3 travel lanes; 40 km/h       D <t< td=""><td>Bike Lane Width</td><td></td><td></td></t<>	Bike Lane Width		
Operating Speed         E0 km/h operating speed         C           Sike lane blockage         Rare         A           (commercial areas)         Frequent         C           Bike Lanes Adjacent to curbside Parking Lane - Select Worst Scoring Criteria         A           No. of Travel Lanes         1 travel lane in each direction         A           Bike Lane and Parking Lane Witch         4 5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)         A           Bike Lane and Parking Lane Witch         4 5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)         B           Bike Lane and Parking Lane Witch         4 5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)         C           Querating Speed         60 km/h operating speed         A           So km/h operating speed         A           Operating Speed         9         70 km/h operating speed         A           So km/h operating speed         A         2 to 3 travel lanes; 5 40 km/h; no marked centerline or classified as residential         A           No, of Travel Lanes and Operating         2 travel lanes; 5 40 km/h         B         D           Speed         2 travel lanes; 5 0 km/h; no marked centerline or classified as residential         A           No, of Travel Lanes on Side Street         3 or le			
> 70 km/h operating speed     E       Bike lane blockage     Rae     A       Commercial areas)     Frequent     C       Bike Lanes Adjacent to curbside Parking Lane - Select Worst Scoring Criteria     A       No. of Travel Lanes     1 travel lanes in each direction     A       Bike Lane and Parking Lane With     A     C       4.5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)     A       9     4.5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)     A       9     4.0 km/h operating speed     B       9     5.0 km/h operating speed     B       9     50 km/h operating speed     D       9     50 km/h operating speed     D       9     70 km/h operating speed     D       9     50 km/h operating speed     D       9     50 km/h operating speed     D       9     70 km/h operating speed     D       9     70 km/h operating speed     D       9     2 travel lanes; 5 40 km/h     C       9     2 travel lanes; 50 km/h     B       2 to 3 travel lanes; 50 km/h     B       2 to 3 travel lanes; 50 km/h     D       9     2 to 3 travel lanes; 50 km/h     E       9     6 travel lanes; 50 km/h     E			
Bike lane blockage       Rare       A         Commercial areas)       Frequent       C         Bike Lanes Adjacent to curbside Parking Lane - Select Worst Scoring Criteria       A         No, of Travel Lanes       1 travel lane in each direction       A         Bike Lane and Parking Lane Width       4.5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)       A         Bike Lane and Parking Lane Width       4.25 m wide bike taile plus parking lane (includes marked buffer and paved gutter width)       B         Coperating Speed       50 km/h operating speed       B         60 km/h operating speed       D       D         60 km/h operating speed       C         Mixed Traffic       2 travel lanes; s 40 km/h; no marked centerline or classified as residential       A         2 to 3 travel lanes; s 40 km/h; no marked centerline or classified as residential       A         2 to 3 travel lanes; s 40 km/h; no marked centerline or classified as residential       A         2 to 3 travel lanes; s 40 km/h       D       D         2 to 3 travel lanes; s 40 km/h; no marked centerline or classified as residential       A         2 to 3 travel lanes; s 40 km/h       D       D         2 to 3 travel lanes; s 40 km/h       E       E         8 or less lanes being crossed; 50 km/h       E       E <td>Operating Speed</td> <td>60 km/h operating speed</td> <td>-</td>	Operating Speed	60 km/h operating speed	-
commercial areas)         Frequent         C           Bike Lanes Adjacent to curbside Parking Lane - Select Worst Scoring Criteria             No. of Travel Lanes         1 travel lanes in each direction         A           Bike Lane and Parking Lane Width         4 5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)         A           Bike Lane and Parking Lane Width         4 5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)         C           4 4 5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)         C         A           6 4 0 km/h operating speed         A         A           5 4 0 m/h operating speed         B         B           60 km/h operating speed         B         C           7 0 km/h operating speed         C         Frequent           60 km/h operating speed         C         C           70 km/h operating speed         B         B           80 contractial areas)         Frequent         C           81 travel lanes; 5 0 km/h         B         B           91 travel lanes; 5 0 km/h         B         B           92 travel lanes; 5 0 km/h         B         B           93 travel lanes; 5 0 km/h         E         B <td< td=""><td></td><td>≥ 70 km/h operating speed</td><td>E</td></td<>		≥ 70 km/h operating speed	E
Bike Lanes Adjacent to curbside Parking Lane - Select Worst Scoring Criteria         A           No: of Travel Lanes         I travel iare in each direction         A           No: of Travel Lanes         I travel iare in each direction         C           Bike Lane and Parking Lane Width         4.5 m wide bike lane plus parting lane (includes marked buffer and paved gutter width)         A           Bike Lane and Parking Lane Width         4.5 m wide bike lane plus parting lane (includes marked buffer and paved gutter width)         A           Operating Speed         50 km/h operating speed         B           Operating speed         B         B           Bike lane blockage         F         A           Commer cial areas)         Frequent         C           Wied Traffic         2 travel lanes; 50 km/h operating speed         A           No. of Travel Lanes and Operating         2 travel lanes; 50 km/h         B           Speed         2 travel lanes; 50 km/h         B         B           No. of Travel Lanes and Operating         2 travel lanes; 50 km/h         B         B           Ot stravel lanes is 50 km/h         E         B         B         C           Speed         3 or less lanes being crossed; 50 km/h         B         B           No. of Travel Lanes on Side Street         3 or less l	Bike lane blockage	Rare	A
No. of Travel Lanes       1 travel lane in each direction       A         2 or more travel lanes in each direction       C         3 Ke Lane and Parking Lane Width       4.5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)       A         4.5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)       B         4.0 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)       C         2 40 km/h operating speed       A         50 km/h operating speed       B         60 km/h operating speed       B         70 km/h operating speed       F         81ke lane blockage       Rare         Commercial areas)       Frequent         70 km/h operating speed       A         2 to 3 travel lanes; < 40 km/h; no marked centerline or classified as residential	(commercial areas)	Frequent	С
No. of Travel Lanes       1 travel lane in each direction       A         2 or more travel lanes in each direction       C         3 Ke Lane and Parking Lane Width       4.5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)       A         4.5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)       B         4.0 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)       C         2 40 km/h operating speed       A         50 km/h operating speed       B         60 km/h operating speed       B         70 km/h operating speed       F         81ke lane blockage       Rare         Commercial areas)       Frequent         70 km/h operating speed       A         2 to 3 travel lanes; < 40 km/h; no marked centerline or classified as residential	Bike Lanes Adjacent to curbside Pa	rking Lane - Select Worst Scoring Criteria	
No. of Travel Lanes       2 or more travel lanes in each direction       C         Bike Lane and Parking Lane Width       4.5 m wide bike lane pus parking lane (includes marked buffer and payed gutter width)       A         Bike Lane and Parking Lane Width       4.5 m wide bike lane pus parking lane (includes marked buffer and payed gutter width)       B         Go mide bike lane pus parking lane (includes marked buffer and payed gutter width)       A       A         Operating Speed       50 km/h operating speed       B         60 km/h operating speed       D       D         70 km/h operating speed       A         60 km/h operating speed       F         8 requent       C         Commercial areas)       Frequent         7 frequent       C         2 to 3 travel lanes; s 40 km/h; no marked centerline or classified as residential       A         2 to 3 travel lanes; s 40 km/h       B         2 to 3 travel lanes; s 40 km/h       E         2 to 3 travel lanes; s 40 km/h       E         2 to 3 travel lanes; s 40 km/h       B         3 or less lanes being crossed; s 40 km/h       A         4 to 5 lanes being crossed; s 40 km/h       A         4 to 5 tanes being crossed; s 40 km/h       B         3 or less lanes being crossed; s 40 km/h       B         <			A
4.5 m wide bike lare plus parking lane (includes marked buffer and paved gutter width)       A         Bike Lane and Parking Lane Width       4.2 m wide bike lare plus parking lane (includes marked buffer and paved gutter width)       B         Operating Speed       4.0 m wide bike lare plus parking lane (includes marked buffer and paved gutter width)       C         So km/h operating speed       A         So km/h operating speed       B         Kike lane blockage       B         (commercial areas)       Frequent         Frequent       C         Mixed Traffic       2         No. of Travel Lanes and Operating       240 km/h, no marked centerline or classified as residential         A to 5 travel lanes; 50 km/h       D         Speed       3 or less lanes (50 km/h)       D         Vo. of Travel Lanes on Side Street       3 or less lanes being crossed; 50 km/h       E         So for more lanes being crossed; 50 km/h       E       S         Vo. of Travel Lanes on Side Street       3 or less lanes being crossed; 50 km/h       B         No. of Travel Lanes on Side Street       3 or less lanes being crossed; 50 km/h       B         So relass lanes being crossed; 50 km/h       B       S         So relass lanes being crossed; 50 km/h       B       S         So relass lanes being crossed; 50 km	No. of Travel Lanes		
Bike Lane and Parking Lane Width       425 m wide bike lane plus parking bar includes marked buffs and newed gutter width)       B         4.0 m wide bike lane plus parking lane (includes marked buffs and newed gutter width)       C         4.0 m wide bike lane plus parking lane (includes marked buffs and newed gutter width)       C         4.0 m wide bike lane plus parking lane (includes marked buffs and newed gutter width)       C         4.0 km/h operating speed       A         60 km/h operating speed       B         60 km/h operating speed       C         70 km/h operating speed       A         60 km/h operating speed       C         60 km/h operating speed       A         70 km/t operating speed       A         80 km/h       B         2 travel lanes; 5 40 km/h       B         2 travel lanes; 50 km/h       B         2 travel lanes; 50 km/h       E         6 to rowe travel lanes; 540 km/h       A         9 to Stavel lanes; 540 km/h       B         9 to Stavel lanes; 540 km/h       B         9 to Stavel lanes; 540 km/h       B <tr< td=""><td></td><td></td><td></td></tr<>			
s 4.0 m wide bike rate plus parking lane (includes marked builer and paved gutter width)       C         c4 0 km/h operating speed       A         50 km/h operating speed       B         60 km/h operating speed       D         protein g speed       C         80 ke lane blockage       Bare         (commercial areas)       Frequent         7 To km/h operating speed       A         80 ke lane blockage       Bare         (commercial areas)       Frequent         80 ke lane blockage       Bare         (commercial areas)       Frequent         81 2 travel lanes; s 40 km/h; no marked centerline or classified as residential       A         82 travel lanes; 50 km/h       B         12 travel lanes; 50 km/h       B         12 travel lanes; 50 km/h       B         12 travel lanes; 50 km/h       E         14 to 5 travel lanes; 54 0 km/h       E         2 to 3 travel lanes; 54 0 km/h       E         14 to 5 travel lanes; 54 0 km/h       E         15 or tess lanes being crossed; 50 km/h       E         16 or more travel lanes; 54 0 km/h       A         17 travel Lanes on Side Street       3 or tess lanes being crossed; 50 km/h         18 or tess lanes being crossed; 50 km/h       E			
Operating Speed         50 km/h operating speed         B           60 km/h operating speed         D           > 70 km/h operating speed         F           Bike lane blockage         Rare         A           (commercial areas)         Frequent         C           Mixed Traffic         C         C           Mixed Traffic         2 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential         A           2 travel lanes; 50 km/h         B         2 travel lanes; 50 km/h         B           2 travel lanes; 50 km/h         D         D         D           4 to 5 travel lanes; 50 km/h         E         E         C           6 or more travel lanes; 50 km/h         E         E         C           6 or more travel lanes; 50 km/h         E         E         C           9 or less lanes being crossed; 50 km/h         E         E         C           10 or less lanes being crossed; 50 km/h         B         S or less lanes being crossed; 50 km/h         A           10 or less lanes being crossed; 50 km/h         B         S or less lanes being crossed; 50 km/h         C           10 or less lanes being crossed; 50 km/h         C         C         C         C           10 or less lanes being crossed; 50 km/h	Bike Lane and Parking Lane Width	4.0 m wide bike rane prus parking lane (includes marked buller and paved gutter width)	
Operating Speed         50 km/h operating speed         B           60 km/h operating speed         D           > 70 km/h operating speed         F           Bike lane blockage         Rare         A           (commercial areas)         Frequent         C           Mixed Traffic         C         C           Mixed Traffic         2 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential         A           2 travel lanes; 50 km/h         B         2 travel lanes; 50 km/h         B           2 travel lanes; 50 km/h         D         D         D           4 to 5 travel lanes; 50 km/h         E         E         C           6 or more travel lanes; 50 km/h         E         E         C           6 or more travel lanes; 50 km/h         E         E         C           9 or less lanes being crossed; 50 km/h         E         E         C           10 or less lanes being crossed; 50 km/h         B         S or less lanes being crossed; 50 km/h         A           10 or less lanes being crossed; 50 km/h         B         S or less lanes being crossed; 50 km/h         C           10 or less lanes being crossed; 50 km/h         C         C         C         C           10 or less lanes being crossed; 50 km/h		< 40 km/h operating speed	A
Operating Speed         60 km/h operating speed         D           > 70 km/h operating speed         F           Bike lane blockage         Rare         A           Commercial areas)         Frequent         C           Mixed Traffic         2 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential         A           2 to 3 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential         A           2 to 3 travel lanes; ≤ 40 km/h         B           2 to 3 travel lanes; ≤ 40 km/h         D           2 to 3 travel lanes; ≤ 40 km/h         B           2 to 3 travel lanes; ≤ 50 km/h         D           4 to 5 travel lanes; ≤ 50 km/h         E           60 mr/h         C         E           2 to 3 travel lanes; ≤ 50 km/h         E           2 to 8 travel lanes; ≤ 40 km/h         E           2 to 8 travel lanes; ≤ 40 km/h         E           2 to 8 travel lanes; ≤ 40 km/h         E           2 to 8 travel lanes; ≤ 40 km/h         E           2 to 9 travel lanes; ≤ 40 km/h         E           2 to 8 travel lanes; ≤ 40 km/h         E           3 or less lanes being crossed; 50 km/h         C           3 or less lanes being crossed; 50 km/h         C           3 or less lanes being crossed; 50			
≥ 70 km/h operating speed       F         Bike lane blockage       Rare       A         (commercial areas)       Frequent       C         Mixed Traffic       2 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential       A         2 to 3 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential       A         2 to 3 travel lanes; 50 km/h; no marked centerline or classified as residential       B         2 to 3 travel lanes; 50 km/h; no marked centerline or classified as residential       B         2 to 3 travel lanes; 50 km/h       D         4 to 5 travel lanes; 540 km/h       D         4 to 5 travel lanes; 540 km/h       E         6 or more travel lanes; 540 km/h       E         3 or less lanes being crossed; 540 km/h       E         3 or less lanes being crossed; 540 km/h       B         3 or less lanes being crossed; 540 km/h       B         3 or less lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 50 km/h       B         4 to 5 lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       E         6 or more lanes being crossed; 50 km/h       E         6 or more lanes being crossed; 50 km/h       E         6 or more lanes being crossed; 50 km/h       E	Operating Speed		
Bike lane blockage       Rare       A         (commercial areas)       Frequent       C         Mixed Traffic       2 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential       A         2 to 3 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential       A         2 travel lanes; 50 km/h; no marked centerline or classified as residential       B         2 travel lanes; 50 km/h; no marked centerline or classified as residential       B         2 travel lanes; 50 km/h       D         4 to 5 travel lanes; 50 km/h       E         6 or more travel lanes; 5 km/h       E         6 or more travel lanes; 5 0 km/h       F         Unsignalized Crossing along Route: no median refuge       A         No. of Travel Lanes on Side Street       3 or less lanes being crossed; 50 km/h         and Operating Speed       4 to 5 lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 50 km/h       C       C         3 or less lanes being crossed; 40 km/h       E       E         6 or more lanes being crossed; 50 km/h       C       C         3 or less lanes being crossed; 50 km/h       C       C         3 or less lanes being crossed; 40 km/h       E       E         6 or more lanes being crossed; 50 km/h       F       C <td></td> <td></td> <td>_</td>			_
Image: Commercial areas)         Frequent         C           Mixed Traffic         2 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential         A           2 to 3 travel lanes; ≤ 40 km/h         B         2 travel lanes; 50 km/h         B           2 travel lanes; 50 km/h         D         D         D           Speed         4 to 5 travel lanes; 50 km/h         D         D           4 to 5 travel lanes; 50 km/h         E         E         E           6 or more travel lanes; 50 km/h         E         E         E           2 to 3 travel lanes; 50 km/h         E         E         E           6 or more travel lanes; 50 km/h         E         E         E           9 travel lanes or sold sold sortest         3 or less lanes being crossed; 50 km/h         A           9 travel lanes or sold sortest         3 or less lanes being crossed; 60 km/h         C           9 or less lanes being crossed; 50 km/h         C         C         C	Rike lane blockage		
Mixed Traffic       2 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential       A         No. of Travel Lanes and Operating       2 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential       B         Speed       2 to 3 travel lanes; 50 km/h       D         4 to 5 travel lanes; 50 km/h       D         4 to 5 travel lanes; 50 km/h       E         6 or more travel lanes; 50 km/h       E         9 0 km/h       E         9 0 km/h       F         Unsignalized Crossing along Route:       no median refuge         3 or less lanes being crossed; 50 km/h       B         4 to 5 lanes being crossed; 50 km/h       B         3 or less lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       E         3 or less lanes being crossed; 60 km/h       E         3 or less lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       E         4 to 5 lanes being crossed; 50 km/h <td>Ū.</td> <td></td> <td></td>	Ū.		
2 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential       A         2 to 3 travel lanes; ≤ 40 km/h       B         2 travel lanes; 50 km/h; no marked centerline or classified as residential       B         2 to 3 travel lanes; 50 km/h; no marked centerline or classified as residential       B         2 to 3 travel lanes; 50 km/h       D         4 to 5 travel lanes; 50 km/h       E         6 or more travel lanes; ≤ 40 km/h       E         9 0 motedian refuge       F         Unsignalized Crossing along Route: no median refuge       A         No. of Travel Lanes on Side Street       and ress being crossed; 50 km/h         and Operating Speed       4 to 5 lanes being crossed; 50 km/h         4 to 5 lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       E         3 or less lanes being crossed; 60 km/h       E         3 or less lanes being crossed; 60 km/h       E         3 or less lanes being crossed; 60 km/h       E         4 to 5 lanes being crossed; 60 km/h       E         6 or more lanes being crossed; 60 km/h       E         6 or more lanes being crossed; 60 km/h       E         6 or more lanes being crossed; 50 km/h       A         4 to 5 lanes		Frequent	U
No. of Travel Lanes and Operating     2 to 3 travel lanes; ≤ 40 km/h     B       2 travel lanes; 50 km/h; no marked centerline or classified as residential     B       2 to 3 travel lanes; 50 km/h     D       4 to 5 travel lanes; 50 km/h     D       4 to 5 travel lanes; 50 km/h     D       6 or more travel lanes; 50 km/h     E       6 or more travel lanes; 50 km/h     E       9 of travel lanes; 50 km/h     E       6 or more travel lanes; 50 km/h     E       9 of travel lanes; 50 km/h     A       9 of travel lanes; 50 km/h     A       9 of travel lanes on Side Street     3 or less lanes being crossed; 50 km/h       9 of travel lanes being crossed; 50 km/h     C       9 or less lanes being crossed; 50 km/h     C       9 or less lanes being crossed; 50 km/h     E       9 or less lanes being crossed; 50 km/h     E       9 or less lanes being crossed; 50 km/h     E       9 or more lanes being crossed; 50 km/h     E       9 or nore lanes being crossed; 50 km/h     E       9 or less lanes being crossed; 50 km/h     F       4 to 5 lanes being crossed; 50 km/h     A       9 or les	Mixed Traffic		
No. of Travel Lanes and Operating       2 travel lanes; 50 km/h; no marked centerline or classified as residential       R         Speed       2 to 3 travel lanes; 50 km/h       D         4 to 5 travel lanes; ≤ 40 km/h       E         6 or more travel lanes; ≤ 40 km/h       E         9 travel lanes; ≤ 40 km/h       E         9 travel lanes; ≤ 40 km/h       E         9 to stravel lanes on stravel lanes; 50 km/h       B         9 to stravel lanes on stravel lanes being crossed; 50 km/h       B         9 to stravel lanes being crossed; 50 km/h       C         9 to stravel lanes being crossed; 40 km/h       E         9 to stravel lanes being crossed; 50 km/h       E         9 to stravel lanes being crossed; 40 km/h       E         9 to stravel lanes being crossed; 40 km/h       E         9 to stravel lanes being crossed; 50 km/h       E         9 to stravel lanes being crossed; 50 km/h       A			
No. of Travel Lanes and Operating       2 to 3 travel lanes; 50 km/h       D         Speed       4 to 5 travel lanes; 50 km/h       E         6 or more travel lanes; 50 km/h       E         8 or more travel lanes; 50 km/h       E         9 or more travel lanes; 50 km/h       E         9 or more travel lanes; 50 km/h       E         9 or more travel lanes; 50 km/h       F         Unsignalized Crossing along Route:       no median refuge         3 or less lanes being crossed; ≤ 40 km/h       A         4 to 5 lanes being crossed; 50 km/h       B         3 or less lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 50 km/h       C         4 to 5 lanes being crossed; 60 km/h       D         6 or more lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       E         4 to 5 lanes being crossed; 50 km/h       E         6 or more lanes being crossed; 50 km/h       E         6 or more lanes being crossed; 50 km/h       E         6 or more lanes being crossed; 50 km/h       A         3 or less lanes			
Speed     4 to 5 travel lanes; ≤ 40 km/h     U       4 to 5 travel lanes; ≥ 50 km/h     E       6 or more travel lanes; ≥ 40 km/h     E       ≥ 60 km/h     F       Unsignalized Crossing along Route: no median refuge     A       3 or less lanes being crossed; ≤ 40 km/h     A       4 to 5 lanes being crossed; 50 km/h     B       3 or less lanes being crossed; 60 km/h     C       3 or less lanes being crossed; 60 km/h     C       3 or less lanes being crossed; 60 km/h     E       and Operating Speed     6 or more lanes being crossed; 60 km/h     E       3 or less lanes being crossed; 60 km/h     E     B       3 or less lanes being crossed; 60 km/h     E     E       3 or less lanes being crossed; 60 km/h     E     B       3 or less lanes being crossed; 60 km/h     E     E       3 or less lanes being crossed; 60 km/h     F     E       4 to 5 lanes being crossed; 2 60 km/h     E     E       6 or more lanes being crossed; 2 50 km/h     F     E       Unsignalized Crossing along Route: with median refuge (> 18 m wide)     F     A       5 or less lanes being crossed; 2 40 km/h     A     A       3 or less lanes being crossed; 2 40 km/h     A     B       4 to 5 lanes being crossed; 50 km/h     A     A       3 or less lane			
4 to 5 travel lanes; ≥ 50 km/h       E         6 or more travel lanes; ≥ 40 km/h       E         ≥ 60 km/h       F         Unsignalized Crossing along Route: no median refuge       A         3 or less lanes being crossed; ≤ 40 km/h       A         4 to 5 lanes being crossed; ≤ 40 km/h       B         3 or less lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       C         4 to 5 lanes being crossed; 60 km/h       E         3 or less lanes being crossed; 60 km/h       E         6 or more lanes being crossed; 60 km/h       E         3 or less lanes being crossed; 60 km/h       E         3 or less lanes being crossed; 60 km/h       E         4 to 5 lanes being crossed; 2 50 km/h       E         6 or more lanes being crossed; 2 50 km/h       F         Unsignalized Crossing along Route: with median refuge (> 1.8 m wide)       F         5 or less lanes being crossed; 50 km/h       A         3 or less lanes being crossed; 50 km/h       A         3 or less lanes being crossed; 50 km/h       A         3 or less lanes being crossed; 50	No. of Travel Lanes and Operating		D
6 or more travel lanes; ≤ 40 km/h       E         ≥ 60 km/h       F         Unsignalized Crossing along Route: no median refuge       A         3 or less lanes being crossed; ≤ 40 km/h       A         4 to 5 lanes being crossed; ≤ 40 km/h       B         3 or less lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       E         6 or more lanes being crossed; ≤ 40 km/h       E         3 or less lanes being crossed; ≤ 60 km/h       E         6 or more lanes being crossed; ≤ 60 km/h       E         3 or less lanes being crossed; ≤ 60 km/h       E         6 or more lanes being crossed; ≤ 60 km/h       E         6 or more lanes being crossed; ≤ 60 km/h       F         4 to 5 lanes being crossed; ≤ 60 km/h       A         6 or more lanes being crossed; ≤ 40 km/h       A         3 or less lanes being crossed; ≤ 40 km/h       A         6 or more lanes being crossed; ≤ 40 km/h       A         3 or less lanes being crossed; ≤ 40 km/h       A         6 or more lanes being crossed; ≤ 40	Speed	4 to 5 travel lanes; ≤ 40 km/h	D
≥ 60 km/h       F         Unsignalized Crossing along Route: no median refuge       3 or less lanes being crossed; ≤ 40 km/h       A         4 to 5 lanes being crossed; ≤ 40 km/h       B         3 or less lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 2 60 km/h       E         3 or less lanes being crossed; 2 60 km/h       E         6 or more lanes being crossed; 2 60 km/h       F         4 to 5 lanes being crossed; 2 60 km/h       F         4 to 5 lanes being crossed; 2 60 km/h       A         3 or less lanes being crossed; 2 40 km/h       A         6 or more lanes being crossed; 5 0 km/h       A         3 or less lanes being crossed; 5 0 km/h       A         3 or less lanes being crossed; 5 0 km/h       A         6 or more lanes being crossed; 5 0 km/h       A		4 to 5 travel lanes; ≥ 50 km/h	E
Unsignalized Crossing along Route: no median refuge       3 or less lanes being crossed; ≤ 40 km/h       A         4 to 5 lanes being crossed; 5 0 km/h       B         3 or less lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       D         6 or more lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       F         4 to 5 lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       F         4 to 5 lanes being crossed; 50 km/h       F         4 to 5 lanes being crossed; 50 km/h       F         4 to 5 lanes being crossed; 50 km/h       A         3 or less lanes being crossed; 50 km/h       A         3 or less lanes being crossed; 50 km/h       A         6 or more lanes being crossed; 50 km/h       A         3 or less lanes being crossed; 50 km/h       A         3 or less lanes being crossed; 50 km/h       A		6 or more travel lanes; ≤ 40 km/h	E
Unsignalized Crossing along Route: no median refuge       3 or less lanes being crossed; ≤ 40 km/h       A         4 to 5 lanes being crossed; ≤ 40 km/h       B         3 or less lanes being crossed; 50 km/h       C         4 to 5 lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       E         3 or less lanes being crossed; 50 km/h       E         6 or more lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       F         4 to 5 lanes being crossed; 50 km/h       F         4 to 5 lanes being crossed; 50 km/h       A         3 or less lanes being crossed; 50 km/h       A         3 or less lanes being crossed; 50 km/h       A         6 or more lanes being crossed; 50 km/h       A         3 or less lanes being crossed; 50 km/h       A         3 or less lanes being crossed; 50 km/h       A		≥ 60 km/h	F
3 or less lanes being crossed; ≤ 40 km/h       A         4 to 5 lanes being crossed; ≤ 40 km/h       B         3 or less lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 60 km/h       C         and Operating Speed       3 or less lanes being crossed; 60 km/h       C         6 or more lanes being crossed; 60 km/h       D         6 or more lanes being crossed; 60 km/h       E         3 or less lanes being crossed; 60 km/h       F         4 to 5 lanes being crossed; 60 km/h       E         3 or less lanes being crossed; 60 km/h       F         4 to 5 lanes being crossed; 2 60 km/h       E         5 or less lanes being crossed; 2 65 km/h       F         Unsignatized Crossing along Route: with median refuge (> 1.8 m wide)       F         5 or less lanes being crossed; 2 60 km/h       A         3 or less lanes being crossed; 50 km/h       A         3 or less lanes being crossed; 50 km/h       F         Unsignatized Crossing along Route: with median refuge (> 1.8 m wide)       A         5 or less lanes being crossed; 50 km/h       A         8 or less lanes being crossed; 50 km/h       A         9 or less lanes being crossed; 50 km/h       B         9 or less lanes being crossed; 50 km/h       B         9 or less lanes being crossed	Unsignalized Crossing along Route		
No. of Travel Lanes on Side Street       4 to 5 lanes being crossed; 5 40 km/h       B         4 to 5 lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 60 km/h       C         4 to 5 lanes being crossed; 60 km/h       C         3 or less lanes being crossed; 60 km/h       C         4 to 5 lanes being crossed; 60 km/h       E         3 or less lanes being crossed; 60 km/h       E         6 or more lanes being crossed; 60 km/h       E         6 or more lanes being crossed; 2 65 km/h       E         6 or more lanes being crossed; 2 50 km/h       F         4 to 5 lanes being crossed; 2 65 km/h       E         6 or more lanes being crossed; 2 65 km/h       A         5 or less lanes being crossed; 2 60 km/h       F         4 to 5 lanes being crossed; 2 40 km/h       A         3 or less lanes being crossed; 2 40 km/h       A         3 or less lanes being crossed; 5 0 km/h       A         3 or less lanes being crossed; 5 0 km/h       A         6 or more lanes being crossed; 5 0 km/h       A         8 or less lanes being crossed; 5 0 km/h       B         3 or less lanes being crossed; 5 0 km/h       B         3 or less lanes being crossed; 5 0 km/h       B	oneignanzoù orooonig ziong nouie		A
No. of Travel Lanes on Side Street     3 or less lanes being crossed; 50 km/h     C       3 or less lanes being crossed; 50 km/h     C       3 or less lanes being crossed; 60 km/h     C       3 or less lanes being crossed; 60 km/h     C       4 to 5 lanes being crossed; 60 km/h     D       6 or more lanes being crossed; 40 km/h     E       3 or less lanes being crossed; 50 km/h     E       6 or more lanes being crossed; ≤ 65 km/h     F       4 to 5 lanes being crossed; ≥ 65 km/h     F       4 to 5 lanes being crossed; ≥ 65 km/h     F       4 to 5 lanes being crossed; ≥ 60 km/h     A       6 or more lanes being crossed; ≥ 60 km/h     A       6 or more lanes being crossed; ≥ 40 km/h     A       6 or more lanes being crossed; ≥ 40 km/h     A       3 or less lanes being crossed; ≥ 40 km/h     A       3 or less lanes being crossed; ≥ 40 km/h     A       3 or less lanes being crossed; ≤ 40 km/h     A       3 or less lanes being crossed; ≤ 40 km/h     B       4 to 5 lanes being crossed; ≤ 40 km/h     B       3 or less lanes being crossed; ≤ 40 km/h     B       6 or more lanes being crossed; ≤ 40 km/h     B       4 to 5 lanes being crossed; ≤ 40 km/h     B       6 or more lanes being crossed; ≤ 40 km/h     B       6 or more lanes being crossed; ≤ 40 km/h     B			
No. of Travel Lanes on Side Street       4 to 5 lanes being crossed; 50 km/h       C         3 or less lanes being crossed; 60 km/h       C         4 to 5 lanes being crossed; 60 km/h       C         4 to 5 lanes being crossed; 60 km/h       D         6 or more lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       E         3 or less lanes being crossed; 50 km/h       F         4 to 5 lanes being crossed; 2 50 km/h       F         4 to 5 lanes being crossed; 2 65 km/h       F         4 to 5 lanes being crossed; 2 60 km/h       A         6 or more lanes being crossed; 2 60 km/h       A         3 or less lanes being crossed; 2 60 km/h       A         3 or less lanes being crossed; 2 40 km/h       A         3 or less lanes being crossed; 50 km/h       A         3 or less lanes being crossed; 50 km/h       A         3 or less lanes being crossed; 50 km/h       A         6 or more lanes being crossed; 50 km/h       B         4 to 5 lanes being crossed; 50 km/h       B         4 to 5 lanes being crossed; 50 km/h       B         6 or more lanes being crossed; 50 km/h       B         6 or more lanes being crossed; 50 km/h       B			B
No. of Travel Lanes on Side Street       3 or less lanes being crossed; 60 km/h       C         and Operating Speed       4 to 5 lanes being crossed; 60 km/h       D         6 or more lanes being crossed; 2 65 km/h       E         3 or less lanes being crossed; 2 65 km/h       F         4 to 5 lanes being crossed; 2 65 km/h       F         4 to 5 lanes being crossed; 2 65 km/h       F         4 to 5 lanes being crossed; 2 65 km/h       F         4 to 5 lanes being crossed; 2 65 km/h       F         4 to 5 lanes being crossed; 2 65 km/h       F         4 to 5 lanes being crossed; 2 60 km/h       F         4 to 5 lanes being crossed; 2 60 km/h       F         5 or less lanes being crossed; 2 60 km/h       A         3 or less lanes being crossed; 2 40 km/h       A         3 or less lanes being crossed; 50 km/h       A         3 or less lanes being crossed; 50 km/h       B         3 or less lanes being crossed; 50 km/h       B         3 or less lanes being crossed; 50 km/h       B         3 or less lanes being crossed; 50 km/h       B         3 or less lanes being crossed; 50 km/h       B         3 or less lanes being crossed; 50 km/h       B         6 or more lanes being crossed; 50 km/h       B         6 or more lanes being crossed; 50 km/h <td></td> <td></td> <td></td>			
and Operating Speed     4 to 5 lanes being crossed; 60 km/h     D       6 or more lanes being crossed; ≤ 40 km/h     E       3 or less lanes being crossed; ≥ 65 km/h     E       6 or more lanes being crossed; ≥ 65 km/h     F       4 to 5 lanes being crossed; ≥ 65 km/h     F       4 to 5 lanes being crossed; ≥ 65 km/h     F       Unsignalized Crossing along Route: with median refuge (> 1.8 m wide)     F       5 or less lanes being crossed; ≥ 65 km/h     A       3 or less lanes being crossed; ≤ 40 km/h     A       3 or less lanes being crossed; 50 km/h     A       3 or less lanes being crossed; 50 km/h     B       3 or less lanes being crossed; 50 km/h     B       6 or more lanes being crossed; 50 km/h     B       3 or less lanes being crossed; 50 km/h     B       6 or more lanes being crossed; 50 km/h     B       3 or less lanes being crossed; 50 km/h     B       6 or more lanes being crossed; 50 km/h     B       3 or less lanes being crossed; 50 km/h     B       6 or more lanes being crossed; 50 km/h     B       6 or more lanes being crossed; 50 km/h     B       6 or more lanes being crossed; 50 km/h     C	No. of Travel Lenses on Side Street		-
6 or more lanes being crossed; ≤ 40 km/h     E       3 or less lanes being crossed; ≥ 65 km/h     E       6 or more lanes being crossed; ≥ 65 km/h     F       4 to 5 lanes being crossed; ≥ 65 km/h     F       Unsignalized Crossing along Route: with median refuge (≥ 1.8 m wide)     F       5 or less lanes being crossed; ≥ 40 km/h     A       3 or less lanes being crossed; ≥ 40 km/h     A       3 or less lanes being crossed; ≥ 40 km/h     A       3 or less lanes being crossed; ≥ 40 km/h     B       4 to 5 lanes being crossed; ≤ 40 km/h     B       3 or less lanes being crossed; ≤ 40 km/h     B       6 or more lanes being crossed; ≤ 40 km/h     B       6 or more lanes being crossed; ≤ 40 km/h     B       6 or more lanes being crossed; 50 km/h     B       3 or less lanes being crossed; 50 km/h     B       6 or more lanes being crossed; 50 km/h     B       6 or more lanes being crossed; 50 km/h     C			-
3 or less lanes being crossed; ≥ 65 km/h     E       6 or more lanes being crossed; ≥ 50 km/h     F       4 to 5 lanes being crossed; ≥ 65 km/h     F       Unsignalized Crossing along Route: with median refuge (≥ 1.8 m wide)     F       5 or less lanes being crossed; ≥ 64 km/h     A       3 or less lanes being crossed; ≥ 40 km/h     A       3 or less lanes being crossed; ≤ 40 km/h     A       3 or less lanes being crossed; ≤ 40 km/h     B       6 or more lanes being crossed; ≤ 40 km/h     B       4 to 5 lanes being crossed; ≤ 40 km/h     B       3 or less lanes being crossed; ≤ 40 km/h     B       6 or more lanes being crossed; ≤ 40 km/h     B       6 or more lanes being crossed; ≤ 50 km/h     C	and operating speed		
6 or more lanes being crossed; ≥ 50 km/h       F         4 to 5 lanes being crossed; ≥ 65 km/h       F         Unsignalized Crossing along Route: with median refuge (≥ 1.8 m wide)       F         5 or less lanes being crossed; ≥ 40 km/h       A         3 or less lanes being crossed; ≤ 40 km/h       A         6 or more lanes being crossed; ≤ 40 km/h       A         3 or less lanes being crossed; ≤ 40 km/h       B         4 to 5 lanes being crossed; ≤ 40 km/h       B         3 or less lanes being crossed; ≤ 40 km/h       B         4 to 5 lanes being crossed; ≤ 40 km/h       B         3 or less lanes being crossed; ≤ 50 km/h       C         B       B         Gor more lanes being crossed; 50 km/h       C			
4 to 5 lanes being crossed; ≥ 65 km/h     F       Unsignalized Crossing along Route: with median refuge (≥ 1.8 m wide)     5 or less lanes being crossed; ≤ 40 km/h     A       3 or less lanes being crossed; 50 km/h     A       6 or more lanes being crossed; ≤ 40 km/h     B       4 to 5 lanes being crossed; ≤ 40 km/h     B       3 or less lanes being crossed; ≤ 40 km/h     B       4 to 5 lanes being crossed; ≤ 40 km/h     B       3 or less lanes being crossed; ≤ 40 km/h     B       6 or more lanes being crossed; ≤ 40 km/h     B       6 or more lanes being crossed; 50 km/h     C		· · · · · · · · · · · · · · · · · · ·	_
Unsignalized Crossing along Route: with median refuge (> 1.8 m wide)       5         5 or less lanes being crossed; ≤ 40 km/h       A         3 or less lanes being crossed; 50 km/h       A         6 or more lanes being crossed; 50 km/h       B         3 or less lanes being crossed; 50 km/h       B         3 or less lanes being crossed; 50 km/h       B         6 or more lanes being crossed; 50 km/h       B         6 or more lanes being crossed; 50 km/h       C			
S or less lanes being crossed; ≤ 40 km/h     A       3 or less lanes being crossed; 50 km/h     A       6 or more lanes being crossed; 50 km/h     B       4 to 5 lanes being crossed; 50 km/h     B       3 or less lanes being crossed; 50 km/h     C			F
3 or less lanes being crossed; 50 km/h     A       6 or more lanes being crossed; 540 km/h     B       4 to 5 lanes being crossed; 50 km/h     B       3 or less lanes being crossed; 50 km/h     C	Unsignalized Crossing along Route		
6 or more lanes being crossed; ≤ 40 km/h     B       4 to 5 lanes being crossed; 50 km/h     B       3 or less lanes being crossed; 50 km/h     B       6 or more lanes being crossed; 50 km/h     C			
No. of Travel Lanes on Side Street and Operation Speed for more lanes being crossed; 50 km/h			
and Operating Speed		6 or more lanes being crossed; ≤ 40 km/h	-
and Operating Speed		4 to 5 lanes being crossed; 50 km/b	
and Operating Speed	No. of Trough Lange on Cide Official	3 or less lanes bling crissed and mile LICABLE	В
and Operating Speed		6 or more lanes being crossed; 50 km/h	С
	and Operating Speed	4 to 5 lanes being crossed; 60 km/h	С
3 or less lanes being crossed; ≥ 65 km/h D			
6 or more lanes being crossed; 60 km/h E			-
4 to 5 lanes being crossed; ≥ 65 km/h E			
6 or more lanes being crossed; ≥ 65 km/h F			

### EXHIBIT 92 TERMINAL AVENUE – BLOS Segment Evaluation

STREET	Terminal Avenue
FROM	Sandford Fleming Avenue
ТО	Trainyards Drive
YEAR	2031
DIRECTION	Eastbound-Weastbound
MMLOS MODE	BLOS

SEGMENT SCORE D

Type of Bikeway		LOS
Physically Separated Bikeway (cycle	e tracks, protected bike lanes and multi-use paths). Physical separation refers to, but is not	А
limited to, curbs, raised medians, bo	llards and parking lanes (adjacent to the bike lane along the travelled way i.e. not curbside).	A
Bike Lanes Not Adjacent Parking La	ane - Select Worst Scoring Criteria	
	1 travel lane in each direction	Α
No. of Travel Lenses	2 travel lanes in each direction separated by a raised median	В
No. of Travel Lanes	2 travel lanes in each direction without a separating median	С
	More than 2-travel lanes in each direction	D
	More than 2-travel langs in each direction $\geq 1.8$ m wide two large includes marker bitter. In payward the ladt E	A
Bike Lane Width	≥1.5 m to <1.8 m wide bike lane (includes marked buffer and paved gutter width)	В
	≥1.2 m to <1.5 m wide bike lane (includes marked buffer and paved gutter width)	C
	≤ 50 km/h operating speed	A
Operating Speed	60 km/h operating speed	C
operating operation	≥ 70 km/h operating speed	E
Bike lane blockage	Rare	A
(commercial areas)	Frequent	C
		U U
Bike Lanes Adjacent to curbside Pa	rking Lane - Select Worst Scoring Criteria	
No. of Travel Lanes	1 travel lane in each direction	A
	2 or more travel lanes in each direction	С
	4.5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)	A
Bike Lane and Parking Lane Width	4.25 m wide bike lage blue parking lane (includes marked buffer and paved gutter width) ≤ 4.0 m wide bike rane prus parking lane (includes marked buffer and paved gutter width)	B C
	< 40 km/h operating speed	A
	50 km/h operating speed	B
Operating Speed	60 km/h operating speed	D
	≥ 70 km/h operating speed	F
Bike lane blockage	Rare	A
(commercial areas)	Frequent	c
Mixed Traffic	Inequent	0
	O travel leaves of 40 leavely as moderal excitation an elevation of a moderation	
	2 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential	A
	2 to 3 travel lanes; ≤ 40 km/h	В
	2 travel lanes; 50 km/h; no marked centerline or classified as residential	
No. of Travel Lanes and Operating	2 to 3 travel lanes; 50 km/h	D
Speed	4 to 5 travel lanes; ≤ 40 km/h	U
	4 to 5 travel lanes; ≥ 50 km/h	E
	6 or more travel lanes; ≤ 40 km/h	E
	≥ 60 km/h	F
Unsignalized Crossing along Route	: no median refuge	
	3 or less lanes being crossed; ≤ 40 km/h	Α
	4 to 5 lanes being crossed; ≤ 40 km/h	в
	3 or less lanes being crossed; 50 km/h	В
	4 to 5 lanes being crossed; 50 km/h	С
No. of Travel Lanes on Side Street	3 or less lanes being crossed; 60 km/h	С
and Operating Speed	4 to 5 lanes being crossed; 60 km/h	D
	6 or more lanes being crossed; ≤ 40 km/h	E
	3 or less lanes being crossed; ≥ 65 km/h	E
	6 or more lanes being crossed; ≥ 50 km/h	F
	4 to 5 lanes being crossed; ≥ 65 km/h	F
Unsignalized Crossing along Route		
ionsignatized or ossing along Route	5 or less lanes being crossed; ≤ 40 km/h	A
	3 or less lanes being crossed; 50 km/h	A
	Comment lease heine encoded of 10 lim/h	B
	4 to 5 Janes heing crossed: 50 km/h	B
	4 to 5 lanes being crossed; 5 40 km/h 3 or less lanes being crossed; 50 km/h 6 or mars lanes being crossed 40 km/h	B
No. of Travel Lanes on Side Street	6 or more lanes being crossed; 50 km/h	C
and Operating Speed	o of more failed being crossed, oo kinn	C C
	4 to 5 lanes being crossed; 60 km/h	-
	3 or less lanes being crossed; ≥ 65 km/h	D
	6 or more lanes being crossed; 60 km/h	E
	4 to 5 lanes being crossed; ≥ 65 km/h	E
	6 or more lanes being crossed; ≥ 65 km/h	F

## EXHIBIT 93 INDUSTRIAL AVENUE – BLOS Segment Evaluation

Industrial Avenue Avenue
Riverside Drive
Trainyards Drive
2031
Eastbound-Westbound
BLOS

SEGMENT SCORE **F** 

Type of Bikeway		LOS
Physically Separated Bikeway (cycle	e tracks, protected bike lanes and multi-use paths). Physical separation refers to, but is not	
limited to, curbs, raised medians, bo	llards and parking lanes (adjacent to the bike lane along the travelled way i.e. not curbside).	A
Bike Lanes Not Adjacent Parking La		
	1 travel lane in each direction	A
	2 travel lanes in each direction separated by a raised median	В
No. of Travel Lanes	2 travel lanes in each direction without a separating median	С
		D
	More than 2 travel lanes in each diraction > 1.8 m wide Diku tale incluyes marker bitter in Caves a Bridth E	A
Bike Lane Width	≥1.5 m to <1.8 m wide bike lane (includes marked buffer and paved gutter width)	В
	≥1.2 m to <1.5 m wide bike lane (includes marked buffer and paved gutter width)	С
	≤ 50 km/h operating speed	A
Operating Speed	60 km/h operating speed	С
	> 70 km/h operating speed	E
Bike lane blockage	Rare	A
(commercial areas)	Frequent	C
	rking Lane - Select Worst Scoring Criteria	•
	1 travel lane in each direction	A
No. of Travel Lanes	2 or more travel lanes in each direction	C
	4.5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)	Ā
		B
Bike Lane and Parking Lane Width	4.25 m wide bike lare blue parking and includes marked buffer and paved gutter width) ≤ 4.0 m wide bike rane plus parking lare (includes marked buffer and paved gutter width)	С
	< 40 km/h operating speed	A
	50 km/h operating speed	B
Operating Speed	60 km/h operating speed	D
	> 70 km/h operating speed	F
Bike lane blockage	Rare	A
(commercial areas)	Frequent	C
Mixed Traffic	i requeix	0
	2 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential	A
	2 to 3 travel lanes; ≤ 40 km/h	B
	2 to 5 travel lanes; 5 40 km/h 2 travel lanes; 50 km/h; no marked centerline or classified as residential	B
No. of Travel Lanes and Operating	2 to 3 travel lanes; 50 km/h	D
	4 to 5 travel lanes; 50 km/h	D
Speed		E
	4 to 5 travel lanes; ≥ 50 km/h	E
	6 or more travel lanes; ≤ 40 km/h	
	≥ 60 km/h	F
Unsignalized Crossing along Route	·	
	3 or less lanes being crossed; ≤ 40 km/h	A
	4 to 5 lanes being crossed; ≤ 40 km/h	в
	3 or less lanes being crossed; 50 km/h	BC
	4 to 5 lanes being crossed; 50 km/h	
No. of Travel Lanes on Side Street	3 or less lanes being crossed; 60 km/h	C
and Operating Speed	4 to 5 lanes being crossed; 60 km/h	D
	6 or more lanes being crossed; ≤ 40 km/h	E
	3 or less lanes being crossed; ≥ 65 km/h	E
	6 or more lanes being crossed; ≥ 50 km/h	F
	4 to 5 lanes being crossed; ≥ 65 km/h	F
Unsignalized Crossing along Route	: with median refuge (≥ 1.8 m wide)	
	5 or less lanes being crossed; ≤ 40 km/h	A
	3 or less lanes being crossed; 50 km/h	A
	6 or more lanes being crossed; ≤ 40 km/h	B
		B
No. of Travel Lanes on Side Street	3 or less lanes of index sector and phil PLICABLE	B
and Operating Speed	6 or more lanes being crossed; 50 km/h	С
and opending opend	4 to 5 lanes being crossed; 60 km/h	С
	3 or less lanes being crossed; ≥ 65 km/h	D
	6 or more lanes being crossed; 60 km/h	E
	4 to 5 lanes being crossed; ≥ 65 km/h 6 or more lanes being crossed; ≥ 65 km/h	E

# EXHIBIT 94 TRAINYARDS DRIVE – BLOS Segment Evaluation

STREET	Trainyards Drive
FROM	Belfast Road
ТО	Industrial Avenue
YEAR	2031
DIRECTION	Northbound-Southbound
MMLOS MODE	BLOS

SEGMENT SCORE **B** 

Type of Bikeway		LOS
	e tracks, protected bike lanes and multi-use paths). Physical separation refers to, but is not	А
limited to, curbs, raised medians, bo	llards and parking lanes (adjacent to the bike lane along the travelled way i.e. not curbside).	A
Bike Lanes Not Adjacent Parking La		
	1 travel lane in each direction	∟
No. of Travel Lanes	2 travel lanes in each direction separated by a raised median	В
	2 travel lanes in each direction without a separating median	C
	More than 2 travel lanes in each direction	D
	1.8 m wide bike lane (includes marked buffer and paved gutter width)	A
Bike Lane Width	≥1.5 m to <1.8 m wide bike lane (includes marked buffer and paved gutter width)	В
	≥1.2 m to <1.5 m wide bike lane (includes marked buffer and paved gutter width)	С
	≤ 50 km/h operating speed	A
Operating Speed	60 km/h operating speed	С
	≥ 70 km/h operating speed	E
Bike lane blockage	Rare	A
(commercial areas)	Frequent	С
Bike Lanes Adjacent to curbside Pa	rking Lane - Select Worst Scoring Criteria	
No. of Travel Lance	1 travel lane in each direction	A
No. of Travel Lanes	2 or more travel lanes in each direction	С
	4.5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)	A
Riko Lono and Radine Long Midt	4.25 m wide bike lane plus parking lane includes marked buffer and paved gutter width)	В
Bike Lane and Parking Lane Width	≤ 4.0 m wide bike lane plus parking lane (includes marked buller and paved gutter width)	С
	< 40 km/h operating speed	A
One office One of	50 km/h operating speed	В
Operating Speed	60 km/h operating speed	D
	> 70 km/h operating speed	F
Bike lane blockage	Rare	A
(commercial areas)	Frequent	С
Mixed Traffic		
	2 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential	A
	2 to 3 travel lanes; ≤ 40 km/h	B
	2 travel lanes; 50 km/h; no marked centerline or classified as residential	B
No. of Travel Lanes and Operating		D
Speed	2 to 3 travel <b>Dec</b> 50 km/h <b>APPLICABLE</b> 4 to 5 travel fanès; ≤ 40 km/h	D
opood	4 to 5 travel lanes; ≥ 50 km/h	E
	6 or more travel lanes; ≤ 40 km/h	E
	$\geq$ 60 km/h	F
Unsignalized Crossing along Route		,
Unsignalized Crossing along Koda	3 or less lanes being crossed; ≤ 40 km/h	Α
	4 to 5 lanes being crossed; ≤ 40 km/h	B
	3 or less lanes being crossed; 50 km/h	B
	4 to 5 lanes being crossed; 50 km/h	C
No. of Travel Lanes on Side Street		C
and Operating Speed	3 or less lanes beins on seed; 60 in / PLICABLE	D
	6 or more lanes being crossed; ≤ 40 km/h	E
	3 or less lanes being crossed; ≥ 65 km/h	E
	6 or more lanes being crossed; ≥ 50 km/h	F
	4 to 5 lanes being crossed; ≥ 65 km/h	F
Unsignalized Crossing along Route		
grind	5 or less lanes being crossed; ≤ 40 km/h	A
	3 or less lanes being crossed; 50 km/h	A
	6 or more lanes being crossed; ≤ 40 km/h	В
		В
	4 to 5 lanes being crossed; 50 km/h 3 or less lanes of index sed A0 m/h PLICABLE	В
No. of Travel Lanes on Side Street	6 or more lanes being crossed; 50 km/h	C
and Operating Speed	4 to 5 lanes being crossed; 60 km/h	C
	3 or less lanes being crossed; ≥ 65 km/h	D
	6 or more lanes being crossed; 60 km/h	E
	4 to 5 lanes being crossed; $\geq$ 65 km/h	E
	6 or more lanes being crossed; ≥ 65 km/h	F
	o or more rande being dreaded, is de minim	· ·

#### EXHIBIT 95 INDUSTRIAL/SANDFORD FLEMING – BLOS Signalized Intersection Evaluation

MAIN STREET	Industrial Avenue
MINOR STREET	Sandford Fleming Avenue
APPROACHES	Eastbound-Westbound
YEAR	2031
DIRECTION	East/West
MMLOS MODE	BLOS

INTERSECTION SCORE  ${f F}$ 

	LOS
Bike Lanes or higher order facility on a Signalized Intersection Approach	
Right-turn Lane and Turning Speed of No impact on LTS (as long as cycling facility remains to the right of any turn lane - otherw Motorists	ise see pocket bike lanes below)
Two-stage, left-turn bike box; ≤ 50 km/h	A
No lane crossed, ≤ 50 km/h	B
1 lane crossed, ≤ 40 km/h	В
Cyclist Making a Left-turn and Operating Speed of Motorists (refer	C
Operating Speed of Motorists (refer	C C
In foure) 2 or more lanes crossed, ≤ 40 km/h	D
1 lane crossed, ≥ 60 km/h	E
2 or more lanes crossed, ≥ 50 km/h	F
All other single left-turn lane configurations	F
Dual left-tum lanes (shared or exclusive) Pocket Bike Lanes on a Signalized Intersection Approach	P
Right-turn lane introduced to the right of the bike lane and ≤ 50 m long, turning speed ≤ 3	25 km/h (based on
curb radii and angle of intersection)	в
Right-turn lane introduced to the right of the bike lane and > 50 m long, turning speed $\leq$ Right-turn Lane and Turning Speed of curb radii and angle of intersection)	- D
Motorists Bike lane shifts to the left of the right-turn lane, turning speed ≤ 25 km/h (based on curb intersection)	radii and angle of D
Right-turn lane with any other configurations	F
Dual right-turn lanes (shared or exclusive)	F
Two-stage, left-turn bike box; ≤ 50 km/h	A
No lane crossed, ≤ 50 km/liNOT APPLICABL 1 lane crossed, ≤ 40 km/l	В
1 lane crossed, ≤ 40 km/h <b>IVI AFFLICADL</b>	
Cyclist Making a Left-turn and No lane crossed, ≥ 60 km/h	C
Onerating Speed of Motorists (refer	С
In foure) 2 or more lanes crossed, ≤ 40 km/h	D
1 lane crossed, ≥ 60 km/h	E
2 or more lanes crossed, ≥ 50 km/h	F
All other single left-turn lane configurations Dual left-turn lanes (shared or exclusive)	F
Mixed Traffic on a Signalized Intersection Approach	F
Right-turn lane 25 to 50 m long, turning speed $\leq$ 25 km/h (based on curb radii and angle	of intersection) D
Right-turn Lane and Turning Speed of Right-turn lane 25 to 50 m long, turning speed > 25 km/h (based on curb radii and angle	
Motorists Right-turn lane longer than 50 m	F
Dual right-turn lanes (shared or exclusive)	───┼╘╤┹
Two-stage, left-turn bike box; ≤ 50 km/h	A
No lane crossed, ≤ 50 km/h	В
1 lane crossed, ≤ 40 km/h	В
Cyclist Making a Left-turn and No lane crossed, ≥ 60 km/h	D
Operating Speed of Motorists (refer 1 lane crossed, 50 km/h	D
to figure) 2 or more lanes crossed, ≤ 40 km/h	D
1 lane crossed, ≥ 60 km/h	
2 or more lanes crossed, ≥ 50 km/h	F
All other single left-turn lane configurations	
Dual left-turn lanes (shared or exclusive)	F
Two-stage, left-turn bike box No lane crossed One lane crossed	

Notes: 1. Pocket bike lanes are defined as bike lanes that develop near intersections between vehicular right turn lanes on the right side and vehicular through or left lanes on the left side. All other configurations of bike lanes or separated facility that remain against the edge of the curb/parking lane and require right turning vehicles to yield to through cyclists will not impact the level of traffic stress (i.e. are considered to be LOS A).

### EXHIBIT 96 INDUSTRIAL/RIVERSIDE – BLOS Signalized Intersection Evaluation

MAIN STREET	Riverside Drive
MINOR STREET	Industrial Avenue
APPROACHES	Northbound—Southbound
YEAR	2031
DIRECTION	North/South
MMLOS MODE	BLOS

INTERSECTION SCORE  ${f F}$ 

Bikeway and Intersection Type		LOS
	n a Signalized Intersection Approach	
Right-turn Lane and Turning Speed of Motorists	No impact on LTS (as long as cycling facility remains to the right of any turn lane - otherwise see pocket bike	lanes below)
	Two-stage, left-turn bike box; ≤ 50 km/h	A
	No lane crossed, ≤ 50 km/h	В
	1 lane crossed, ≤ 40 km/h	В
Cyclist Making a Left-turn and	No lane crossed, 2 60 km/h 1 lane crossed, 50 km/h 1 crossed, 50 km/h	С
Operating Speed of Motorists (refer	1 lane crossed, 50 km/h NUL APPLICADLE	С
to figure)	[2 or more lanes crossed, ≤ 40 km/n	D
	1 lane crossed, ≥ 60 km/h	E
	2 or more lanes crossed, ≥ 50 km/h	F
	All other single left-turn lane configurations	F
Desket Diles Lange on a Clanalized I	Dual left-tum lanes (shared or exclusive)	F
Pocket Bike Lanes on a Signalized In		
	Right-turn lane introduced to the right of the bike lane and ≤ 50 m long, turning speed ≤ 25 km/h (based on such and) and spela sticture stice)	В
	curb radii and angle of intersection) Right-turn lane introduced to the right of the bike lane and > 50 m long, turning speed ≤ 30 km/h (based on	
Right-turn Lane and Turning Speed of	curb radii and angle of intersection)	D
Motorists	Bike lane shifts to the left of the right-turn lane, turning speed $\leq 25$ km/h (based on curb radii and angle of	
NO IOTIS IS	intersection)	D
	Right-turn lane with any other configurations	F
	Dual right-turn lanes (shared or exclusive)	F
	Two-stage, left-turn bike box; ≤ 50 km/h	A
		B
	No lane crossed, ≤ 50 km/l 1 lane crossed, ≤ 40 km/l NOT APPLICABLE	B
	No lane crossed, ≥ 60 km/h	C
Cyclist Making a Left-turn and	1 lane crossed, 2 do mini	c
Operating Speed of Motorists (refer	2 or more lanes crossed, ≤ 40 km/h	D
to figure)	1 lane crossed, ≥ 60 km/h	E
	2 or more lanes crossed, ≥ 50 km/h	F
	All other single left-turn lane configurations	F
	Dual left-turn lanes (shared or exclusive)	F
Mixed Traffic on a Signalized Interse		
inned frame on a orgnanzed merse	Right-turn lane 25 to 50 m long, turning speed $\leq$ 25 km/h (based on curb radii and angle of intersection)	D
Right-turn Lane and Turning Speed of	Right-turn lane 25 to 50 m long, turning speed > 25 km/h (based on curb radii and angle of intersection)	- Én
Motorists	Right-turn lane longer than 50 m	F
	Dual right-tum lanes (shared or exclusive)	
	Two-stage, left-turn bike box; ≤ 50 km/h	A
	No lane crossed, ≤ 50 km/h	В
	1 lane crossed, ≤ 40 km/h	В
Cyclist Making a Left-turn and	No lane crossed, ≥ 60 km/h	D
Operating Speed of Motorists (refer	1 lane crossed, 50 km/h	D
to figure)	2 or more lanes crossed, ≤ 40 km/h	D
io igure)	1 lane crossed, ≥ 60 km/h	
	2 or more lanes crossed, ≥ 50 km/h	F
	All other single left-turn lane configurations	
	Dual left-turn lanes (shared or exclusive)	F
Left-turn Configurations		
Two-stage, left-t	um bike box No lane crossed One lane crossed	
Notes	One Lane Crossed	

Notes: 1. Pocket bike lanes are defined as bike lanes that develop near intersections between vehicular right turn lanes on the right side and vehicular through or left lanes on the left side. All other configurations of bike lanes or separated facility that remain against the edge of the curb/parking lane and require right turning vehicles to yield to through cyclists will not impact the level of traffic stress (i.e. are considered to be LOS A).

#### **EXHIBIT 97 TERMINAL/TRAINYARDS – BLOS Signalized Intersection Evaluation**

MAIN STREET	Trainyards Drive
MINOR STREET	Terminal Avenue
APPROACHES	Northbound-Southbound
YEAR	2031
DIRECTION	North/South
MMLOS MODE	BLOS

INTERSECTION SCORE  ${f F}$ 

Bikeway and Intersection Type		LOS
	n a Signalized Intersection Approach	
Right-turn Lane and Turning Speed of Motorists	No impact on LTS (as long as cycling facility remains to the right of any turn lane - otherwise see pocket bike	lanes below)
	Two-stage, left-turn bike box; ≤ 50 km/h	A
	No lane crossed, ≤ 50 km/h	В
	1 lane crossed, ≤ 40 km/h	В
Cyclist Making a Left-turn and	No lane crossed, ≥ 60 km/h 1 lane crossed, 50 km/h 0 correct based of the total of total	С
Operating Speed of Motorists (refer	1 lane crossed, 50 km/h	С
to figure)	[2 or more lanes crossed, ≤ 40 km/n	D
	1 lane crossed, ≥ 60 km/h	E
	2 or more lanes crossed, ≥ 50 km/h	F
	All other single left-turn lane configurations	F
Desket Dike Lance an a Cincelined I	Dual left-turn lanes (shared or exclusive)	F
Pocket Bike Lanes on a Signalized I		
	Right-turn lane introduced to the right of the bike lane and ≤ 50 m long, turning speed ≤ 25 km/h (based on such and) and scale of interesting)	В
	curb radii and angle of intersection) Right-turn lane introduced to the right of the bike lane and > 50 m long, turning speed ≤ 30 km/h (based on	
Right-turn Lane and Turning Speed of	curb radii and angle of intersection)	D
Motorists		┝╘━┛
NIV WITH U	Bike lane shifts to the left of the right-turn lane, turning speed $\leq$ 25 km/h (based on curb radii and angle of intersection)	D
	Right-turn lane with any other configurations	F
	Dual right-turn lanes (shared or exclusive)	F
		A
	Two-stage, left-turn bike box; ≤ 50 km/h No lane crossed, ≤ 50 km/h	B
	1 lane crossed, < 40 km/h	B
	No lane crossed, ≥ 40 km/h	
Cyclist Making a Left-turn and	1 lane crossed, 2 00 km/h	C
Operating Speed of Motorists (refer	2 or more lanes crossed, ≤ 40 km/h	
to figure)	1 lane crossed, ≥ 60 km/h	E
	2 or more lanes crossed, ≥ 50 km/h	F
	All other single left-turn lane configurations	F
	Dual left-turn lanes (shared or exclusive)	F
Mixed Traffic on a Signalized Interse		
mixed frame on a Signalized merse	Right-turn lane 25 to 50 m long, turning speed $\leq$ 25 km/h (based on curb radii and angle of intersection)	D
Right-turn Lane and Turning Speed of		-
Motorists	Right-turn lane longer than 50 m	F
	Dual right-turn lanes (shared or exclusive)	
	Two-stage, left-tum bike box; ≤ 50 km/h	A
	No lane crossed, ≤ 50 km/h	B
	1 lane crossed, ≤ 40 km/h	В
· · · · · · · · · · · · · · · · · · ·	No lane crossed, ≥ 60 km/h	D
Cyclist Making a Left-turn and	1 lane crossed, 50 km/h	D
Operating Speed of Motorists (refer	2 or more lanes crossed, ≤ 40 km/h	D
to figure)	1 lane crossed, ≥ 60 km/h	<u> </u>
	2 or more lanes crossed, ≥ 50 km/h	F
	All other single left-turn lane configurations	
	Dual left-turn lanes (shared or exclusive)	F
Left-turn Configurations		
Two-stage, left-t	Um bike box No lane crossed One lane crossed	

Notes: 1. Pocket bike lanes are defined as bike lanes that develop near intersections between vehicular right turn lanes on the right side and vehicular through or left lanes on the left side. All other configurations of bike lanes or separated facility that remain against the edge of the curb/parking lane and require right turning vehicles to yield to through cyclists will not impact the level of traffic stress (i.e. are considered to be LOS A).

### EXHIBIT 98 SANDFORD FLEMING AVENUE – TLOS Segment Evaluation

STREET	Sandford Fleming Avenue
FROM	Industrial Avenue
ТО	Terminal Avenue
YEAR	2031
DIRECTION	Northbound-Southbound
MMLOS MODE	TLOS

SEGMENT SCORE D

Facility Type		Level/exposure to congestion delay, friction and incidents			Quantitative	LOS
		Congestion	Friction	Incident Potential	Measurement	LU3
	Segregated ROW	No	No	No	N/A	А
Puelene	No/limited parking/driveway friction	No	Low	Low	$C_f \le 60$	В
Bus lane	Frequent parking/driveway friction	No	Medium	Medium	C <sub>f</sub> > 60	С
	Limited parking/driveway friction	Yes	Low	Medium	$\text{Vt/Vp} \geq 0.8$	D
Mixed Traffic	Moderate parking/driveway friction	Yes	Medium	Medium	$\text{Vt/Vp} \leq 0.6$	E
	Frequent parking/driveway friction	Yes	High	High	Vt/Vp < 0.4	F

Notes:

Cf, Conflict Factor = = (Number of driveways x crossing volume) / 1 km

Vt/Vp is the ratio of average transit travel speed to posted speed limit

### EXHIBIT 99 TERMINAL AVENUE – TLOS Segment Evaluation

STREET	Terminal Avenue
FROM	Sandford Fleming Avenue
ТО	Trainyards Drive
YEAR	2031
DIRECTION	Eastbound-Westbound
MMLOS MODE	TLOS

SEGMENT SCORE D

Facility Type		Level/exposure to congestion delay, friction and incidents		Quantitative	LOS	
		Congestion	Friction	Incident Potential	Measurement	LUS
	Segregated ROW	No	No	No	N/A	А
Puelene	No/limited parking/driveway friction	No	Low	Low	$C_f \le 60$	В
Bus lane	Frequent parking/driveway friction	No	Medium	Medium	C <sub>f</sub> > 60	С
	Limited parking/driveway friction	Yes	Low	Medium	$Vt/Vp \ge 0.8$	D
Mixed Traffic	Moderate parking/driveway friction	Yes	Medium	Medium	$\text{Vt/Vp} \leq 0.6$	E
	Frequent parking/driveway friction	Yes	High	High	Vt/Vp < 0.4	F

Notes:

Cf, Conflict Factor = = (Number of driveways x crossing volume) / 1 km

Vt/Vp is the ratio of average transit travel speed to posted speed limit

#### EXHIBIT 100 INDUSTRIAL/SANDFORD FLEMING – TLOS Signalized Intersection Evaluation

MAIN STREET	Industrial Avenue
MINOR STREET	Sandford Fleming Avenue
APPROACHES	Eastbound-Westbound
YEAR	2031
DIRECTION	East/West
MMLOS MODE	TLOS

INTERSECTION SCORE D

### Exhibit 16 - TLOS Signalized Intersection Evaluation Table

Delay	Typical Location	LOS
0	Grade Separation	А
≤10 sec	High Level TSP	В
≤20 sec		С
≤30 sec		D
≤40 sec	TSP & long cycle length	E
>40 sec	No TSP & long cycle length	F

Note: Delay includes travel time from end of queue to entering the intersection

### EXHIBIT 101 TERMINAL/TRAINYARDS – TLOS Signalized Intersection Evaluation

MAIN STREET	Terminal Avenue
MINOR STREET	Trainyards Drive
APPROACHES	Eastbound-Westbound
YEAR	2031
DIRECTION	East/West
MMLOS MODE	TLOS

INTERSECTION SCORE D

## Exhibit 16 - TLOS Signalized Intersection Evaluation Table

Delay	Typical Location	LOS
0	Grade Separation	А
≤10 sec	High Level TSP	В
≤20 sec		С
≤30 sec		D
≤40 sec	TSP & long cycle length	E
>40 sec	No TSP & long cycle length	F

Note: Delay includes travel time from end of queue to entering the intersection

# EXHIBIT 102 SANDFORD FLEMING AVENUE – TkLOS Segment Evaluation

STREET	Sandford Fleming Avenue		
FROM	Industrial Avenue		
ТО	Terminal Avenue	SEGMENT SCORE	В
YEAR	2031		
DIRECTION	Northbound—Southbound		
MMLOS MODE	TkLOS		

# Exhibit 20 - TkLOS Segment Evaluation Table

Curb Lane Width (m)	Only two travel lanes (one in each direction)	More than two travel lanes
>3.7	В	А
≤3.5	С	А
≤3.3	D	С
≤3.2	E	D
≤3	F	E

# EXHIBIT 103 TERMINAL AVENUE – TkLOS Segment Evaluation

STREET	Terminal Avenue
FROM	Sandford Fleming Avenue
ТО	Trainyards Drive
YEAR	2031
DIRECTION	Eastbound-Westbound
MMLOS MODE	TkLOS

SEGMENT SCORE B

# Exhibit 20 - TkLOS Segment Evaluation Table

Curb Lane Width (m)	Only two travel lanes (one in each direction)	More than two travel lanes
>3.7	В	А
≤3.5	С	А
≤3.3	D	С
≤3.2	E	D
≤3	F	E

### EXHIBIT 104 INDUSTRIAL/SANDFORD FLEMING – TkLOS Signalized Intersection Evaluation

MAIN STREET	Industrial Avenue
MINOR STREET	Sandford Fleming Avenue
APPROACHES	Eastbound-Westbound
YEAR	2031
MMLOS MODE	TkLOS

INTERSECTION SCORE  ${f C}$ 

Exhibit 21 - TkLOS Signalized Intersection Evaluation Table

Effective Corner Radius	One receiving lane on departure from intersection	More than one receiving lane on departure from intersection
< 10m	F	D
10 to 15m	Е	В
> 15m	С	А

### EXHIBIT 105 TERMINAL/TRAINYARDS – TkLOS Signalized Intersection Evaluation

MAIN STREET	Trainyards Drive
MINOR STREET	Terminal Avenue
APPROACHES	Northbound-Southbound
YEAR	2031
MMLOS MODE	TkLOS

INTERSECTION SCORE  ${f C}$ 

#### Exhibit 21 - TkLOS Signalized Intersection Evaluation Table

Effective Corner Radius	One receiving lane on departure from intersection	More than one receiving lane on departure from intersection
< 10m	F	D
10 to 15m	Е	В
> 15m	С	А