SUNNY FOODMART
陽光超級市場

1000514608 ONTARIO INC.

PROPOSED COMMERCIAL DEVELOPMENT

3075 PALLADIUM DRIVE, CITY OF OTTAWA, ON.



TRAFFIC IMPACT ASSESSMENT

CITY SPA FILE NO. PC2024-0078

WPE PROJECT #:2034

JULY 15, 2024

REVISION HISTORY

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1. INTRODUCTION

1.1. Objective

WPE Engineering Limited is pleased to present this Traffic Impact Assessment for the proposed commercial development located at 3075 Palladium Drive in Ottawa based on the previous report prepared by CGH Transportation. The proposed site location is depicted in Figure 1. The purpose of this study is to examine the traffic-related impacts and analyze whether the future on-site parking supply could satisfy the stipulated parking by-law requirements of the city. The anticipated built-out year is 2027, and this study considers 5 horizon years to 2032.

This study has been prepared according to the City of Ottawa's 2017 Transportation Impact Assessment (TIA) Guidelines, prior to the June 2023 updates. Accordingly, a Step 1 Screening Form has been prepared and is supplemented in Appendix A, along with the Certification Form for the TIA Study PM. As shown in the Screening Form, a TIA is required including the Design Review component and the Network Impact Component.

1.2. Study Background

The current land use of the site is zoned as General Mixed-Use Zone (GM[2167]). The proposed site development according to the site plan (dated June 28, 2024) consists of retail space with a total gross floor area of 7911 m^2 including large and small multi-unit retail pads. A total of 237 vehicle parking spaces and 28 bicycle parking spaces are proposed. The anticipated full build-out and occupancy horizon is 2027 with construction occurring in two phases. The site will connect to Campeau Drive via Kanata West Centre Drive and to Palladium Drive via Cabela's Way. An existing access on the west end of the site will remain and will be used as truck access. The site forms part of the previously approved Kanata West Retail Centre Site Plan. Figure 1 illustrates the site location. Figure 2 depicts the generic site plan of the development. Detailed site plan is provided in Appendix B.



FIGURE 1: SITE LOCATION AND SITE AREA

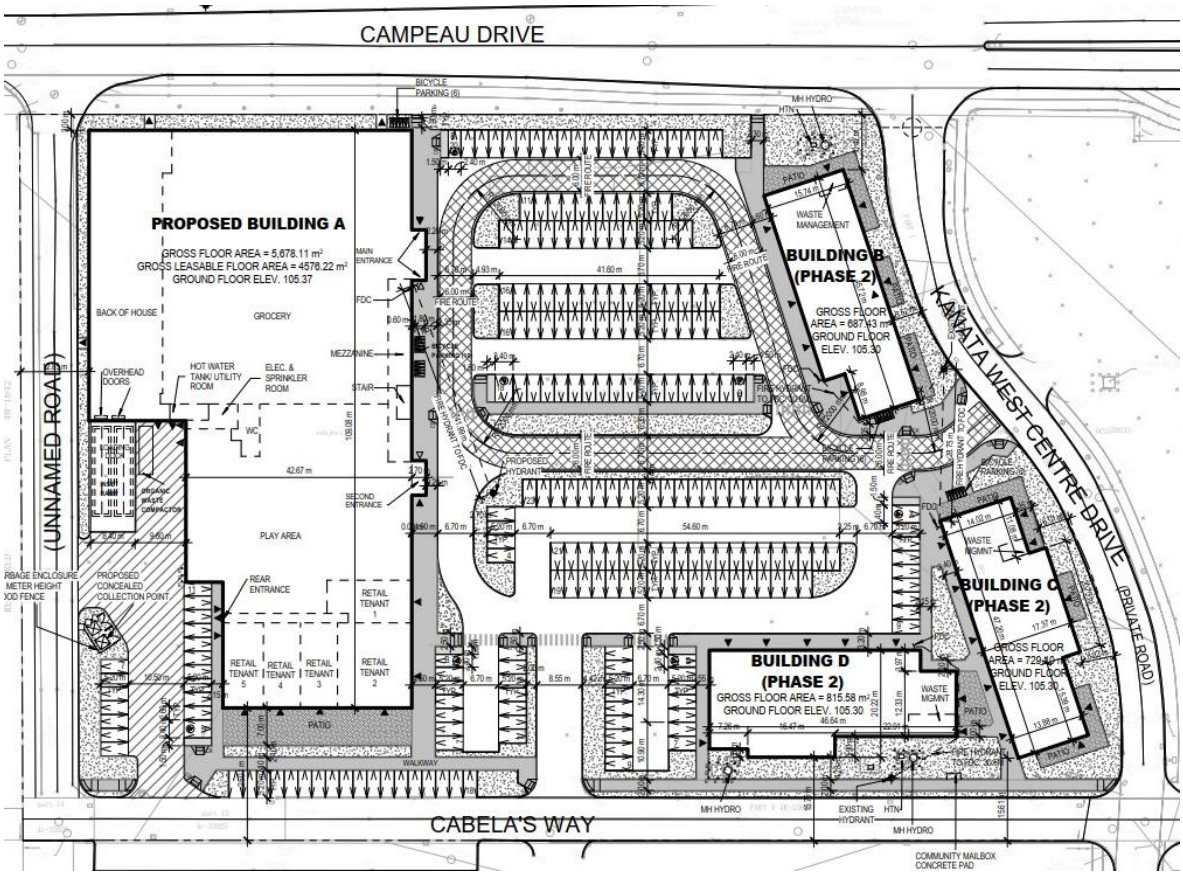


FIGURE 2: PROPOSED SITE PLAN

1.3. Study Area

The study area includes seven intersections that are in proximity to the proposed site:

- Campeau Drive at Kanata West Centre Drive (unsignalized: one-way stop)
- Palladium Drive at Campeau Drive (unsignalized: roundabout)
- Campeau Drive at Journeyman Street (signalized: actuated)
- Kanata West Centre Drive at Cabela's Way (unsignalized: all-way stop)
- Palladium Drive at Cabela's Way (unsignalized: one-way stop)
- Palladium Drive at Westbound Ramp of Highway 417 (signalized: actuated)
- Palladium Drive at Eastbound Ramp of Highway 417 (unsignalized: one-way stop)

2. EXISTING CONDITIONS

2.1. Road Network

The following roadway information are referenced from the TIA report prepared by CGH Transportation dated February 2024.

Highway 417 is a major east-west motorway under the jurisdiction of Ontario (MTO). It has a seven-lane configuration within the vicinity of the study area. The posted speed limit is 100 km/h, and the existing right-of-way is 60 metres.

Palladium Drive is a north-south arterial road under the jurisdiction of the City of Ottawa. Palladium Drive north of Upper Canada Street has a two-lane urban cross-section. Between Upper Canada Street and Campeau Drive, it has a two-lane urban cross-section. Between Campeau Drive and Highway 417 westbound ramp terminal, it has a two-lane urban cross-section. South of Highway 417 westbound ramp terminal within the study area, it has a four-lane rural cross-section with gravel shoulders. The posted speed limit is 60 km/h north of Highway 417 westbound ramp terminal and 70 km/h south of Highway 417

westbound ramp terminal. The Official Plan reserves a right-of-way of 44.5 metres within the study area. Palladium Drive is a truck route south of the Highway 417 westbound ramp terminal.

Campeau Drive is an east-west arterial road under the jurisdiction of the City of Ottawa. East of Kanata West Centre Drive, it has a divided four-lane urban cross-section. West of Kanata West Centre Drive, it has a divided two-lane urban cross-section. The posted speed limit is 60 km/h. The Official Plan reserves a right-of-way of 26.0 metres west of Palladium Drive, and the existing right-of-way is 40.5 metres east of Palladium Drive within the study area.

Journeyman Street a north-south local road under the jurisdiction of the City of Ottawa. It has a two-lane urban configuration with no posted speed limit. Therefore, the speed limit is assumed to be 50 km/h. The Official Plan reserves a right-of-way of 26.0 metres.

Kanata West Centre Drive is a north-south private road. It has a divided one-lane configuration with no posted speed limit. Therefore, the speed limit is assumed to be 30 km/h.

Cabela's Way is an east-west private road. It has a divided one-lane rural configuration with no posted speed limit. Therefore, the speed limit is assumed to be 30 km/h.

The lane configuration of all edges within the study area is visualized in Figure 3.

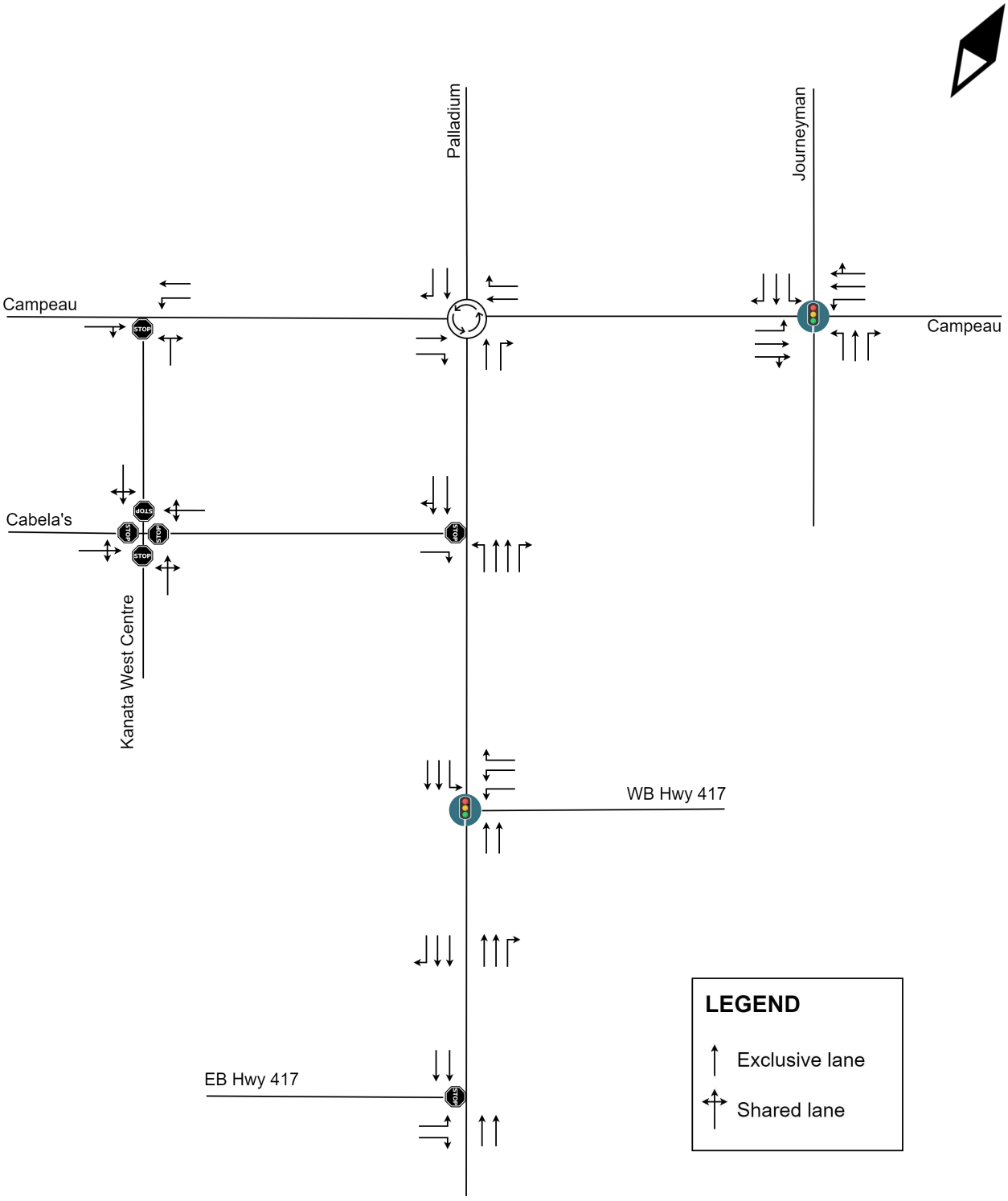


FIGURE 3: EXISTING LANE CONFIGURATIONS

2.2. Pedestrian and Cycling Network

2.2.1. Pedestrian Network

In general, sidewalks are available on all local and some sections of arterial roads within the study area. For Palladium Drive, sidewalks are available on both sides of the road that is located north of the westbound of Highway 417 at Palladium Drive intersection. For Campeau Drive, sidewalks are paved on both sides of the road except the section between Journeyman Street and Huntmar Drive, where sidewalk is only provided on the southern side of the road. Journeyman Street has sidewalks present on both sides. For Kanata West Centre Drive, sidewalks are provided on the eastern side of the road. For Cabela's Way, sidewalks are provided on the northern side of the road. Figure 4 depicts the sidewalks.

2.2.2. Bicycle Network

Bicycle tracks are provided in parallel to a fraction of road sections on Palladium Drive and Campeau Drive. The bicycle network within the study area is identical to the description of sidewalks of Palladium Drive and Campeau Drive in section 2.2.1. The cycling tracks are displayed in Figure 5.

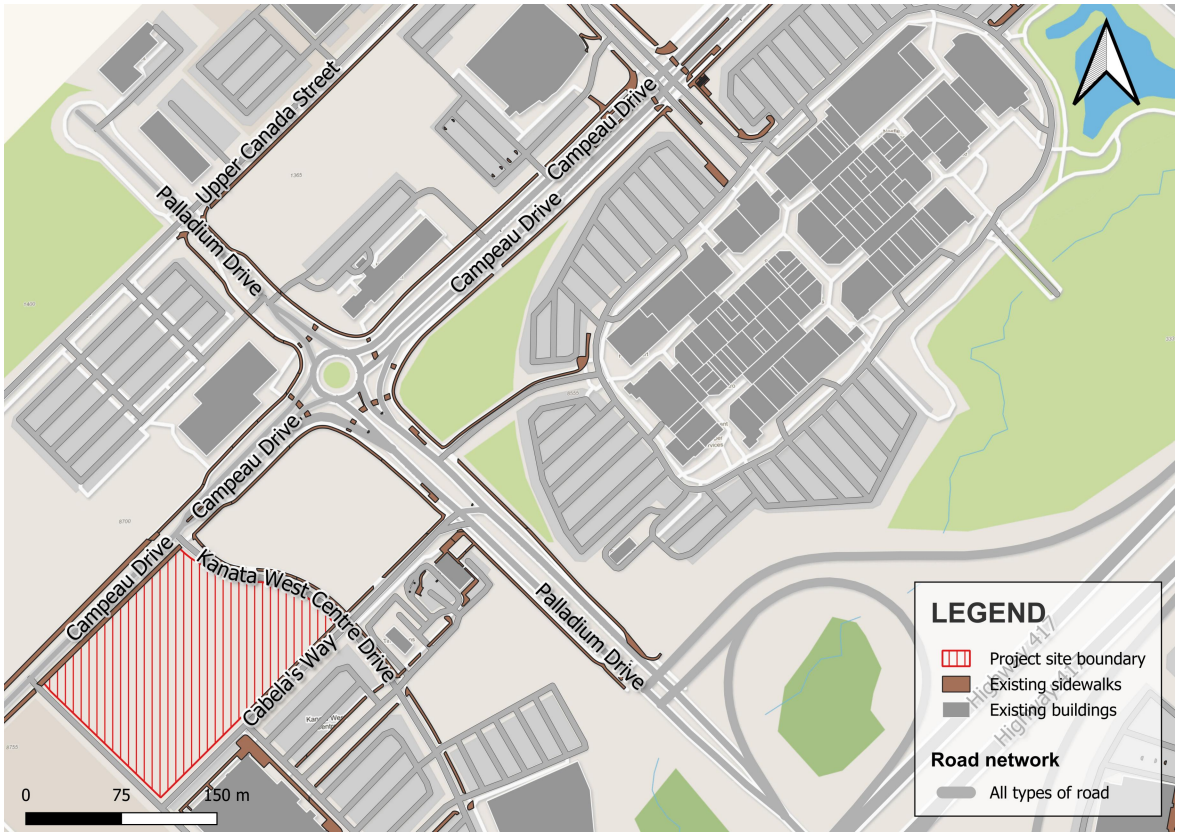


FIGURE 4: EXISTING SIDEWALKS

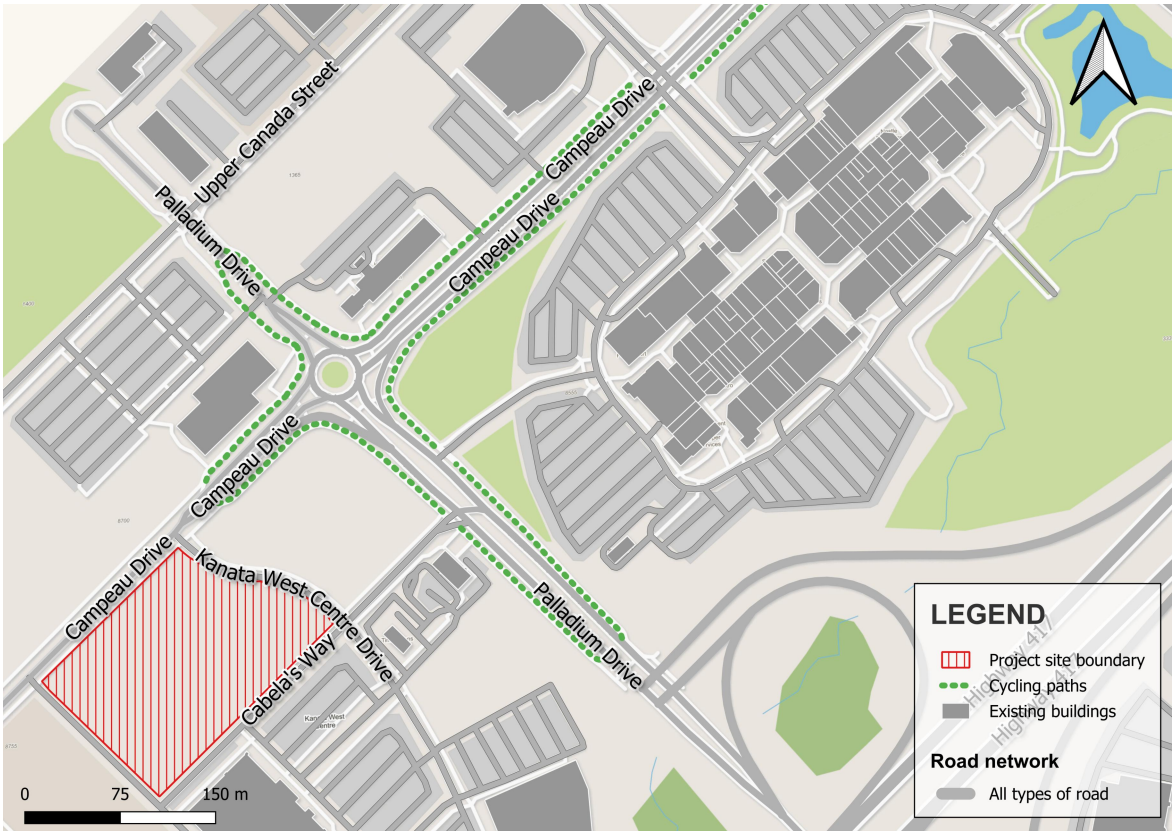


FIGURE 5: EXISTING CYCLING TRACKS

2.3. Intersections

The existing key intersections within one kilometre of the site have been summarized below:

Campeau Drive at Kanata West Centre Drive intersection is an unsignalized T-junction with a stop control on the minor approach of Kanata West Centre Drive. All approaches comprise of a shared all-movements lane. No turn restrictions are present.

Campeau Drive at Palladium Drive intersection is an unsignalized four-legged roundabout. The northbound approach consists of a shared left-turn/through lane and a right-turn bypass lane, and the southbound approach consists of a shared left-turn/through lane and a shared through/right-turn lane. The eastbound approach consists of a shared all-movement lane and a right-turn bypass lane, and the westbound approach consists of a left-turn lane and a shared all-movement lane.

Campeau Drive at Journeyman Street intersection is an actuated signalized junction. The northbound and southbound approaches have 1 auxiliary left-turn lane, 1 through lane, and 1 auxiliary right-turn lane. The eastbound and westbound approaches also have a three-lane configuration but right-turn traffic is shared with through traffic (1 auxiliary left-turn lane, 1 through lane, and 1 shared right-turn and through traffic lane). Pedestrian crossings are provided on all four directions. Cycling crossings are only provided in the southern leg of the intersection.

Palladium Drive at Cabela's Way intersection is an unsignalized T-junction with a stop control on the minor approach of Cabela's Way. The northbound approach consists of an auxiliary left-turn lane and two through lanes, the southbound approach consists of one through lane and one shared right-turn and through lane. The eastbound direction consists of one right-turn lane and left-turn movements are prohibited.

Kanata West Centre Drive at Cabela's Way intersection is an unsignalized junction with an all-way stop control. All approaches have a single shared all movements lane.

Palladium Drive at Westbound Ramp of Highway 417 intersection is an actuated signalized T-junction. The northbound approach consists of an auxiliary channelized right-turn lane and two through lanes. The southbound approach consists of an auxiliary left-turn lane and two through lanes. The westbound approach consists of two left-turn lanes and one auxiliary right-turn lane. It should be noted that pedestrian sidewalks and cycling tracks terminate at this intersection. Pedestrian and cycling crossings are only available in the northern crossing of Palladium Drive, and crossings on the Westbound Ramp Highway 417 and the southern crossing of Palladium Drive are prohibited.

Palladium Drive at Eastbound Ramp of Highway 417 intersection is an unsignalized T-junction with a stop control on the minor approach of eastbound ramp of Highway 417. The northbound approach consists of an auxiliary channelized right-turn lane and two through lanes. The southbound approach consists of an auxiliary channelized left-turn lane and two through lanes. The eastbound approach consists of one left-turn and one right-turn lane. No turn restrictions are imposed.

2.4. Driveways

Within 200 metres of the proposed site access, accesses are present on Kanata West Centre Drive and Cabela's Way to the retail plaza. Figure 6 illustrates the existing driveways.



FIGURE 6: EXISTING DRIVEWAYS

2.5. Transit Services

Figure 7 illustrates the transit system map and nearby transit stops in the study area. Figure 8 depicts all bus stops within 400 m of the site. Within the study area, routes 62 and 162 travel along Palladium Drive, Campeau Dive, and Huntmar Drive. Primary stops are located at Palladium Drive at Campeau Dive. The frequency of these routes within proximity of the proposed site are:

- **Route 62** – 30-minute service all-day
- **Route 162** – Three afternoon buses and four late evening buses per day

In general, the subject site has good accessibility to public transit (OC Transpo buses), the respective bus route schedules are supplemented in Appendix C.



FIGURE 7: EXISTING STUDY AREA TRANSIT SERVICES



FIGURE 8: EXISTING STUDY AREA TRANSIT STOPS WITHIN 400 METRES

2.6. Existing Traffic Data

Existing turning movement counts were acquired from the City of Ottawa, The Traffic Specialist, and Ministry of Transportation for the existing study area intersection. The volumes were balanced along the roadways to approximate 2024 traffic volumes based on related background traffic from proximal built-out developments between the intermediate years of traffic surveys. Table 1 summarizes the intersection count dates.

TABLE 1: INTERSECTION TRAFFIC COUNT DATA

Intersection	Count Date	Source
Campeau Drive at Kanata West Centre Drive	Tuesday, May 28, 2019	The Traffic Specialist
	Saturday, Apr 1, 2023	
Campeau Drive at Palladium Drive	Tuesday, May 28, 2019	The Traffic Specialist
	Saturday, Apr 1, 2023	
Campeau Drive at Journeyman Street	Thursday, May 23, 2019	The Traffic Specialist
	Saturday, Apr 1, 2023	
Palladium Drive at Cabela's Way	Thursday, May 23, 2019	The Traffic Specialist
	Saturday, Apr 1, 2023	
Kanata West Centre West Drive at Cabela's Way	Thursday, Jun 13, 2024	Ontario Traffic Inc.
	Saturday, Jun 15, 2024	
Palladium Drive at Highway 417 Westbound Ramp	Wednesday, Nov 2, 2022	City of Ottawa
	Saturday, Apr 1, 2023	The Traffic Specialist
Palladium Drive at Highway 417 Eastbound Ramp	Tuesday, Apr 24, 2018	Ministry of Transportation, Ontario
	Saturday, Apr 1, 2023	The Traffic Specialist

2.7. Existing Traffic Operations

The developments of 8600 Campeau Drive, 8700 Campeau Drive, 800 Palladium Drive, Kanata West Retail/Business Park (Furniture Stores), and 340 Huntmar Drive are noted to have been completed during the intermediate years from the traffic counts and have been added to the existing condition. While not within the study area, the Campeau Drive

extension was completed and opened in the fall of 2021, connecting Campeau Drive across the Carp River to Didsbury Road, including the roundabout at Winterset Road and signals at both Kanata Commons and Didsbury Road. Palladium Drive has been realigned to the south of Highway 417 at a new roundabout intersection to form a portion of the planned Kanata North-South Arterial.

Existing pedestrian and cycling traffic conditions sampled by the traffic movement count (TMC) listed in Table 1 are illustrated in Figure 9 and Figure 10 respectively. Figure 11 depicts the existing traffic counts. Detailed TMC reports are supplemented in Appendix D. HCM 2000 in Synchro V12 was used to study the capacity of all signalized and unsignalized (one-way stop) junctions using the existing traffic volumes depicted in Figure 11. Meanwhile, the target roundabout is analyzed with Sidra 9.1. The peak hour factor of each respective traffic stream at the intersection was determined based on the traffic count data. The existing signal plans were used as junction control inputs. The results of junction capacity analysis for existing conditions are summarized in Table 2. Detailed Synchro and Sidra analysis sheets are provided in Appendix E.

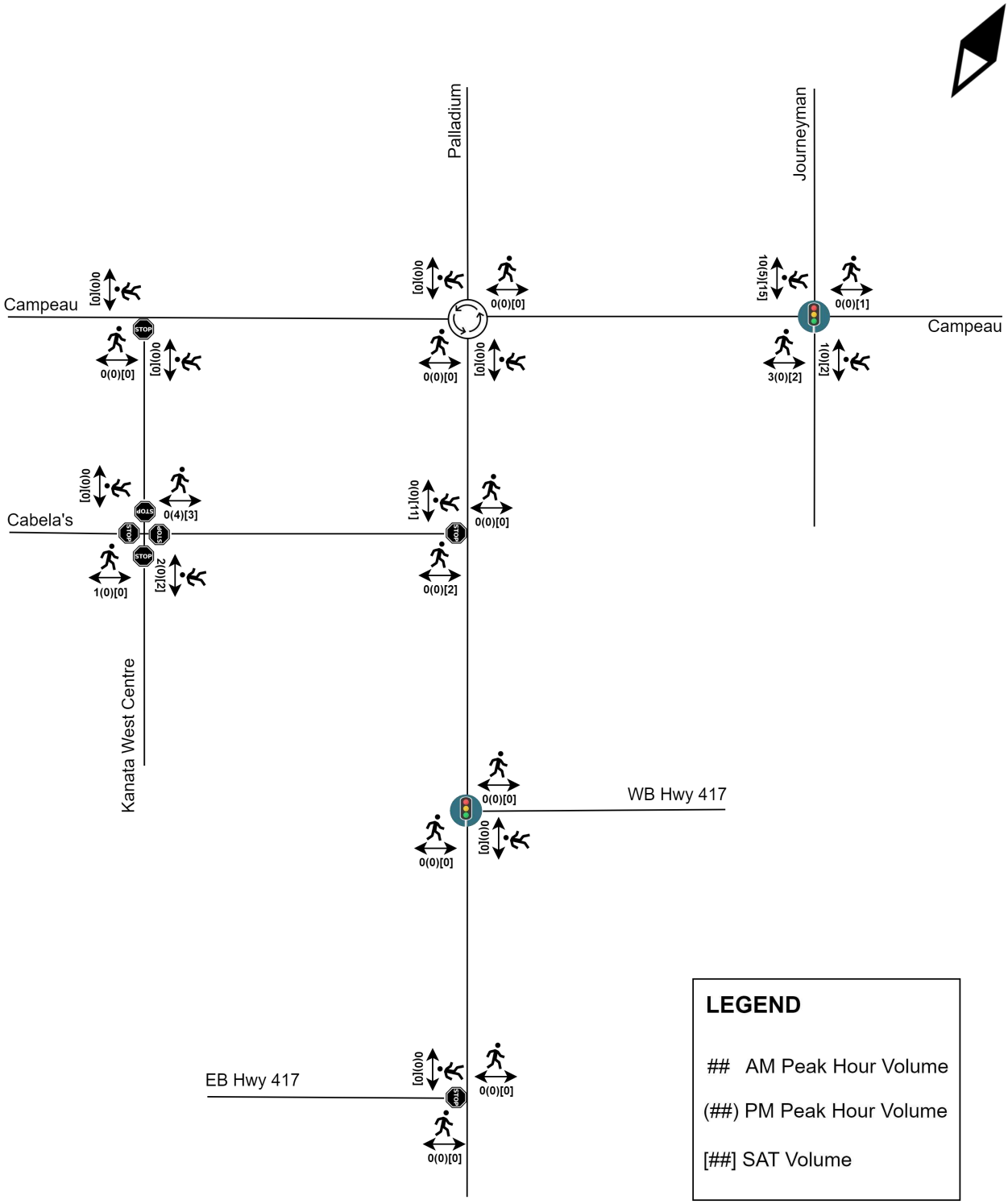


FIGURE 9: EXISTING PEDESTRIAN TRAFFIC

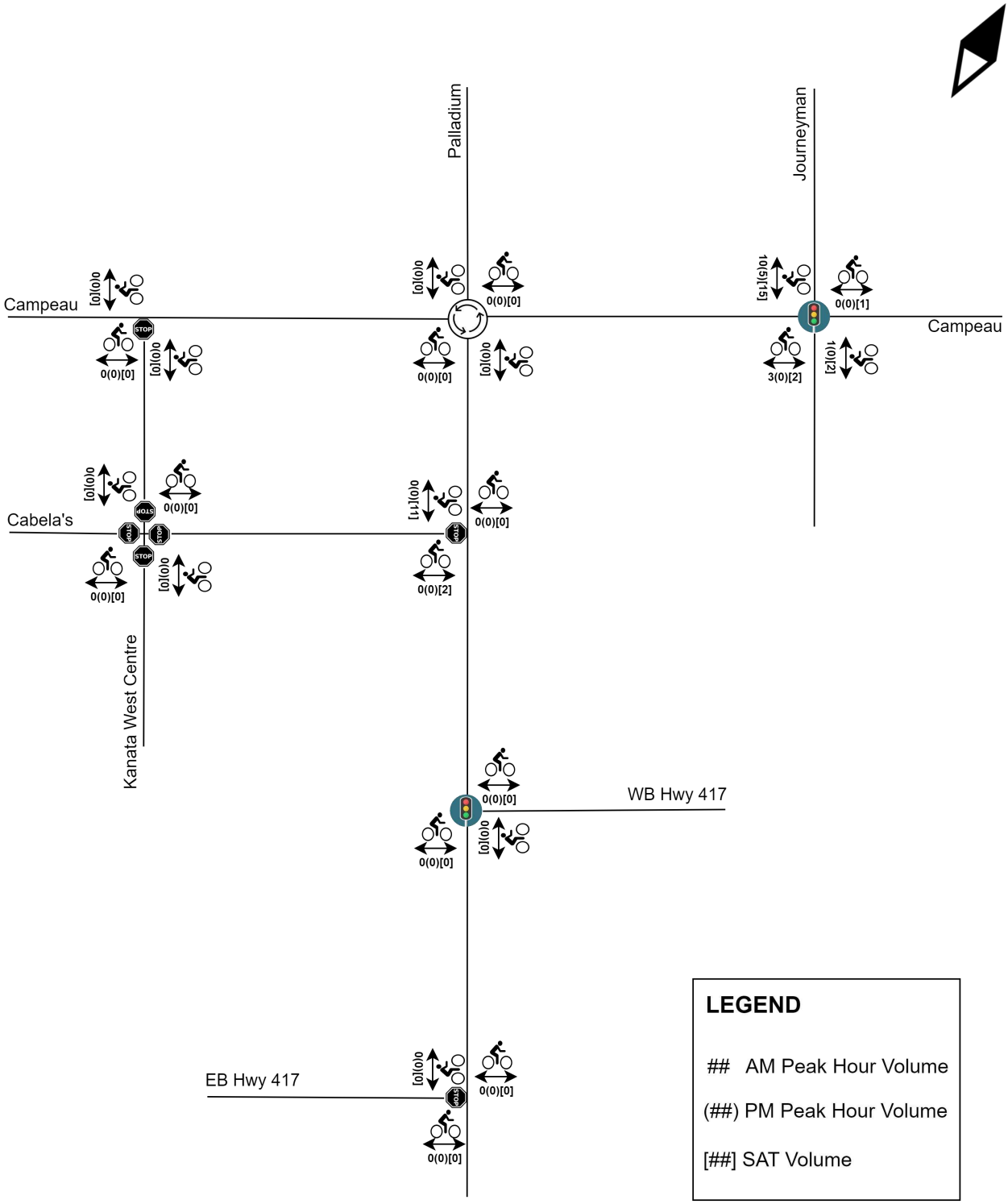


FIGURE 10: EXISTING BIKE TRAFFIC

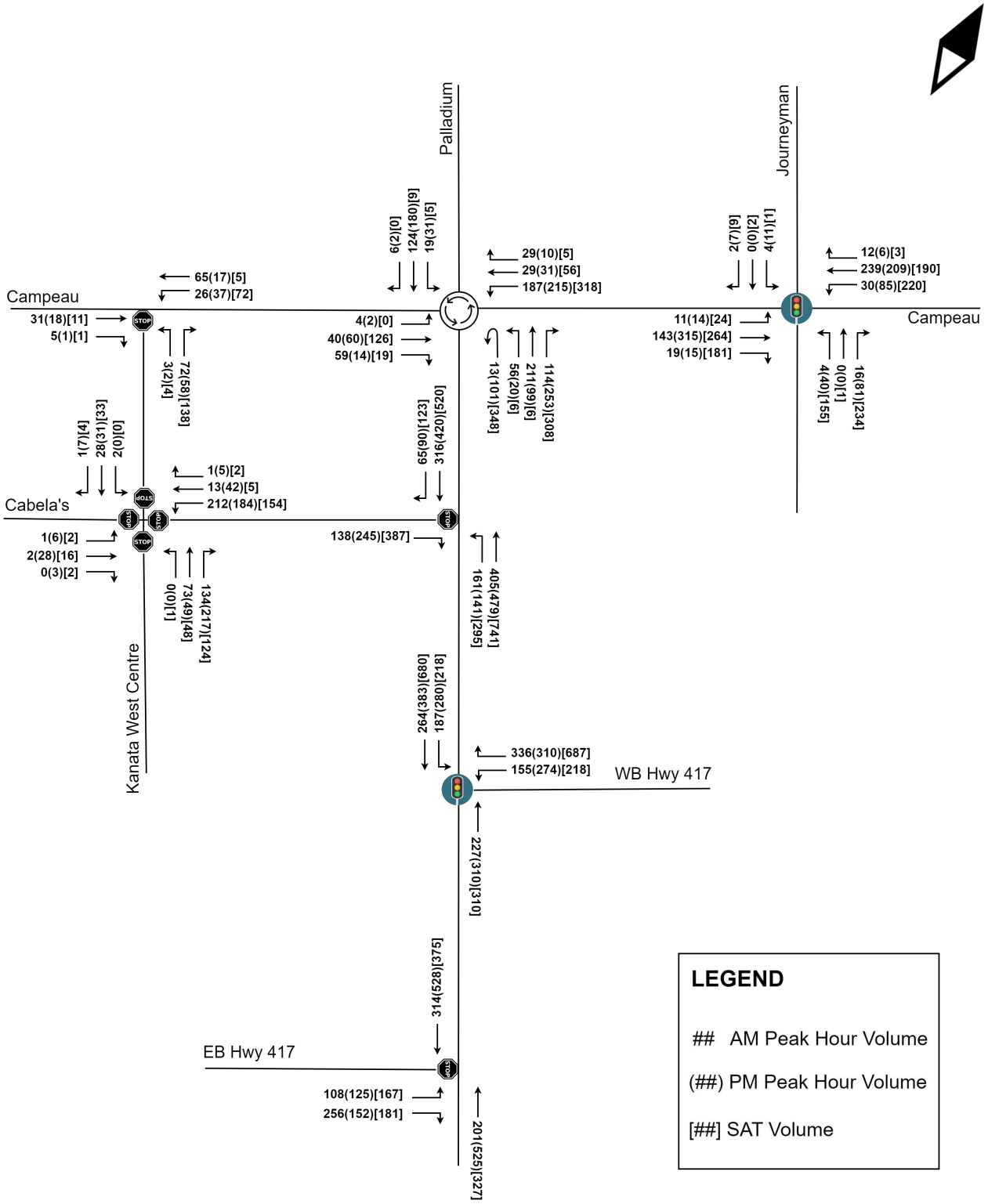


FIGURE 11: EXISTING VEHICULAR TRAFFIC

TABLE 2: EXISTING TRAFFIC CONDITIONS

Intersection	Lane	A.M. Peak Hour				P.M. Peak Hour				SAT. Peak Hour			
		LOS	V/C	Delay (s)	Queue (95th) (m)	LOS	V/C	Delay (s)	Queue (95th) (m)	LOS	V/C	Delay (s)	Queue (95th) (m)
Campeau Drive & Kanata West Centre Drive (Unsignalized)	EBT/R	-	0.02	0	0	-	0.01	0	0	-	0.01	0	0
	WBL	A	0.02	3	5	A	0.03	8	5	A	0.05	8	5
	WBT	-	0.04	0	0	-	0.01	0	0	-	0.00	0	0
	NBL/R	A	0.08	9	5	A	0.06	9	5	A	0.15	9	5
	Net	**A**	**-**	**5**	**-**	**A**	**-**	**6**	**-**	**A**	**-**	**8**	**-**
Campeau Drive & Palladium Drive (Roundabout)	EBL	B	0.068	11	5	B	0.060	11	5	B	0.121	11	5
	EBT	A	0.068	5	5	A	0.060	5	5	A	0.121	5	5
	EBR	A	0.068	4	5	A	0.008	4	0	A	0.011	4	0
	WBL	B	0.107	11	5	B	0.107	11	5	B	0.178	11	10
	WBT	A	0.107	5	5	A	0.107	5	5	A	0.178	5	10
	WBR	A	0.107	5	5	A	0.107	5	5	A	0.178	5	10
	NBL	A	0.186	10	10	A	0.152	10	10	A	0.256	10	15
	NBT	A	0.186	4	10	A	0.152	4	10	A	0.256	4	15
	NBR	A	0.067	3	0	A	0.148	3	0	A	0.180	3	0
	SBL	B	0.071	11	5	B	0.107	11	5	B	0.009	12	5
	SBT	A	0.071	5	5	A	0.107	5	5	A	0.009	6	5
	SBR	A	0.071	5	5	A	0.107	5	5	A	0.009	6	5
	Net	**A**	**0.186**	**6**	**10**	**A**	**0.152**	**6**	**10**	**A**	**0.256**	**8**	**12**
Campeau Drive & Journeyman Street (Signalized)	EBL	C	0.05	24	5	C	0.07	24	10	B	0.07	19	10
	EBT/R	C	0.26	25	20	C	0.57	28	35	C	0.33	22	35
	WBL	C	0.14	24	10	C	0.54	30	25	E	0.94	69	#85
	WBT/R	C	0.42	26	30	C	0.37	26	25	B	0.18	20	25
	NBL	A	0.00	6	5	A	0.05	6	10	B	0.26	14	30
	NBT	-	-	-	-	-	-	-	-	B	0.00	11	5
	NBR	A	0.01	6	0	A	0.06	6	0	B	0.17	13	15
	SBL	A	0.00	6	5	A	0.01	6	5	B	0.00	12	5
	SBT	-	-	-	-	-	-	-	-	B	0.00	12	5
	SBR	A	0.00	6	0	A	0.00	6	0	B	0.00	12	0
	Net	**C**	**0.11**	**24**	**-**	**C**	**0.18**	**23**	**-**	**C**	**27**	**0.55**	**-**
Palladium Drive & Cabela's Way (Unsignalized)	EBR	B	0.19	10	10	B	0.38	14	15	C	0.67	22	40
	NBL	A	0.16	9	5	A	0.16	10	5	B	0.37	12	15
	NBT	-	0.13	0	0	-	0.16	0	0	-	0.24	0	0
	SBT	-	0.14	0	0	-	0.18	0	0	-	0.24	0	0
	SBR	-	0.11	0	0	-	0.15	0	0	-	0.19	0	0

	Net	**B**	**-**	**3**	**-**	**B**	**-**	**4**	**-**	**A**	**-**	**6**	**-**
Kanata West Centre Drive & Cabela's Way (Unsignalized)	EBL/T/R	A	0.004	8	0 (veh)	A	0.054	9	0.2 (veh)	A	0.028	8	0.1 (veh)
	WBL/T/R	A	0.306	9	1.3 (veh)	B	0.330	11	1.4 (veh)	A	0.232	10	0.9 (veh)
	NBL/T/R	A	0.256	9	1 (veh)	A	0.329	10	1.4 (veh)	A	0.214	9	0.8 (veh)
	SBL/T/R	A	0.050	10	0.2 (veh)	A	0.054	9	0.2 (veh)	A	0.052	8	0.2 (veh)
	Net	**A**	**-**	**10**	**-**	**B**	**-**	**10**	**-**	**A**	**-**	**9**	**-**
Palladium Drive & WB of Hwy 417 (Signalized)	WBL	B	0.25	19	25	B	0.45	20	30	B	0.22	18	30
	WBR	B	0.25	19	25	B	0.23	19	20	C	0.82	34	#135
	NBT	B	0.32	18	30	B	0.49	20	35	C	0.47	26	40
	SBL	A	0.42	9	30	A	0.56	10	35	B	0.50	13	40
	SBT	A	0.19	7	20	A	0.23	7	20	B	0.47	13	55
	Net	**B**	**0.41**	**15**	**-**	**B**	**0.60**	**15**	**-**	**C**	**0.71**	**22**	**-**
Palladium Drive & EB of Hwy 417 (Unsignalized)	EBL/R	C	0.57	17	30	D	0.73	34	45	C	0.68	24	40
	NBT	-	0.07	0	0	-	0.17	0	0	-	0.11	0	0
	SBT	-	0.10	0	0	-	0.17	0	0	-	0.12	0	0
	Net	**C**	**-**	**7**	**-**	**D**	**-**	**7**	**-**	**C**	**-**	**8**	**-**

Remarks: Saturation flow rate = 1800 veh/h/lane ; Peak Hour Factor = 0.90 ; # Queue (95th) = volume for the 95th percentile cycle exceeds capacity

Overall, there are no capacity issues being observed during the AM and PM peak hours. However, extended queues on the westbound left-turn stream at Campeau Drive and Journeyman Street intersection, and the westbound right-turn stream at Palladium Drive and Westbound of Highway 417 off-ramp may occur during SAT peak hour.

2.8. Collision Analysis

Collision data have been acquired from the open data portal of the City of Ottawa for six years prior to the commencement of this TIA for the surrounding study area road network. Table 3 summarizes the collision types and conditions within the study area. Figure 12 illustrates the intersections and segments analyzed, and Table 4 summarizes the total collisions for each of these locations. Collision data are included in Appendix F.

TABLE 3: STUDY AREA COLLISION SUMMARY (2017-2022)

		No.	Ratio
	Total Collisions	**30**	**100%**
Classification	Fatality	0	0%
	Non-Fatal Injury	4	14%
	Property Damage Only	26	86%
Initial Impact Type	Angle	4	14%
	Rear-end	13	44%
	Sideswipe	5	17%
	Turning Movement	6	20%
	SMV Other	2	5%
	Other	0	0%
Road Surface Condition	Dry	27	90%
	Wet	1	3%
	Loose Snow	2	7%
Pedestrian Involved		0	0%
Cyclists Involved		0	0%

TABLE 4: SUMMARY OF COLLISION LOCATIONS (2017-2022)

	No.	Ratio
Intersection / Road Segment	**30**	**100%**
Highway 417 WB Off-ramp at Palladium Drive	14	46%
Highway 417 EB Off-ramp at Palladium Drive	3	10%
Campeau Drive at Journeyman Street	4	13%
Campeau Drive at Palladium Drive	5	17%
Campeau Drive between Palladium Drive and Journeyman Street	2	7%
Palladium Drive between Campeau Drive and Highway 417 WB Off-ramp	2	7%

TABLE 5: COLLISION SUMMARY OF HIGHWAY 417 WB OFF-RAMP (2017-2022)

		No.	Ratio
	Total Collisions	**14**	**100%**
Classification	Fatality	0	0%
	Non-Fatal Injury	1	7%
	Property Damage Only	13	93%
Initial Impact Type	Angle	1	7%
	Rear-end	8	57%
	Sideswipe	1	7%
	Turning Movement	4	29%
	SMV Other	0	0%
	Other	0	0%
Road Surface Condition	Dry	13	93%
	Wet	1	7%
	Loose Snow	0	0%

Pedestrian Involved	0	0%
Cyclists Involved	0	0%

The Highway 417 westbound off-ramp at Palladium Drive intersection had a total of 14 collisions during the 2017 - 2022 study period, where all collisions were associated with property damage. The collision types were most dominated by rear-end with 13 collisions, and turning movement, sideswipes, and angle accounted for 6 incidents or fewer. SMV Other types accounted for 2 cases. In general, weather conditions did not affect the rate of collisions at this location, and the collision rates are consistent through the study period which peaked with three collisions in 2017, 2020 and 2021. No further examination is required as part of this study.

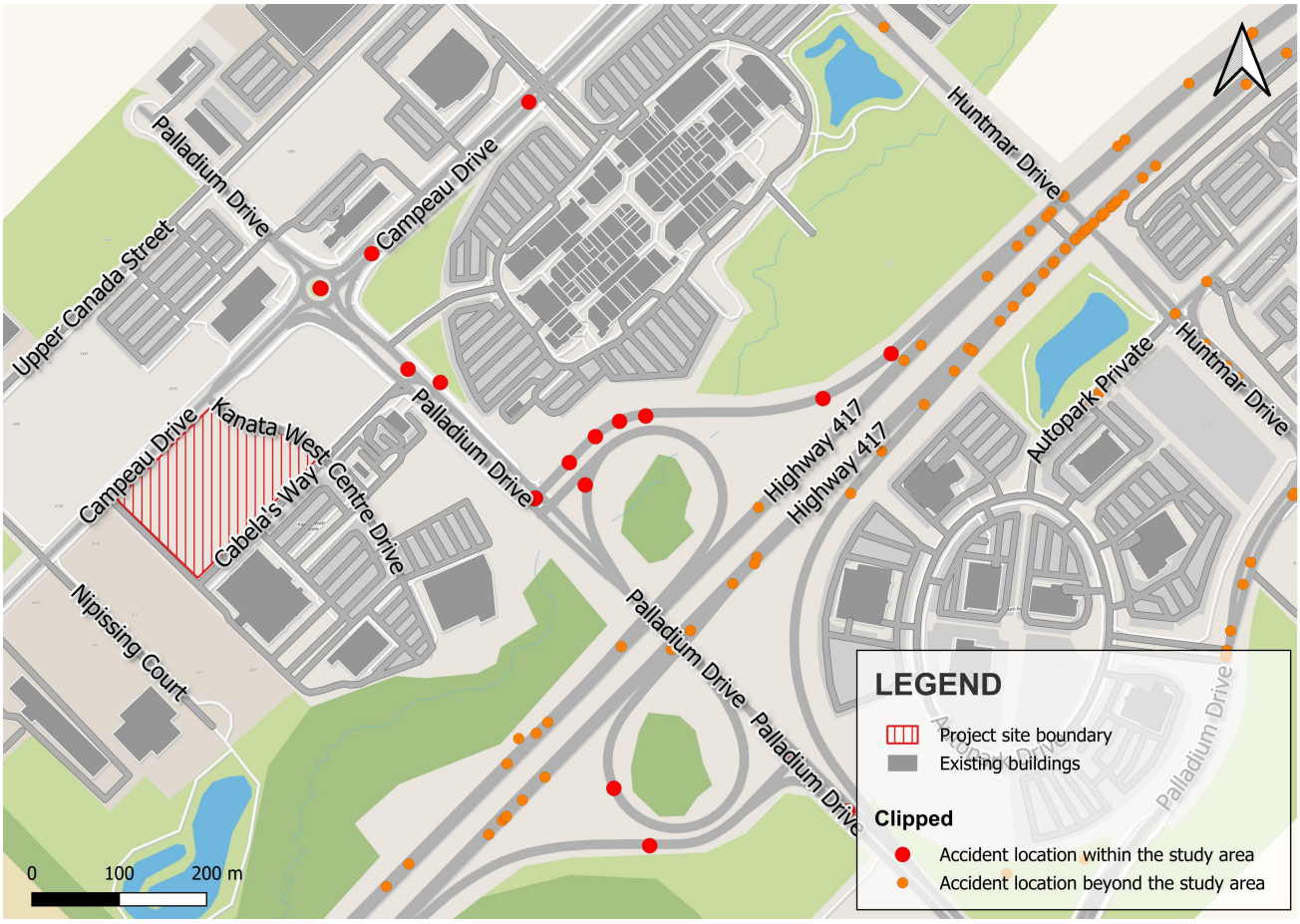


FIGURE 12: STUDY AREA COLLISION RECORDS (2017-2022)

3. PLANNED CONDITIONS

3.1. Changes to the Area Transportation Network

The Ultimate Network in the City's Transportation Master Plan (TMP) indicates the extension of current Light Rail Transit (LRT) services from Moodie Drive to Kanata, and this project is being studied within the Kanata LRT Planning and Environmental Assessment Study. The proposed Palladium Drive LRT stations of this extension are located at Campeau Drive at Huntmar Drive roundabout, and Cyclone Taylor Boulevard at Huntmar Drive respectively, which are roughly 1 km and 1.6 km away from the subject site correspondingly. The completion date of this LRT extension is expected to be beyond the study horizon of this project and will not be included in this study.

Despite beyond the study area of this study, the TMP 2013 Road Network indicates the widening of Huntmar Drive from two to four lanes between Campeau Drive and Maple Grove Road in Phase 3 between 2026 to 2031.

Robert Grant Avenue is planned to be extended from Huntmar Drive to Abbott Street as shown in the TMP 2013 as Phase 2 in 2020 to 2025. While an extension of Stittsville Main Street with a new two-lane road between Palladium Drive and Maple Grove Road is identified as a Phase 3 project between 2026 to 2031. The environmental impact assessment of the Stittsville Main Street extension has been concluded in October 16, 2023. However, the built-out date is believed to be beyond the study horizon of this project and will not be considered in this study.

The intersection of Palladium Drive and the Eastbound Ramp of Highway 417 will be signalized by 2027. Therefore, this change in area traffic control will be included in future conditions.

The geometric design of the Palladium Drive and the Eastbound Ramp of Highway 417 intersection and other references regarding future plannings are provided in Appendix G.

3.2. Other Background Developments

130 Huntmar Drive is a mixed-use development consists of 90 single-family homes, 226 townhomes, 426 stacked townhomes, 2790 m^2 of retail space, and 24090 m^2 of school area. The development is expected to be built-out in 2024, and the site will generate 695 and 609 vehicle trips in AM and PM peak hours respectively (Dillon Consulting, 2020).

195 Huntmar Drive is a mixed-use development consists of 155 single-detached, 418 townhouse units, a total of 13747 m^2 of commercial purpose space from 3 parcels, and two car dealerships with 4000 m^2 area. The development is expected to be built-out in 2024, and the site will generate 991 and 1372 vehicle trips in AM and PM peak hours respectively (CGH Transportation, 2019).

319 Huntmar Drive is a residential development consists of 4 nine-storey high-rise residential apartment buildings with a total of 424 units and 106 units each. The expected built-out date is 2025, and the site will generate 153 and 195 vehicle trips in AM and PM peak hours respectively (IBI Group, 2021).

340 Huntmar Drive is a hotel development that has been constructed and occupied in 2021. The site generated traffic has already been reflected in the 2024 existing condition (Parsons, 2018).

405 Huntmar Drive is an industrial development of a warehouse with GFA of 44493 m^2. The anticipated built-out year is 2024, and the site will generate 89 and 92 vehicle trips in AM and PM peak hours respectively (Novatech, 2022).

570 Winterset Road (Arcadia Community Stage 5) is a residential development consists of 62 single-detached units and 162 townhouse units. The expected full built-out year is 2025, and the site will generate 86 and 104 vehicle trips in AM and PM peak hours respectively (CGH Transportation, 2021).

1300 - 1360 Upper Canada Street is an industrial development consists of a single-storey warehouse with GFA of roughly 11195 m^2. The expected built-out year is 2023, and the site

will generate 34 and 36 vehicle trips in AM and PM peak hours respectively. The site generated traffic has already been reflected in the 2024 existing condition (Parsons, 2021).

1400 Upper Canada Street is a combined office and warehouse development. Phase 1 consists of 780 m^2 of office area and 5300 m^2 of warehouse area, a total of 6080 m^2. Phase 2 is an extension of the existing warehouse area and will add an additional 1264 m^2 of space to the site. The anticipated built-out years for phase 1 and phase 2 are 2023 and 2028 respectively. Overall, phase 1 is expected to generate 178 and 122 vehicle trips in AM and PM peak hours respectively while phase 2 is expected to generate 213 and 150 vehicle trips in AM and PM peak hours respectively (Parsons, 2018).

3095 Palladium Drive is a retail development consists of 321 m^2 of retail space and 42 m^2 of car wash station. The expected built-out year is 2027,and the site will generate 90 and 117 vehicle trips in AM and PM peak hours respectively (CGH Transportation, 2023).

8415 Campeau Drive (Arcadia Community Stage 6) is a residential development consists of 264 stacked towns and 104 townhomes. The expected built-out year is 2025, and the site will generate 100 and 123 vehicle trips in AM and PM peak hours respectively (CGH Transportation, 2022).

8600 Campeau Drive is a hotel development that has been constructed in 2021. The site generated traffic has already been reflected in the 2024 existing condition (IBI Group, 2018).

8605 Campeau Drive is a gas station development that consists of 5 gasoline pumps with 10 fueling stations, a convenience store, and eating establishment with a drive-through, and an oil change structure. The expected built-out year is 2025, and the site will generate 110 and 119 vehicle trips in AM and PM peak hours respectively (NexTrans, 2020).

8700 Campeau Drive is an office development that has been constructed in 2021. The site generated traffic has already been reflected in the 2024 existing condition (Parsons, 2019).

8800 Campeau Drive is a combined office and warehouse development with a GFA of roughly 6131 m^2 in phase 1, and expand to 7228 m^2 in phase 2. The assumed operational

capacity of phase 1 is only 25% of its full capacity in 2023. The assumed built-out year of phase 2 is 2026. Overall, the development will generate 60 vehicle trips in AM and PM peak hours respectively in phase 1. Phase 2 will generate 70 and 71 vehicle trips in AM and PM peak hours correspondingly (Parsons, 2021).

Arcadia Community Stage 3 and 4 is a residential development that has been constructed in 2021. The site generated traffic has already been reflected in the 2024 existing condition (J.L Richards and Associates Limited, 2019).

Kanata West Retail/Business Park is a mixed-use development with industrial, office, and retail purpose sections. The site generated traffic has been included in the 2024 existing condition (Parsons, 2017).

Trip generations of the aforementioned developments are supplemented in Appendix H. Expected built-out dates are listed in Table 6.

TABLE 6: CONDITION OF NEARBY DEVELOPMENTS

Planned Development	Planned built-out year	Condition in 2024	Existing TMC 2024
130 Huntmar Drive	2024	Incomplete	Excluded
195 Huntmar Drive	2024	Incomplete	Excluded
319 Huntmar Drive	2025	Incomplete	Excluded
340 Huntmar Drive	2022	Completed	Included
405 Huntmar Drive	2024	Incomplete	Excluded
570 Winterset Road	2025	Incomplete	Excluded
1300-1360 Upper Canada Street	2023	Completed	Included
1400 Upper Canada Street	2028	Incomplete	Excluded
3095 Palladium Drive	2027	Incomplete	Excluded
8415 Campeau Drive	2025	Incomplete	Excluded
8600 Campeau Drive	2021	Completed	Included
8605 Campeau Drive	2025	Incomplete	Excluded
8700 Campeau Drive	2021	Completed	Included
8800 Campeau Drive	2026	Incomplete	Excluded
Arcadia Community Stage 3 and 4	2021	Completed	Included
Kanata West Retail/Business Park	2016	Completed	Included

4. EXEMPTION REVIEW

Table 7 summarizes the exemptions for this study.

TABLE 7: EXEMPTION REVIEW

Module	Element	Explanation	Exempt/Required
Design Review Component			
4.1 Development Design	*4.1.2 Circulation and Access*	Only required for site plans	Required
	4.1.3 New Street Networks	Only required for plans of subdivision	Exempt
4.2 Parking	*4.2.1 Parking Supply*	Only required for site plans	Required
	4.2.2 Spillover	Only required for site plans where parking supply is 15% below unconstrained demand	Exempt
Network Impact Component			
4.5 Transportation Demand Management	*All Elements*	Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time	Required
4.6 Neighbourhood Traffic Management	*4.6.1 Adjacent Neighbourhoods*	Only required when proposed development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds	Exempt
4.8 Network Concept		Only required when proposed development generates more than 200 person-trips during the peak hour in excess of equivalent volume permitted by established zoning	Exempt

4.1. TIA Stepped Process

The proposed site is part of the approved Kanata West Retail/Business Park subdivision, and it is consistent with the previous subdivision. No operational constraints are noted at the area intersections for the existing conditions. Due to the captioned factors, the City of Ottawa has agreed to combine Steps 3 and 4 into a single submission.

5. BACKGROUND TRAFFIC CONDITIONS

5.1. Study Horizon and Study Period

The proposed commercial development is expected to be completed by 2027, thus a 5-year horizon was used here for traffic analysis. Therefore, traffic conditions in 2027 and 2032 will be studied. Since the proposed development is fully used as commercial/retail purposes, AM peak hours can be neglected, while PM peak hours and Saturday hours will be thoroughly examined.

5.2. Future Traffic Growth (2027 - 2032)

All planned background developments within the study area have been considered in this TIA and they account for a substantial portion of traffic growth in Kanata. An annual growth rate of 1% is applied on the main municipal arterial roads of Campeau Drive and Palladium Drive to capture any additional traffic from further developments beyond the study area.

As mentioned in section 3.2, background developments that have built-out years beyond the existing condition in 2024 will be considered in future background conditions. The exhaustive list is as follows:

- 130 Huntmar Road

- 195 Huntmar Road
- 405 Huntmar Road
- 570 Winterset Road (Arcadia Community Stage 5)
- 1300 - 1360 Upper Canada Road
- 1400 Upper Canada Road
- 3095 Palladium Drive
- 8415 Campeau Drive
- 8605 Campeau Drive
- 8800 Campeau Drive

Since the Palladium Drive at Eastbound Ramp of Highway 417 intersection will be signalized in 2027, capacity analysis in 2027 and 2032 will be based on the modified road traffic control plan.

5.3. Background (2027) Traffic Volumes

The background P.M. and SAT. peak hour traffic volumes in 2027 were calculated based on the summation of traffic from existing conditions in 2024 (Figure 11), planned nearby developments (Figure 12), and the projected traffic growth from 2024 to 2027 (Figure 13). The projected background traffic volumes in 2027 are illustrated in Figure 14.

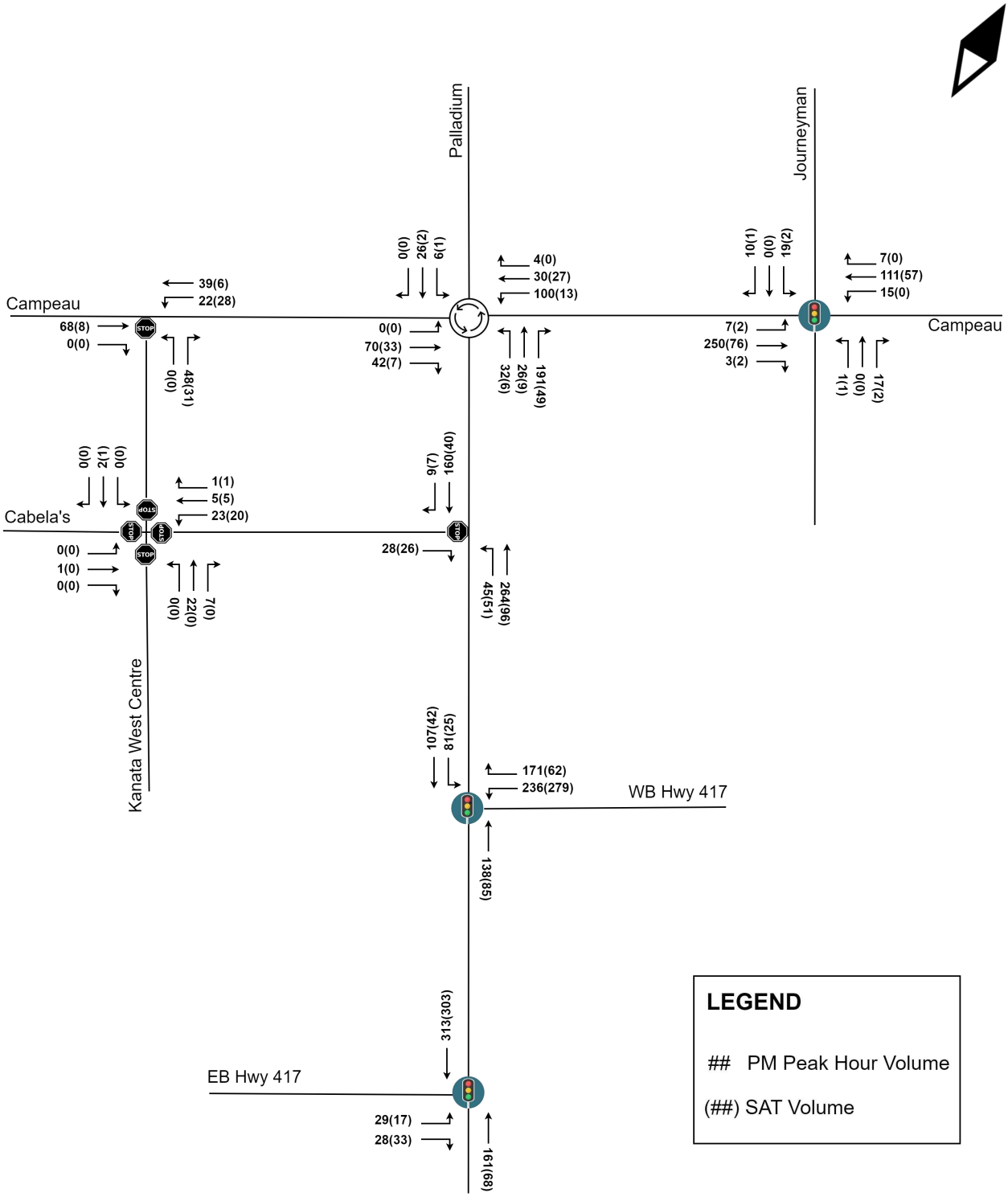


FIGURE 13: PROJECTED BACKGROUND DEVELOPMENT TRAFFIC

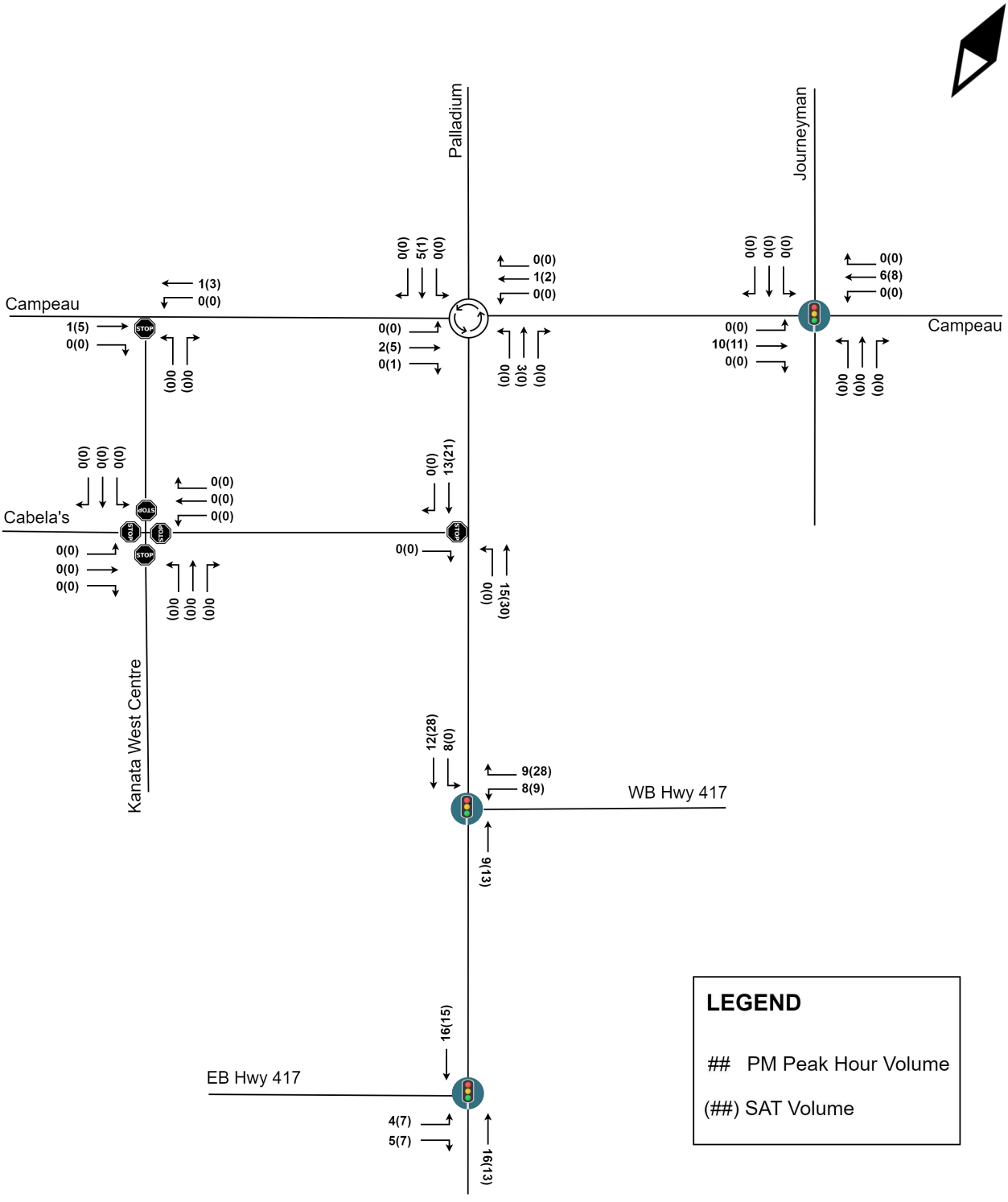


FIGURE 14: PROJECTED NET TRAFFIC GROWTH (2027)

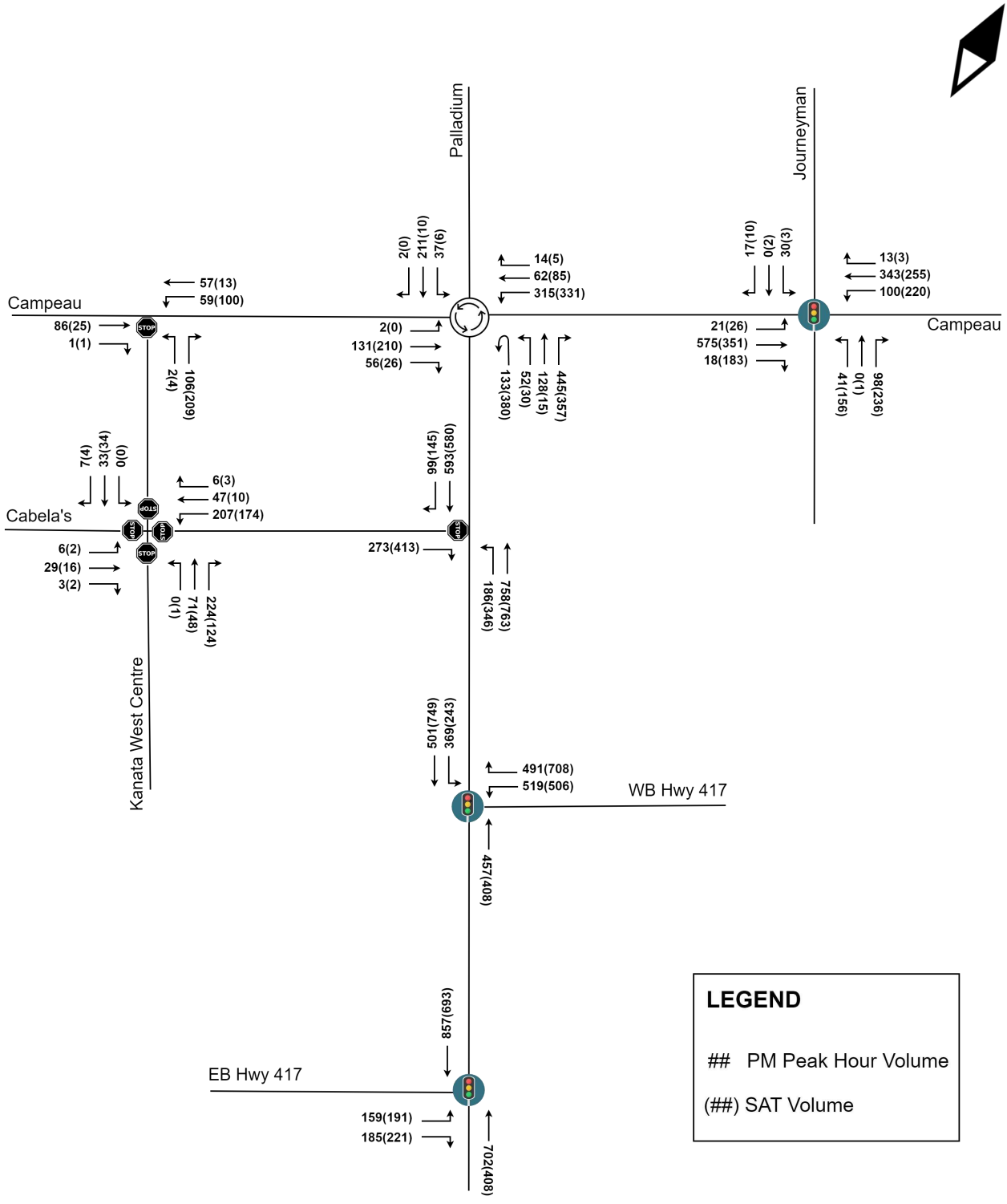


FIGURE 15: PROJECTED BACKGROUND TRAFFIC (2027)

5.4. Background (2027) Traffic Operations

The volumes related to the background (2027) scenario depicted in Figure 15 were subjected to capacity analysis using Synchro 12 and Sidra 9.1. No lost time adjustments are used for the Synchro analysis. Table 8 summarizes the background (2027) traffic conditions at the intersections within the study area.

TABLE 8: BACKGROUND TRAFFIC CONDITIONS (2027)

Intersection	Lane	P.M. Peak Hour				SAT. Peak Hour			
		LOS	V/C	Delay (s)	Queue (95th) (m)	LOS	V/C	Delay (s)	Queue (95th) (m)
Campeau Drive & Kanata West Centre Drive (Unsignalized)	EBT/R	-	0.06	0	0	-	0.02	0	0
	WBL	A	0.04	8	5	A	0.07	8	5
	WBT	-	0.04	0	0	-	0.01	0	0
	NBL/R	A	0.13	10	5	A	0.22	10	10
	Net	**A**	**-**	**5**	**-**	**A**	**-**	**8**	**-**
Campeau Drive & Palladium Drive (Roundabout)	EBL	B	0.121	11	5	B	0.180	11	10
	EBT	A	0.121	5	5	A	0.180	5	10
	EBR	A	0.030	4	0	A	0.014	4	0
	WBL	B	0.155	11	10	B	0.183	12	10
	WBT	A	0.155	5	10	A	0.183	6	10
	WBR	A	0.155	5	10	A	0.183	6	10
	NBL	A	0.205	10	10	B	0.288	10	15
	NBT	A	0.205	4	10	A	0.288	4	15
	NBR	A	0.234	4	0	A	0.288	3	0
	SBL	B	0.123	11	5	B	0.010	12	5
	SBT	A	0.123	6	5	A	0.010	6	5
	SBR	A	0.123	6	5	A	0.010	6	5
	Net	**A**	**0.234**	**7**	**10**	**A**	**0.288**	**8**	**15**
Campeau Drive & Journeyman Street (Signalized)	EBL	C	0.09	22	10	B	0.07	19	10
	EBT/R	C	0.71	29	65	C	0.44	22	50
	WBL	E	0.84	63	#45	F	1.07	110	#95
	WBT/R	C	0.42	24	40	B	0.23	20	30
	NBL	A	0.06	9	10	B	0.27	15	35
	NBT	-	-	-	-	B	0.00	12	5
	NBR	A	0.07	9	10	B	0.17	14	15
	SBL	A	0.04	9	10	B	0.00	12	5

	SBT	-	-	-	-	B	0.00	12	5
	SBR	A	0.01	8	0	B	0.00	12	0
	Net	**C**	**0.33**	**27**	**-**	**C**	**0.62**	**33**	**-**
Palladium Drive & Cabela's Way (Unsignalized)	EBR	C	0.49	17	25	D	0.77	29	55
	NBL	B	0.25	11	15	B	0.47	14	20
	NBT	-	0.25	0	0	-	0.25	0	0
	SBT	-	0.26	0	0	-	0.25	0	0
	SBR	-	0.19	0	0	-	0.22	0	0
	Net	**C**	**-**	**4**	**-**	**D**	**-**	**29**	**-**
Kanata West Centre Drive & Cabela's Way (Unsignalized)	EBL/T/R	A	0.060	9	0.2 (veh)	A	0.028	8	0.1 (veh)
	WBL/T/R	B	0.400	12	1.9 (veh)	A	0.268	10	1.1 (veh)
	NBL/T/R	B	0.397	11	1.9 (veh)	A	0.218	9	0.8 (veh)
	SBL/T/R	A	0.063	9	0.2 (veh)	A	0.054	9	0.2 (veh)
	Net	**B**	**-**	**11**	**-**	**A**	**-**	**9**	**-**
Palladium Drive & WB of Hwy 417 (Signalized)	WBL	C	0.66	26	60	B	0.47	20	55
	WBR	C	0.54	24	50	D	0.88	40	#145
	NBT	C	0.66	28	60	C	0.69	33	50
	SBL	C	0.82	22	#95	B	0.65	19	45
	SBT	A	0.31	10	40	B	0.55	17	65
	Net	**C**	**0.82**	**22**	**-**	**C**	**0.82**	**26**	**-**
Palladium Drive & EB of Hwy 417 (Signalized)	EBL/R	B	0.65	18	60	B	0.67	16	65
	NBT	B	0.52	11	55	B	0.35	12	35
	SBT	B	0.65	12	70	B	0.61	14	55
	Net	**B**	**0.65**	**13**	**-**	**B**	**0.65**	**14**	**-**

Remarks: Saturation flow rate = 1800 veh/h/lane ; Peak Hour Factor = 0.90 ; # Queue (95th) = volume for the 95th percentile cycle exceeds capacity

During the PM peak hour, the westbound left-turn movement at Campeau Drive at Journeyman Street may experience extended queues. The southbound left-turn movement at Palladium Drive at westbound ramp of Highway 417 may also observe extended queues and longer delays.

During the SAT peak hour, the traffic on the westbound left-turn stream at Campeau Drive at Journeyman Street is projected to exceed its theoretical capacity and can see high delays and extended queues. To alleviate the over-saturated westbound left-turn movement, reallocate 9.6 seconds from the north-south direction phase (Journeyman Street) to the

east-west direction phase (Campeau Drive) can effectively bring the volume to capacity ratio of all movements at Campeau Drive at Journeyman Street intersection to 1.00 or below. Furthermore, the westbound right-turn movement of Palladium Drive at westbound ramp of Highway 417 may experience extended queues.

The detailed analysis sheets are supplemented in Appendix I.

5.5. Background (2032) Traffic Volumes

The background P.M. and SAT. peak hour traffic volumes in 2032 were calculated based on the summation of projected traffic in 2027 (Figure 15) and the projected traffic growth from 2027 to 2032 (Figure 16). The projected background traffic volumes in 2032 are illustrated in Figure 17.

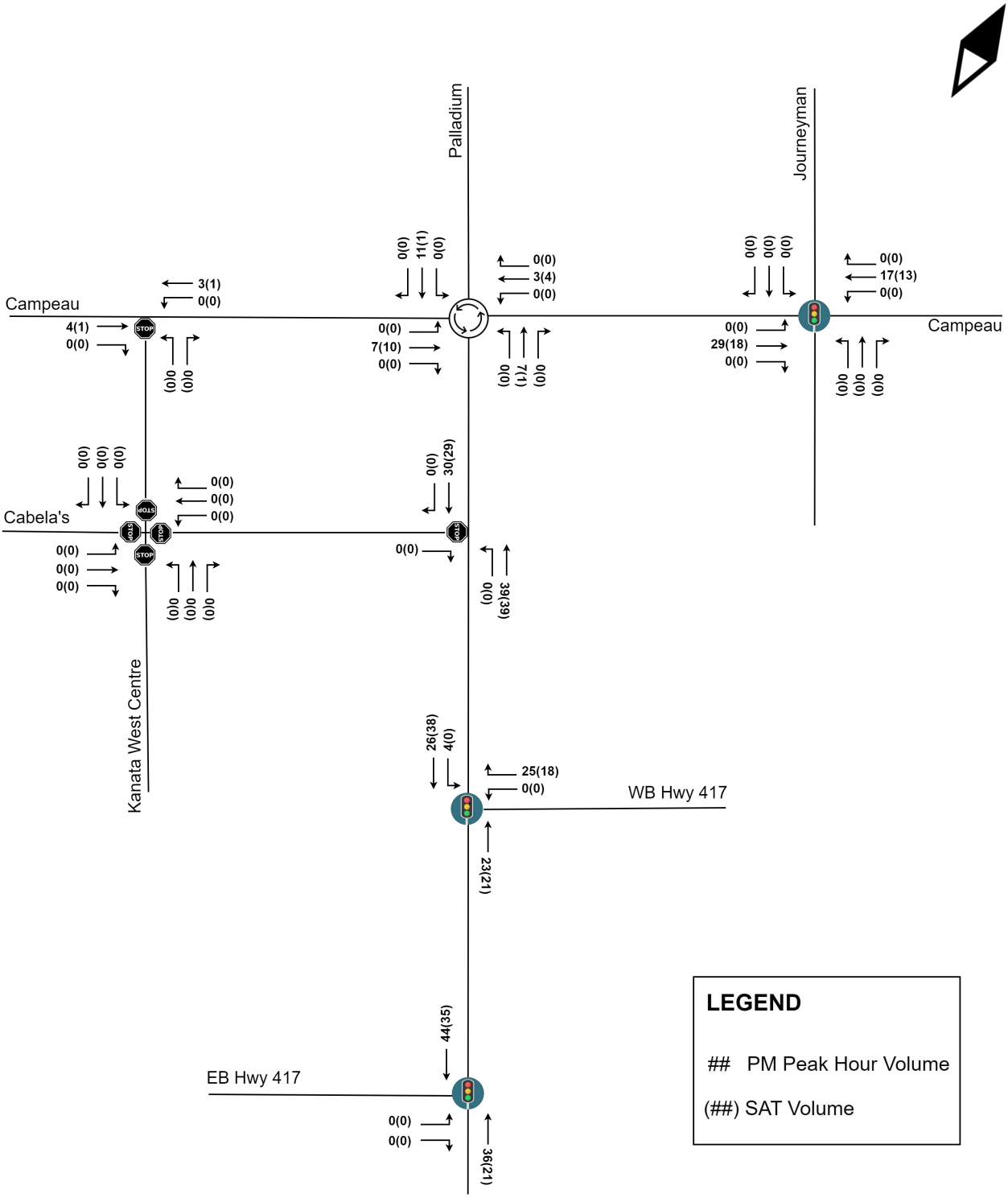


FIGURE 16: PROJECTED NET TRAFFIC GROWTH (2032)

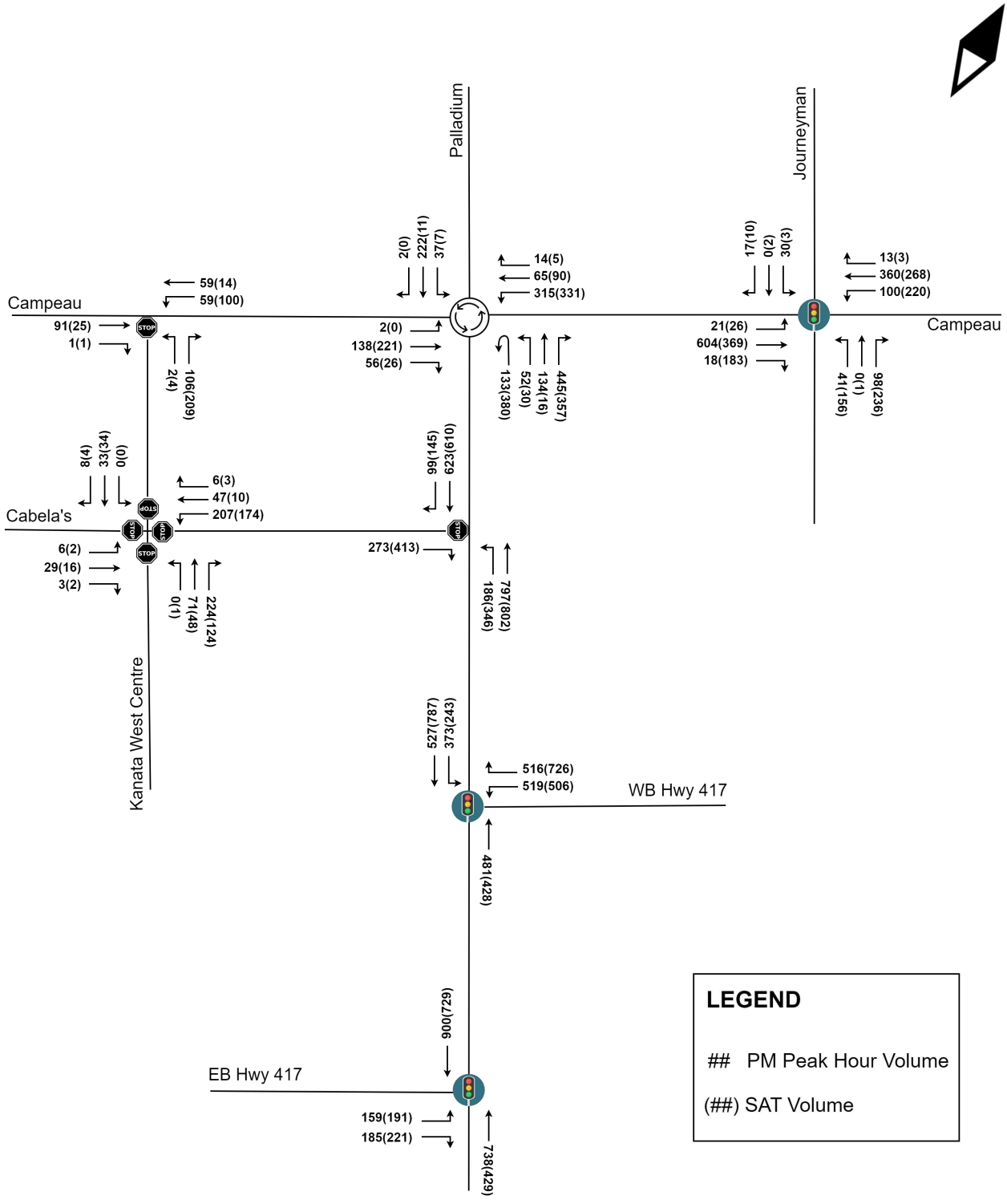


FIGURE 17: PROJECTED BACKGROUND TRAFFIC (2032)

5.6. Background (2032) Traffic Operations

The volumes related to the background (2032) scenario depicted in Figure 17 were subjected to capacity analysis using Synchro 12 and Sidra 9.1. No lost time adjustments were used for the Synchro analysis. Table 9 summarizes the background (2032) traffic conditions at the intersections within the study area.

TABLE 9: BACKGROUND TRAFFIC CONDITIONS (2032)

Intersection	Lane	P.M. Peak Hour				SAT. Peak Hour			
		LOS	V/C	Delay (s)	Queue (95th) (m)	LOS	V/C	Delay (s)	Queue (95th) (m)
Campeau Drive & Kanata West Centre Drive (Unsignalized)	EBT/R	-	0.06	0	0	-	0.02	0	0
	WBL	A	0.04	8	5	A	0.07	8	5
	WBT	-	0.04	0	0	-	0.01	0	0
	NBL/R	A	0.13	10	5	A	0.23	10	5
	Net	**A**	**-**	**5**	**-**	**A**	**-**	**8**	**-**
Campeau Drive & Palladium Drive (Roundabout)	EBL	B	0.127	11	5	B	0.189	11	10
	EBT	A	0.127	5	5	A	0.189	5	10
	EBR	A	0.030	4	0	A	0.014	4	0
	WBL	B	0.157	11	10	B	0.186	12	10
	WBT	A	0.157	5	10	A	0.186	6	10
	WBR	A	0.157	5	10	A	0.186	6	10
	NBL	A	0.210	10	10	B	0.291	11	15
	NBT	A	0.210	4	10	A	0.291	4	15
	NBR	A	0.234	4	0	A	0.188	3	0
	SBL	B	0.129	11	5	B	0.011	12	5
	SBT	A	0.129	6	5	A	0.011	6	5
	SBR	A	0.129	6	5	A	0.011	6	5
	Net	**A**	**0.234**	**7**	**10**	**A**	**0.291**	**8**	**15**
Campeau Drive & Journeyman Street (Signalized)	EBL	C	0.09	21	10	B	0.07	19	10
	EBT/R	C	0.71	29	70	C	0.47	23	55
	WBL	E	0.86	69	#45	F	1.11	124	#95
	WBT/R	C	0.43	24	40	B	0.24	20	30
	NBL	A	0.06	9	10	B	0.27	15	35
	NBT	-	-	-	-	B	0.00	12	5
	NBR	A	0.08	9	10	B	0.18	14	15
	SBL	A	0.04	9	10	B	0.00	12	5

	SBT	-	-	-	-	B	0.00	12	5
	SBR	A	0.01	9	0	B	0.00	12	0
	Net	**C**	**0.35**	**28**	**-**	**C**	**0.63**	**35**	**-**
Palladium Drive & Cabela's Way (Unsignalized)	EBR	C	0.51	17	25	D	0.79	31	60
	NBL	B	0.25	11	10	B	0.49	14	25
	NBT	-	0.26	0	0	-	0.26	0	0
	SBT	-	0.27	0	0	-	0.27	0	0
	SBR	-	0.20	0	0	-	0.23	0	0
	Net	**C**	**-**	**4**	**-**	**D**	**-**	**8**	**-**
Kanata West Centre Drive & Cabela's Way (Unsignalized)	EBL/T/R	A	0.060	9	0.2 (veh)	A	0.028	8	0.1 (veh)
	WBL/T/R	B	0.400	12	1.9 (veh)	A	0.268	10	1.1 (veh)
	NBL/T/R	B	0.397	11	1.9 (veh)	A	0.218	9	0.8 (veh)
	SBL/T/R	A	0.066	9	0.2 (veh)	A	0.054	8	0.2 (veh)
	Net	**B**	**-**	**11**	**-**	**A**	**-**	**9**	**-**
Palladium Drive & WB of Hwy 417 (Signalized)	WBL	C	0.66	26	60	B	0.47	20	55
	WBR	C	0.62	27	60	D	0.93	48	#160
	NBT	C	0.68	28	60	C	0.70	33	55
	SBL	C	0.83	24	#100	B	0.66	20	45
	SBT	A	0.32	10	45	B	0.58	17	70
	Net	**C**	**0.83**	**23**	**-**	**C**	**0.85**	**29**	**-**
Palladium Drive & EB of Hwy 417 (Signalized)	EBL/R	B	0.66	19	65	B	0.68	17	70
	NBT	B	0.53	11	60	B	0.36	12	35
	SBT	B	0.66	13	75	B	0.63	14	60
	Net	**B**	**0.66**	**13**	**-**	**B**	**0.66**	**14**	**-**

Remarks: Saturation flow rate = 1800 veh/h/lane ; Peak Hour Factor = 0.90 ; # Queue (95th) = volume for the 95th percentile cycle exceeds capacity

Overall, traffic conditions of all intersections within the study area in 2032 will operate in a similar pattern to the 2027 background traffic.

During the PM peak hour, the westbound left-turn movement at Campeau Drive at Journeyman Street may experience extended queues. The southbound left-turn movement at Palladium Drive at westbound ramp of Highway 417 may also observe extended queues and longer delays.

During the SAT peak hour, the traffic on the westbound left-turn stream at Campeau Drive at Journeyman Street is projected to exceed its theoretical capacity and can see high delays and extended queues. To alleviate the over-saturated westbound left-turn movement, reallocate 9.6 seconds from the north-south direction phase (Journeyman Street) to the east-west direction phase (Campeau Drive) can effectively bring the volume to capacity ratio of all movements at Campeau Drive at Journeyman Street intersection to 1.00 or below. Furthermore, the westbound right-turn movement of Palladium Drive at westbound ramp of Highway 417 may experience extended queues.

The detailed analysis sheets are supplemented in Appendix J.

6. PROPOSED SUBJECT SITE TRAFFIC

6.1. Site Trip Generation and Modal Split

The number of trips generated by the site is estimated based on the ITE Trip Generation Manual 11th Edition (2021). Table 10 summarizes the person trip rates and Table 11 summarizes the person trip rates for the commercial development in P.M. and SAT. peak hour respectively based on the City's suggested conversion factor of 1.28. The P.M. peak hour pass-by reduction of 40% and Saturday peak hour pass-by reduction of 31% will be reflected on the proposed commercial development that involves a Shopping Plaza with Supermarket (40-150k) from the ITE Trip Generation Manual 11th Edition. A uniform 10% of trips are estimated to be diverted trips for the proposed land use.

TABLE 10: SITE PERSON TRIP RATES

Land Use	ITE LUC	Period	Vehicle Trip Rate	Person Trip Rate
Shopping Plaza with Supermarket (40-150k)	821	P.M.	9.03	11.56
		SAT.	9.26	11.85

TABLE 11: SITE PERSON TRIP ESTIMATES

Land Use	GLA (1000 ft²)	P.M. Peak Hour			SAT. Peak Hour		
		In	Out	Total	In	Out	Total
Shopping Plaza with Supermarket (40-150k)	71.64	398	430	828	438	416	849

Modal split of the subject site is based on TRANS Trip Generation Manual (2020) derived from the latest National Capital Region Origin-Destination survey (OD survey). The existing modal split of Kanata/Stittsville region, where the subject site is located in, is summarized in Table 12. It is assumed the P.M. peak hour modal shares are concurrent with Saturday peak hour, and no retails are opened in A.M. peak hour.

TABLE 12: MODAL SPLIT OF KANATA/STITTSVILLE

Mode	P.M. and SAT. Peak Hour
Auto Driver	73%
Auto Passenger	22%
Public Transit	1%
Cycling	0%
Walking	4%
Total	100%

The total vehicle trips with consideration of pass-by and diversion is summarized in Table 13, while the finalized modal shares are listed in Table 14.

TABLE 13: ADJUSTED AUTO DRIVER TRIPS

Mode/Reduction	P.M. Peak Hour				SAT. Peak Hour			
	Share	In	Out	Total	Share	In	Out	Total
Auto Driver (Unadjusted)	73%	291	314	605	73%	320	304	624
Pass-by	-40%	-159	-172	-331	-31%	-136	-129	-265
Diversion	-10%	-40	-43	-83	-10%	-44	-42	-85
Auto Driver (Adjusted)	**73%**	**92**	**99**	**190**	**73%**	**140**	**133**	**273**

TABLE 14: TRIP GENERATION BY MODE

Mode	P.M. Peak Hour				SAT. Peak Hour			
	Share	In	Out	Total	Share	In	Out	Total
Auto Driver	73%	92	99	190	73%	140	133	273
Auto Passenger	22%	88	95	183	22%	96	92	188
Public Transit	1%	4	4	8	1%	4	4	8
Cycling	0%	0	0	0	0%	0	0	0
Walking	4%	16	17	33	4%	17	16	33
Total	**100%**	**200**	**215**	**415**	**100%**	**257**	**245**	**502**

Therefore, it is estimated the proposed commercial development will generate:

- 415 trips during the P.M. peak hour (200 inbound trips and 215 outbound trips); and,
- 502 trips during the SAT. peak hour (257 inbound trips and 245 outbound trips).

6.2. Site Trip Distribution and Assignment

The OD survey from TRANS Trip Generation Manual (2020) has described the traffic patterns in Kanata/Stittsville. Table 15 depicts the trip distributions of the subject site.

TABLE 15: TRIP DISTRIBUTION OF KANATA/STITTSVILLE

To/From	Percentage of Trips
North	15%
South	30%
East	50%
West	5%
Total	100%

Based on the above information, site generated traffic are assigned to the road network. Table 13 summarizes the trip assignment of site traffic.

TABLE 16: TRIP ASSIGNMENT

To/From	Percentage of Trips
North	15% via Campeau Drive
South	20% via WB Highway 417 10% via Campeau Drive
East	20% via Campeau Drive 30% via EB Highway 417
West	5% via WB Highway 417
Total	100%

The eastbound right-turn movement at Cabela's Way at Palladium Drive intersection has shown considerable delay and queue during the SAT. peak hour as listed in Table 9. It is assumed 95% of southbound drivers leaving the subject site will choose a minor detour from Campeau Drive to Palladium Drive roundabout instead of waiting on Cabela's Way.

During the P.M. peak hour, it is assumed 100% of southbound drivers leaving the subject site will use the eastbound right-turn lane on Cabela's Way to Palladium Drive when no substantial delays and queues are observed.

Figure 18 depicts the total site generated traffic, Figure 19 and Figure 20 illustrate the pass-by and diverted traffic respectively.

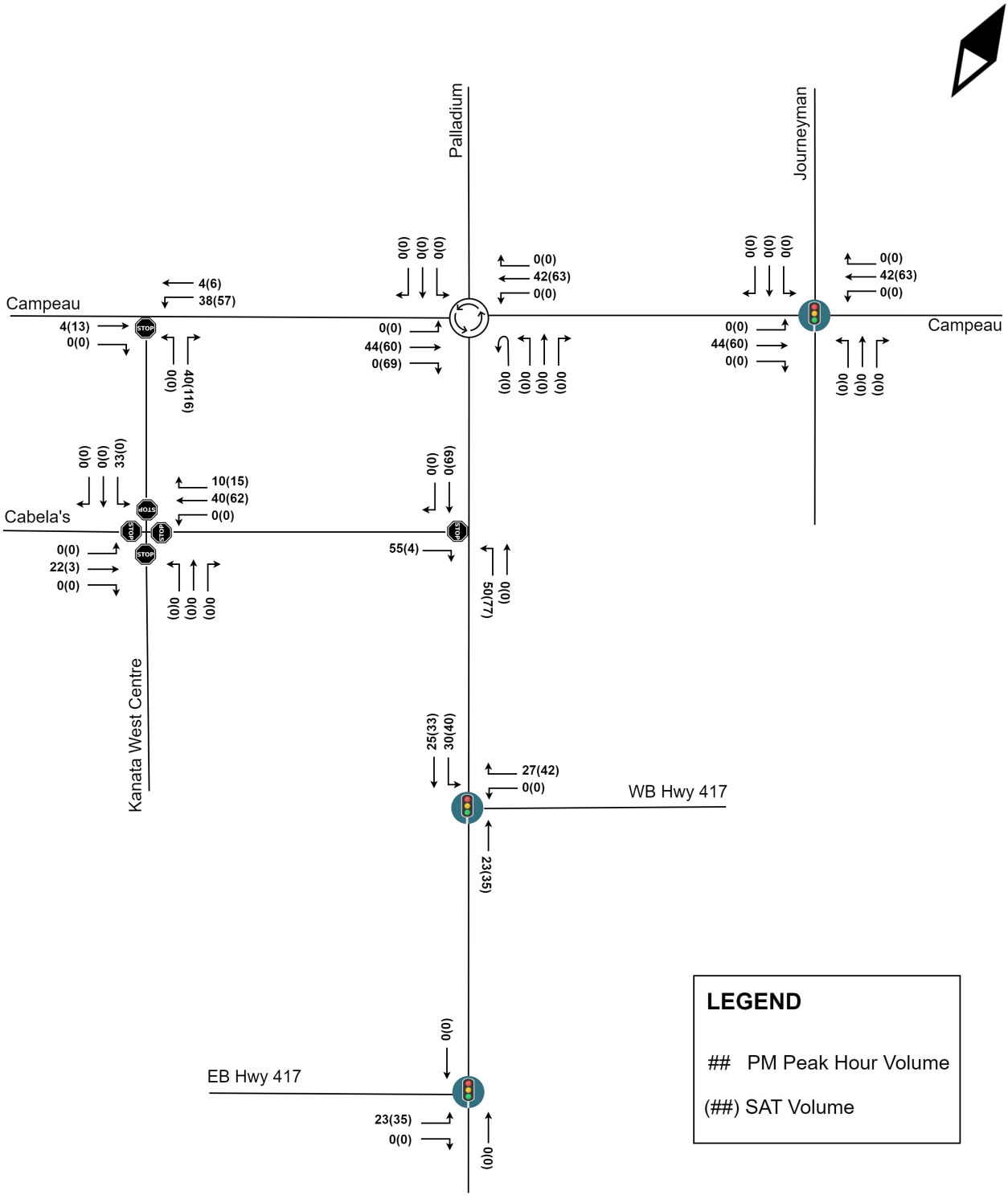


FIGURE 18: SITE GENERATED TRAFFIC

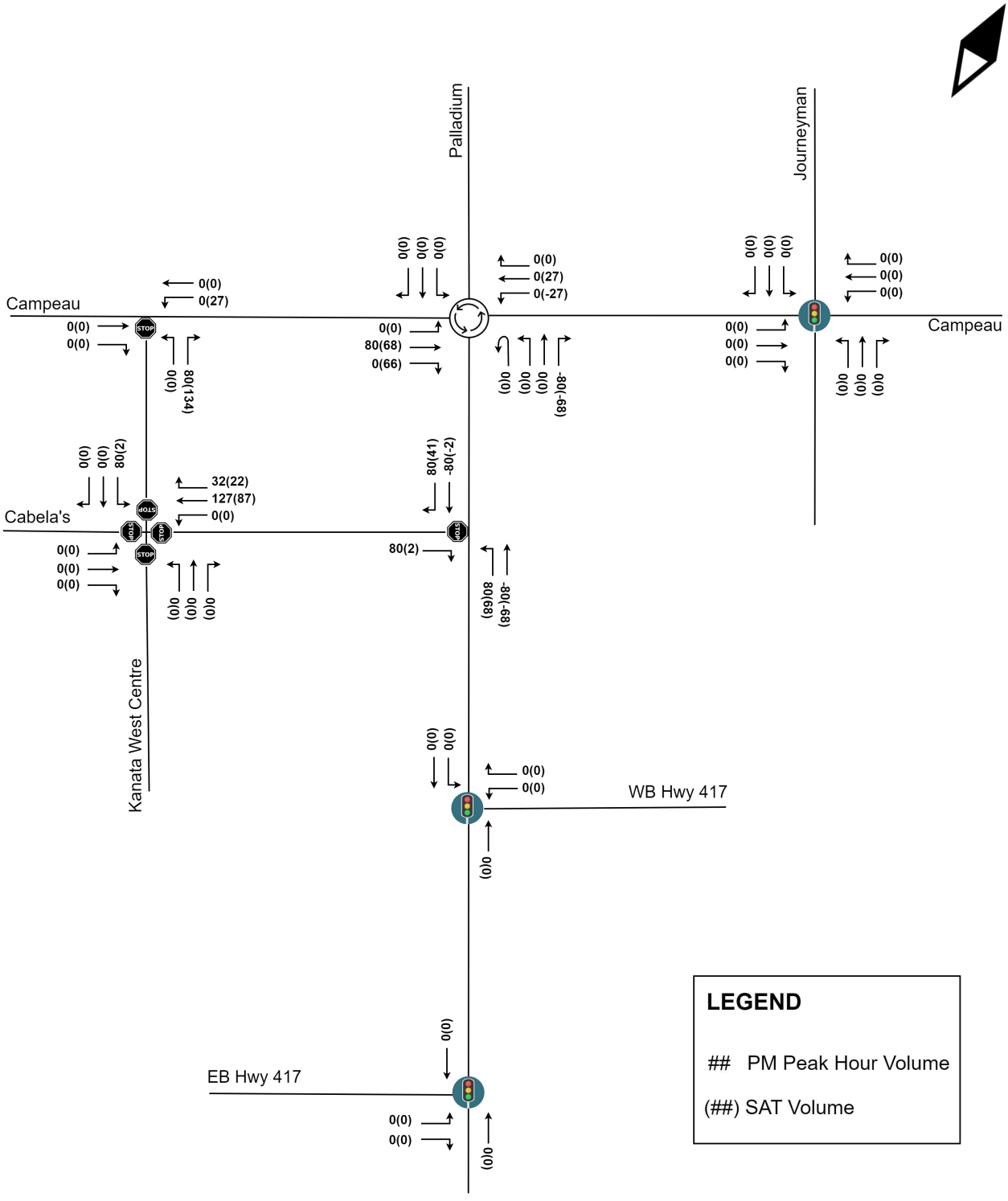


FIGURE 19: SITE PASS-BY TRAFFIC

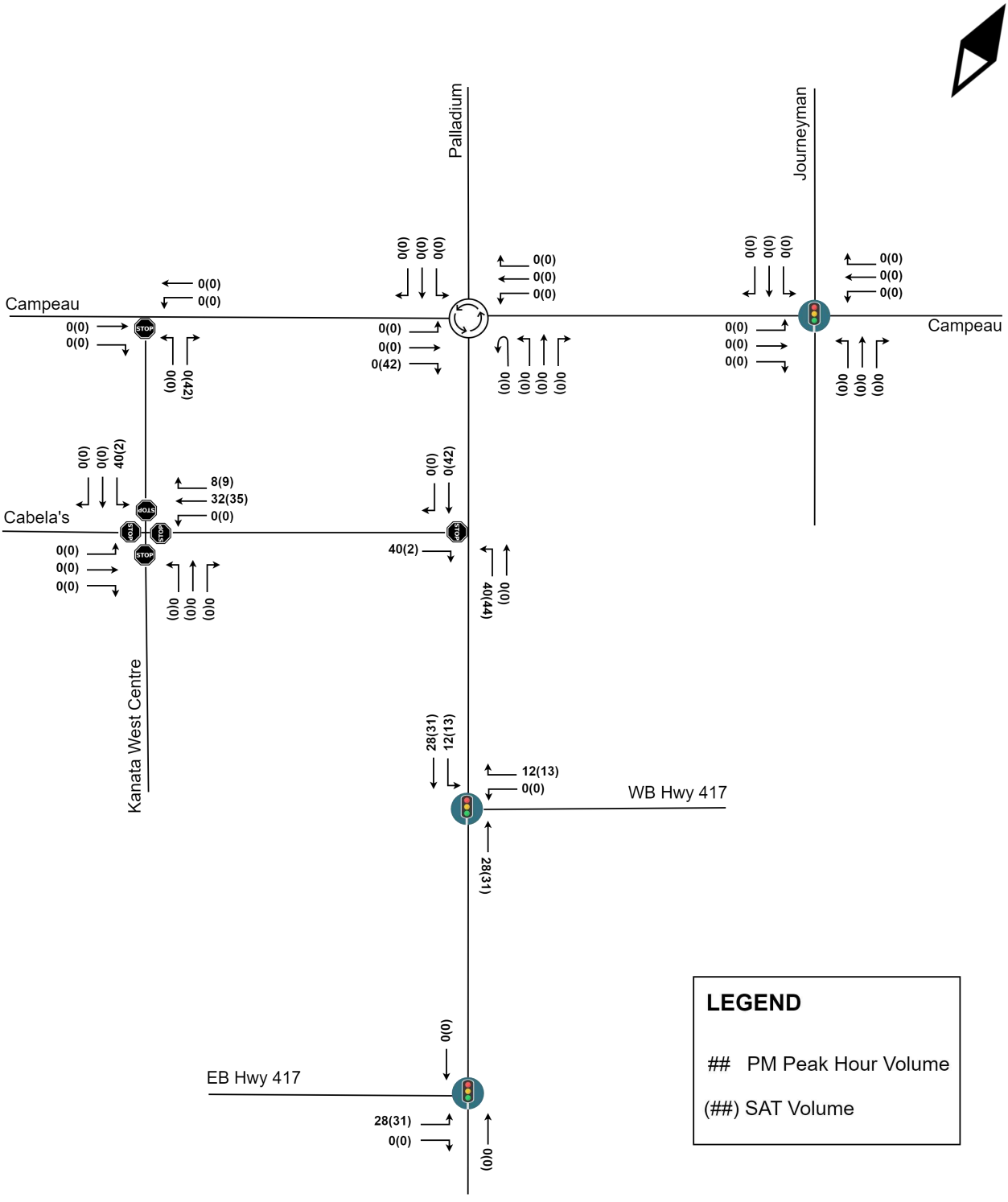


FIGURE 20: SITE DIVERTED TRAFFIC

7. TOTAL TRAFFIC CONDITIONS

7.1. Total (2027) Traffic Volumes

The total P.M. and SAT. peak hour traffic volumes in 2027 were calculated based on the summation of projected background traffic in 2027 (Figure 15), site generated traffic (Figure 18), site pass-by traffic (Figure 19), and site diverted traffic (Figure 20). The estimated total traffic volumes in 2027 are illustrated in Figure 21.

7.2. Total (2027) Traffic Operations

The total traffic volumes in 2027 depicted in Figure 21 were subjected to capacity analysis using using Synchro 12 and Sidra 9.1. No lost time adjustments were used for the Synchro analysis. Table 17 summarizes the background (2032) traffic conditions at the intersections within the study area.

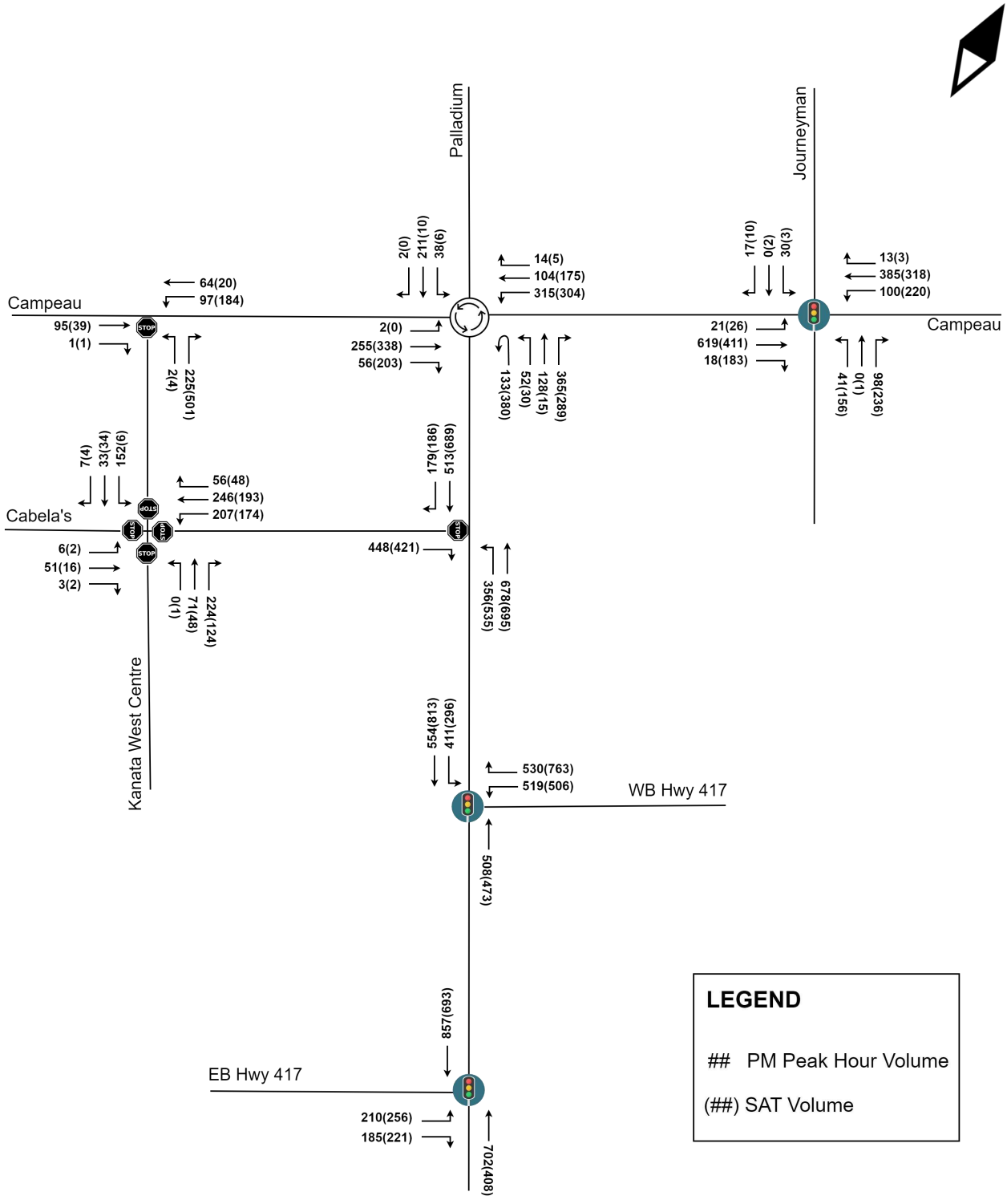


FIGURE 21: PROJECTED TOTAL TRAFFIC (2027)

TABLE 17: TOTAL TRAFFIC CONDITIONS (2027)

Intersection	Lane	P.M. Peak Hour				SAT. Peak Hour			
		LOS	V/C	Delay (s)	Queue (95th) (m)	LOS	V/C	Delay (s)	Queue (95th) (m)
Campeau Drive & Kanata West Centre Drive (Unsignalized)	EBT/R	-	0.06	0	0	-	0.03	0	0
	WBL	A	0.07	8	5	A	0.13	8	5
	WBT	-	0.04	0	0	-	0.01	0	0
	NBL/R	B	0.27	11	10	B	0.55	13	30
	Net	**B**	**-**	**7**	**-**	**B**	**-**	**11**	**-**
Campeau Drive & Palladium Drive (Roundabout)	EBL	B	0.234	11	10	B	0.325	11	15
	EBT	A	0.234	5	10	A	0.325	6	15
	EBR	A	0.030	4	0	A	0.325	4	15
	WBL	B	0.174	11	10	B	0.214	12	15
	WBT	A	0.174	5	10	A	0.214	6	15
	WBR	A	0.174	5	10	A	0.214	6	15
	NBL	B	0.224	11	15	B	0.316	11	20
	NBT	A	0.224	5	15	A	0.316	5	20
	NBR	A	0.192	3	0	A	0.152	4	0
	SBL	B	0.126	12	5	B	0.010	12	5
	SBT	A	0.126	6	5	A	0.010	7	5
	SBR	A	0.126	6	5	A	0.010	6	5
	Net	**A**	**0.234**	**7**	**15**	**A**	**0.325**	**7**	**20**
Campeau Drive & Journeyman Street (Signalized)	EBL	C	0.09	21	10	B	0.08	19	10
	EBT/R	C	0.72	29	70	C	0.52	23	60
	WBL	E	0.87	72	#45	F	1.22	164	#100
	WBT/R	C	0.45	24	45	C	0.29	21	35
	NBL	A	0.06	9	10	B	0.27	15	35
	NBT	-	-	-	-	B	0.00	12	5
	NBR	A	0.08	10	10	B	0.21	14	20
	SBL	A	0.04	9	10	B	0.00	12	5
	SBT	-	-	-	-	B	0.00	12	5
	SBR	A	0.01	9	0	B	0.00	12	0
	Net	**C**	**0.36**	**28**	**-**	**D**	**0.68**	**40**	**-**
Palladium Drive & Cabela's Way (Unsignalized)	EBR	D	0.81	32	65	E	0.89	45	80
	NBL	B	0.47	13	20	D	0.84	32	75
	NBT	-	0.22	0	0	-	0.23	0	0
	SBT	-	0.22	0	0	-	0.30	0	0
	SBR	-	0.23	0	0	-	0.27	0	0

	Net	**D**	**-**	**9**	**-**	**E**	**-**	**15**	**-**
Kanata West Centre Drive & Cabela's Way (Unsignalized)	EBL/T/R	B	0.128	11	0.4 (veh)	A	0.032	9	0.1 (veh)
	WBL/T/R	E	0.901	42	11.5 (veh)	B	0.581	14	3.8 (veh)
	NBL/T/R	C	0.538	16	3.2 (veh)	A	0.252	10	1 (veh)
	SBL/T/R	B	0.398	15	1.9 (veh)	A	0.073	9	0.2 (veh)
	Net	**D**	**-**	**28**	**-**	**B**	**-**	**12**	**-**
Palladium Drive & WB of Hwy 417 (Signalized)	WBL	C	0.66	27	60	C	0.49	22	60
	WBR	C	0.68	30	70	F	1.05	83	#180
	NBT	C	0.70	29	65	C	0.73	34	60
	SBL	D	0.94	41	#120	C	0.80	27	#65
	SBT	A	0.34	10	45	B	0.57	17	70
	Net	**C**	**0.91**	**27**	**-**	**D**	**0.97**	**39**	**-**
Palladium Drive & EB of Hwy 417 (Signalized)	EBL/R	B	0.70	19	75	B	0.67	15	85
	NBT	B	0.54	13	60	B	0.40	16	35
	SBT	B	0.67	14	75	B	0.70	20	60
	Net	**B**	**0.69**	**15**	**-**	**B**	**0.68**	**17**	**-**

Remarks: Saturation flow rate = 1800 veh/h/lane ; Peak Hour Factor = 0.90 ; # Queue (95th) = volume for the 95th percentile cycle exceeds capacity

During the PM peak hour, the westbound left-turn movement at Campeau Drive at Journeyman Street may experience extended queues. The southbound left-turn movement at Palladium Drive at westbound ramp of Highway 417 may also observe extended queues and longer delays.

During the SAT peak hour, the traffic on the westbound left-turn stream at Campeau Drive at Journeyman Street is projected to exceed its theoretical capacity and can see high delays and extended queues. The site generated traffic account for roughly 20% of the through traffic along Campeau Drive (63 out of 318 vehicles in the eastbound direction). To alleviate the over-saturated westbound left-turn movement, reallocate 9.6 seconds from the north-south direction phase (Journeyman Street) to the east-west direction phase (Campeau Drive) can provide longer gap searching time for left-turn vehicles, thus effectively bringing its volume to capacity ratio to 1.00 or below. Furthermore, the westbound right-turn movement and southbound left-turn movement of Palladium Drive at westbound ramp of Highway 417 may experience considerable delays and queues. Shifting 3 seconds from the northbound phase to the protective southbound left-turn movement can

make the westbound right-turn movement easier. Therefore, the volume to capacity ratio of all movements can be reduced to 1.00 or below.

The detailed analysis sheets are supplemented in Appendix K.

7.3. Total (2032) Traffic Volumes

The total P.M. and SAT. peak hour traffic volumes in 2032 were calculated based on the summation of projected background traffic in 2032 (Figure 22), site generated traffic (Figure 18), site pass-by traffic (Figure 19), and site diverted traffic (Figure 20). The estimated total traffic volumes in 2032 are illustrated in Figure 23.

7.4. Total (2032) Traffic Operations

The total traffic volumes in 2032 depicted in Figure 23 were subjected to capacity analysis using using Synchro 12 and Sidra 9.1. No lost time adjustments were used for the Synchro analysis. Table 18 summarizes the background (2032) traffic conditions at the intersections within the study area.

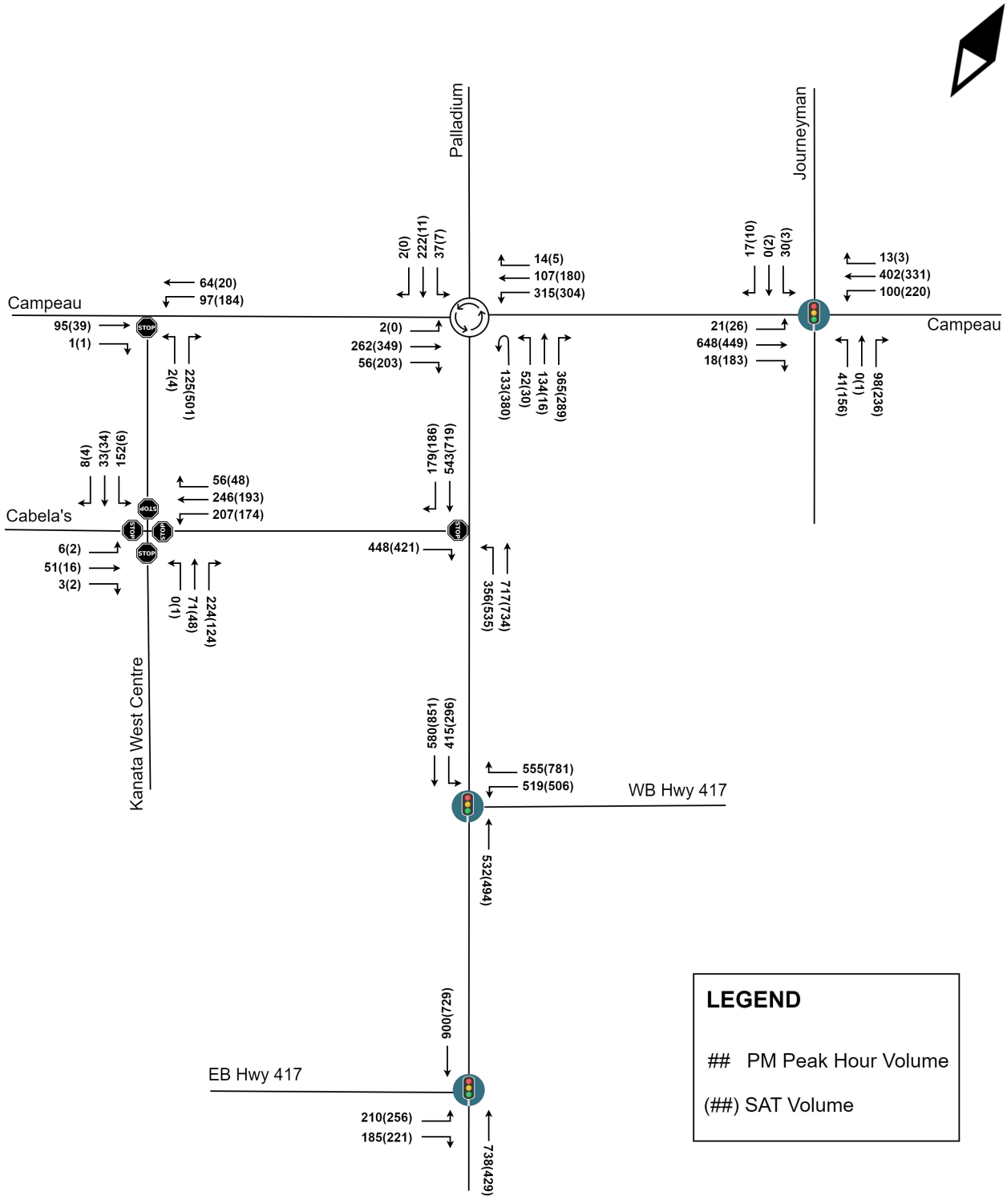


FIGURE 22: PROJECTED TOTAL TRAFFIC (2032)

TABLE 18: TOTAL TRAFFIC CONDITIONS (2032)

Intersection	Lane	P.M. Peak Hour				SAT. Peak Hour			
		LOS	V/C	Delay (s)	Queue (95th) (m)	LOS	V/C	Delay (s)	Queue (95th) (m)
Campeau Drive & Kanata West Centre Drive (Unsignalized)	EBT/R	-	0.06	0	0	-	0.03	0	0
	WBL	A	0.07	8	5	A	0.13	8	5
	WBT	-	0.04	0	0	-	0.01	0	0
	NBL/R	B	0.27	11	10	B	0.55	13	30
	Net	**B**	**-**	**7**	**-**	**B**	**-**	**11**	**-**
Campeau Drive & Palladium Drive (Roundabout)	EBL	B	0.241	11	10	B	0.332	11	15
	EBT	A	0.241	5	10	A	0.332	5	15
	EBR	A	0.030	4	0	A	0.332	4	15
	WBL	B	0.176	11	10	B	0.216	12	15
	WBT	A	0.176	5	10	A	0.216	6	15
	WBR	A	0.176	5	10	A	0.216	6	15
	NBL	B	0.230	11	15	B	0.320	11	20
	NBT	A	0.230	5	15	A	0.320	5	20
	NBR	A	0.192	3	0	A	0.152	3	20
	SBL	B	0.132	12	5	B	0.011	12	5
	SBT	A	0.132	6	5	A	0.011	7	5
	SBR	A	0.132	6	5	A	0.011	7	5
	Net	**A**	**0.241**	**7**	**15**	**A**	**0.332**	**7**	**20**
Campeau Drive & Journeyman Street (Signalized)	EBL	C	0.09	21	10	B	0.08	19	10
	EBT/R	C	0.72	29	75	C	0.54	23	60
	WBL	E	0.89	78	#50	F	1.27	185	#100
	WBT/R	C	0.45	24	45	C	0.30	21	35
	NBL	A	0.06	10	10	B	0.27	15	35
	NBT	-	-	-	-	B	0.00	12	5
	NBR	A	0.09	10	15	B	0.22	14	20
	SBL	A	0.04	10	10	B	0.00	12	5
	SBT	-	-	-	-	B	0.00	12	5
	SBR	A	0.01	9	0	B	0.00	12	0
	Net	**C**	**0.38**	**28**	**-**	**D**	**0.70**	**43**	**-**
Palladium Drive & Cabela's Way (Unsignalized)	EBR	D	0.83	34	70	E	0.91	50	85
	NBL	B	0.48	14	25	D	0.87	35	80
	NBT	-	0.23	0	0	-	0.24	0	0
	SBT	-	0.23	0	0	-	0.31	0	0
	SBR	-	0.24	0	0	-	0.28	0	0

	Net	**D**	**-**	**9**	**-**	**E**	**-**	**16**	**-**
Kanata West Centre Drive & Cabela's Way (Unsignalized)	EBL/T/R	B	0.128	11	0.4 (veh)	A	0.032	9	0.1 (veh)
	WBL/T/R	E	0.901	37	11.5 (veh)	B	0.581	14	3.8 (veh)
	NBL/T/R	C	0.538	16	3.2 (veh)	A	0.252	10	1 (veh)
	SBL/T/R	B	0.398	15	1.9 (veh)	A	0.073	9	0.2 (veh)
	Net	**D**	**-**	**28**	**-**	**B**	**-**	**12**	**-**
Palladium Drive & WB of Hwy 417 (Signalized)	WBL	C	0.63	26	65	C	0.49	22	60
	WBR	C	0.74	33	#100	F	1.11	102	#195
	NBT	C	0.72	30	70	C	0.73	34	65
	SBL	D	0.98	54	#125	C	0.80	27	#70
	SBT	B	0.36	11	50	B	0.59	17	75
	Net	**C**	**0.96**	**30**	**-**	**D**	**1.00**	**45**	**-**
Palladium Drive & EB of Hwy 417 (Signalized)	EBL/R	C	0.71	21	80	B	0.67	15	#90
	NBT	B	0.55	13	60	B	0.41	16	35
	SBT	B	0.68	15	80	B	0.71	20	60
	Net	**B**	**0.70**	**15**	**-**	**B**	**0.70**	**18**	**-**

Remarks: Saturation flow rate = 1800 veh/h/lane ; Peak Hour Factor = 0.90 ; # Queue (95th) = volume for the 95th percentile cycle exceeds capacity

During the PM peak hour, the westbound left-turn movement at Campeau Drive at Journeyman Street may experience extended queues. The southbound left-turn movement and westbound right-turn movement at Palladium Drive at westbound ramp of Highway 417 may also observe extended queues and longer delays.

During the SAT peak hour, the traffic on the westbound left-turn stream at Campeau Drive at Journeyman Street is projected to exceed its theoretical capacity and can see high delays and extended queues. The site generated traffic account for roughly 19% of the through traffic along Campeau Drive (63 out of 331 vehicles in the eastbound direction). To alleviate the over-saturated westbound left-turn movement, reallocate 9.6 seconds from the north-south direction phase (Journeyman Street) to the east-west direction phase (Campeau Drive) can provide longer gap searching time for left-turn vehicles, thus effectively bringing its volume to capacity ratio to 1.00 or below. Furthermore, the westbound right-turn movement and southbound left-turn movement of Palladium Drive at westbound ramp of Highway 417 may experience considerable delays and queues. Shifting 3 seconds from the northbound phase to the protective southbound left-turn movement can

make the westbound right-turn movement easier. Therefore, the volume to capacity ratio of all movements can be reduced to 1.00 or below. In addition, extended queues can be observed on the eastbound left-turn movement at Palladium Drive at eastbound ramp of Highway 417.

The detailed analysis sheets are supplemented in Appendix L.

7.5. Demand Rationalization and Network Optimization

Overall, the projected total traffic in 2027 and 2032 will face capacity issues at Campeau Drive at Journeyman Street, and Palladium Drive at westbound ramp of Highway 417 with the existing traffic control plan during Saturday peak hour. Phase duration adjustments to existing traffic signal plans at the aforementioned intersections can improve the flow conditions and reduce delays and queuing lengths on the critical approaches.

The trip generations and modal shares of the proposed site are consistent with the existing study area and it does not cause adverse impact on the road network. Therefore, site-specific demand rationalization is required in this study.

8. DEVELOPMENT DESIGN

8.1. Design of Sustainable Modes

The proposed commercial development is a retail shopping centre with on-site parking for vehicles and bicycles. In total, there are 237 vehicle parking spaces (including 7 accessible parking spaces) and 28 bike parking spaces provided. Sidewalks are provided along Cabela's Way and Campeau Drive. As depicted in Figure 8, there is a local bus stop located near Palladium Drive at Cabela's Way, which is within 400m of walking distance from the target site.

8.2. Site Circulation and Access

The proposed site has accesses to Campeau Drive (via Kanata West Centre Drive and the west private access) and Palladium Drive (via Cabela's Way). Waste collection trucks, semi-trucks (Wb-20) and emergency vehicles circulation plans are illustrated in Appendix M.

9. PARKING SUPPLY REVIEW

9.1. City Parking By-law Requirements

The City of Ottawa's Zoning By-law 2008-250 (Table 101) stipulates the minimum number of parking spaces to be supplied by each development land-use. For this study, commercial development is proposed. Table 19 summarizes the City's By-law parking requirement for the proposed development. Table 20 lists the required number of accessible parking. The captioned vehicle parking and bicycle parking By-law are supplemented in Appendix N.

TABLE 19: CITY'S PARKING BY-LAW REQUIREMENTS

Building	Land-use	Area	Gross Leasable Area (m^2)	City's By-law Requirements	
				Parking Rate	Parking Space
A	Retail	C	4577	3.6 per 100 m^2 of gross leasable area	165
B	Shopping Centre		2009		72
C					
D					
Total Parking Space Required					237
Total Parking Supply					237

TABLE 20: CITY'S ACCESSIBILITY PARKING STANDARDS

Total Site Parking Supply	City's Standards		
	Type A	Type B	Total
237	3	4	7
Total Accessible Parking Supply	3	4	7

Therefore, the current vehicle parking supply satisfies the City of Ottawa's Zoning By-law requirements.

9.2. City Bicycle Parking By-law Requirements

The City of Ottawa's Zoning By-law 2008-250 (Table 111A) stipulates the minimum number of parking spaces to be supplied. Table 21 summarizes the City's By-law bicycle parking requirement for the proposed development.

TABLE 21: CITY'S BICYCLE PARKING BY-LAW REQUIREMENTS

Building	Land-use	Area	Gross Floor Area (m^2)	City's By-law Requirements	
				Parking Rate	Parking Space
A	Retail	C	5679	1 per 250 m^2 of gross floor area	23
B	Shopping Centre		2233	1 per 500 m^2 of gross floor area	5
C					
D					
Total Parking Space Required					28
Total Parking Supply					28

Therefore, the current bicycle parking supply satisfies the City of Ottawa's Zoning By-law requirements.

10. TRANSPORTATION DEMAND MANAGEMENT (TDM)

10.1. Context of TDM

The modal shares used in this study are based on the generic district mode shares. Overall, the modal shares of the study area are likely to follow the district-wide statistics, and supporting TDM measures are required.

10.2. Need and Opportunity

As discussed in previous sections, the primary travel mode to and from the subject is private vehicles. An increase in transit utilization can be further achieved.

10.3. TDM Program

The list of TDM measures have been summarized in the TDM checklist for non-residential development. The complete checklist is supplemented in Appendix O. The elemental TDM measure recommended is to provide a multi-modal travel package for new or relocating employees working in the proposed development (CGH Transportation, 2024).

11. PUBLIC TRANSIT

11.1. Transit Route Capacity

Section 6.1 has covered the trip generated and modal split on the proposed site. The transit trips during P.M. and SAT. peak hour have been provided in Table 22.

TABLE 22: TRANSIT SHARE OF TOTAL TRIP GENERATION

Mode	P.M. Peak Hour				SAT. Peak Hour			
	Share	In	Out	Total	Share	In	Out	Total
Public Transit	1%	4	4	8	1%	4	4	8

Overall, the site is expected to generate 8 P.M. and 8 SAT. peak hour two-way transit trips. The current bus services of route 62 and 162 are expected to accommodate these additional transit demand. Given the small amount of site-related transit users, the loading impact on the existing transit services is negligible.

12. ACCESS AND INTERSECTION DESIGN

12.1. Location and Design of Access

The proposed site provides four accesses to Cabela's Way, Kanata Centre West Drive, and the left private road. All site accesses meet the City's minimum throat length requirements.

12.2. Intersection Control

Two existing unsignalized intersections (Kanata West Centre Drive at Campeau Drive, and Cabela's Way at Palladium Drive) have subjected to signalization warrants according to Book 12 of Ontario Traffic Manual. Both intersections will remain unsignalized in 2032. The respective signal warrant sheets are provided in Appendix P.

The inner street intersection of Kanata West Centre Drive at Cabela's Way will also retain the all-way stop control in 2032.

13. TEMPORARY TRAFFIC MANAGEMENT

13.1. Temporary Road Closures

The widening of existing curbs at Campeau Drive at left private access and construction works on all four site accesses shall require day time lane closure. The detailed traffic control plans and construction truck haul routes plan are provided in Appendix Q.

14. SUMMARY AND RECOMMENDATIONS

This section summarizes the traffic impacts in the study area.

Proposed Site and Screening

- The proposed site development is a commercial (retail and shopping centre) space with a combined gross floor area of 7911 m^2 with both large and small multi-unit retail pads.
- The anticipated full build-out and occupancy horizon is 2027 with a two-phase construction plan.
- There are 237 vehicle parking spaces (including 3 Type A and 4 Type B accessible parking spaces) and 28 bicycle parking spaces supplied.
- There are 4 accesses to and from the site that connect Cabela's Way, Kanata West Centre Drive, and the west private access.
- The proposed site is a part of the previously approved Kanata West Retail Centre Site Plan.
- The trip generation trigger was met for the TIA Screening.

Existing Conditions

- Campeau Drive and Palladium Drive are municipal arterial roads; Kanata West Centre Drive and Cabela's Way are private roads.

- Sidewalks are paved on both sides of Campeau Drive west of Journeyman Street, Campeau Drive east of Huntmar Drive, Journeyman Street, and Palladium Drive between Upper Canada Street and the westbound ramp of highway 417.
- Sidewalks are also paved on the eastern side of Kanata West Centre Drive and the northern side of Cabela's Way.
- Bike tracks are provided on Campeau Drive and Palladium Drive between Upper Canada Street and the westbound ramp of Highway 417.
- Local transit stops are located at Palladium Drive at Kanata West Centre Drive, which are within 400 metres of walking distance from the site.
- The intersection of westbound ramp of Highway 417 at Palladium Drive has higher collision rate that accounts for 14 out of 30 collisions within the study area.
- No capacity issues are observed at all target intersections during all peak hours (A.M./P.M./SAT.) in existing conditions. However, extended queues might be observed on the westbound left-turn movement at Campeau Drive at Journeyman Street, and the westbound right-turn movement at the westbound ramp of Highway 417 at Palladium Drive during SAT. peak hour.

Background Conditions

- The extension of LRT to Huntmar Drive and Cyclone Taylor Boulevard (Palladium Station) is located roughly 1 kilometre from the subject site, and the completion date is beyond the study horizon of this study.
- The extension of Robert Grant Avenue from Huntmar Avenue to Abbott Street, and the extension of Stittsville Main Street from Maple Grove West to Robert Grant Avenue have a build-out year that is beyond the study horizon of this study.
- The eastbound ramp of Highway 417 at Palladium Drive will be signalized in 2027, and has been considered in future background and total traffic conditions.
- Annual traffic growth of 1% is applied on arterial roads (Campeau Drive and Palladium Drive) to capture additional traffic generated beyond the study area.
- The westbound left-turn movement at Campeau Drive at Journeyman Street will experience substantial delays and long queues during SAT. peak hour.
- No demand rationalization is required for this study.

Proposed Development Trip Generation and Distribution

- The proposed development will generate 190 and 273 two-way vehicle trips during P.M. and SAT. peak hour respectively.
- The trip distribution and assignment are assumed as 15% northbound, 30% southbound, 50% eastbound, and 5% westbound.

Parking Supply

- The current parking supply for both vehicle and bicycle satisfies the City of Ottawa's Zoning By-law requirements.

Transportation Demand Management (TDM)

- A TDM measure that provides a multi-modal travel option package to new or relocating employees should be considered.

Intersection Control Optimization

- The total future traffic conditions of all target intersections are expected to operate similarly to background conditions and the westbound right-turn movement of the westbound ramp of Highway 417 at Palladium Drive will exceed its capacity during SAT. peak hour other than the westbound left-turn movement at Campeau Drive at Journeyman Street.
- To mitigate the traffic flow conditions at Campeau Drive at Journeyman Street during SAT. peak hour, it is recommended to shift 9.6 seconds from the minor phase (Journeyman Street) to the major phase (Campeau Drive) to accommodate the westbound left-turn drivers.
- To mitigate the traffic flow conditions at the westbound ramp of Highway 417 at Palladium Drive during SAT. peak hour, it is recommended to shift 3 seconds from the major phase (Palladium Drive) to the minor phase (WB ramp of Hwy 417) to accommodate the southbound left-turn and westbound right-turn drivers to and from the westbound ramp of Highway 417.

We trust the enclosed is sufficient for your needs, but please do not hesitate to contact the undersigned should you require any additional assistance.

Prepared By:

WPE Engineering Ltd.



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7250 Keele Street, Unit #222
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Email: mdu@wpeengineering.com
www.wpeengineering.com

Vic C.Y. Chan, Traffic Analyst

Appendix A

Step 1 Screening Form

6 Plaza Court
Ottawa, ON K2H 7W1

City of Ottawa 2017 TIA Guidelines
Step 1 - Screening Form

Date: 18-Oct-23
Project Number: 2022-107
Project Reference: 3075 Palladium

1.1 Description of Proposed Development	
Municipal Address	3075 Palladium Drive
Description of Location	Parcel south of Campeau Drive, west of Kanata West Centre Drive
Land Use Classification	General Mixed-Use (GM[2167])
Development Size	82,805 sq. ft. (7,693 sq. m.) of retail space
Accesses	Two existing on Campeau Drive, one existing on Palladium Drive
Phase of Development	Two
Buildout Year	2027
TIA Requirement	Full TIA Required

1.2 Trip Generation Trigger		
Land Use Type	Destination retail	
Development Size	7,693	G.F.A.
Trip Generation Trigger	Yes	

1.3 Location Triggers	
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	No

1.4. Safety Triggers	
Are posted speed limits on a boundary street 80 km/hr or greater?	No
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?	No
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)?	No
Is the proposed driveway within 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 is 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	No

TIA Plan Reports

On 14 June 2017, the Council of the City of Ottawa adopted new Transportation Impact Assessment (TIA) Guidelines. In adopting the guidelines, Council established a requirement for those preparing and delivering transportation impact assessments and reports to sign a letter of certification.

Individuals submitting TIA reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Ottawa's Official Plan, the Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

By submitting the attached TIA report (and any associated documents) and signing this document, the individual acknowledges that s/he meets the four criteria listed below.

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
4. I am either a licensed[1] or registered[2] professional in good standing, whose field of expertise [check √ appropriate field(s)] is either transportation engineering √ or transportation planning □.

[1,2] **License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.**

City Of Ottawa
Infrastructure Services and Community Sustainability
Planning and Growth Management
110 Laurier Avenue West, 4th fl.
Ottawa, ON K1P 1J1
Tel. : 613-580-2424
Fax: 613-560-6006

Ville d'Ottawa
Services d 'infrastructure et Viabilité des collectivités
Urbanisme et Gestion de la croissance
110, avenue Laurier Ouest
Ottawa (Ontario) K1P 1J1
Tél. : 613-580-2424
Télécopieur: 613-560-6006

Dated at ___Ottawa_____ this __20__ day of _____September_____, 2018.
(City)

Name: _____Andrew Harte_____
(Please Print)

Professional Title: _____Professional Engineer_____

_____
Signature of Individual certifier that s/he meets the above four criteria

Office Contact Information (Please Print)
Address: 6 Plaza Court
City / Postal Code: Ottawa / K2H 7W1
Telephone / Extension: (613) 697-3797
E-Mail Address: Andrew.Harte@CGHTransportation.com



Appendix B

Site Plan

SITE STATISTICS (By Law 2008-250)

ZONING	GM (2167)	**LOT NO.**	Concession 1 Part of Lot 3
PLAN NO.	4M-1566	**LOT AREA**	25764 sm

DESCRIPTION	EXISTING	PROPOSED	REQUIRED	SECTION
LAND USE	VACANT	RETAIL STORE	GENERAL MIXED USE - INCL. RETAIL STORE	187-188
MIN.LOT WIDTH		132.2 m	NO MINIMUM	TABLE 187
MIN. LOT AREA		25764 sm	NO MINIMUM	TABLE 187
MAX.BUILDING HEIGHT		8.2 m (2?*)	18 M	TABLE 187
NO. OF STORIES		2		
GFA TOTAL		**7910.24 sm**		
PHASE 1: BUILIDING A		5,678.11 sm		
PHASE 2: BUILDING B		687.43 sm		
BUILDING C		729.10 sm		
BUILDING D		815.57 sm		
BUILDING AREA TOTAL		**7768.08 sm**		
PHASE 1: BUILIDING A		5535.95 sm		
PHASE 2: BUILDING B		687.43 sm		
BUILDING C		729.10 sm		
BUILDING D		815.57 sm		
FSI		0.3	2	TABLE 187
GLA TOTAL		**6586 sm**		
PHASE 1:		4577 sm		
PHASE 2:		2009 sm		

SETBACK	EXISTING	PROPOSED	REQUIRED	SECTION
FRONT (EAST)		5.52 m	1.5 m	TABLE 187
SIDE (NORTH)		3.00 m	NO MINIMUM	TABLE 187
SIDE (SOUTH)		15.61 m	NO MINIMUM	TABLE 187
REAR (WEST)		12.85 m	NO MINIMUM	TABLE 187

LANDSCAPED AREA	EXISTING	PROPOSED		REQUIRED	SECTION
MIN. AREA OF LANDSCAPING IN PARKING LOT:		3096 sm	26%	15 %	
MINIMUM WIDTH OF LANDSCAPED AREA		3 m		3 M (i) ABUTTING A STREET OR (ii)ABUTTING A RESIDENTIAL OR INSTITUTIONAL ZONE NO MINIMUM (iii) OTHER CASES	TABLE 187

PARKING	EXISTING	PROPOSED	REQUIRED	SECTION
TOTAL PARKING		237 SPACES	3.6 per 100 m2 of GLA = 237	TABLE 101
INCLUDING ACCESSIBLE PARKING		7 SPACES		
BICYCLE PARKING SPACE		28 SPACES	28 SPACES	

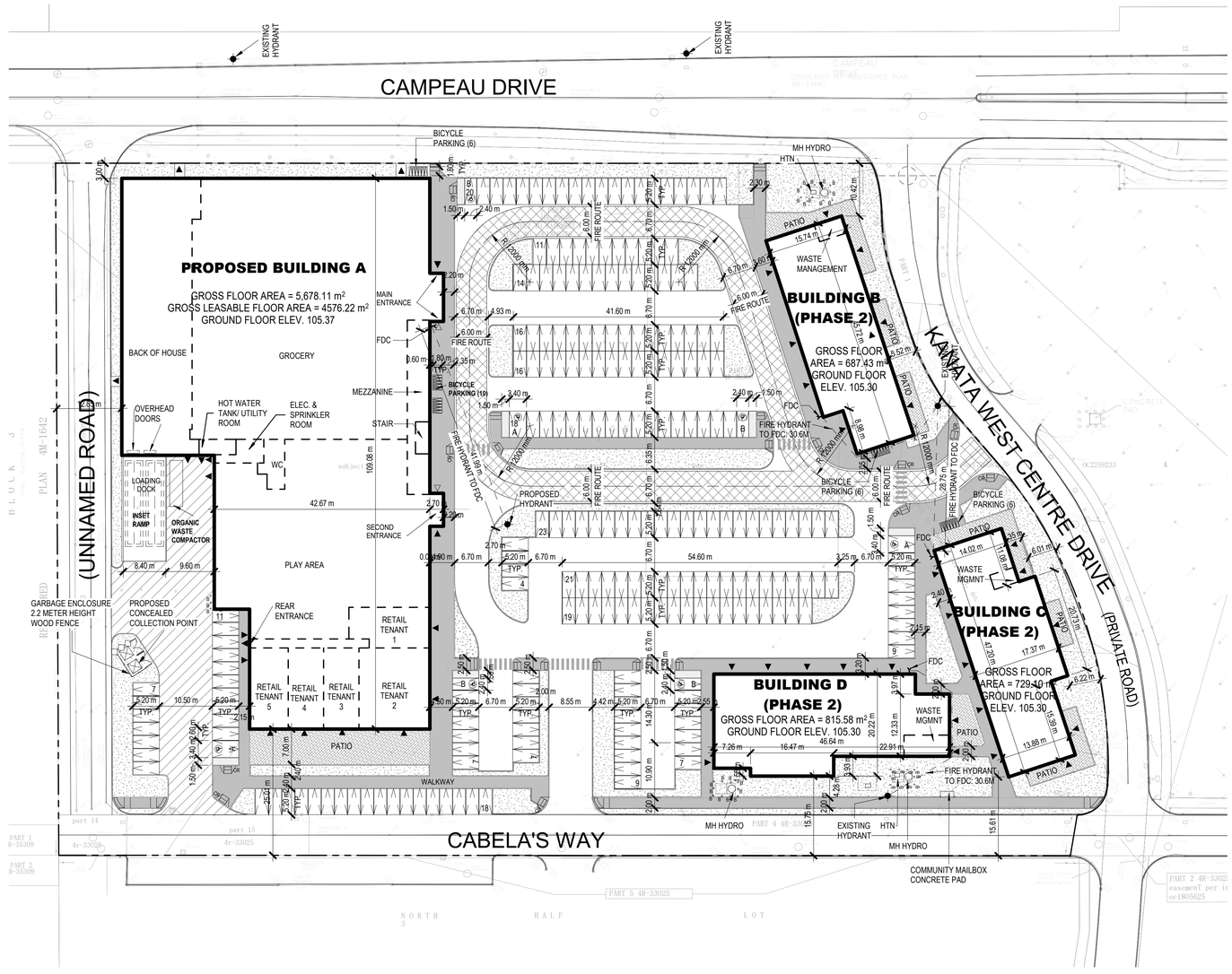
LOADING	EXISTING	PROPOSED	REQUIRED	SECTION
TOTAL NUMBER OF LOADING SPACES		2 SPACES	2 SPACES	TABLE 101

NOTES

1. BUILDING A, BUILDING B, BUILDING C AND BUILDING D TO BE NON-COMBUSTIBLE CONSTRUCTION.
2. THE SNOW TO BE REMOVED OFF-SITE.

SITE LEGENDS

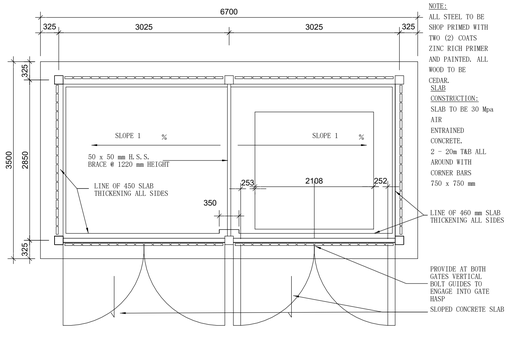
- FIRE HYDRANT
- FIRE DEPARTMENT CONNECTION
- PEDESTRIAN DOORS
- B — BOLLARD
- CR — CURB RAMP W/TWSI
- PROPERTY LINE
- OUTLINE OF BUILDING
- SOFT LANDSCAPING
- CONCRETE SIDEWALK
- FIRE ROUTE
- PATIO



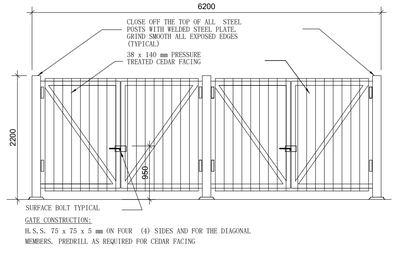
1 A001 — Site Plan
SCALE: 1 : 500

LEGAL DESCRIPTION

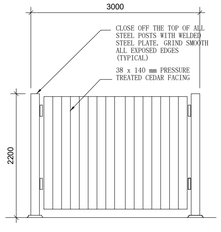
BLOCK 1, PLAN 4M1566 SUBJECT TO AN EASEMENT AS IN OC1776587 SUBJECT TO AN EASEMENT IN GROSS OVER PART 1, 4R29646 AS IN OC1808376 TOGETHER WITH AN EASEMENT OVER PART BLOCK 2 4M1566 PARTS 3,10 & 11 4R33025 AS IN OC2259230 TOGETHER WITH AN EASEMENT OVER PART BLOCK 2 4M1566,PARTS 3,8,9,10 & 11 4R33025 AS IN OC2259230 TOGETHER WITH AN EASEMENT OVER BLOCK 2 4M1566 AS IN OC2259230 SUBJECT TO AN EASEMENT OVER PARTS 4,14 & 15 4R33025 IN FAVOUR OF PART LOT 3 CONCESSION HUNTLEY,PART 1 4R28887 AS IN OC2259232 SUBJECT TO AN EASEMENT OVER PARTS 4,14 & 15 4R33025 IN FAVOUR OF PART LOT 3 CONCESSION HUNTLEY,PART 1 4R28887 AS IN OC2259232 SUBJECT TO AN EASEMENT OVER PART 15 4R33025 IN FAVOUR OF PART LOT 3 CONCESSION HUNTLEY,PART 1 4R28887 AS IN OC2259232 SUBJECT TO AN EASEMENT IN FAVOUR OF PART LOT 3 CONCESSION HUNTLEY,PART 1 4R28887 AS IN OC2259232 SUBJECT TO AN EASEMENT OVER PARTS 4,14 & 15 4R33025 IN FAVOUR OF BLOCK 2 4M1566 AS IN OC2259233 SUBJECT TO AN EASEMENT IN FAVOUR OF BLOCK 2 4M1566 AS IN OC2259233 TOGETHER WITH AN EASEMENT OVER PART LOT 3 CONCESSION 1 HUNTLEY, PART 12 4R33025 AS IN OC2259234 TOGETHER WITH AN EASEMENT OVER PART LOT 3 CONCESSION 1 HUNTLEY, PART 5 4R33025 AS IN OC2259234 TOGETHER WITH AN EASEMENT OVER PART LOT 3 CONCESSION 1 HUNTLEY, PART 13 4R33025 AS IN OC2259234 TOGETHER WITH AN EASEMENT OVER PART LOT 3 CONCESSION 1 HUNTLEY PART 1 4R28887 AS IN OC2259234 TOGETHER WITH AN EASEMENT OVER PART BLOCK 14, PLAN 4M-1566, PARTS 1, 2, 6 AND 7, 4R33025 AS IN OC2603279 TOGETHER WITH AN EASEMENT OVER PART BLOCK 14, PLAN 4M-1566, PARTS 1 AND 2, 4R33025 AS IN OC2603279 TOGETHER WITH AN EASEMENT OVER BLOCK 14, 4M-1566 AS IN OC2603279 SUBJECT TO AN EASEMENT OVER PART 3 ON PLAN 4R-35309 IN FAVOUR OF PART OF BLOCK 2, PLAN 4M1566, BEING PARTS 1-4 ON PLAN 4R-33022 AS IN OC2657399 SUBJECT TO AN EASEMENT OVER PART 3 ON PLAN 4R-35309 IN FAVOUR OF PART OF BLOCK 2, PLAN 4M1566, BEING PART 1 ON PLAN 4R-34709 AS IN OC2657400 SUBJECT TO AN EASEMENT OVER PART 3 ON PLAN 4R-35309 IN FAVOUR OF BLOCK 2, PLAN 4M1566, SAVE AND EXCEPT PARTS 1-4 ON PLAN 4R-33022 AND PART 1 ON PLAN 4R-34709 AS IN OC2657401 SUBJECT TO AN EASEMENT OVER PART 3 ON PLAN 4R-35309 IN FAVOUR OF PART OF LOT 3, CONCESSION 1, HUNTLEY, BEING PART 1 ON PLAN 4R-28887 AS IN OC2657402 SUBJECT TO AN EASEMENT OVER PART 3 PLAN 4R35309 IN FAVOUR OF BLOCK 14 PLAN 4M1566 AS IN OC2657403 SUBJECT TO AN EASEMENT OVER PARTS 4, 14 AND 15 PLAN 4R33025 IN FAVOUR OF BLOCK 14 PLAN 4M1566 AS IN OC2657404 SUBJECT TO AN EASEMENT OVER BLOCK 1 PLAN 4M1566 IN FAVOUR OF BLOCK 14 PLAN 4M1566 AS IN OC2657404 TOGETHER WITH AN EASEMENT OVER PART OF BLOCK 13, 4M1566, PART 1, 4R35071 AS IN OC2665902 CITY OF OTTAWA



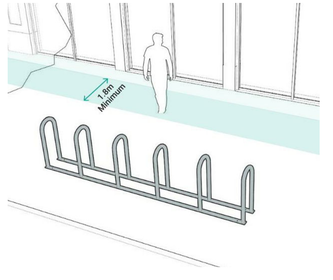
2 A001 — Garbage Enclosure Plan
SCALE: 1 : 50



3 A001 — Garbage Enclosure Front Elevation
SCALE: 1 : 50



4 A001 — Garbage Enclosure Side Elevation
SCALE: 1 : 50



5 A001 — Bicycle Parking Detail

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DO NOT SCALE DRAWINGS.

CONTRACTOR MUST CHECK & VERIFY ALL DIMENSIONS ON SITE.

THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNTIL SIGNED BY THE ARCHITECT.

No.	Issued	Date	By
1	For Site Plan Approval	2024-07-05	JW

KEY PLAN



TAES Architects Inc.
98 SCARSDALE ROAD,
TORONTO, ONTARIO, M3B 2R7
T: 416 800 3284
F:416-800-3485

SUNNY FOODMART

3075 PALLADIUM DRIVE, OTTAWA, ON

Project No.		T2023043
Drawn	Scale	As indicated
Checked	Date	06/28/24

SITE PLAN

Drawing No. A001

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Appendix C

Bus Route Schedules

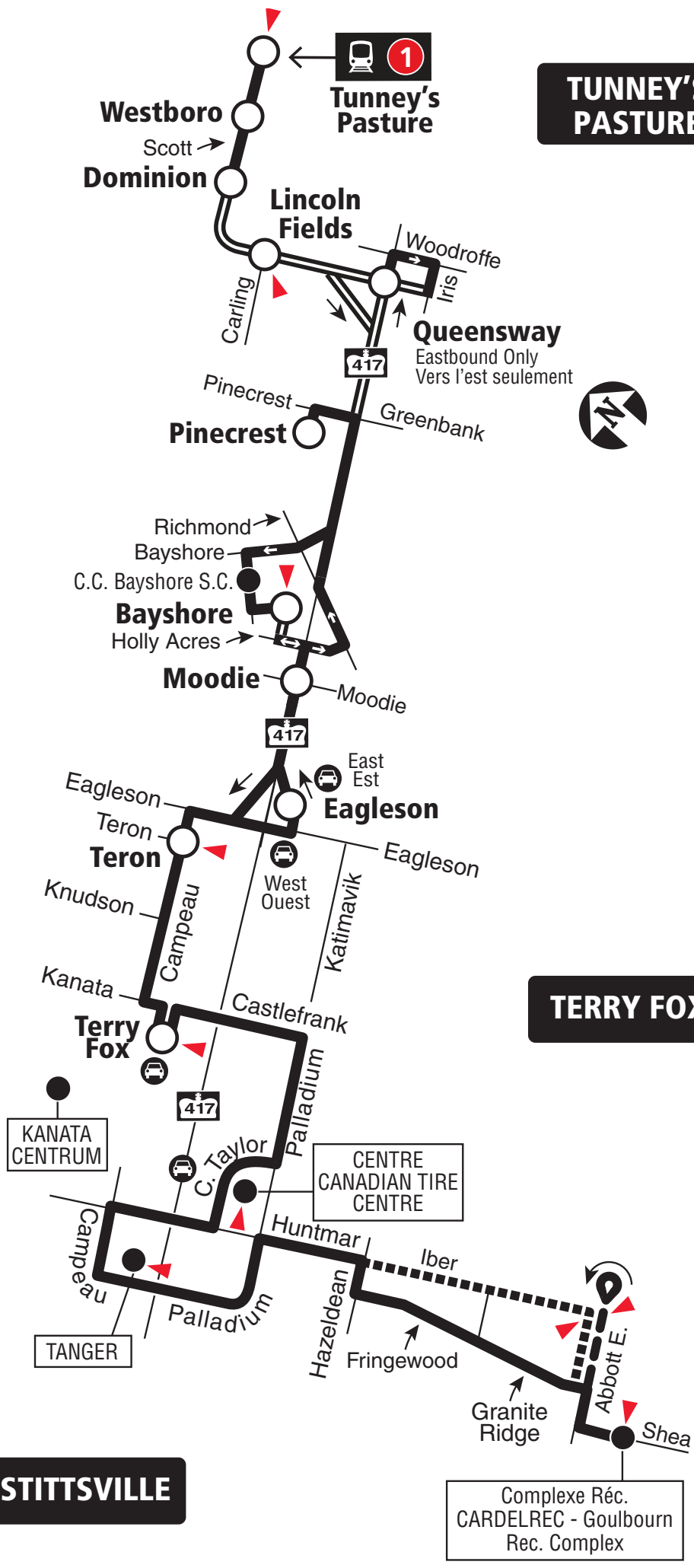
62 Rapide

TERRY FOX STITTSVILLE
TUNNEY'S PASTURE

7 days a week / 7 jours par semaine

All day service

Service toute la journée



Transitway & Station

Weekday southbound trips before noon and weekday northbound trips between noon and 8 p.m. travel via Iber and Abbott E.

Trajets en semaine vers le sud en avant midi et trajets en semaine vers le nord entre midi et 20 h via Iber et Abbott E.

Saturday and Sunday / Samedi et dimanche

Park & Ride / Parc-o-bus

Timepoint / Heures de passage

2022.12

2022.12

Schedule / Horaire 613-560-1000

Text / Texto* 560560

plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres

*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

Customer Service
Service à la clientèle **613-560-5000**

Lost and Found / Objets perdus..... **613-563-4011**

Security / Sécurité **613-741-2478**

Effective December 25, 2022

En vigueur 25 décembre 2022

OC Transpo

INFO 613-560-5000
octranspo.com

Schedules & Maps

The next service change is on Sunday, June 30.

Schedule times are based on typical driving conditions and may vary. Please arrive at your stop a few minutes early to allow for any fluctuations in schedule.

Thu, Jul 11

62 Tunney's Pasture

Starting about an hour before and until about an hour after major events at the Canadian Tire Centre, Routes 62 and 162 will be detoured away from the Canadian Tire Centre and will not serve the Park & Ride (stop 3059) or stops 1109, 1110 and 1871 on Cyclone Taylor. Service will be available at nearby stops on Huntmar and Palladium.

[V] via Granite. Ridge

[a] Effective Saturday, March 2, 2024, the Canadian Tire Centre Park & Ride lot will be permanently closed due to low usage. For alternative Park & Ride options, please use the Eagleson or Carp Park & Ride.

CARDELREC-GOULBOURN COMPLEX	GRANITE RIDGE / CINNABAR	IBER / ABBOTT	CTC CYCLONE TAYLOR / FRANK FINNIGAN	TERRY FOX 4A (D)	TERON 2A (B)	EAGLESON 2A (A)	BAYSHORE A	PINECREST B	QUEENSWAY 4A (D)	LINCOLN FIELDS 2A (C)	LINCOLN FIELDS 3B (E)	RICHMOND / GOLDEN	TUNNEY'S PASTURE C
06:41[V]	06:43		06:55	07:06	07:13	07:16	07:24	07:32	07:40	07:42			07:54
07:15[V]	07:17		07:29	07:40	07:47	07:50	07:58	08:06	08:14	08:16			08:28
07:46[V]	07:48		08:00	08:11	08:18	08:21	08:29	08:37	08:45	08:47			08:59
08:16[V]	08:18		08:31	08:40	08:47	08:50	08:58	09:06	09:13	09:15			09:28
08:46[V]	08:48		09:01	09:10	09:16	09:19	09:27	09:35	09:42	09:44			09:55
09:16[V]	09:18		09:30	09:40	09:46	09:49	09:57	10:05	10:11	10:13			10:23
09:46[V]	09:48		10:00	10:10	10:16	10:19	10:27	10:35	10:41	10:43			10:53
10:16[V]	10:18		10:30	10:40	10:46	10:49	10:57	11:05	11:11	11:13			11:23
10:46[V]	10:48		11:00	11:10	11:16	11:19	11:27	11:35	11:41	11:43			11:53
11:16[V]	11:18		11:31	11:42	11:49	11:51	11:59	12:07	12:14	12:16			12:26
11:46[V]	11:48		12:00	12:10	12:18	12:20	12:28	12:37	12:44	12:46			12:57
12:16		12:18	12:29	12:38	12:45	12:47	12:54	13:02	13:09	13:11			13:22
12:47		12:49	13:00	13:09	13:16	13:18	13:25	13:33	13:40	13:42			13:53
13:17		13:19	13:29	13:40	13:47	13:49	13:56	14:04	14:11	14:13			14:24
13:47		13:49	13:59	14:10	14:17	14:19	14:26	14:34	14:41	14:43			14:54
14:22		14:25	14:37	14:49	14:56	14:58	15:06	15:15	15:21	15:23			15:33
14:51		14:53	15:04	15:16	15:23	15:27	15:34	15:42	15:50	15:52			16:03
15:20		15:22	15:34	15:46	15:53	15:57	16:04	16:12	16:20	16:22			16:33
15:54		15:56	16:08	16:19	16:26	16:30	16:37	16:45	16:53	16:55			17:06
16:21		16:23	16:36	16:48	16:55	16:59	17:06	17:14	17:22	17:24			17:35
16:51		16:53	17:06	17:20	17:27	17:31	17:38	17:46	17:54	17:56			18:07
17:21		17:23	17:36	17:48	17:55	17:59	18:06	18:14	18:22	18:24			18:35
17:53		17:55	18:06	18:16	18:23	18:27	18:34	18:42	18:50	18:52			19:03
18:19		18:21	18:32	18:44	18:50	18:53	19:01	19:10	19:17	19:19			19:29
18:50		18:52	19:03	19:14	19:20	19:23	19:31	19:38	19:43	19:45			19:58

CARDELREC-GOULBOURN COMPLEX	GRANITE RIDGE / CINNABAR	IBER / ABBOTT	CTC CYCLONE TAYLOR / FRANK FINNIGAN	TERRY FOX 4A (D)	TERON 2A (B)	EAGLESON 2A (A)	BAYSHORE A	PINECREST B	QUEENSWAY 4A (D)	LINCOLN FIELDS 2A (C)	LINCOLN FIELDS 3B (E)	RICHMOND / GOLDEN	TUNNEY'S PASTURE C
19:17		19:19	19:29	19:39	19:45	19:48	19:56	20:03	20:08	20:10			20:23
19:47		19:49	19:59	20:09	20:15	20:17	20:25	20:33	20:39	20:41			20:51
20:16[V]	20:18		20:29	20:39	20:45	20:47	20:55	21:03	21:09	21:11			21:21
20:46[V]	20:48		20:59	21:09	21:15	21:17	21:25	21:33	21:39	21:41			21:51
21:16[V]	21:18		21:29	21:39	21:45	21:47	21:55	22:03	22:09	22:11			22:21
21:45[V]	21:46[V]		21:57[V]	22:07[V]	22:13[V]	22:15[V]	22:23[V]	22:30[V]	22:37[V]		22:39[V]	22:48[V]	22:55
22:12[V]	22:13[V]		22:24[V]	22:34[V]	22:40[V]	22:42[V]	22:50[V]	22:57[V]	23:04[V]		23:06[V]	23:15[V]	23:22
22:42[V]	22:43[V]		22:54[V]	23:04[V]	23:10[V]	23:12[V]	23:20[V]	23:26[V]	23:32[V]		23:34[V]	23:41[V]	23:48
23:12[V]	23:13[V]		23:24[V]	23:34[V]	23:40[V]	23:42[V]	23:50[V]	23:56[V]	00:02[V]		00:04[V]	00:11[V]	00:18
23:58[V]	23:59[V]		00:10[V]	00:20[V]	00:25[V]	00:27[V]	00:35[V]	00:41[V]	00:45[V]		00:47[V]	00:54[V]	01:01

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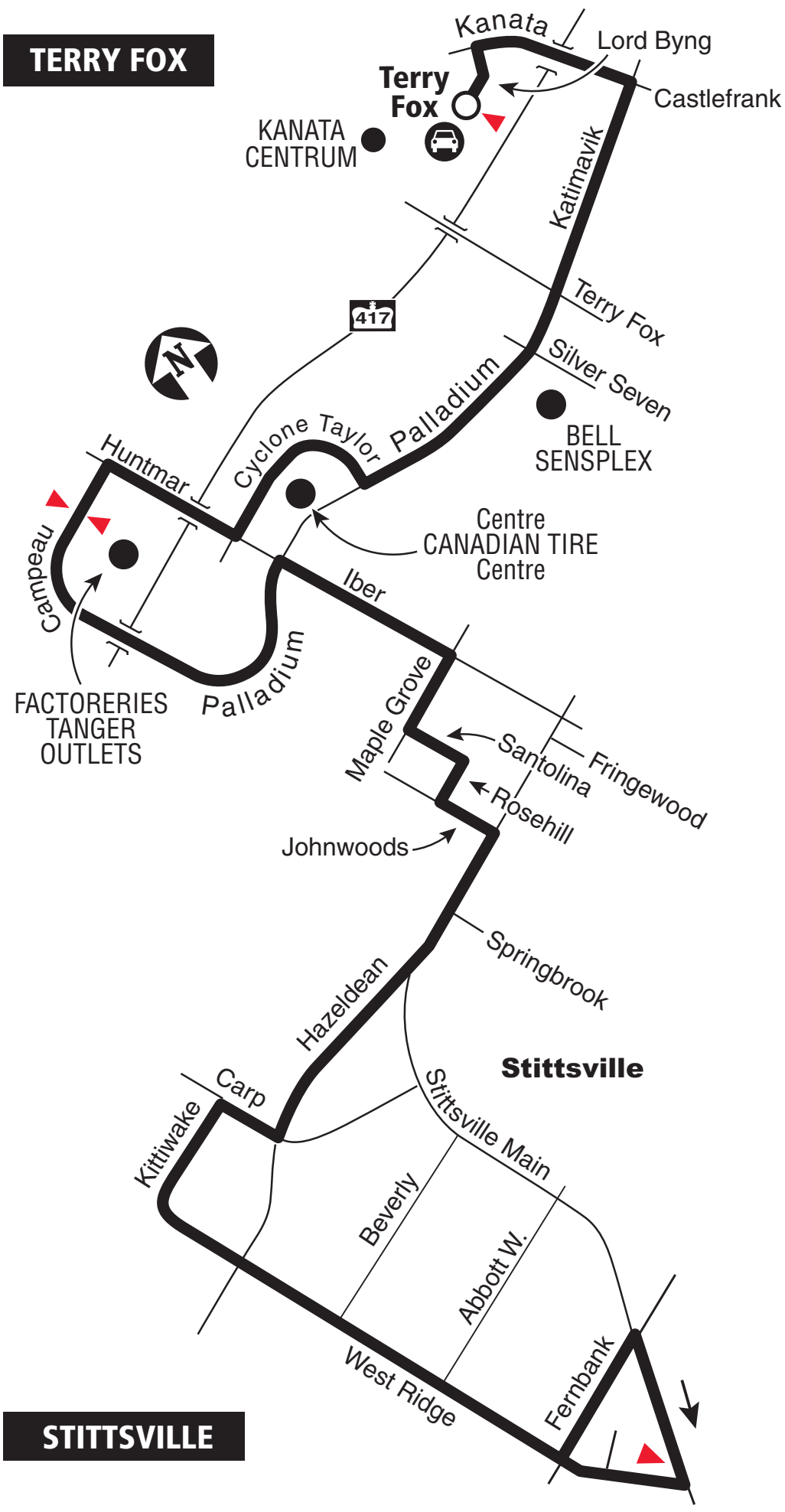
162

TERRY FOX
STITTSVILLE

Local

Monday to Saturday / Lundi au samedi

Selected trips Mon. to Fri. All day on Saturday /
Service limité du lundi au vendredi.
Toute la journée le samedi



Transitway Station / Station du Transitway

Park & Ride / Parc-o-bus

Timepoint / Heures de passage

2021.06

Schedule / Horaire 613-560-1000
Text / Texto* 560560

plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres

*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

Customer Service
Service à la clientèle **613-741-4390**

Lost and Found / Objets perdus..... **613-563-4011**

Security / Sécurité **613-741-2478**

Effective June 20, 2021
En vigueur 20 juin 2021

OC Transpo

INFO 613-741-4390
octranspo.com

Schedules & Maps

The next service change is on Sunday, June 30.

Schedule times are based on typical driving conditions and may vary. Please arrive at your stop a few minutes early to allow for any fluctuations in schedule.

Thu, Jul 11

162 Stittsville

Starting about an hour before and until about an hour after major events at the Canadian Tire Centre, Routes 62 and 162 will be detoured away from the Canadian Tire Centre and will not serve the Park & Ride (stop 3059) or stops 1109, 1110 and 1871 on Cyclone Taylor. Service will be available at nearby stops on Huntmar and Palladium.

[a] Effective Saturday, March 2, 2024, the Canadian Tire Centre Park & Ride lot will be permanently closed due to low usage. For alternative Park & Ride options, please use the Eagleson or Carp Park & Ride.

TERRY FOX 3C (C)	CAMPEAU / TANGER OUTLETS	KITTIWAKE / AD. 104	STITTSVILLE MAIN / WEST RIDGE
12:50	13:01	13:15	13:25
13:50	14:01	14:15	14:25
14:50	15:01	15:15	15:25
19:35	19:46	20:00	20:10
20:35	20:46	21:00	21:10
21:35	21:46	22:00	22:10
22:35	22:46	23:00	23:10

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2024

Appendix D

Existing Traffic Movement Counts

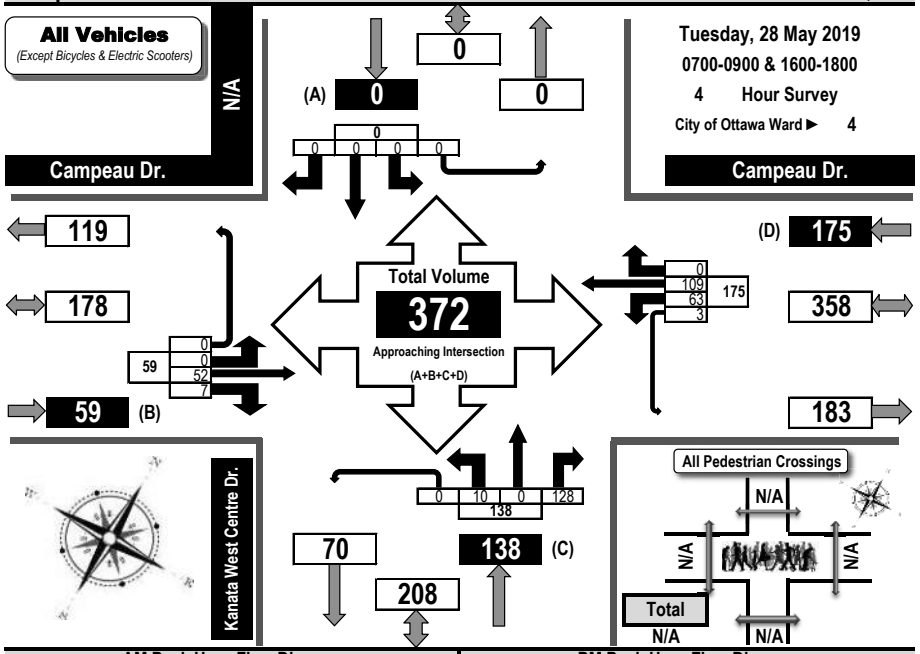
Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

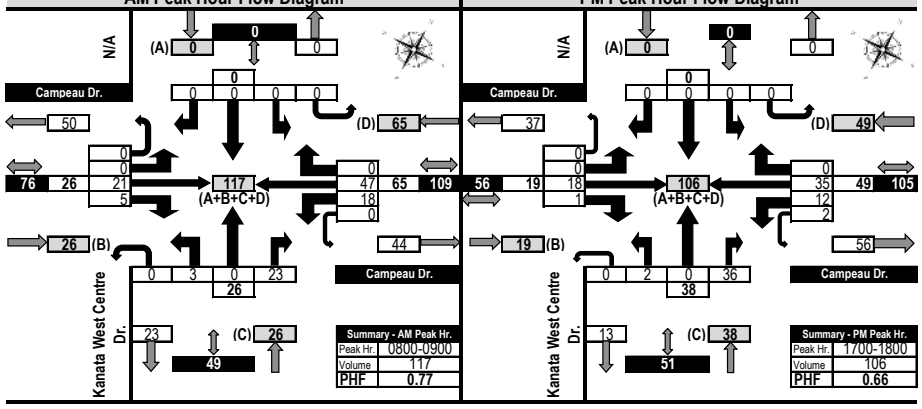
Campeau Drive & Kanata West Centre Drive — **Kanata, ON**

All Vehicles
(Except Bicycles & Electric Scooters)

Tuesday, 28 May 2019
0700-0900 & 1600-1800
4 Hour Survey
City of Ottawa Ward ► 4



AM Peak Hour Flow Diagram



Summary - AM Peak Hr.	
Peak Hr.	0800-0900
Volume	117
PHF	0.77

PM Peak Hour Flow Diagram

Summary - PM Peak Hr.	
Peak Hr.	1700-1800
Volume	106
PHF	0.66

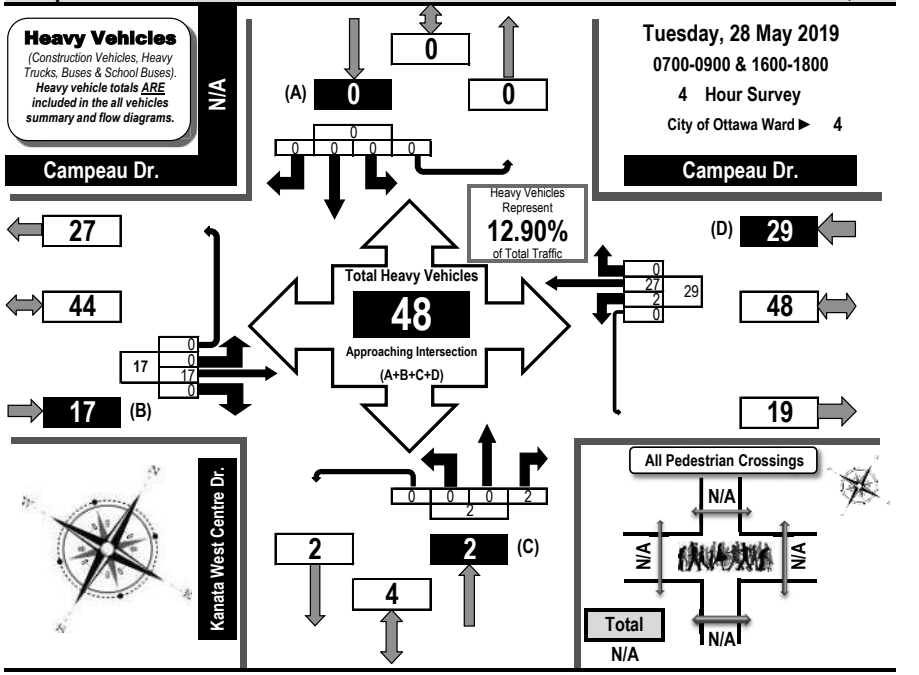
Turning Movement Count
Heavy Vehicle Summary Flow Diagram

Heavy Trucks, Buses, and School Buses

Campeau Drive & Kanata West Centre Drive — **Kanata, ON**

Heavy Vehicles
(Construction Vehicles, Heavy Trucks, Buses & School Buses).
Heavy vehicle totals ARE included in the all vehicles summary and flow diagrams.

Tuesday, 28 May 2019
0700-0900 & 1600-1800
4 Hour Survey
City of Ottawa Ward ► 4



	Campeau Dr.					Campeau Dr.					Kanata West Centre Dr.					N/A				
	Eastbound					Westbound					Northbound					Southbound				
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0700-0800	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
0800-0900	0	13	0	0	13	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	15
1600-1700	0	3	0	0	3	1	3	0	0	4	0	0	1	0	1	0	0	0	0	0	8
1700-1800	0	1	0	0	1	1	22	0	0	23	0	0	0	0	0	0	0	0	0	0	24
Totals	0	17	0	0	17	2	27	0	0	29	0	0	2	0	2	0	0	0	0	0	48

Comments:
Campeau Drive not yet open to Terry Fox Drive. Cabela's, Princess Auto and McDonalds represent the businesses now open. The majority of the heavy vehicles are associated with the UPS facility on Campeau Drive.

Turning Movement Count
Summary Report
AADT and Expansion Factors

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Campeau Drive & Kanata West Centre Drive — Kanata, ON

Survey Date: Tuesday, 28 May 2019 **Start Time:** 0700 **AADT Factor:** 0.9
Weather AM: Overcast +9ºC **Survey Duration:** 4 Hrs. **Survey Hours:** 0700-0900 & 1600-1800
Weather PM: Overcast +11ºC **Surveyor(s):** Mousseau

	Campeau Dr.					Campeau Dr.					Kanata West Centre Dr.					N/A						
	Eastbound					Westbound					Northbound					Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0700-0800	0	4	1	0	5	8	6	0	0	14	19	1	0	25	0	26	0	0	0	0	0	26	45
0800-0900	0	21	5	0	26	18	47	0	0	65	91	3	0	23	0	26	0	0	0	0	0	26	117
1600-1700	0	9	0	0	9	25	21	0	1	47	56	4	0	44	0	48	0	0	0	0	0	48	104
1700-1800	0	18	1	0	19	12	35	0	2	49	68	2	0	36	0	38	0	0	0	0	0	38	106
Totals	0	52	7	0	59	63	109	0	3	175	234	10	0	128	0	138	0	0	0	0	0	138	372

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor Applicable to the Day and Month of the Turning Movement Count

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 ➡12 expansion factor of 1.39

Equ. 12 Hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 0.9

AADT 12-hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 ➡24 expansion factor of 1.31

AADT 24 Hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor ➡ 0.77 — Highest Hourly Vehicle Volume Between 0700h & 0900h

AM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
0800-0900	0	21	5	0	26	18	47	0	0	65	91	3	0	23	0	26	0	0	0	0	0	26	117

PM Peak Hour Factor ➡ 0.66 — Highest Hourly Vehicle Volume Between 1600h & 1800h

PM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1700-1800	0	18	1	0	19	12	35	0	2	49	68	2	0	36	0	38	0	0	0	0	0	38	106

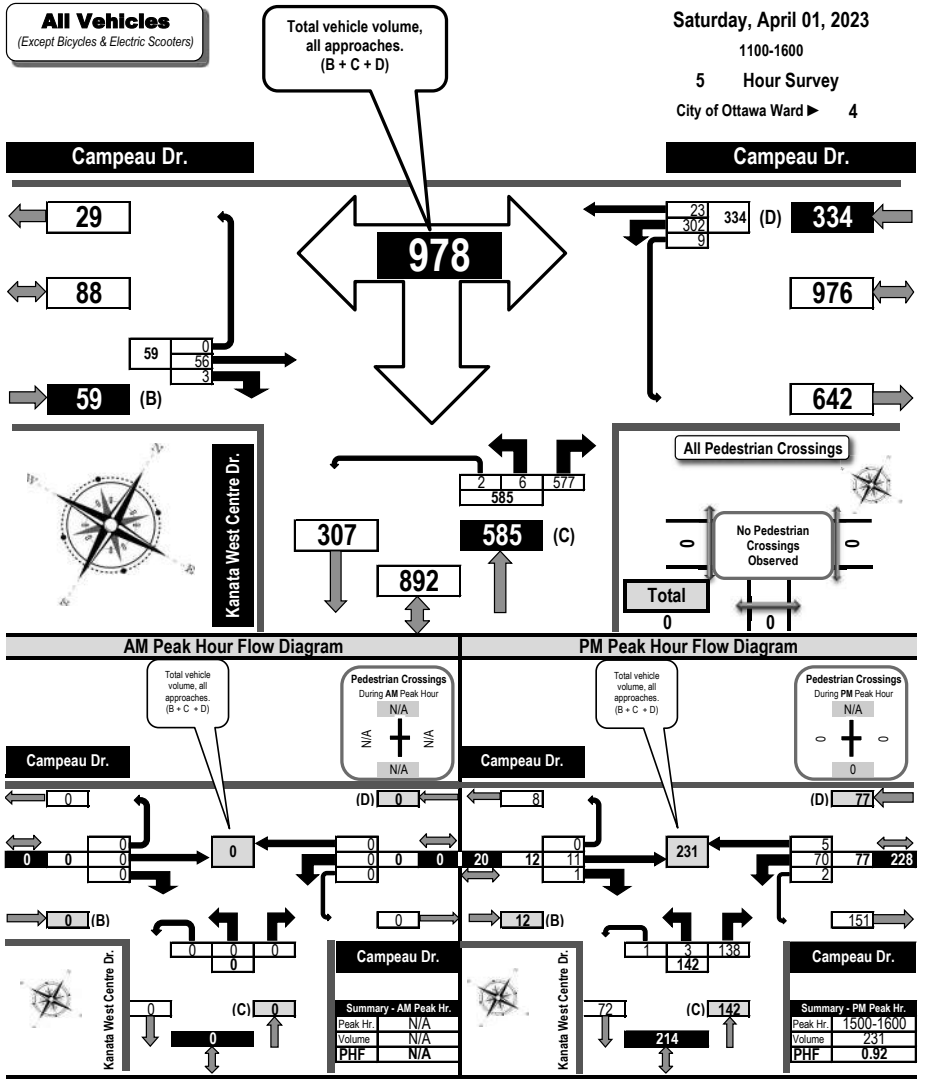
Comments:
Campeau Drive not yet open to Terry Fox Drive. Cabela's, Princess Auto and McDonalds represent the businesses now open. The majority of the heavy vehicles are associated with the UPS facility on Campeau Drive.

Notes:
1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
2.When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Turning Movement Count
Summary, AM and PM Peak Hour
Flow Diagrams
All Vehicles Except Bicycles



Campeau Drive & Kanata West Centre Drive — Kanata, ON



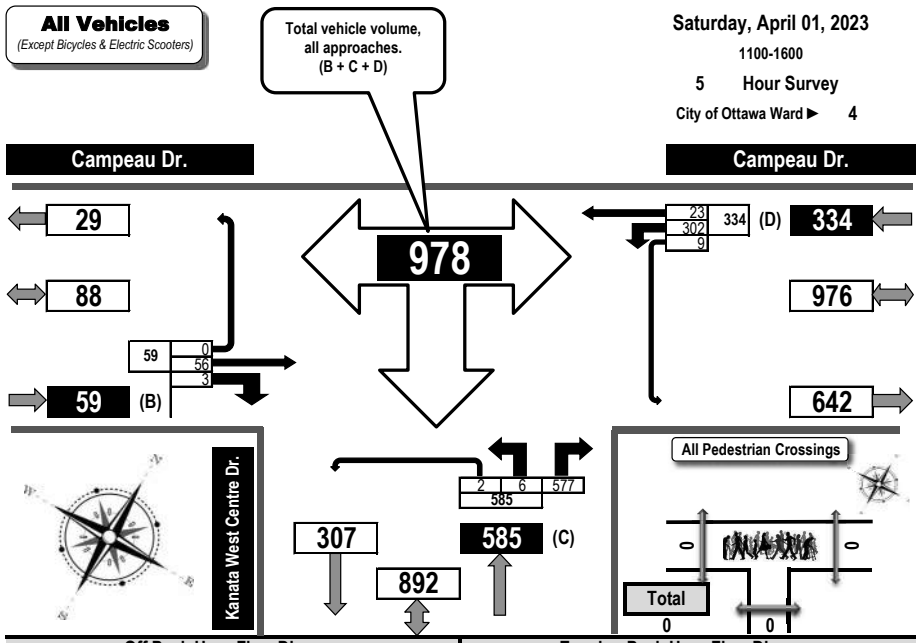
Turning Movement Count
Summary, OFF and EVENING Peak Hour Flow Diagrams
All Vehicles Except Bicycles

Campeau Drive & Kanata West Centre Drive — **Kanata, ON**

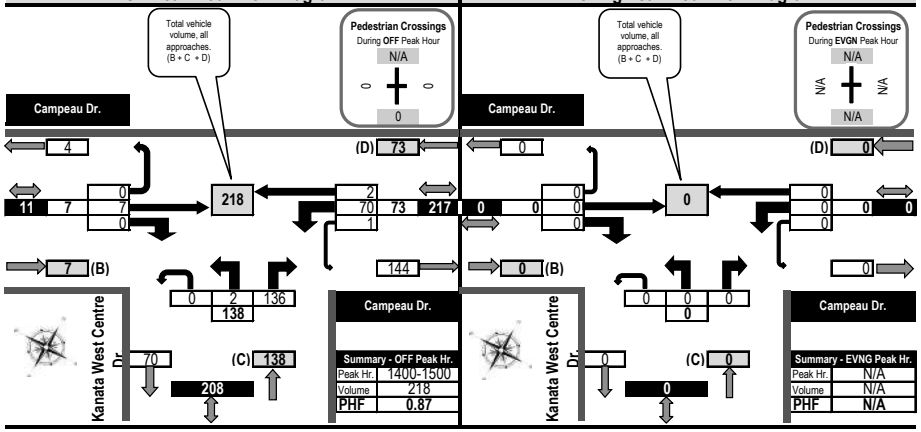
All Vehicles
(Except Bicycles & Electric Scooters)

Total vehicle volume, all approaches. (B + C + D)

Saturday, April 01, 2023
1100-1600
5 Hour Survey
City of Ottawa Ward ► 4



Off Peak Hour Flow Diagram



Evening Peak Hour Flow Diagram

Turning Movement Count
Heavy Vehicle Summary (FHWA Class 4 to 13)
Flow Diagram

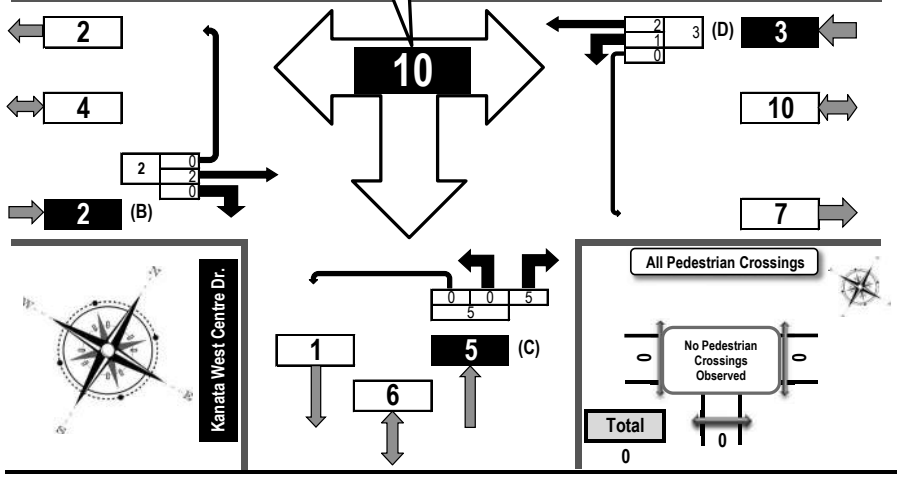
Campeau Drive & Kanata West Centre Drive — **Kanata, ON**

Heavy Vehicles
(Construction Vehicles, Heavy Trucks, Buses & School Buses).
Heavy vehicle totals ARE included in the all vehicles summary and flow diagrams.

Total heavy vehicle volume, all approaches. (B + C + D)

Heavy Vehicles Comprise **1.02%** of Total Traffic

Saturday, April 01, 2023
1100-1600
5 Hour Survey
City of Ottawa Ward ► 4



	Campeau Dr. Eastbound					Campeau Dr. Westbound					Kanata West Centre Dr. Northbound					N/A Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200		1	0	0	1	0	1		0	1	0		0	0	0						2
1200-1300		1	0	0	1	0	0		0	0	0		0	0	0						1
1300-1400		0	0	0	0	0	1		0	1	0		1	0	1						2
1400-1500		0	0	0	0	1	0		0	1	0		2	0	2						3
1500-1600		0	0	0	0	0	0		0	0	0		2	0	2						2
Totals		2	0	0	2	1	2		0	3	0		5	0	5					0	10

Turning Movement Count
All Buses Summary (FHWA Class 4 ONLY)
Flow Diagram



Campeau Drive & Kanata West Centre Drive — **Kanata, ON**

Buses ONLY
(Transit, Intercity, School Buses & Other Buses).
Bus totals ARE included in the all vehicles summary, heavy vehicle summary & flow diagrams.

Total bus volume, all approaches. (B + C + D)

All Buses Comprise **0.00%** of Total Traffic and **0.00%** of the Heavy Vehicle Traffic

Saturday, April 01, 2023
1100-1600
5 Hour Survey
City of Ottawa Ward ► 4

Campeau Dr. | Campeau Dr.

Kanata West Centre Dr.

All Pedestrian Crossings: No Pedestrian Crossings Observed

Total: 0

	Campeau Dr. Eastbound					Campeau Dr. Westbound					Kanata West Centre Dr. Northbound					N/A Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200		0	0	0	0	0	0		0	0	0		0	0	0						0
1200-1300		0	0	0	0	0	0		0	0	0		0	0	0						0
1300-1400		0	0	0	0	0	0		0	0	0		0	0	0						0
1400-1500		0	0	0	0	0	0		0	0	0		0	0	0						0
1500-1600		0	0	0	0	0	0		0	0	0		0	0	0						0
Totals		0	0	0	0	0	0		0	0	0		0	0	0						0

Turning Movement Count
Bicycle Summary
Flow Diagram

Campeau Drive & Kanata West Centre Drive — **Kanata, ON**

Bicycles
(Including electric bicycles and electric scooters)
Note:
Bicycle volumes are **NOT** included in vehicle totals.

Total bicycle volume, all approaches. (B + C + D)

Bicycles comprise **0.00%** of total traffic

Saturday, April 01, 2023
1100-1600
5 Hour Survey
City of Ottawa Ward ► 4

Campeau Dr. | Campeau Dr.

No Bicycles Observed

Includes all bicycles travelling on sidewalks.

Kanata West Centre Dr.

All Pedestrian Crossings: No Pedestrian Crossings Observed

Total: 0

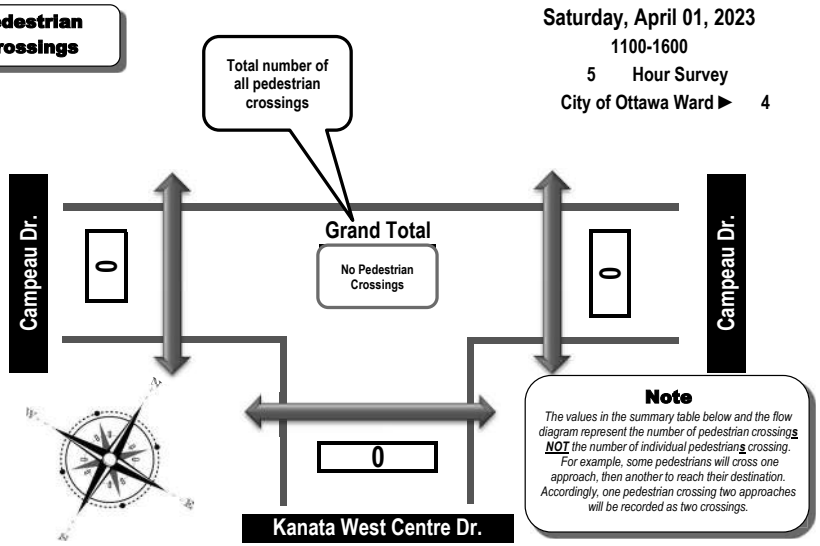
	Campeau Dr. Eastbound					Campeau Dr. Westbound					Kanata West Centre Dr. Northbound					N/A Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200		0	0	0	0	0	0		0	0	0		0	0	0						0
1200-1300		0	0	0	0	0							0	0	0						0
1300-1400		0	0	0	0	0	No Bicycles Observed						0	0	0						0
1400-1500		0	0	0	0	0							0	0	0						0
1500-1600		0	0	0	0	0	0		0	0	0		0	0	0						0
Totals		0	0	0	0	0	0		0	0	0		0	0	0						0

Turning Movement Count
Pedestrian Crossings Summary and Flow Diagram

Campeau Drive & Kanata West Centre Drive — Kanata, ON

Pedestrian Crossings

Saturday, April 01, 2023
1100-1600
5 Hour Survey
City of Ottawa Ward ► 4



Note
*The values in the summary table below and the flow diagram represent the number of pedestrian crossing**s** **NOT** the number of individual pedestrian**s** crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Time Period	West Side Crossing Campeau Dr.	East Side Crossing Campeau Dr.	Street Total	South Side Crossing Kanata West Centre Dr.	North Side Crossing N/A	Street Total	Grand Total
1100-1200	0	0	0	0		0	0
1200-1300	0	0		0		0	0
1300-1400	0	0		0		0	0
1400-1500	0	0		0		0	0
1500-1600	0	0	0	0		0	0
Totals	0	0	0	0		0	0

No Pedestrian Crossings

Comments:
No bicycles, buses or pedestrian crossings were observed.

Turning Movement Count
Summary Report
Including OFF Peak, PM Peak and PHF
All Vehicles Except Bicycles

Campeau Drive & Kanata West Centre Drive — Kanata, ON

Survey Date: Saturday, April 01, 2023 **Start Time:** 1100 **AADT Factor:** 1.0
Weather: AM: Drizzle +1° C **Survey Duration:** 5 Hrs. **Survey Hours:** 1100 - 1600
Weather PM: Most Sunny +8° C **Surveyor(s):** M. Brazeau

	Campeau Dr. Eastbound					Campeau Dr. Westbound						Kanata West Centre Dr. Northbound					N/A Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
1100-1200	0	9	0	0	9	51	5	0	1	57	66	0	0	97	1	98	0	0	0	0	0	98	164
1200-1300	0	15	1	0	16	55	3	0	2	60	76	0	0	98	0	98	0	0	0	0	0	98	174
1300-1400	0	14	1	0	15	56	8	0	3	67	82	1	0	108	0	109	0	0	0	0	0	109	191
1400-1500	0	7	0	0	7	70	2	0	1	73	80	2	0	136	0	138	0	0	0	0	0	138	218
1500-1600	0	11	1	0	12	70	5	0	2	77	89	3	0	138	1	142	0	0	0	0	0	142	231
Totals	0	56	3	0	59	302	23	0	9	334	393	6	0	577	2	585	0	0	0	0	0	585	978

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

OFF Peak Hour Factor ➡ 0.87												Highest Hourly Vehicle Volume Between 1100h & 1500h										
OFF Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1400-1500	0	7	0	0	7	70	2	0	1	73	80	2	0	136	0	138	0	0	0	0	0	138	218

PM Peak Hour Factor ➡ 0.92												Highest Hourly Vehicle Volume Between 1500h & 1900h										
PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1500-1600	0	11	1	0	12	70	5	0	2	77	89	3	0	138	1	142	0	0	0	0	0	142	231

Comments:
No bicycles, buses or pedestrian crossings were observed.

Notes:
1. Includes all vehicle types except bicycles and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Turning Movement Count
Summary Report Including Peak Hours, AADT and Expansion Factors
All Vehicles Except Bicycles

Campeau Drive & Palladium Drive (ROUNDABOUT) — Kanata, ON

Survey Date: Tuesday, May 28, 2019 **Start Time:** 0700 **AADT Factor:** 0.9
Weather AM: Overcast +9° C **Survey Duration:** 8 Hrs. **Survey Hours:** 0700-1000, 1130-1330 & 1500-1800
Weather PM: Overcast +11° C **Surveyor(s):** T. Carmody

	Campeau Dr.					Campeau Dr.						Palladium Dr.						Palladium Dr.					
	Eastbound					Westbound						Northbound						Southbound					
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0700-0800	2	23	6	0	31	91	9	7	0	107	138	6	17	70	5	98	1	2	0	0	3	101	239
0800-0900	1	22	21	0	44	101	19	6	0	126	170	46	16	91	12	165	4	15	2	0	21	186	356
0900-1000	3	46	52	0	101	105	12	5	0	122	223	9	5	57	13	84	6	12	3	0	21	105	328
1130-1230	2	34	14	0	50	103	24	5	0	132	182	10	12	70	81	173	5	19	3	0	27	200	382
1230-1330	6	34	18	0	58	106	18	3	0	127	185	12	4	84	106	206	6	9	2	0	17	223	408
1500-1600	4	33	16	0	53	122	24	9	1	156	209	13	13	145	115	286	6	7	2	0	15	301	510
1600-1700	2	37	14	0	53	169	30	1	0	200	253	17	1	151	111	280	10	15	0	0	25	305	558
1700-1800	0	41	14	0	55	144	17	1	0	162	217	28	4	146	116	294	4	14	1	0	19	313	530
Totals	20	270	155	0	445	941	153	37	1	1132	1577	141	72	814	559	1586	42	93	13	0	148	1734	3311

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor Applicable to the Day and Month of the Turning Movement Count

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 ➡12 expansion factor of 1.39

Equ. 12 Hr	28	375	215	0	619	1308	213	51	1	1573	2192	196	100	1131	777	2205	58	129	18	0	206	2410	4602

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 0.9

AADT 12-hr	25	338	194	0	557	1177	191	46	1	1416	1973	176	90	1018	699	1984	53	116	16	0	185	2169	4142

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 ➡24 expansion factor of 1.31

AADT 24 Hr	33	442	254	0	729	1542	251	61	2	1855	2584	231	118	1334	916	2599	69	152	21	0	243	2842	5426

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor ➡ 0.86												Highest Hourly Vehicle Volume Between 0700h & 1000h										
AM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
0815-0915	4	31	59	0	94	109	18	6	0	133	227	43	16	94	13	166	5	17	4	0	26	192	419
OFF Peak Hour Factor ➡ 0.96												Highest Hourly Vehicle Volume Between 1130h & 1330h										
OFF Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1215-1315	3	36	19	0	58	113	23	2	0	138	196	13	4	87	110	214	5	12	2	0	19	233	429
PM Peak Hour Factor ➡ 0.95												Highest Hourly Vehicle Volume Between 1500h & 1800h										
PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1615-1715	2	38	14	0	54	166	24	0	0	190	244	20	1	179	101	301	8	22	0	0	30	331	575

Comments:

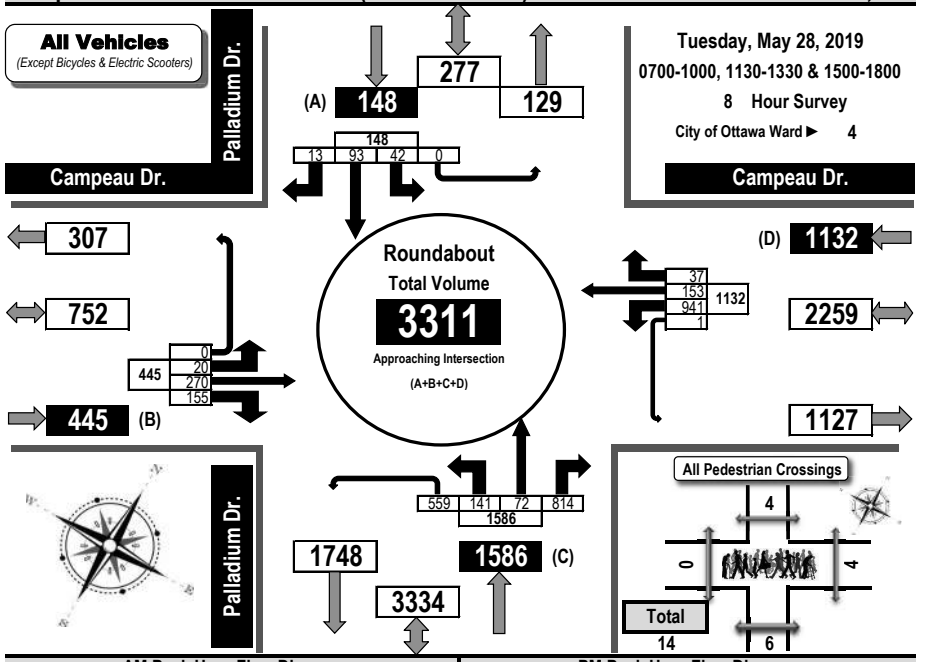
OC Transpo buses and school buses comprise 20.20% of the heavy vehicle traffic. No bicycles were observed. The high number of heavy vehicles noted between 0845 and 0915 consisted of UPS vehicles.

Notes:

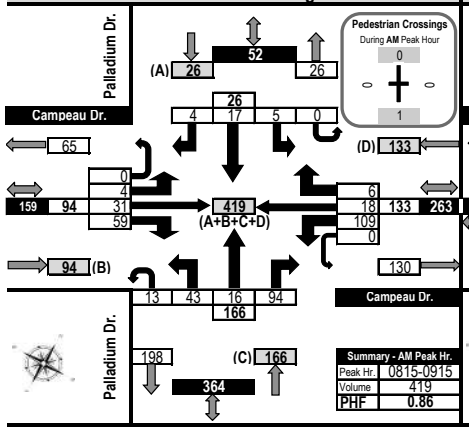
1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams
All Vehicles Except Bicycles

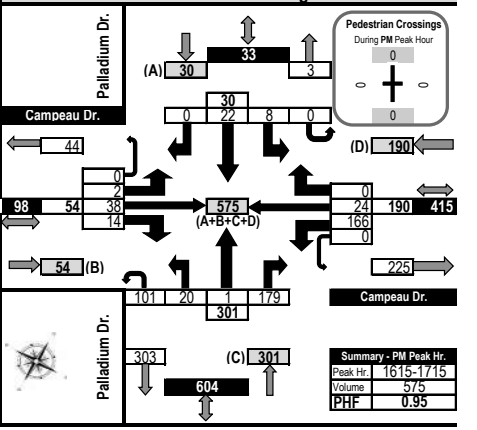
Campeau Drive & Palladium Drive (ROUNDABOUT) — Kanata, ON



AM Peak Hour Flow Diagram



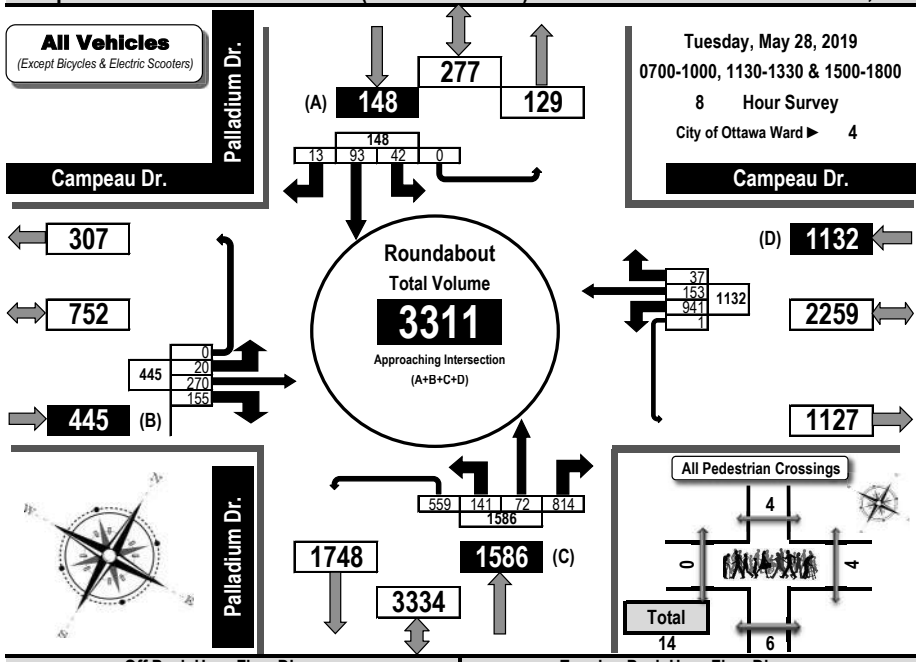
PM Peak Hour Flow Diagram

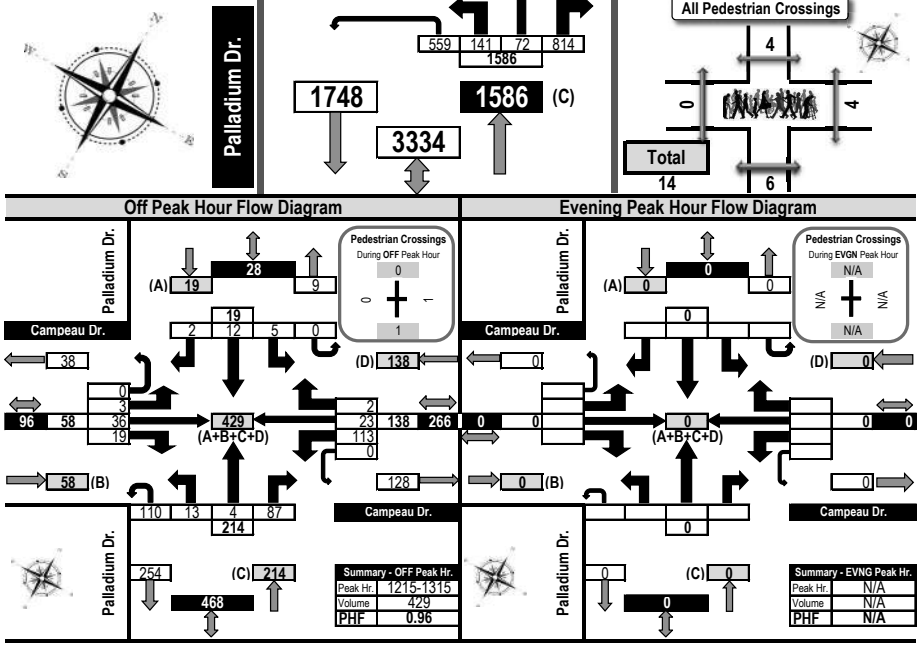


Turning Movement Count
Summary, OFF and EVENING Peak Hour Flow Diagrams
All Vehicles Except Bicycles



Campeau Drive & Palladium Drive (ROUNDABOUT) — **Kanata, ON**

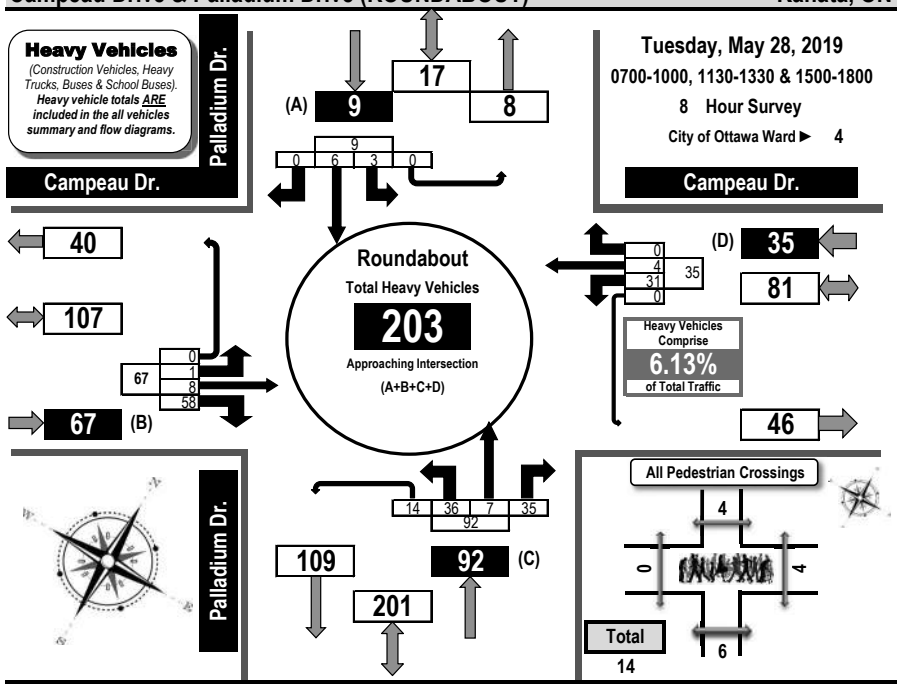




Turning Movement Count
Heavy Vehicle Summary (FHWA Class 4-13)
Flow Diagram



Campeau Drive & Palladium Drive (ROUNDABOUT) — **Kanata, ON**



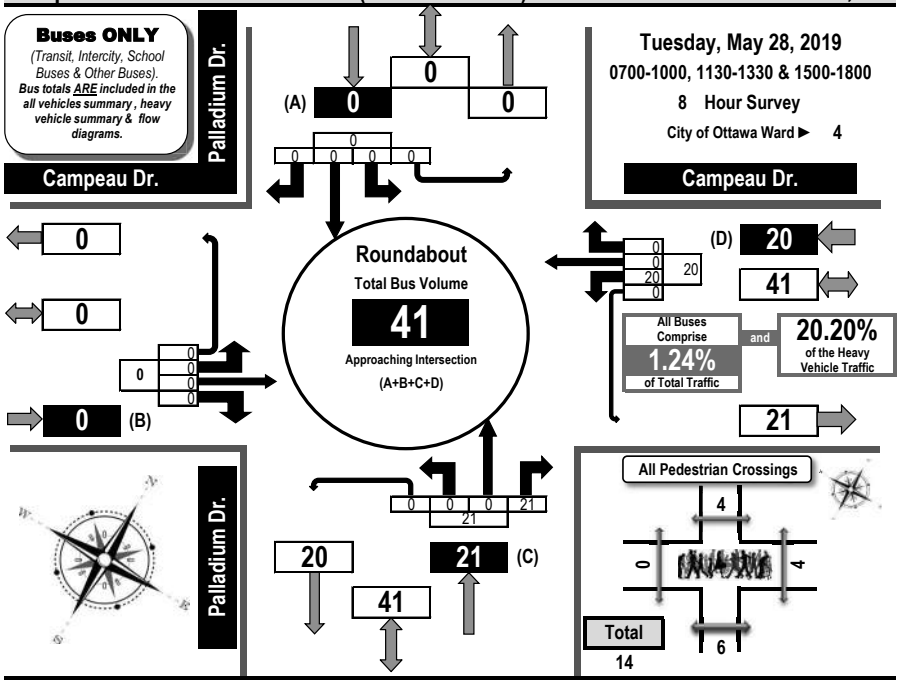
	Campeau Dr. Eastbound					Campeau Dr. Westbound					Palladium Dr. Northbound					Palladium Dr. Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	0	1	0	0	1	1	0	0	0	1	0	0	3	0	3	0	0	0	0	0	5
0800-0900	0	0	14	0	14	5	0	0	0	5	2	1	5	1	9	0	0	0	0	0	28
0900-1000	1	5	34	0	40	5	0	0	0	5	2	1	6	0	9	1	2	0	0	3	57
1130-1230	0	0	2	0	2	5	1	0	0	6	0	5	3	3	11	2	4	0	0	6	25
1230-1330	0	0	3	0	3	5	1	0	0	6	4	0	4	3	11	0	0	0	0	0	20
1500-1600	0	1	2	0	3	5	0	0	0	5	3	0	8	3	14	0	0	0	0	0	22
1600-1700	0	1	3	0	4	3	1	0	0	4	3	0	3	3	9	0	0	0	0	0	17
1700-1800	0	0	0	0	0	2	1	0	0	3	22	0	3	1	26	0	0	0	0	0	29
Totals	1	8	58	0	67	31	4	0	0	35	36	7	35	14	92	3	6	0	0	9	203

Comments:
OC Transpo buses and school buses comprise 20.20% of the heavy vehicle traffic. No bicycles were observed. The high number of heavy vehicles noted between 0845 and 0915 consisted of UPS vehicles.

Turning Movement Count
All Buses Summary (FHWA Class 4 ONLY)
Flow Diagram



Campeau Drive & Palladium Drive (ROUNDABOUT) — **Kanata, ON**



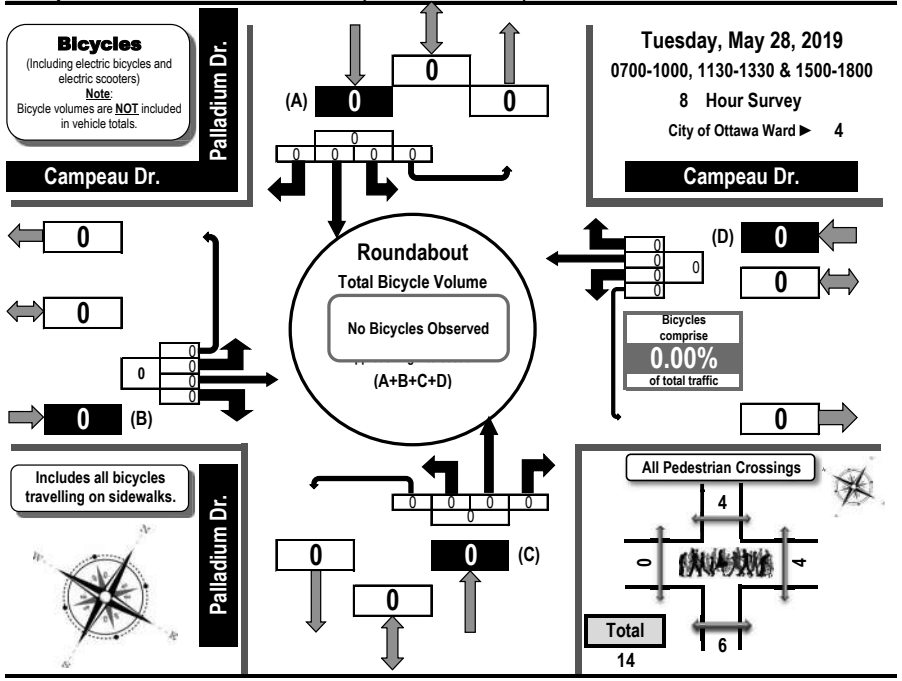
	Campeau Dr. Eastbound					Campeau Dr. Westbound					Palladium Dr. Northbound					Palladium Dr. Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
0800-0900	0	0	0	0	0	4	0	0	0	4	0	0	3	0	3	0	0	0	0	0	7
0900-1000	0	0	0	0	0	4	0	0	0	4	0	0	3	0	3	0	0	0	0	0	7
1130-1230	0	0	0	0	0	2	0	0	0	2	0	0	2	0	2	0	0	0	0	0	4
1230-1330	0	0	0	0	0	3	0	0	0	3	0	0	2	0	2	0	0	0	0	0	5
1500-1600	0	0	0	0	0	4	0	0	0	4	0	0	6	0	6	0	0	0	0	0	10
1600-1700	0	0	0	0	0	2	0	0	0	2	0	0	2	0	2	0	0	0	0	0	4
1700-1800	0	0	0	0	0	1	0	0	0	1	0	0	2	0	2	0	0	0	0	0	3
Totals	0	0	0	0	0	20	0	0	0	20	0	0	21	0	21	0	0	0	0	0	41

Comments:

OC Transpo buses and school buses comprise 20.20% of the heavy vehicle traffic. No bicycles were observed. The high number of heavy vehicles noted between 0845 and 0915 consisted of UPS vehicles.

Turning Movement Count
Bicycle Summary
Flow Diagram

Campeau Drive & Palladium Drive (ROUNDABOUT) — **Kanata, ON**



	Campeau Dr. Eastbound					Campeau Dr. Westbound					Palladium Dr. Northbound					Palladium Dr. Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900-1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1130-1230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1230-1330	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600-1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

No Bicycles Observed

Comments:

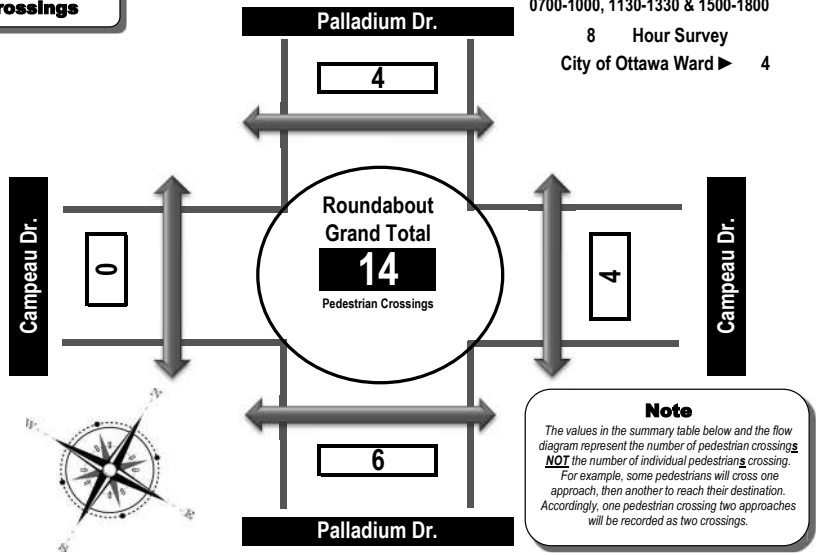
OC Transpo buses and school buses comprise 20.20% of the heavy vehicle traffic. No bicycles were observed. The high number of heavy vehicles noted between 0845 and 0915 consisted of UPS vehicles.

Turning Movement Count
Pedestrian Crossings Summary and Flow Diagram

Campeau Drive & Palladium Drive (ROUNDABOUT) — **Kanata, ON**

Pedestrian Crossings

Tuesday, May 28, 2019
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward ► 4



Note
*The values in the summary table below and the flow diagram represent the number of pedestrian crossing**s** **NOT** the number of individual pedestrian**s** crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Time Period	West Side Crossing Campeau Dr.	East Side Crossing Campeau Dr.	Street Total	South Side Crossing Palladium Dr.	North Side Crossing Palladium Dr.	Street Total	Grand Total
0700-0800	0	0	0	0	0	0	0
0800-0900	0	0	0	2	0	2	2
0900-1000	0	0	0	1	0	1	1
1130-1230	0	1	1	1	0	1	2
1230-1330	0	1	1	1	1	2	3
1500-1600	0	0	0	0	3	3	3
1600-1700	0	2	2	1	0	1	3
1700-1800	0	0	0	0	0	0	0
Totals	0	4	4	6	4	10	14

Comments:
OC Transpo buses and school buses comprise 20.20% of the heavy vehicle traffic. No bicycles were observed. The high number of heavy vehicles noted between 0845 and 0915 consisted of UPS vehicles.

Diagrams, Maps and Photographs

Campeau Drive & Palladium Drive (ROUNDABOUT)

Saturday, April 01, 2023





Turning Movement Count
Summary Report
Including OFF Peak, PM Peak and PHF
All Vehicles Except Bicycles

Campeau Drive & Palladium Drive (ROUNDABOUT) — Kanata, ON

Survey Date: Saturday, April 01, 2023 | **Start Time:** 1100 | **AADT Factor:** 1.0
Weather: AM: Drizzle +1° C | **Survey Duration:** 5 Hrs. | **Survey Hours:** 1100 - 1600
Weather PM: Mostly Sunny +8° C | **Surveyor(s):** T. Carmody

	Campeau Dr. Eastbound					Campeau Dr. Westbound						Palladium Dr. Northbound						Palladium Dr. Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
1100-1200	3	85	17	0	**105**	165	47	5	8	**225**	**330**	12	6	107	152	**277**	5	13	1	0	**19**	**296**	**626**
1200-1300	1	87	27	0	**115**	145	53	4	7	**209**	**324**	16	4	154	181	**355**	6	5	0	0	**11**	**366**	**690**
1300-1400	1	106	16	0	**123**	199	53	4	5	**261**	**384**	14	12	256	221	**503**	6	21	3	0	**30**	**533**	**917**
1400-1500	1	122	24	0	**147**	261	56	4	1	**322**	**469**	10	10	314	293	**627**	7	11	1	0	**19**	**646**	**1115**
1500-1600	0	126	19	0	**145**	316	56	5	2	**379**	**524**	6	6	308	348	**668**	5	9	0	0	**14**	**682**	**1206**
Totals	**6**	**526**	**103**	**0**	**635**	**1086**	**265**	**22**	**23**	**1396**	**2031**	**58**	**38**	**1139**	**1195**	**2430**	**29**	**59**	**5**	**0**	**93**	**2523**	**4554**

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

OFF Peak Hour Factor ➡ 0.92

OFF Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Highest Hourly Vehicle Volume Between 1100h & 1500h: LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1400-1500	1	122	24	0	**147**	261	56	4	1	**322**	**469**	10	10	314	293	**627**	7	11	1	0	**19**	**646**	**1115**

PM Peak Hour Factor ➡ 0.91

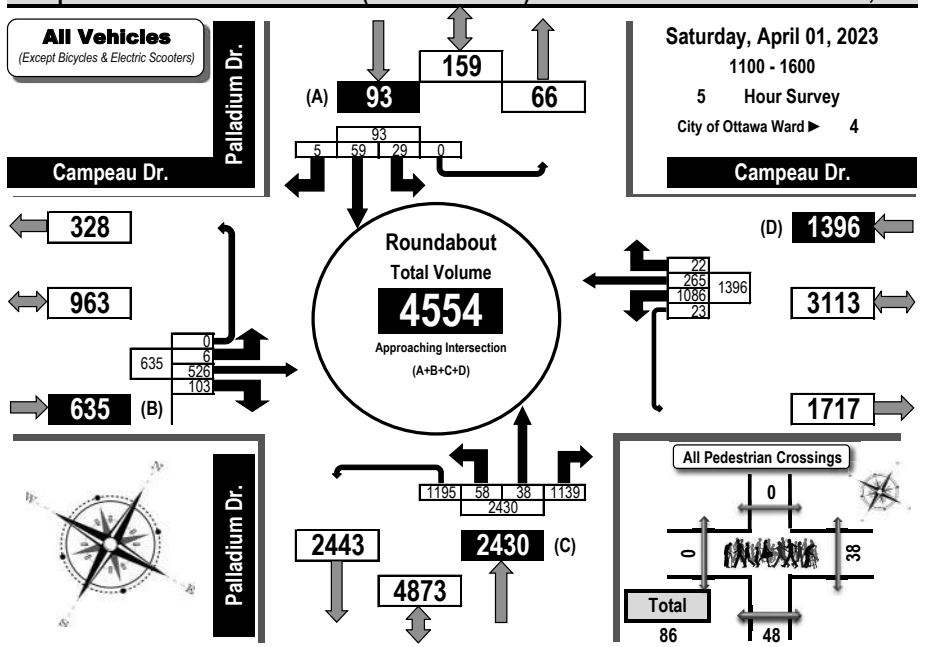
PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Highest Hourly Vehicle Volume Between 1500h & 1900h: LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1500-1600	0	126	19	0	**145**	316	56	5	2	**379**	**524**	6	6	308	348	**668**	5	9	0	0	**14**	**682**	**1206**

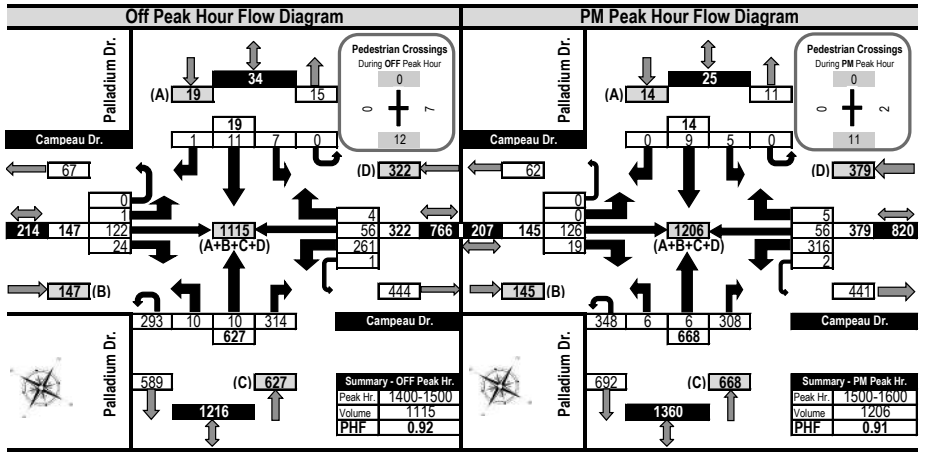
Comments:
OC Transpo buses comprise 65.22% of the heavy vehicle traffic. No bicycles were observed.

Notes:
1. Includes all vehicle types except bicycles and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Turning Movement Count
Summary, OFF and PM Peak Hour Flow Diagrams
All Vehicles Except Bicycles

Campeau Drive & Palladium Drive (ROUNDABOUT) — Kanata, ON





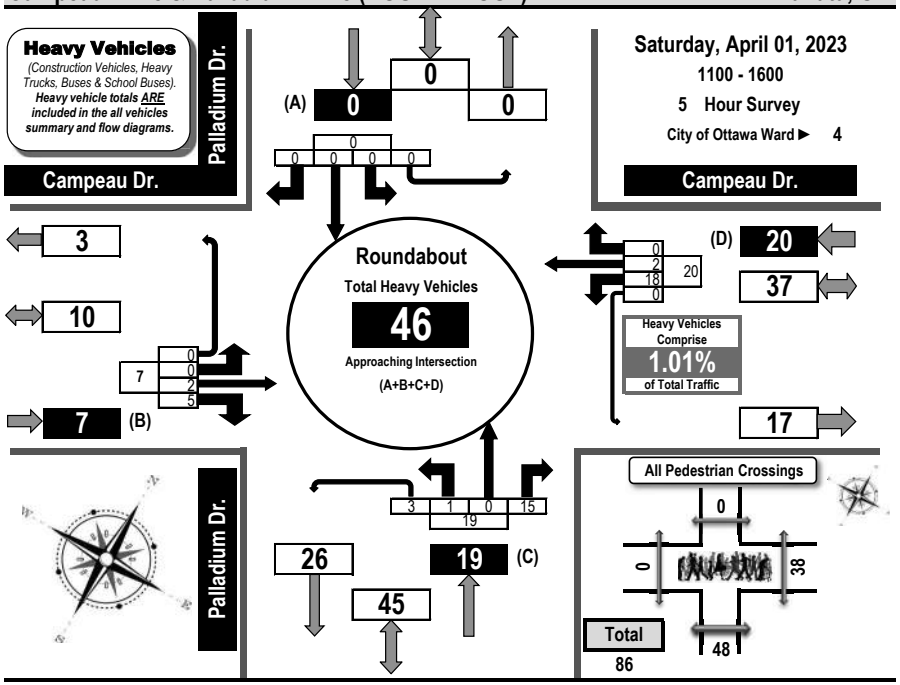
Turning Movement Count
Heavy Vehicle Summary (FHWA Class 4-13)
Flow Diagram



Campeau Drive & Palladium Drive (ROUNDABOUT) — **Kanata, ON**

Heavy Vehicles
(Construction Vehicles, Heavy Trucks, Buses & School Buses).
Heavy vehicle totals ARE included in the all vehicles summary and flow diagrams.

Saturday, April 01, 2023
1100 - 1600
5 Hour Survey
City of Ottawa Ward ► 4



	Campeau Dr.					Campeau Dr.					Palladium Dr.					Palladium Dr.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200	0	0	1	0	1	4	1	0	0	5	0	0	4	0	4	0	0	0	0	0	10
1200-1300	0	0	1	0	1	3	0	0	0	3	0	0	3	0	3	0	0	0	0	0	7
1300-1400	0	0	1	0	1	4	0	0	0	4	1	0	3	1	5	0	0	0	0	0	10
1400-1500	0	2	0	0	2	4	1	0	0	5	0	0	3	0	3	0	0	0	0	0	10
1500-1600	0	0	2	0	2	3	0	0	0	3	0	0	2	2	4	0	0	0	0	0	9
Totals	0	2	5	0	7	18	2	0	0	20	1	0	15	3	19	0	0	0	0	0	46

Comments:

OC Transpo buses comprise 65.22% of the heavy vehicle traffic. No bicycles were observed.

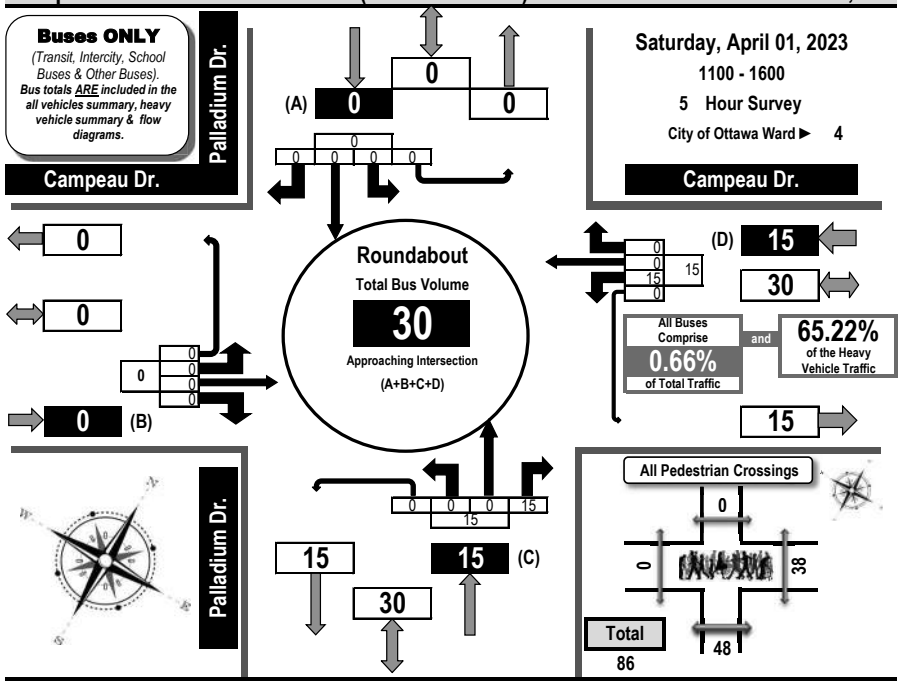
Turning Movement Count
All Buses Summary (FHWA Class 4 ONLY)
Flow Diagram



Campeau Drive & Palladium Drive (ROUNDABOUT) — **Kanata, ON**

Buses ONLY
(Transit, Intercity, School Buses & Other Buses).
Bus totals ARE included in the all vehicles summary, heavy vehicle summary & flow diagrams.

Saturday, April 01, 2023
1100 - 1600
5 Hour Survey
City of Ottawa Ward ► 4

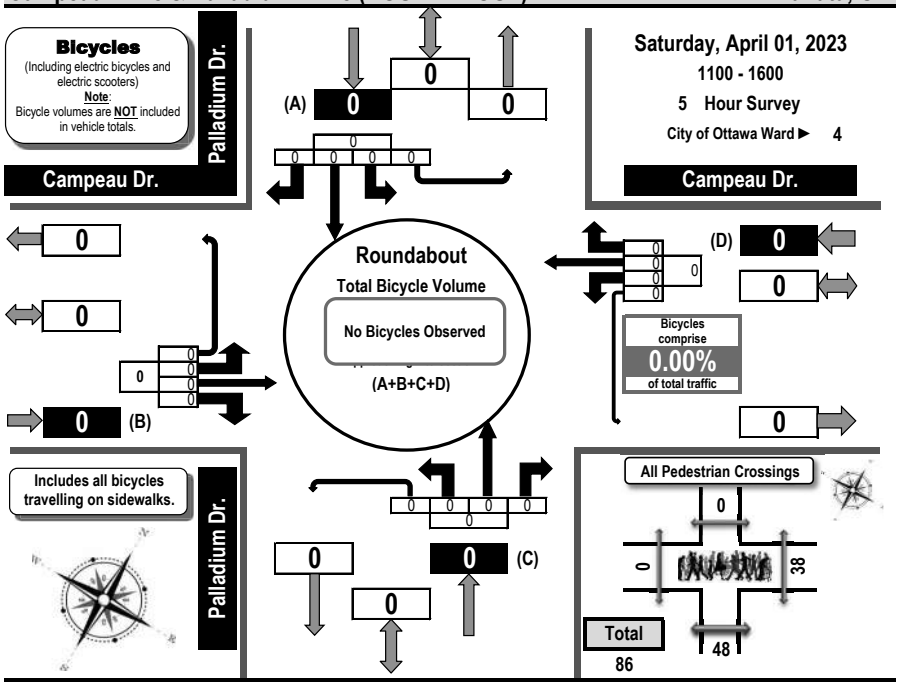


	Campeau Dr.					Campeau Dr.					Palladium Dr.					Palladium Dr.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200	0	0	0	0	0	3	0	0	0	3	0	0	4	0	4	0	0	0	0	0	7
1200-1300	0	0	0	0	0	3	0	0	0	3	0	0	3	0	3	0	0	0	0	0	6
1300-1400	0	0	0	0	0	3	0	0	0	3	0	0	3	0	3	0	0	0	0	0	6
1400-1500	0	0	0	0	0	3	0	0	0	3	0	0	3	0	3	0	0	0	0	0	6
1500-1600	0	0	0	0	0	3	0	0	0	3	0	0	2	0	2	0	0	0	0	0	5
Totals	0	0	0	0	0	15	0	0	0	15	0	0	15	0	15	0	0	0	0	0	30

Comments:
OC Transpo buses comprise 65.22% of the heavy vehicle traffic. No bicycles were observed.

Turning Movement Count
Bicycle Summary
Flow Diagram

Campeau Drive & Palladium Drive (ROUNDABOUT) — **Kanata, ON**



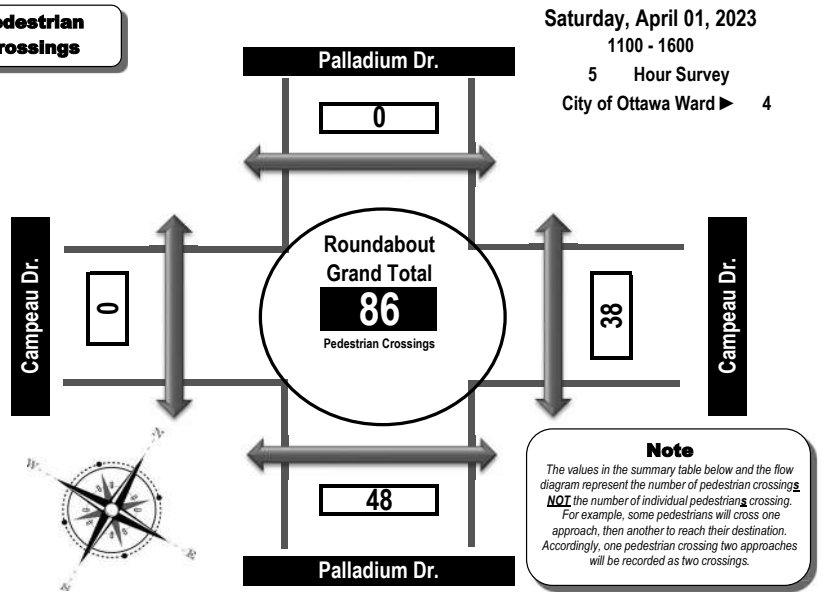
	Campeau Dr. Eastbound					Campeau Dr. Westbound					Palladium Dr. Northbound					Palladium Dr. Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200-1300	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0
1300-1400	0	0	0	0	0	0	0	No Bicycles Observed				0	0	0	0	0	0	0	0	0	0
1400-1500	0	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:

OC Transpo buses comprise 65.22% of the heavy vehicle traffic. No bicycles were observed.

Turning Movement Count
Pedestrian Crossings Summary
and Flow Diagram

Campeau Drive & Palladium Drive (ROUNDABOUT) — **Kanata, ON**



Time Period	West Side Crossing Campeau Dr.	East Side Crossing Campeau Dr.	Street Total	South Side Crossing Palladium Dr.	North Side Crossing Palladium Dr.	Street Total	Grand Total
1100-1200	0	4	4	2	0	2	6
1200-1300	0	7	7	7	0	7	14
1300-1400	0	18	18	16	0	16	34
1400-1500	0	7	7	12	0	12	19
1500-1600	0	2	2	11	0	11	13
Totals	0	38	38	48	0	48	86

Comments:

OC Transpo buses comprise 65.22% of the heavy vehicle traffic. No bicycles were observed.

Turning Movement Count
Summary Report
Including OFF Peak, PM Peak and PHF
All Vehicles Except Bicycles



Campeau Drive & Journeyman Street/Tanger Outlet — Kanata, ON

Survey Date: Saturday, April 01, 2023 | **Start Time:** 1100 | **AADT Factor:** 1.0
Weather: AM: Drizzle +1° C | **Survey Duration:** 5 Hrs. | **Survey Hours:** 1100 - 1600
Weather PM: Mostly Sunny +8° C | **Surveyor(s):** T. Carmody

	Campeau Dr. Eastbound					Campeau Dr. Westbound						Tanger Outlet Northbound					Journeyman St. Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
1100-1200	1	156	49	1	**207**	179	151	1	0	**331**	**538**	58	0	105	0	**163**	0	1	3	0	**4**	**167**	**705**
1200-1300	4	190	51	6	**251**	202	141	3	1	**347**	**598**	66	2	135	0	**203**	1	1	5	0	**7**	**210**	**808**
1300-1400	5	231	133	7	**376**	233	165	1	1	**400**	**776**	102	0	169	1	**272**	1	0	2	0	**3**	**275**	**1051**
1400-1500	9	261	182	15	**467**	269	160	2	0	**431**	**898**	141	0	194	0	**335**	1	0	7	0	**8**	**343**	**1241**
1500-1600	10	264	181	14	**469**	219	190	3	1	**413**	**882**	155	1	234	0	**390**	1	2	9	0	**12**	**402**	**1284**
Totals	**29**	**1102**	**596**	**43**	**1770**	**1102**	**807**	**10**	**3**	**1922**	**3692**	**522**	**3**	**837**	**1**	**1363**	**4**	**4**	**26**	**0**	**34**	**1397**	**5089**

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

OFF Peak Hour Factor ➡ 0.93 — Highest Hourly Vehicle Volume Between 1100h & 1500h

OFF Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1400-1500	9	261	182	15	**467**	269	160	2	0	**431**	**898**	141	0	194	0	**335**	1	0	7	0	**8**	**343**	**1241**

PM Peak Hour Factor ➡ 0.90 — Highest Hourly Vehicle Volume Between 1500h & 1900h

PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1500-1600	10	264	181	14	**469**	219	190	3	1	**413**	**882**	155	1	234	0	**390**	1	2	9	0	**12**	**402**	**1284**

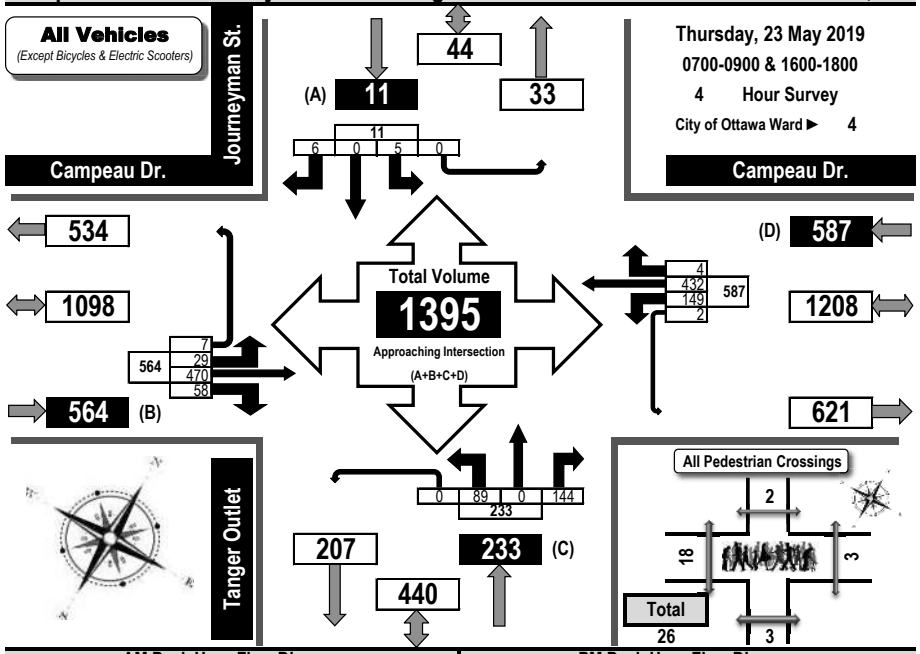
Comments:
OC Transpo buses comprise 64.44% of the heavy vehicle traffic. No bicycles were observed.

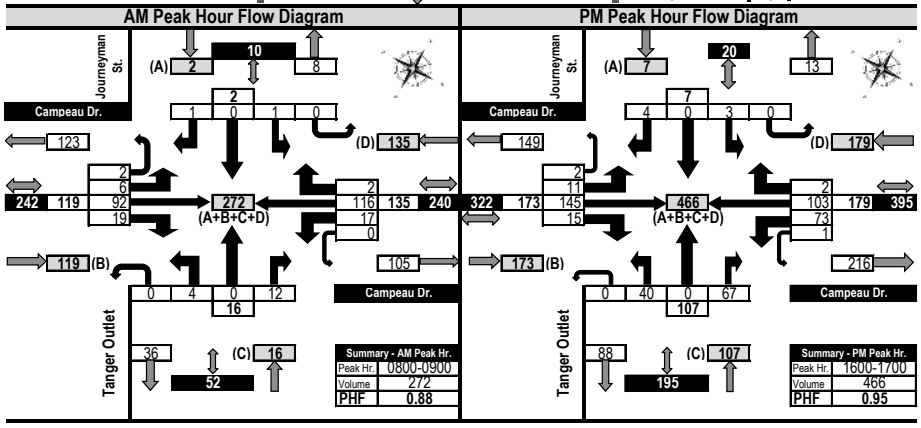
Notes:
1. Includes all vehicle types except bicycles and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Campeau Drive & Journeyman Street/Tanger Outlet — Kanata, ON

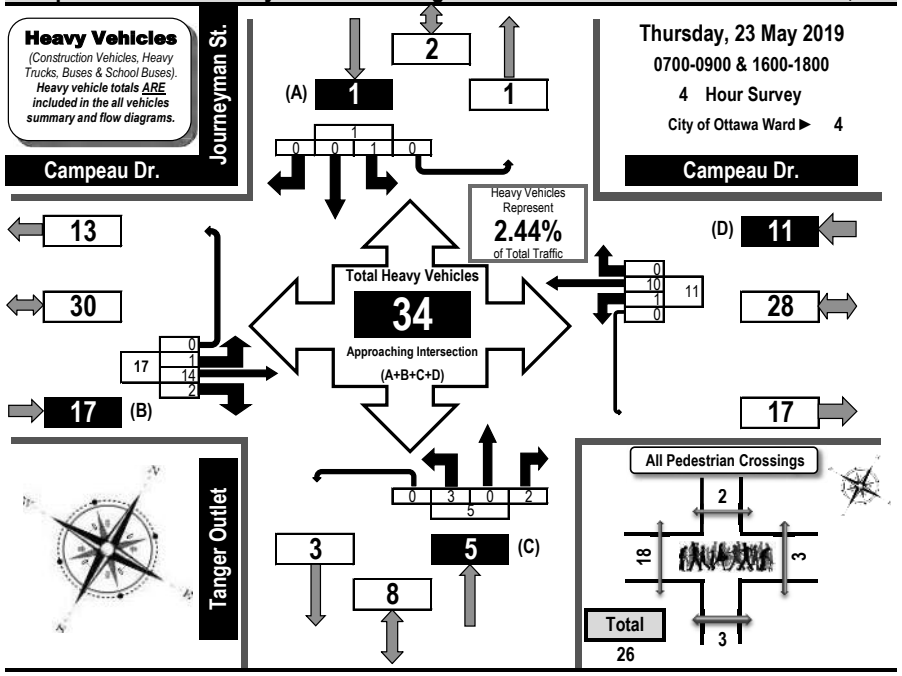




Turning Movement Count
Heavy Vehicle Summary
Flow Diagram

Heavy Trucks, Buses, and School Buses

Campeau Drive & Journeyman Street/Tanger Outlet — **Kanata, ON**

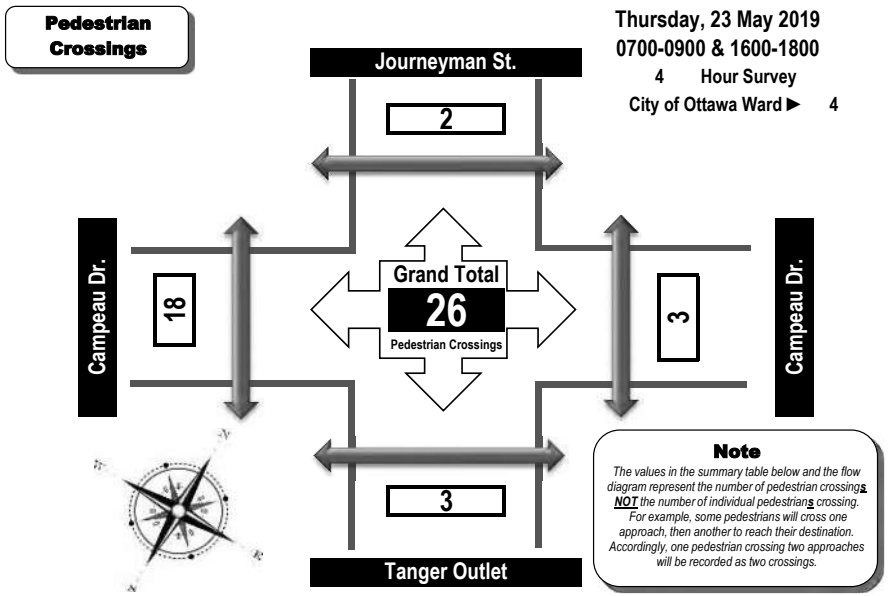


	Campeau Dr. Eastbound					Campeau Dr. Westbound					Tanger Outlet Northbound					Journeyman St. Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0700-0800	1	4	0	0	5	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	7
0800-0900	0	5	1	0	6	0	6	0	0	6	0	0	1	0	1	0	0	0	0	0	13
1600-1700	0	3	0	0	3	0	3	0	0	3	1	0	1	0	2	0	0	0	0	0	8
1700-1800	0	2	1	0	3	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	6
Totals	1	14	2	0	17	1	10	0	0	11	3	0	2	0	5	1	0	0	0	1	34

Comments:
No bicycles were observed during this traffic count. Eastbound through traffic, including OC Transpo buses, use both eastbound lanes although pavement markings indicate the south curb lane is right-turn only. 59% of the heavy vehicles were either OC Transpo or school buses. Campeau Drive not yet open to Terry Fox Drive.

Turning Movement Count
Pedestrian Crossings Summary
and Flow Diagram

Campeau Drive & Journeyman Street/Tanger Outlet — **Kanata, ON**



Time Period	West Side Crossing Campeau Dr.	East Side Crossing Campeau Dr.	Street Total	South Side Crossing Tanger Outlet	North Side Crossing Journeyman St.	Street Total	Grand Total
0700-0800	0	0	0	0	0	0	0
0800-0900	10	1	11	3	0	3	14
1600-1700	5	0	5	0	0	0	5
1700-1800	3	2	5	0	2	2	7
Totals	18	3	21	3	2	5	26

Comments:
No bicycles were observed during this traffic count. Eastbound through traffic, including OC Transpo buses, use both eastbound lanes although pavement markings indicate the south curb lane is right-turn only. 59% of the heavy vehicles were either OC Transpo or school buses. Campeau Drive not yet open to Terry Fox Drive.

Turning Movement Count
Summary Report
AADT and Expansion Factors

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Campeau Drive & Journeyman Street/Tanger Outlet — Kanata, ON

Survey Date: Thursday, 23 May 2019 **Start Time:** 0700 **AADT Factor:** 0.9
Weather AM: Clear +12ºC **Survey Duration:** 4 Hrs. **Survey Hours:** 0700-0900 & 1600-1800
Weather PM: Overcast +18ºC **Surveyor(s):** Carmody

	Campeau Dr. Eastbound					Campeau Dr. Westbound						Tanger Outlet Northbound					Journeyman St. Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0700-0800	10	76	9	1	96	4	105	0	1	110	206	3	0	6	0	9	1	0	1	0	2	11	217
0800-0900	6	92	19	2	119	17	116	2	0	135	254	4	0	12	0	16	1	0	1	0	2	18	272
1600-1700	11	145	15	2	173	73	103	2	1	179	352	40	0	67	0	107	3	0	4	0	7	114	466
1700-1800	2	157	15	2	176	55	108	0	0	163	339	42	0	59	0	101	0	0	0	0	0	101	440
Totals	29	470	58	7	564	149	432	4	2	587	1151	89	0	144	0	233	5	0	6	0	11	244	1395

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor Applicable to the Day and Month of the Turning Movement Count

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 ➡12 expansion factor of 1.39

Equ. 12 Hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 0.9

AADT 12-hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 ➡24 expansion factor of 1.31

AADT 24 Hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor ➡ 0.88 — Highest Hourly Vehicle Volume Between 0700h & 0900h

AM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
0800-0900	6	92	19	2	119	17	116	2	0	135	254	4	0	12	0	16	1	0	1	0	2	18	272

PM Peak Hour Factor ➡ 0.95 — Highest Hourly Vehicle Volume Between 1600h & 1800h

PM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1600-1700	11	145	15	2	173	73	103	2	1	179	352	40	0	67	0	107	3	0	4	0	7	114	466

Comments:

No bicycles were observed during this traffic count. Eastbound through traffic, including OC Transpo buses, use both eastbound lanes although pavement markings indicate the south curb lane is right-turn only. 59% of the heavy vehicles were either OC Transpo or school buses. Campeau Drive not yet open to Terry Fox Drive.

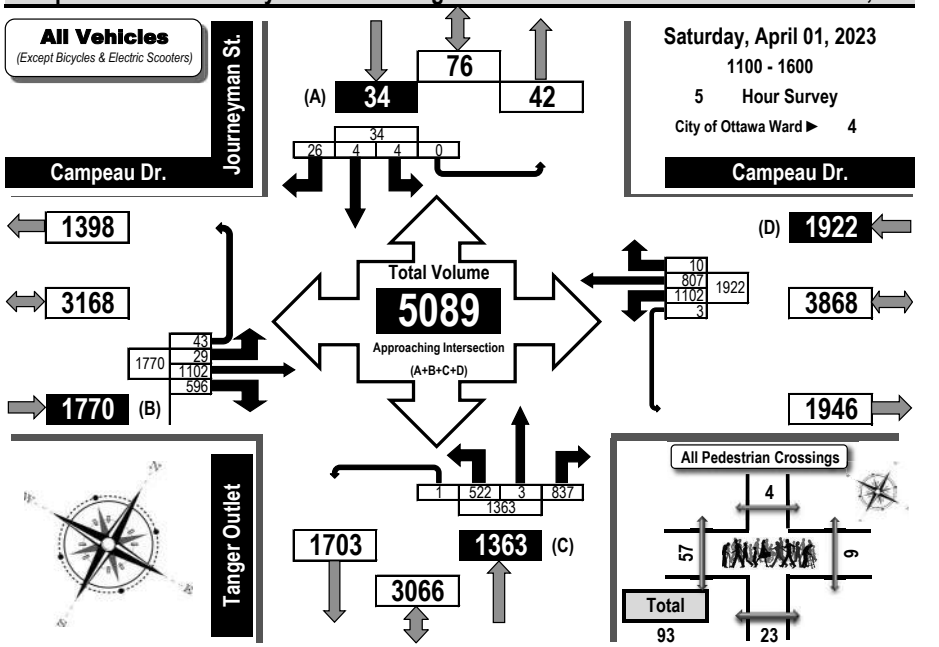
Notes:

1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

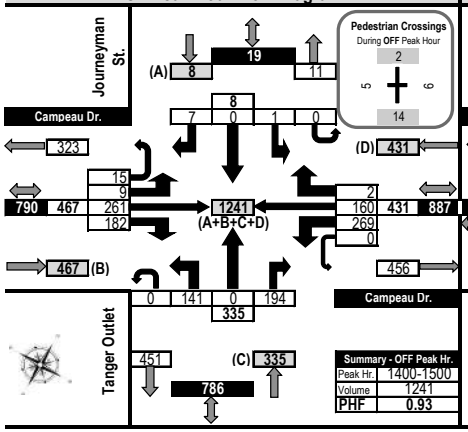
Turning Movement Count
Summary, OFF and PM Peak Hour Flow Diagrams
All Vehicles Except Bicycles



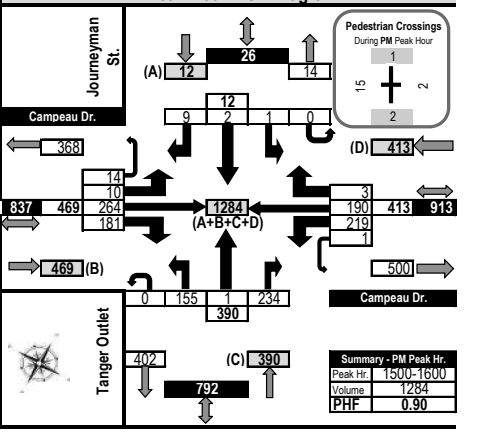
Campeau Drive & Journeyman Street/Tanger Outlet — Kanata, ON



Off Peak Hour Flow Diagram



PM Peak Hour Flow Diagram



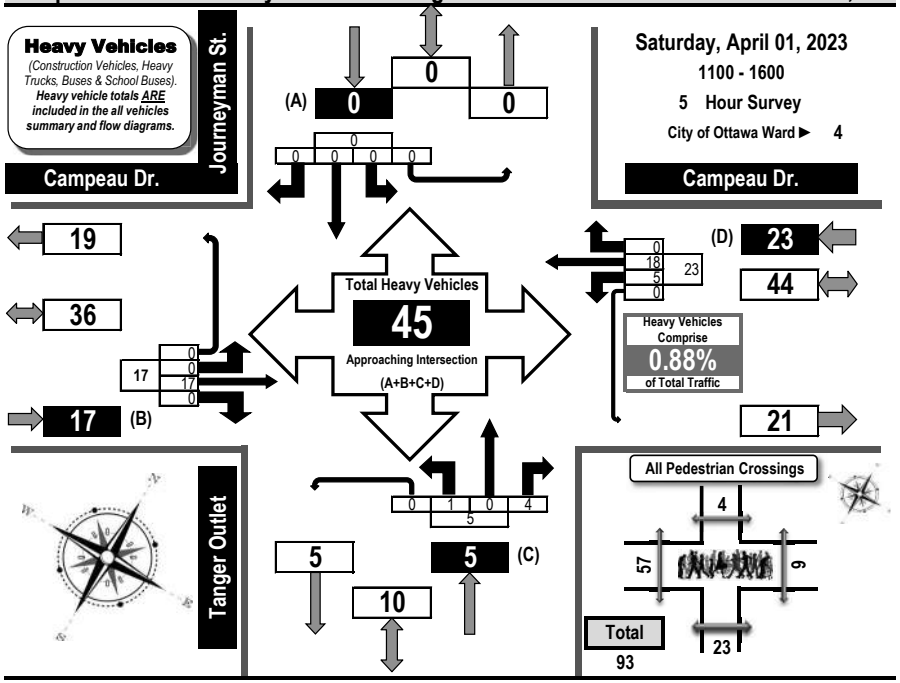
Turning Movement Count
Heavy Vehicle Summary (FHWA Class 4-13)
Flow Diagram



Campeau Drive & Journeyman Street/Tanger Outlet — Kanata, ON

Heavy Vehicles
(Construction Vehicles, Heavy Trucks, Buses & School Buses).
Heavy vehicle totals ARE included in the all vehicles summary and flow diagrams.

Saturday, April 01, 2023
1100 - 1600
5 Hour Survey
City of Ottawa Ward ► 4



	Campeau Dr.					Campeau Dr.					Tanger Outlet					Journeyman St.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200	0	4	0	0	4	2	4	0	0	6	1	0	1	0	2	0	0	0	0	0	12
1200-1300	0	3	0	0	3	1	3	0	0	4	0	0	2	0	2	0	0	0	0	0	9
1300-1400	0	4	0	0	4	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	9
1400-1500	0	5	0	0	5	1	3	0	0	4	0	0	1	0	1	0	0	0	0	0	10
1500-1600	0	1	0	0	1	1	3	0	0	4	0	0	0	0	0	0	0	0	0	0	5
Totals	0	17	0	0	17	5	18	0	0	23	1	0	4	0	5	0	0	0	0	0	45

Comments:

OC Transpo buses comprise 64.44% of the heavy vehicle traffic. No bicycles were observed.

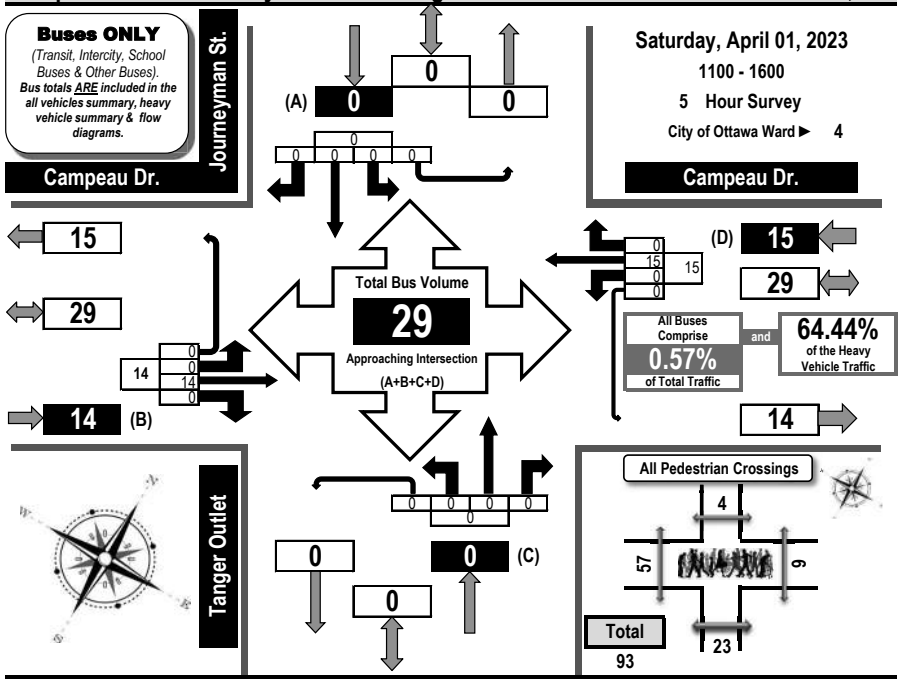
Turning Movement Count
All Buses Summary (FHWA Class 4 ONLY)
Flow Diagram



Campeau Drive & Journeyman Street/Tanger Outlet — Kanata, ON

Buses ONLY
(Transit, Intercity, School Buses & Other Buses).
Bus totals ARE included in the all vehicles summary, heavy vehicle summary & flow diagrams.

Saturday, April 01, 2023
1100 - 1600
5 Hour Survey
City of Ottawa Ward ► 4

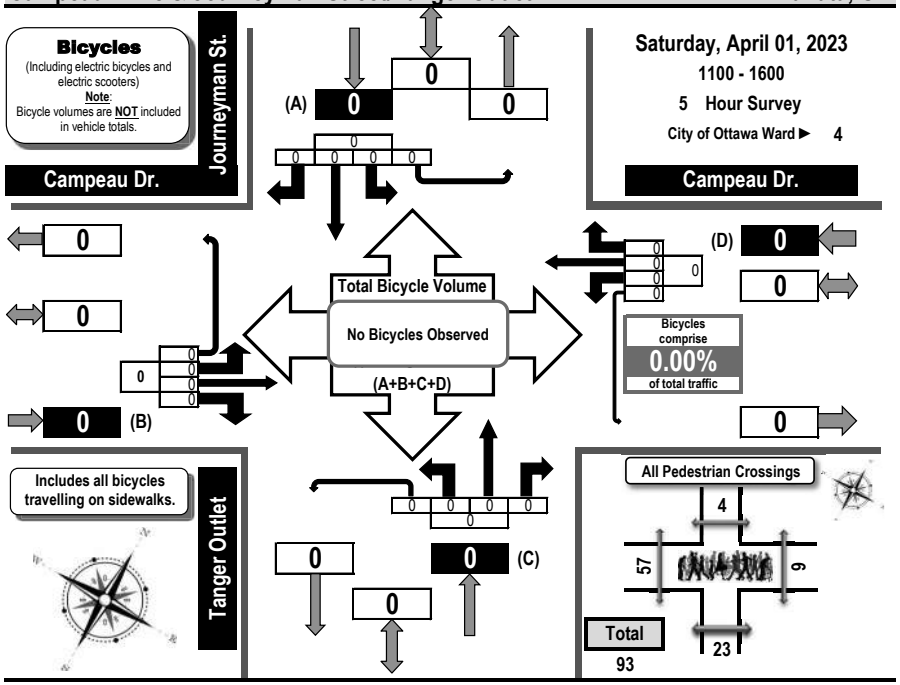


	Campeau Dr.					Campeau Dr.					Tanger Outlet					Journeyman St.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200	0	4	0	0	4	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	7
1200-1300	0	3	0	0	3	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	6
1300-1400	0	3	0	0	3	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	7
1400-1500	0	3	0	0	3	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	5
1500-1600	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	4
Totals	0	14	0	0	14	0	15	0	0	15	0	0	0	0	0	0	0	0	0	0	29

Comments:
OC Transpo buses comprise 64.44% of the heavy vehicle traffic. No bicycles were observed.

Turning Movement Count
Bicycle Summary
Flow Diagram

Campeau Drive & Journeyman Street/Tanger Outlet — **Kanata, ON**



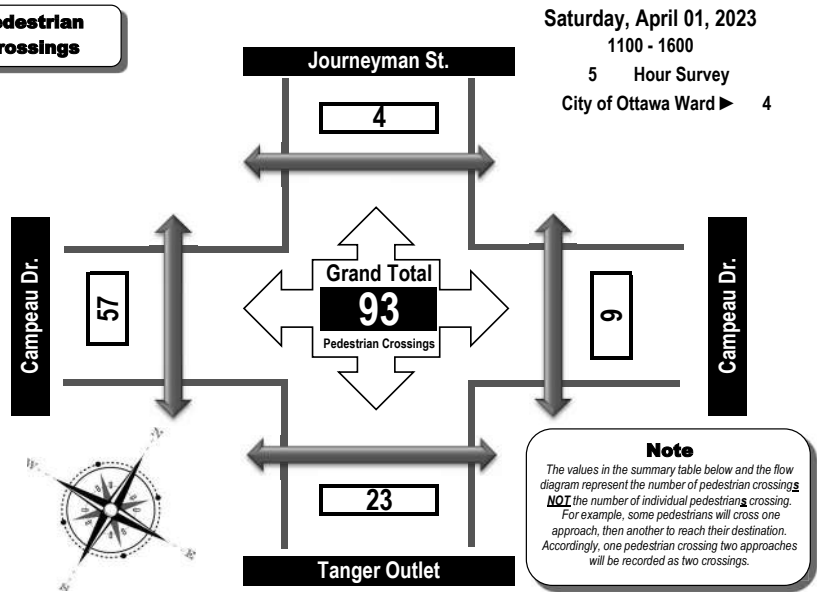
	Campeau Dr. Eastbound					Campeau Dr. Westbound					Tanger Outlet Northbound					Journeyman St. Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1200-1300	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0
1300-1400	0	0	0	0	0	0	No Bicycles Observed				0	0	0	0	0	0	0	0	0	0	0
1400-1500	0	0	0	0	0	0					0	0	0	0	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:

OC Transpo buses comprise 64.44% of the heavy vehicle traffic. No bicycles were observed.

Turning Movement Count
Pedestrian Crossings Summary
and Flow Diagram

Campeau Drive & Journeyman Street/Tanger Outlet — **Kanata, ON**



Time Period	West Side Crossing Campeau Dr.	East Side Crossing Campeau Dr.	Street Total	South Side Crossing Tanger Outlet	North Side Crossing Journeyman St.	Street Total	Grand Total
1100-1200	9	0	9	1	0	1	10
1200-1300	12	0	12	2	0	2	14
1300-1400	16	1	17	4	1	5	22
1400-1500	5	6	11	14	2	16	27
1500-1600	15	2	17	2	1	3	20
Totals	57	9	66	23	4	27	93

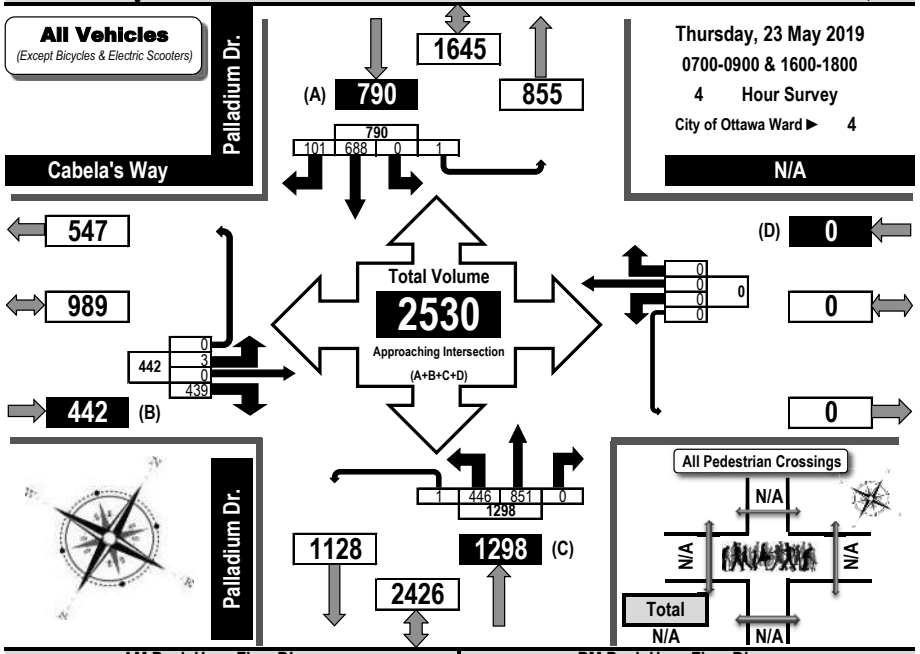
Comments:

OC Transpo buses comprise 64.44% of the heavy vehicle traffic. No bicycles were observed.

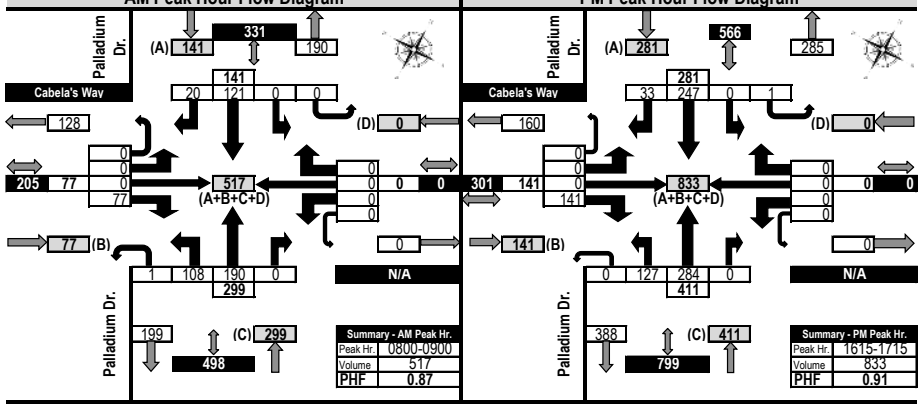
Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Cabela's Way & Palladium Drive — **Kanata, ON**



AM Peak Hour Flow Diagram

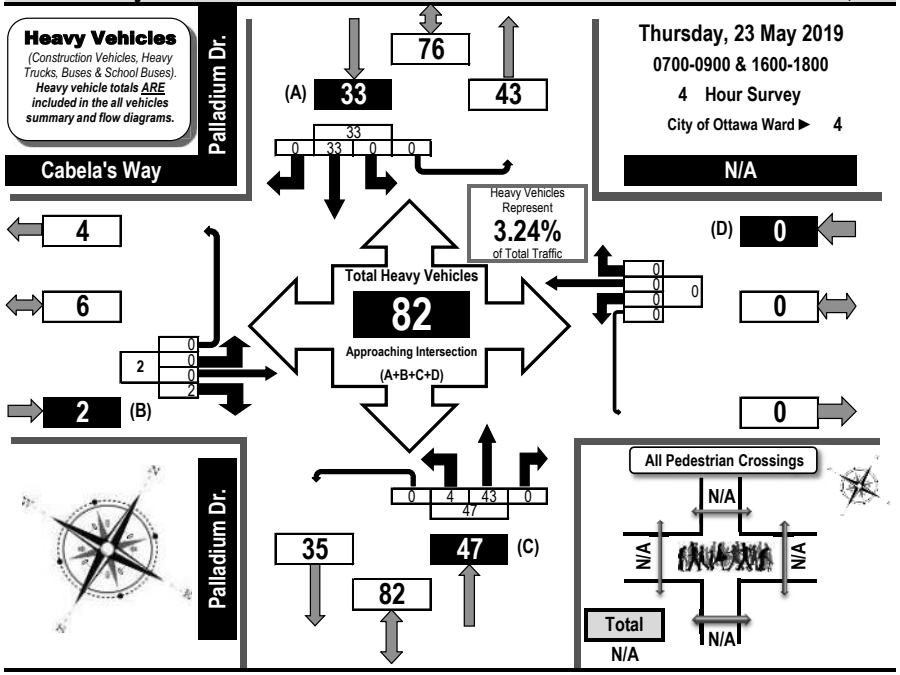


PM Peak Hour Flow Diagram

Turning Movement Count
Heavy Vehicle Summary Flow Diagram

Heavy Trucks, Buses, and School Buses

Cabela's Way & Palladium Drive — **Kanata, ON**



	Cabela's Way					N/A					Palladium Dr.					Palladium Dr.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0700-0800	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	0	2	0	0	2	8
0800-0900	0	0	1	0	1	0	0	0	0	0	2	7	0	0	9	0	18	0	0	18	28
1600-1700	0	0	1	0	1	0	0	0	0	0	0	5	0	0	5	0	7	0	0	7	13
1700-1800	0	0	0	0	0	0	0	0	0	0	2	25	0	0	27	0	6	0	0	6	33
Totals	0	0	2	0	2	0	0	0	0	0	4	43	0	0	47	0	33	0	0	33	82

Comments:
No bicycles observed during this traffic count. Campeau Drive is not yet open to Terry Fox Drive. Cabela's, Princess Auto and McDonalds represent the businesses now open. The majority of the heavy vehicle traffic are from the UPS facility on Campeau Drive.

Turning Movement Count
Summary Report
AADT and Expansion Factors

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Cabela's Way & Palladium Drive — Kanata, ON

Survey Date: Thursday, 23 May 2019 **Start Time:** 0700 **AADT Factor:** 0.9
Weather AM: Clear +12ºC **Survey Duration:** 4 Hrs. **Survey Hours:** 0700-0900 & 1600-1800
Weather PM: Overcast +18ºC **Surveyor(s):** Carmody

	Cabela's Way					N/A					Palladium Dr.					Palladium Dr.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0700-0800	1	0	79	0	**80**	0	0	0	0	**0**	**80**	100	128	0	0	**228**	0	90	21	0	**111**	**339**	**419**
0800-0900	0	0	77	0	**77**	0	0	0	0	**0**	**77**	108	190	0	1	**299**	0	121	20	0	**141**	**440**	**517**
1600-1700	0	0	145	0	**145**	0	0	0	0	**0**	**145**	130	272	0	0	**402**	0	244	27	1	**272**	**674**	**819**
1700-1800	2	0	138	0	**140**	0	0	0	0	**0**	**140**	108	261	0	0	**369**	0	233	33	0	**266**	**635**	**775**
Totals	**3**	**0**	**439**	**0**	**442**	**0**	**0**	**0**	**0**	**0**	**442**	**446**	**851**	**0**	**1**	**1298**	**0**	**688**	**101**	**1**	**790**	**2088**	**2530**

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor Applicable to the Day and Month of the Turning Movement Count

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 ➡12 expansion factor of 1.39

Equ. 12 Hr	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	**n/a**

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 0.9

AADT 12-hr	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	**n/a**

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 ➡24 expansion factor of 1.31

AADT 24 Hr	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	**n/a**

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor ➡ 0.87 — Highest Hourly Vehicle Volume Between 0700h & 0900h

AM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
0800-0900	0	0	77	0	**77**	0	0	0	0	**0**	**77**	108	190	0	1	**299**	0	121	20	0	**141**	**440**	**517**

PM Peak Hour Factor ➡ 0.91 — Highest Hourly Vehicle Volume Between 1600h & 1800h

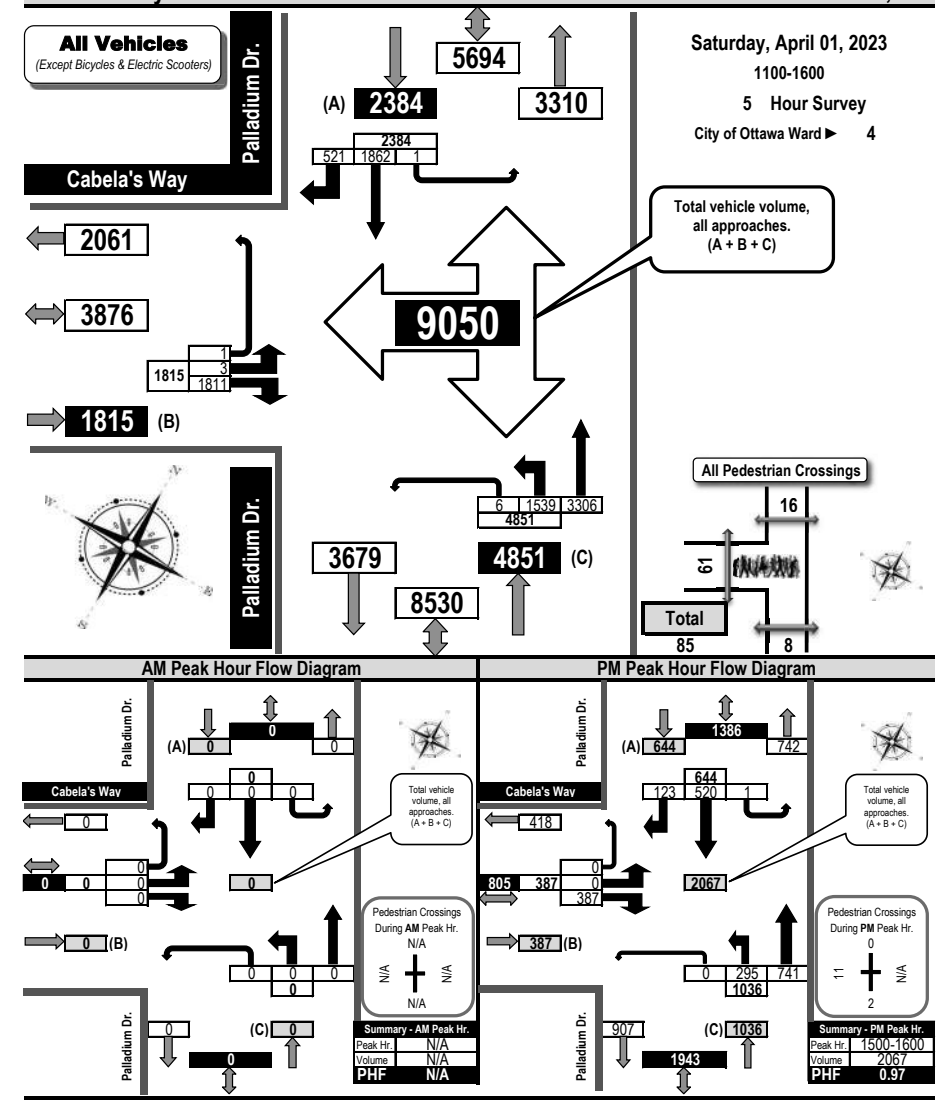
PM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1615-1715	0	0	141	0	**141**	0	0	0	0	**0**	**141**	127	284	0	0	**411**	0	247	33	1	**281**	**692**	**833**

Comments:
No bicycles observed during this traffic count. Campeau Drive is not yet open to Terry Fox Drive. Cabela's, Princess Auto and McDonalds represent the businesses now open. The majority of the heavy vehicle traffic are from the UPS facility on Campeau Drive.

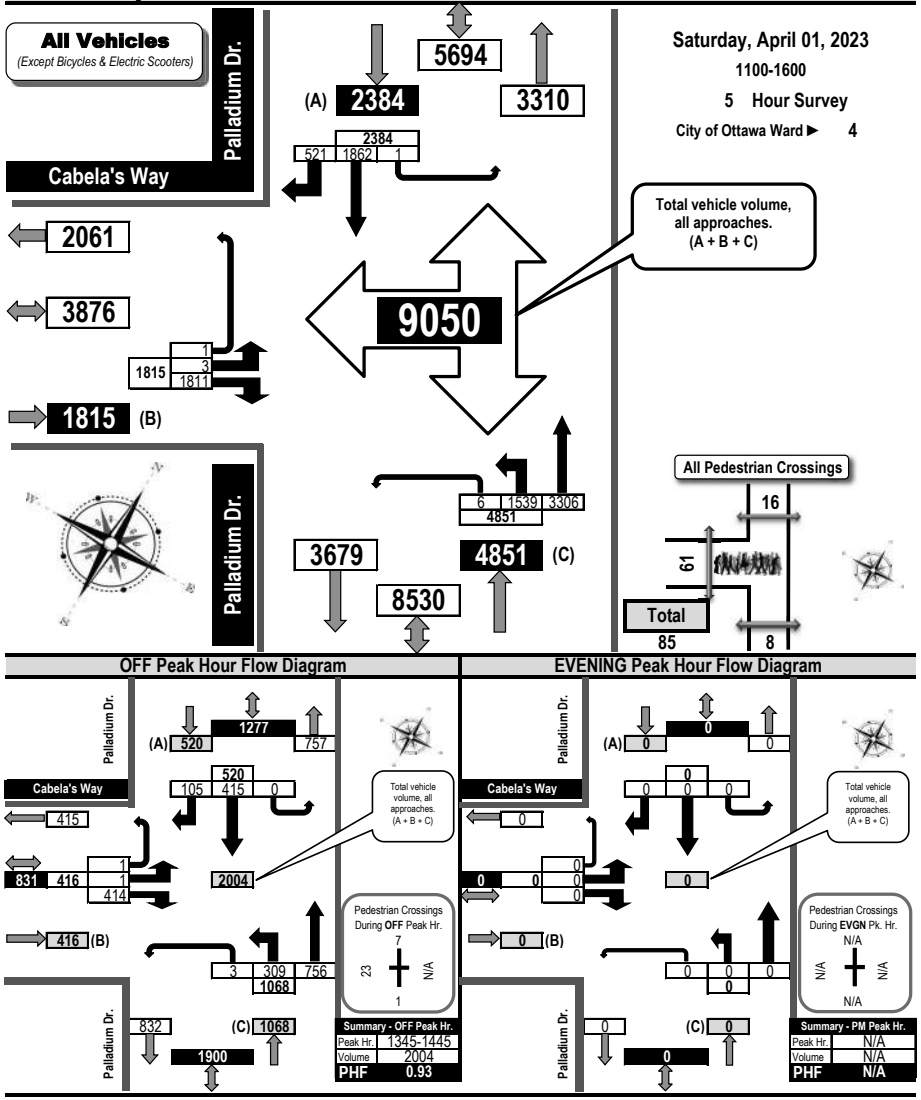
Notes:
1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams
All Vehicles Except Bicycles

Cabela's Way & Palladium Drive — Kanata, ON

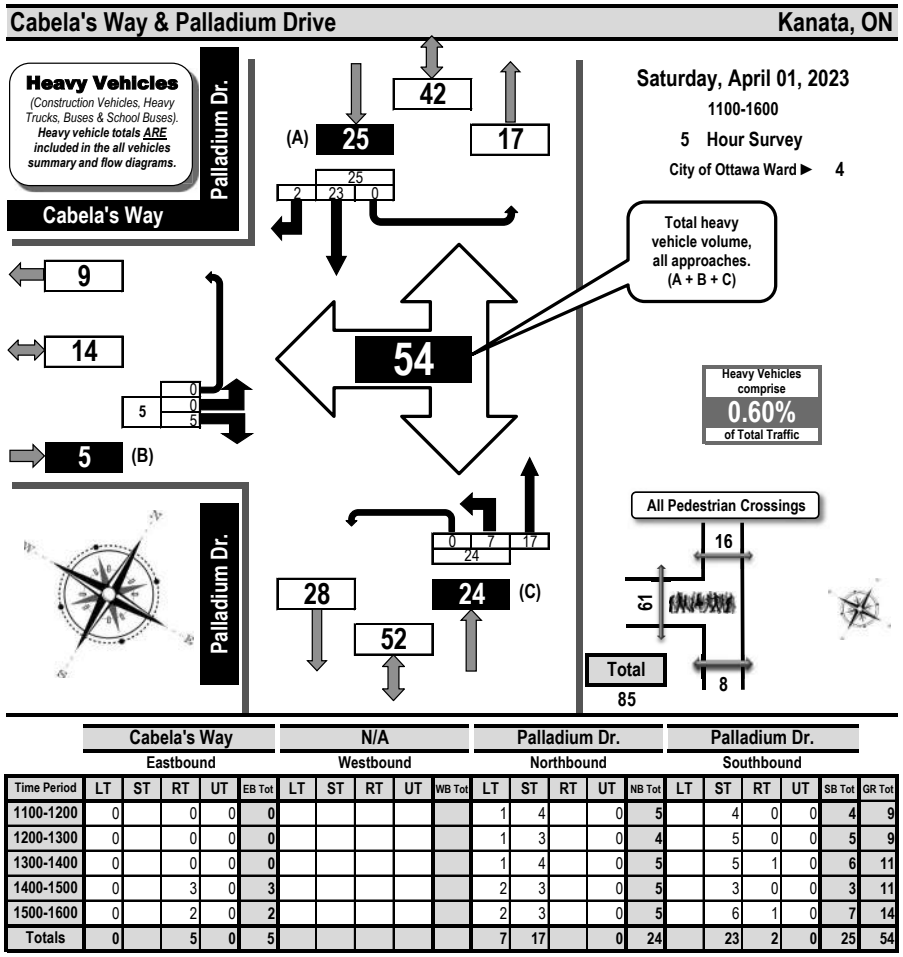


Turning Movement Count
Summary, OFF and EVGN Peak Hour Flow Diagrams
All Vehicles Except Bicycles



Printed on: 4/10/2023 Prepared by: thetrafficspecialist@gmail.com Flow Diagrams: All Vehicles OFF EVGN Peak

Turning Movement Count
Heavy Vehicle Summary (FHWA Class 4 to 13)
Flow Diagram



	Cabela's Way					N/A					Palladium Dr.					Palladium Dr.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200	0		0	0	0						1	4		0	5		4	0	0	4	9
1200-1300	0		0	0	0						1	3		0	4		5	0	0	5	9
1300-1400	0		0	0	0						1	4		0	5		5	1	0	6	11
1400-1500	0		3	0	3						2	3		0	5		3	0	0	3	11
1500-1600	0		2	0	2						2	3		0	5		6	1	0	7	14
Totals	0		5	0	5						7	17		0	24		23	2	0	25	54

Printed on: 4/10/2023 Prepared by: thetrafficspecialist@gmail.com Summary: Heavy Vehicles

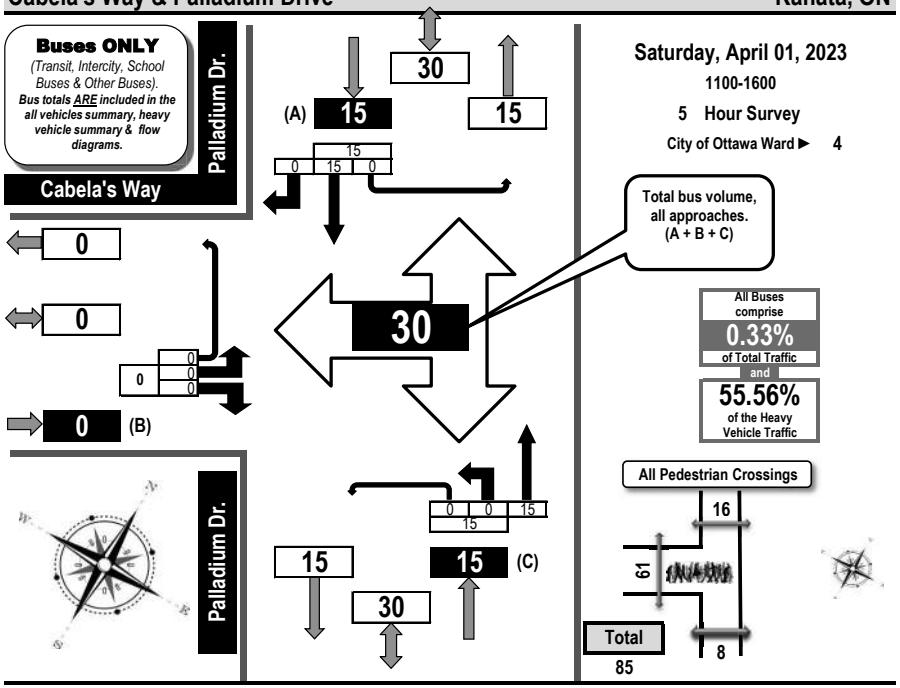
Turning Movement Count
All Buses Summary (FHWA Class 4 ONLY)
Flow Diagram



Cabela's Way & Palladium Drive — **Kanata, ON**

Buses ONLY
(Transit, Intercity, School Buses & Other Buses).
Bus totals ARE included in the all vehicles summary, heavy vehicle summary & flow diagrams.

Saturday, April 01, 2023
1100-1600
5 Hour Survey
City of Ottawa Ward ► 4



	Cabela's Way					N/A					Palladium Dr.					Palladium Dr.				
	Eastbound					Westbound					Northbound					Southbound				
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200	0		0	0	0						0	4		0	4		2	0	0	2	6
1200-1300	0		0	0	0						0	3		0	3		4	0	0	4	7
1300-1400	0		0	0	0						0	3		0	3		3	0	0	3	6
1400-1500	0		0	0	0						0	3		0	3		3	0	0	3	6
1500-1600	0		0	0	0						0	2		0	2		3	0	0	3	5
Totals	0		0	0	0						0	15		0	15		15	0	0	15	30

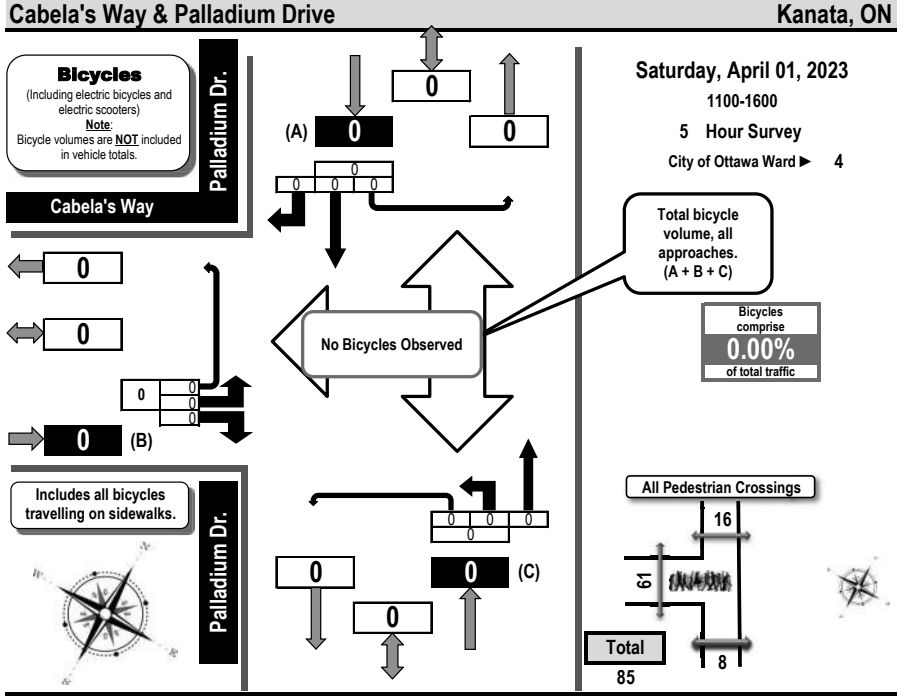
Turning Movement Count
Bicycle Summary
Flow Diagram



Cabela's Way & Palladium Drive — **Kanata, ON**

Bicycles
(Including electric bicycles and electric scooters)
Note:
Bicycle volumes are **NOT** included in vehicle totals.

Saturday, April 01, 2023
1100-1600
5 Hour Survey
City of Ottawa Ward ► 4



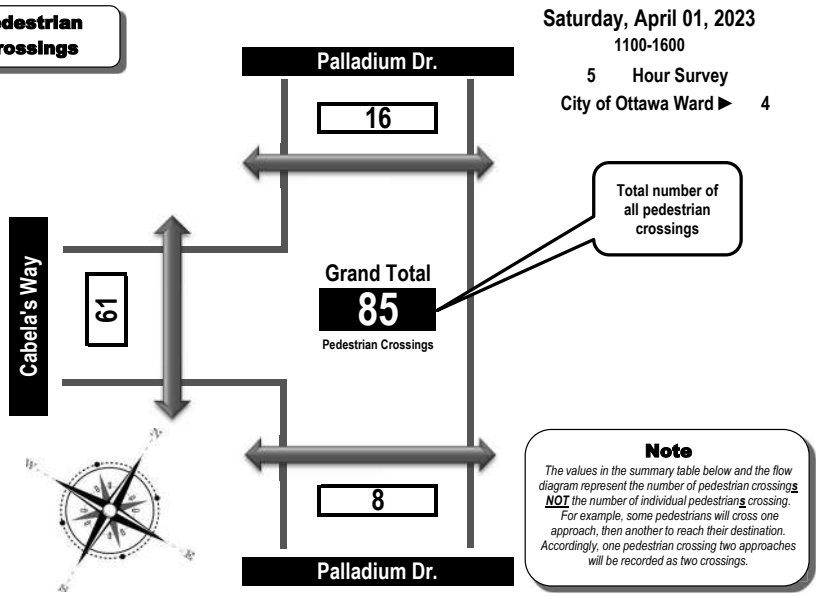
	Cabela's Way					N/A					Palladium Dr.					Palladium Dr.				
	Eastbound					Westbound					Northbound					Southbound				
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200	0		0	0	0						0	0		0	0		0	0	0	0	0
1200-1300	0		0	0	0									0	0		0	0	0	0	0
1300-1400	0		0	0	0						No Bicycles Observed			0	0		0	0	0	0	0
1400-1500	0		0	0	0									0	0		0	0	0	0	0
1500-1600	0		0	0	0						0	0		0	0		0	0	0	0	0
Totals	0		0	0	0						0	0		0	0		0	0	0	0	0

Turning Movement Count
Pedestrian Crossings Summary and Flow Diagram

Cabela's Way & Palladium Drive — Kanata, ON

Pedestrian Crossings

Saturday, April 01, 2023
1100-1600
5 Hour Survey
City of Ottawa Ward ► 4



Note
*The values in the summary table below and the flow diagram represent the number of pedestrian crossings **NOT** the number of individual pedestrians crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Time Period	West Side Crossing Cabela's Way	East Side Crossing N/A	Street Total	South Side Crossing Palladium Dr.	North Side Crossing Palladium Dr.	Street Total	Grand Total
1100-1200	4		4	3	3	6	10
1200-1300	6		6	0	2	2	8
1300-1400	20		20	0	7	7	27
1400-1500	20		20	3	4	7	27
1500-1600	11		11	2	0	2	13
Totals	61		61	8	16	24	85

Comments:
OC Transpo buses comprise 55.56% of the heavy vehicle traffic. No bicycles were observed.

Turning Movement Count
Summary Report
Including OFF Peak, PM Peak and PHF
All Vehicles Except Bicycles

Cabela's Way & Palladium Drive — Kanata, ON

Survey Date: Saturday, April 01, 2023 **Start Time:** 1100 **AADT Factor:** 1.0
Weather: AM: Drizzle +1° C **Survey Duration:** 5 Hrs. **Survey Hours:** 1100 - 1600
Weather PM: Mostly Sunny +8° C **Surveyor(s):** J. Mousseau

	Cabela's Way Eastbound					N/A Westbound						Palladium Dr. Northbound					Palladium Dr. Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
1100-1200	1	0	318	0	319	0	0	0	0	0	319	334	471	0	1	806	0	265	82	0	347	1153	1472
1200-1300	1	0	327	0	328	0	0	0	0	0	328	278	610	0	1	889	0	285	82	0	367	1256	1584
1300-1400	0	0	393	0	393	0	0	0	0	0	393	348	733	0	0	1081	0	345	131	0	476	1557	1950
1400-1500	1	0	386	1	388	0	0	0	0	0	388	284	751	0	4	1039	0	447	103	0	550	1589	1977
1500-1600	0	0	387	0	387	0	0	0	0	0	387	295	741	0	0	1036	0	520	123	1	644	1680	2067
Totals	3	0	1811	1	1815	0	0	0	0	0	1815	1539	3306	0	6	4851	0	1862	521	1	2384	7235	9050

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

OFF Peak Hour Factor ➡ 0.93

												Highest Hourly Vehicle Volume Between 1100h & 1500h										
OFF Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1345-1445	1	0	414	1	416	0	0	0	0	0	416	309	756	0	3	1068	0	415	105	0	520	1588	2004

PM Peak Hour Factor ➡ 0.97

												Highest Hourly Vehicle Volume Between 1500h & 1900h										
PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1500-1600	0	0	387	0	387	0	0	0	0	0	387	295	741	0	0	1036	0	520	123	1	644	1680	2067

Comments:
OC Transpo buses comprise 55.56% of the heavy vehicle traffic. No bicycles were observed.

Notes:
1. Includes all vehicle types except bicycles and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Transportation Services - Traffic Services

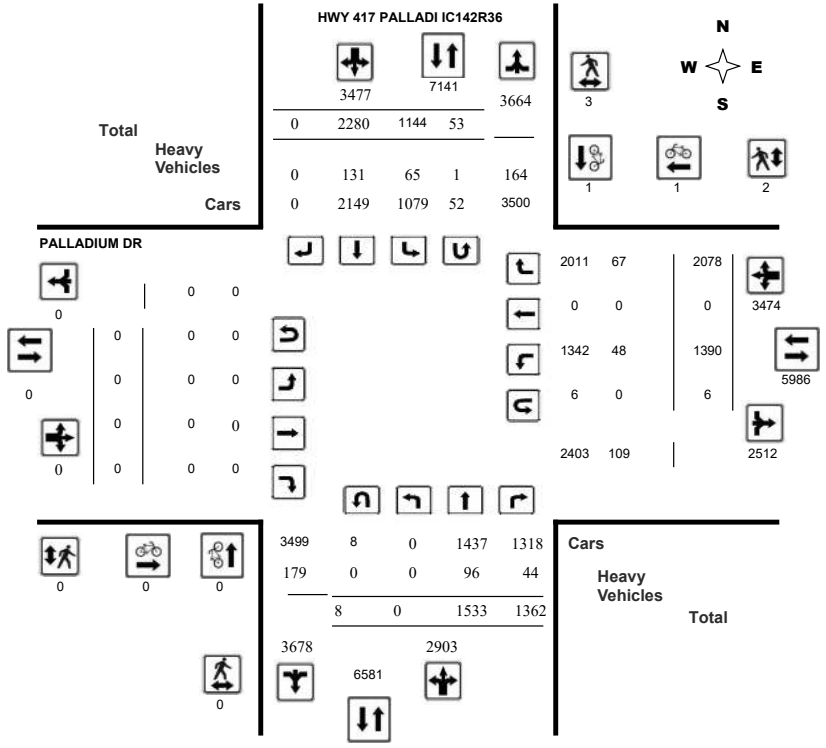
Turning Movement Count - Study Results

HWY 417 PALLADI IC142R36 @ PALLADIUM DR

Survey Date: Wednesday, November 02, 2022 **WO No:** 40671

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

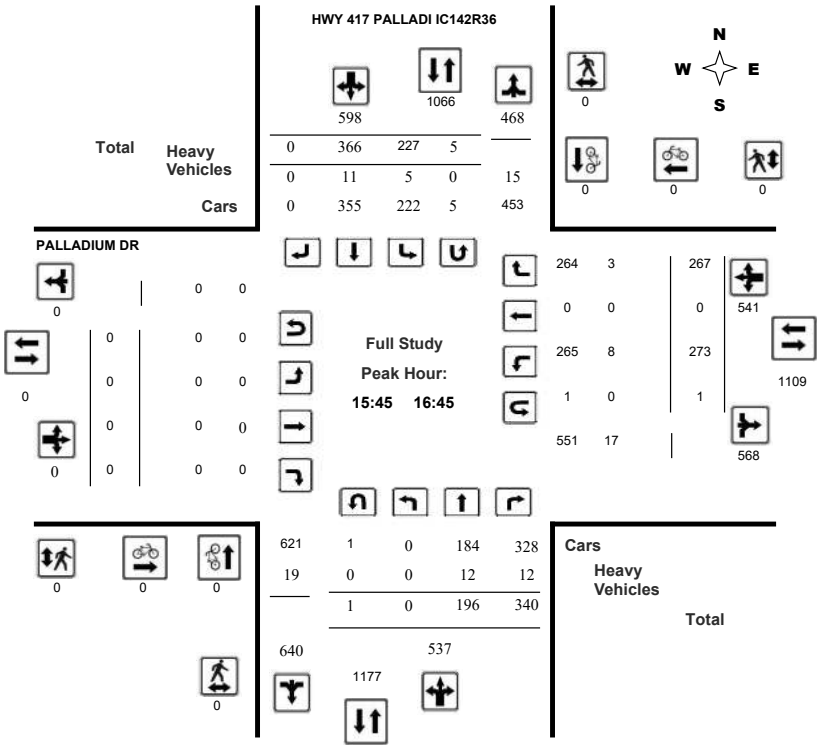
Turning Movement Count - Study Results

HWY 417 PALLADI IC142R36 @ PALLADIUM DR

Survey Date: Wednesday, November 02, 2022 **WO No:** 40671

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



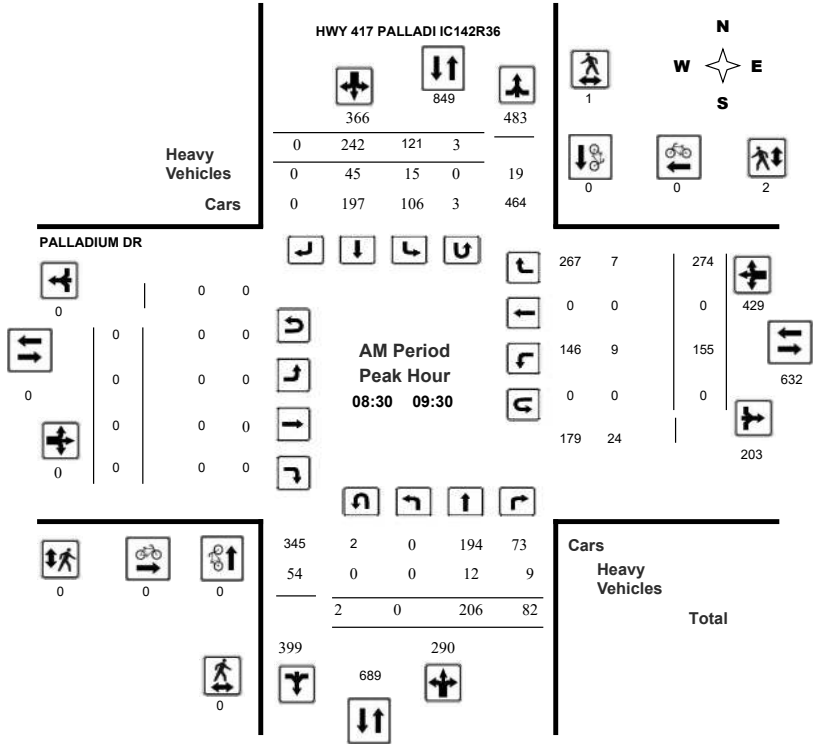
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

HWY 417 PALLADI IC142R36 @ PALLADIUM DR

Survey Date: Wednesday, November 02, 2022 **WO No:** 40671

Start Time: 07:00 **Device:** Miovision



Comments

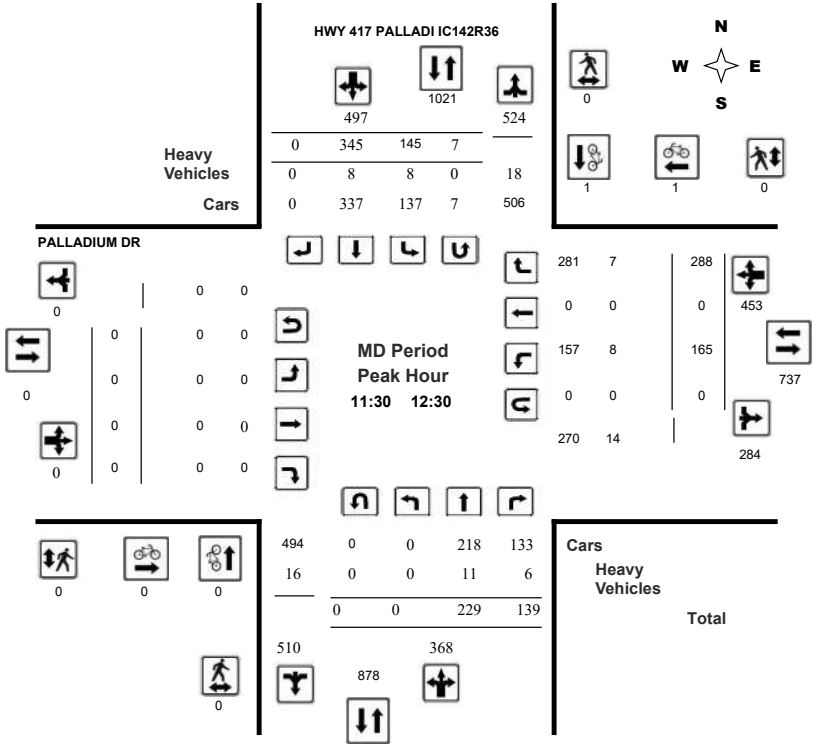
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

HWY 417 PALLADI IC142R36 @ PALLADIUM DR

Survey Date: Wednesday, November 02, 2022 **WO No:** 40671

Start Time: 07:00 **Device:** Miovision



Comments

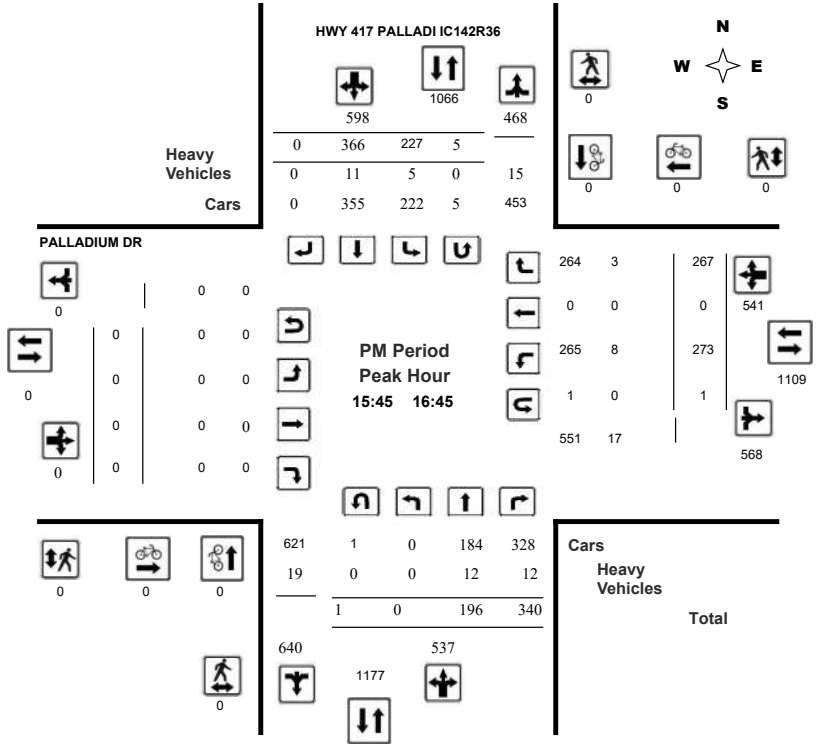
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

HWY 417 PALLADI IC142R36 @ PALLADIUM DR

Survey Date: Wednesday, November 02, 2022 **WO No:** 40671

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

HWY 417 PALLADI IC142R36 @ PALLADIUM DR

Survey Date: Wednesday, November 02, 2022 **WO No:** 40671

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, November 02, 2022

Total Observed U-Turns

Northbound: 8 Southbound: 53

Eastbound: 0 Westbound: 6

AADT Factor .90

	HWY 417 PALLADI IC142R36								PALLADIUM DR								
	Northbound				Southbound				Eastbound				Westbound				
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	0	194	79	**273**	77	189	0	**266**	**539**	0	0	0	**0**	139	0	185	**324**	**324**	**863**
08:00 09:00	0	190	83	**273**	94	197	0	**291**	**564**	0	0	0	**0**	159	0	245	**404**	**404**	**968**
09:00 10:00	0	205	76	**281**	132	245	0	**377**	**658**	0	0	0	**0**	126	0	254	**380**	**380**	**1038**
11:30 12:30	0	229	139	**368**	145	345	0	**490**	**858**	0	0	0	**0**	165	0	288	**453**	**453**	**1311**
12:30 13:30	0	194	155	**349**	147	314	0	**461**	**810**	0	0	0	**0**	151	0	287	**438**	**438**	**1248**
15:00 16:00	0	168	258	**426**	178	327	0	**505**	**931**	0	0	0	**0**	224	0	279	**503**	**503**	**1434**
16:00 17:00	0	186	342	**528**	214	357	0	**571**	**1099**	0	0	0	**0**	257	0	292	**549**	**549**	**1648**
17:00 18:00	0	167	230	**397**	157	306	0	**463**	**860**	0	0	0	**0**	169	0	248	**417**	**417**	**1277**
Sub Total	0	1533	1362	**2895**	1144	2280	0	**3424**	**6319**	0	0	0	**0**	1390	0	2078	**3468**	**3468**	**9787**
U Turns				**8**				**53**	**61**				**0**				**6**	**6**	**67**
Total	0	1533	1362	**2903**	1144	2280	0	**3477**	**6380**	0	0	0	**0**	1390	0	2078	**3474**	**3474**	**9854**
EQ 12Hr	0	2131	1893	**4035**	1590	3169	0	**4833**	**8868**	0	0	0	**0**	1932	0	2888	**4829**	**4829**	**13697**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	0	1918	1704	**3632**	1431	3736	0	**4350**	**7981**	0	0	0	**0**	1739	0	2599	**4346**	**4346**	**12327**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	0	2513	2232	**4758**	1875	4894	0	**5698**	**10455**	0	0	0	**0**	2278	0	3405	**5693**	**5693**	**16148**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

HWY 417 PALLADI IC142R36 @ PALLADIUM DR

Survey Date: Wednesday, November 02, 2022 **WO No:** 40671

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		HWY 417 PALLADI IC142R36									PALLADIUM DR									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	37	13	50	14	29	0	43	93	0	0	0	0	24	0	33	57	57	150
07:15	07:30	0	48	22	70	18	56	0	74	144	0	0	0	0	28	0	39	67	67	211
07:30	07:45	0	58	28	86	23	46	0	71	157	0	0	0	0	39	0	45	84	84	241
07:45	08:00	0	51	16	67	22	58	0	85	152	0	0	0	0	48	0	68	116	116	268
08:00	08:15	0	32	25	57	27	41	0	68	125	0	0	0	0	47	0	41	88	88	213
08:15	08:30	0	51	14	65	19	47	0	67	132	0	0	0	0	32	0	48	81	81	213
08:30	08:45	0	70	29	99	26	54	0	80	179	0	0	0	0	38	0	69	107	107	286
08:45	09:00	0	37	15	53	22	55	0	78	131	0	0	0	0	42	0	87	129	129	260
09:00	09:15	0	45	17	62	34	79	0	114	176	0	0	0	0	45	0	58	103	103	279
09:15	09:30	0	54	21	76	39	54	0	94	170	0	0	0	0	30	0	60	90	90	260
09:30	09:45	0	48	22	70	22	68	0	90	160	0	0	0	0	31	0	61	92	92	252
09:45	10:00	0	58	16	75	37	44	0	83	158	0	0	0	0	20	0	75	95	95	253
11:30	11:45	0	58	29	87	32	95	0	128	215	0	0	0	0	40	0	76	116	116	331
11:45	12:00	0	54	44	98	34	79	0	115	213	0	0	0	0	43	0	67	110	110	323
12:00	12:15	0	54	41	95	38	72	0	110	205	0	0	0	0	32	0	73	105	105	310
12:15	12:30	0	63	25	88	41	99	0	144	232	0	0	0	0	50	0	72	122	122	354
12:30	12:45	0	50	43	95	36	64	0	102	197	0	0	0	0	36	0	79	117	117	314
12:45	13:00	0	46	31	77	35	77	0	115	192	0	0	0	0	43	0	67	111	111	303
13:00	13:15	0	52	39	91	38	91	0	131	222	0	0	0	0	31	0	61	92	92	314
13:15	13:30	0	46	42	88	38	82	0	124	212	0	0	0	0	41	0	80	121	121	333
15:00	15:15	0	49	59	108	44	76	0	120	228	0	0	0	0	50	0	64	114	114	342
15:15	15:30	0	39	59	99	41	86	0	130	229	0	0	0	0	50	0	75	125	125	354
15:30	15:45	0	33	73	106	42	73	0	119	225	0	0	0	0	47	0	73	120	120	345
15:45	16:00	0	47	67	114	51	92	0	144	258	0	0	0	0	77	0	67	145	145	403
16:00	16:15	0	56	98	154	57	99	0	158	312	0	0	0	0	65	0	75	140	140	452
16:15	16:30	0	46	97	143	66	85	0	153	296	0	0	0	0	70	0	58	128	128	424
16:30	16:45	0	47	78	126	53	90	0	143	269	0	0	0	0	61	0	67	128	128	397
16:45	17:00	0	37	69	106	38	83	0	124	230	0	0	0	0	61	0	92	154	154	384
17:00	17:15	0	36	81	117	39	77	0	117	234	0	0	0	0	41	0	59	100	100	334
17:15	17:30	0	47	54	101	38	78	0	119	220	0	0	0	0	34	0	45	79	79	299
17:30	17:45	0	39	63	103	40	76	0	118	221	0	0	0	0	39	0	57	96	96	317
17:45	18:00	0	45	32	77	40	75	0	116	193	0	0	0	0	55	0	87	142	142	335
Total:		0	1533	1362	2903	1144	2280	0	3477	6380	0	0	0	0	1390	0	2078	3474	3474	9,854

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

HWY 417 PALLADI IC142R36 @ PALLADIUM DR

Survey Date: Wednesday, November 02, 2022 **WO No:** 40671

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

		HWY 417 PALLADI IC142R36			PALLADIUM DR			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	0	0	0	0
09:00	09:15	0	0	0	0	0	0	0
09:15	09:30	0	0	0	0	0	0	0
09:30	09:45	0	0	0	0	0	0	0
09:45	10:00	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	1	1	0	0	0	1
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	1	1	1
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	0	0	0	0	0	0
16:30	16:45	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0
Total		0	1	1	0	1	1	2

Transportation Services - Traffic Services

Turning Movement Count - Study Results

HWY 417 PALLADI IC142R36 @ PALLADIUM DR

Survey Date: Wednesday, November 02, 2022 **WO No:** 40671

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

HWY 417 PALLADI IC142R36 **PALLADIUM DR**

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	0	0	**0**	0	0	**0**	**0**
07:15 07:30	0	0	**0**	0	0	**0**	**0**
07:30 07:45	0	0	**0**	0	0	**0**	**0**
07:45 08:00	0	0	**0**	0	0	**0**	**0**
08:00 08:15	0	0	**0**	0	0	**0**	**0**
08:15 08:30	0	0	**0**	0	0	**0**	**0**
08:30 08:45	0	0	**0**	0	0	**0**	**0**
08:45 09:00	0	0	**0**	0	0	**0**	**0**
09:00 09:15	0	0	**0**	0	1	**1**	**1**
09:15 09:30	0	1	**1**	0	1	**1**	**2**
09:30 09:45	0	0	**0**	0	0	**0**	**0**
09:45 10:00	0	0	**0**	0	0	**0**	**0**
11:30 11:45	0	0	**0**	0	0	**0**	**0**
11:45 12:00	0	0	**0**	0	0	**0**	**0**
12:00 12:15	0	0	**0**	0	0	**0**	**0**
12:15 12:30	0	0	**0**	0	0	**0**	**0**
12:30 12:45	0	0	**0**	0	0	**0**	**0**
12:45 13:00	0	0	**0**	0	0	**0**	**0**
13:00 13:15	0	0	**0**	0	0	**0**	**0**
13:15 13:30	0	0	**0**	0	0	**0**	**0**
15:00 15:15	0	0	**0**	0	0	**0**	**0**
15:15 15:30	0	0	**0**	0	0	**0**	**0**
15:30 15:45	0	2	**2**	0	0	**0**	**2**
15:45 16:00	0	0	**0**	0	0	**0**	**0**
16:00 16:15	0	0	**0**	0	0	**0**	**0**
16:15 16:30	0	0	**0**	0	0	**0**	**0**
16:30 16:45	0	0	**0**	0	0	**0**	**0**
16:45 17:00	0	0	**0**	0	0	**0**	**0**
17:00 17:15	0	0	**0**	0	0	**0**	**0**
17:15 17:30	0	0	**0**	0	0	**0**	**0**
17:30 17:45	0	0	**0**	0	0	**0**	**0**
17:45 18:00	0	0	**0**	0	0	**0**	**0**
Total	0	3	**3**	0	2	**2**	**5**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

HWY 417 PALLADI IC142R36 @ PALLADIUM DR

Survey Date: Wednesday, November 02, 2022 **WO No:** 40671

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

HWY 417 PALLADI IC142R36 **PALLADIUM DR**

		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	**N TOT**	LT	ST	RT	**S TOT**	**STR TOT**	LT	ST	RT	**E TOT**	LT	ST	RT	**W TOT**	**STR TOT**	**Grand Total**
07:00	07:15	0	4	0	**9**	1	4	0	**9**	**18**	0	0	0	**0**	1	0	0	**2**	**2**	**10**
07:15	07:30	0	2	1	**12**	2	8	0	**13**	**25**	0	0	0	**0**	1	0	1	**5**	**5**	**15**
07:30	07:45	0	6	1	**10**	1	1	0	**8**	**18**	0	0	0	**0**	2	0	0	**4**	**4**	**11**
07:45	08:00	0	0	2	**7**	1	5	0	**8**	**15**	0	0	0	**0**	0	0	2	**5**	**5**	**10**
08:00	08:15	0	2	2	**7**	1	2	0	**7**	**14**	0	0	0	**0**	1	0	2	**6**	**6**	**10**
08:15	08:30	0	5	0	**14**	2	5	0	**13**	**27**	0	0	0	**0**	4	0	1	**7**	**7**	**17**
08:30	08:45	0	2	3	**18**	1	9	0	**14**	**32**	0	0	0	**0**	4	0	2	**10**	**10**	**21**
08:45	09:00	0	3	0	**8**	0	2	0	**8**	**16**	0	0	0	**0**	3	0	3	**6**	**6**	**11**
09:00	09:15	0	1	5	**29**	6	23	0	**31**	**60**	0	0	0	**0**	0	0	1	**12**	**12**	**36**
09:15	09:30	0	6	1	**20**	8	11	0	**26**	**46**	0	0	0	**0**	2	0	1	**12**	**12**	**29**
09:30	09:45	0	4	3	**17**	6	8	0	**22**	**39**	0	0	0	**0**	2	0	4	**15**	**15**	**27**
09:45	10:00	0	1	0	**5**	4	1	0	**7**	**12**	0	0	0	**0**	3	0	1	**8**	**8**	**10**
11:30	11:45	0	1	2	**8**	2	4	0	**9**	**17**	0	0	0	**0**	1	0	2	**7**	**7**	**12**
11:45	12:00	0	2	1	**6**	1	1	0	**6**	**12**	0	0	0	**0**	2	0	2	**6**	**6**	**9**
12:00	12:15	0	6	2	**12**	3	2	0	**12**	**24**	0	0	0	**0**	2	0	1	**8**	**8**	**16**
12:15	12:30	0	2	1	**7**	2	1	0	**7**	**14**	0	0	0	**0**	3	0	2	**8**	**8**	**11**
12:30	12:45	0	4	1	**8**	1	2	0	**11**	**19**	0	0	0	**0**	1	0	4	**7**	**7**	**13**
12:45	13:00	0	5	0	**13**	3	7	0	**19**	**32**	0	0	0	**0**	1	0	4	**8**	**8**	**20**
13:00	13:15	0	2	0	**9**	1	5	0	**8**	**17**	0	0	0	**0**	2	0	0	**3**	**3**	**10**
13:15	13:30	0	3	2	**9**	3	4	0	**11**	**20**	0	0	0	**0**	0	0	1	**6**	**6**	**13**
15:00	15:15	0	3	1	**7**	3	3	0	**14**	**21**	0	0	0	**0**	0	0	5	**9**	**9**	**15**
15:15	15:30	0	3	1	**4**	1	0	0	**7**	**11**	0	0	0	**0**	0	0	1	**3**	**3**	**7**
15:30	15:45	0	4	1	**8**	2	2	0	**9**	**17**	0	0	0	**0**	1	0	1	**5**	**5**	**11**
15:45	16:00	0	2	6	**17**	0	6	0	**9**	**26**	0	0	0	**0**	3	0	1	**10**	**10**	**18**
16:00	16:15	0	4	2	**10**	0	1	0	**6**	**16**	0	0	0	**0**	3	0	1	**6**	**6**	**11**
16:15	16:30	0	6	1	**10**	3	3	0	**13**	**23**	0	0	0	**0**	0	0	1	**5**	**5**	**14**
16:30	16:45	0	0	3	**6**	2	1	0	**3**	**9**	0	0	0	**0**	2	0	0	**7**	**7**	**8**
16:45	17:00	0	2	0	**7**	0	4	0	**9**	**16**	0	0	0	**0**	1	0	3	**4**	**4**	**10**
17:00	17:15	0	1	1	**4**	2	2	0	**9**	**13**	0	0	0	**0**	0	0	4	**7**	**7**	**10**
17:15	17:30	0	5	1	**8**	0	2	0	**13**	**21**	0	0	0	**0**	0	0	6	**7**	**7**	**14**
17:30	17:45	0	2	0	**5**	1	2	0	**11**	**16**	0	0	0	**0**	1	0	6	**8**	**8**	**12**
17:45	18:00	0	3	0	**5**	2	0	0	**9**	**14**	0	0	0	**0**	2	0	4	**8**	**8**	**11**
Total:	None	0	96	44	**319**	65	131	0	**361**	**680**	0	0	0	**0**	48	0	67	**224**	**224**	**452**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

HWY 417 PALLADI IC142R36 @ PALLADIUM DR

Survey Date: Wednesday, November 02, 2022 **WO No:** 40671

Start Time: 07:00 **Device:** Miovision

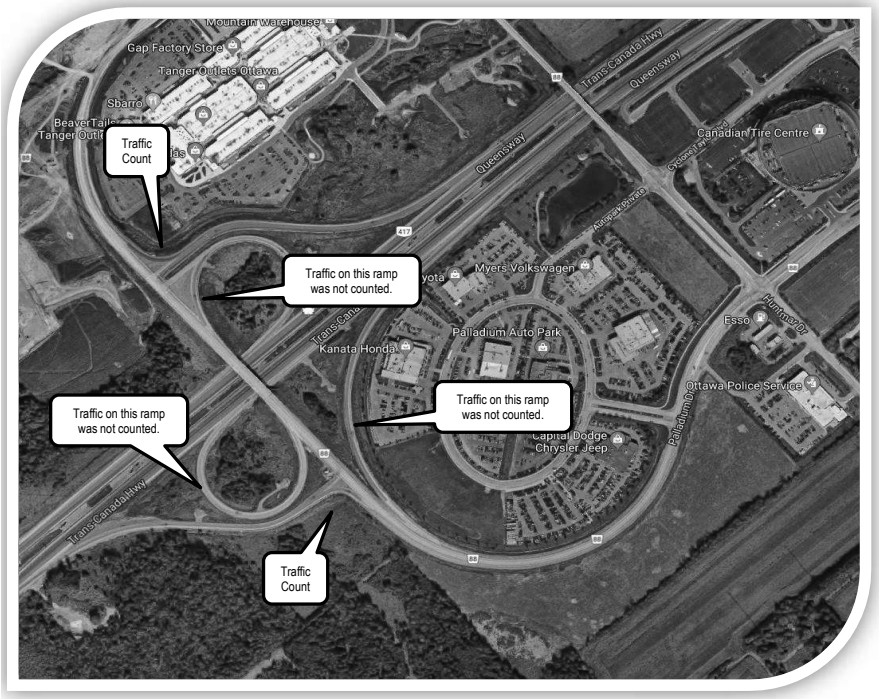
Full Study 15 Minute U-Turn Total

		HWY 417 PALLADI IC142R36		PALLADIUM DR		
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	2	0	0	2
07:45	08:00	0	5	0	0	5
08:00	08:15	0	0	0	0	0
08:15	08:30	0	1	0	1	2
08:30	08:45	0	0	0	0	0
08:45	09:00	1	1	0	0	2
09:00	09:15	0	1	0	0	1
09:15	09:30	1	1	0	0	2
09:30	09:45	0	0	0	0	0
09:45	10:00	1	2	0	0	3
11:30	11:45	0	1	0	0	1
11:45	12:00	0	2	0	0	2
12:00	12:15	0	0	0	0	0
12:15	12:30	0	4	0	0	4
12:30	12:45	2	2	0	2	6
12:45	13:00	0	3	0	1	4
13:00	13:15	0	2	0	0	2
13:15	13:30	0	4	0	0	4
15:00	15:15	0	0	0	0	0
15:15	15:30	1	3	0	0	4
15:30	15:45	0	4	0	0	4
15:45	16:00	0	1	0	1	2
16:00	16:15	0	2	0	0	2
16:15	16:30	0	2	0	0	2
16:30	16:45	1	0	0	0	1
16:45	17:00	0	3	0	1	4
17:00	17:15	0	1	0	0	1
17:15	17:30	0	3	0	0	3
17:30	17:45	1	2	0	0	3
17:45	18:00	0	1	0	0	1
Total		8	53	0	6	67

Diagrams, Maps and Photographs

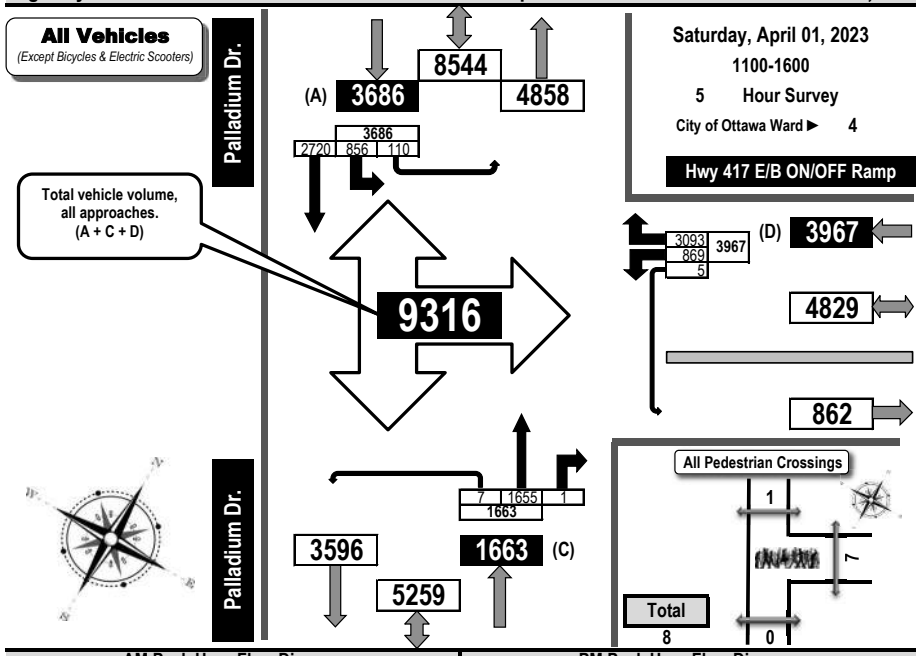
Highway 417 & Palladium Drive Westbound ON/OFF Ramp

Saturday, April 01, 2023

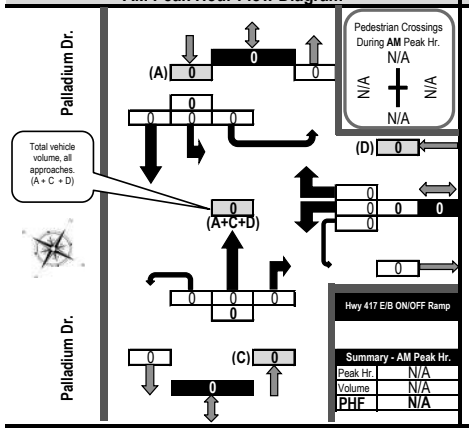


Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams
All Vehicles Except Bicycles

Highway 417 & Palladium Drive Westbound ON/OFF Ramp — **Kanata, ON**

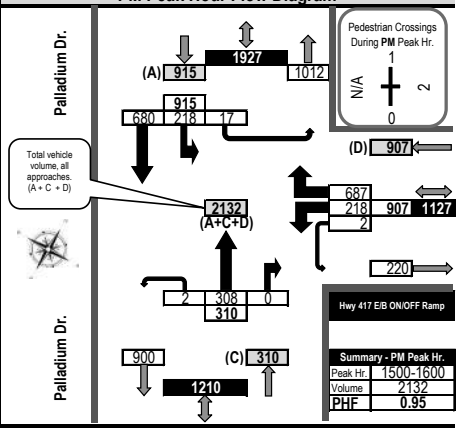


AM Peak Hour Flow Diagram



Summary - AM Peak Hr.	
Peak Hr.	N/A
Volume	N/A
PHF	N/A

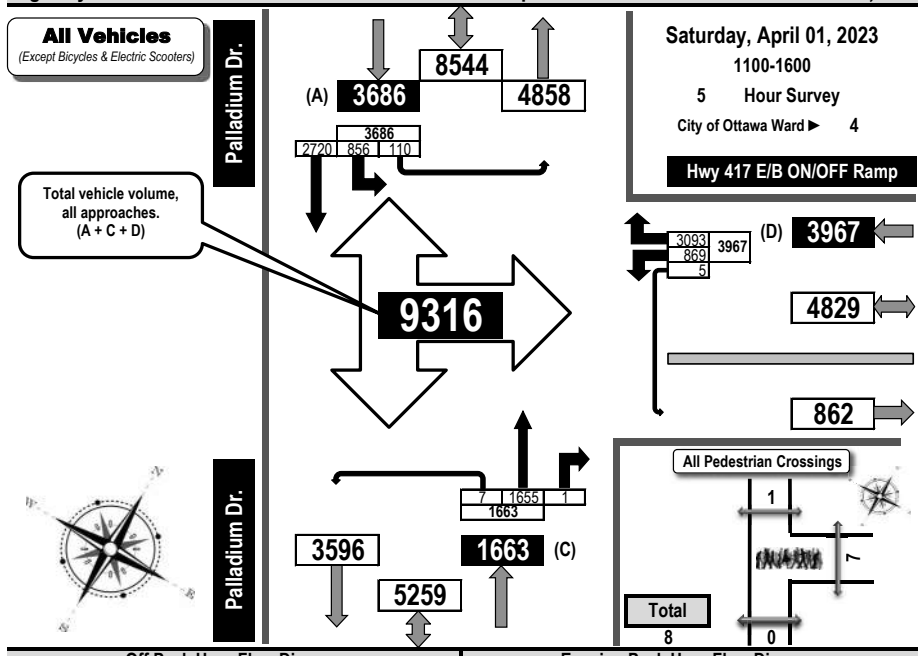
PM Peak Hour Flow Diagram



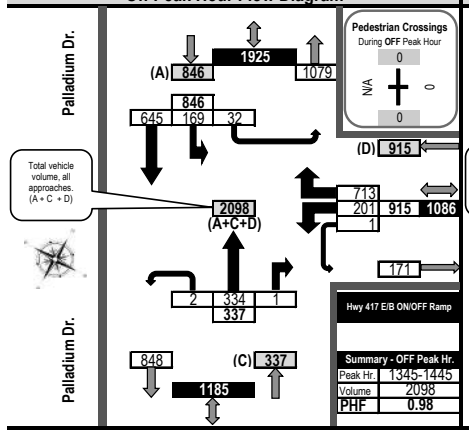
Summary - PM Peak Hr.	
Peak Hr.	1500-1600
Volume	2132
PHF	0.95

Turning Movement Count
Summary, OFF and EVENING Peak Hour Flow Diagrams
All Vehicles Except Bicycles

Highway 417 & Palladium Drive Westbound ON/OFF Ramp — **Kanata, ON**

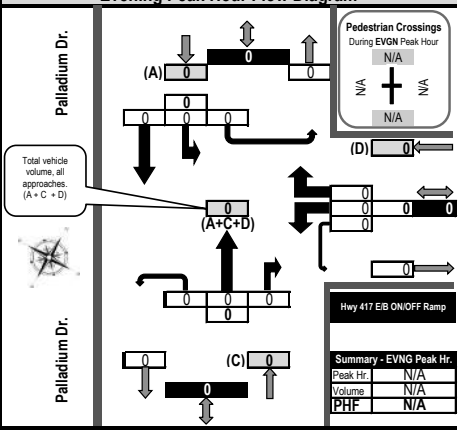


Off Peak Hour Flow Diagram



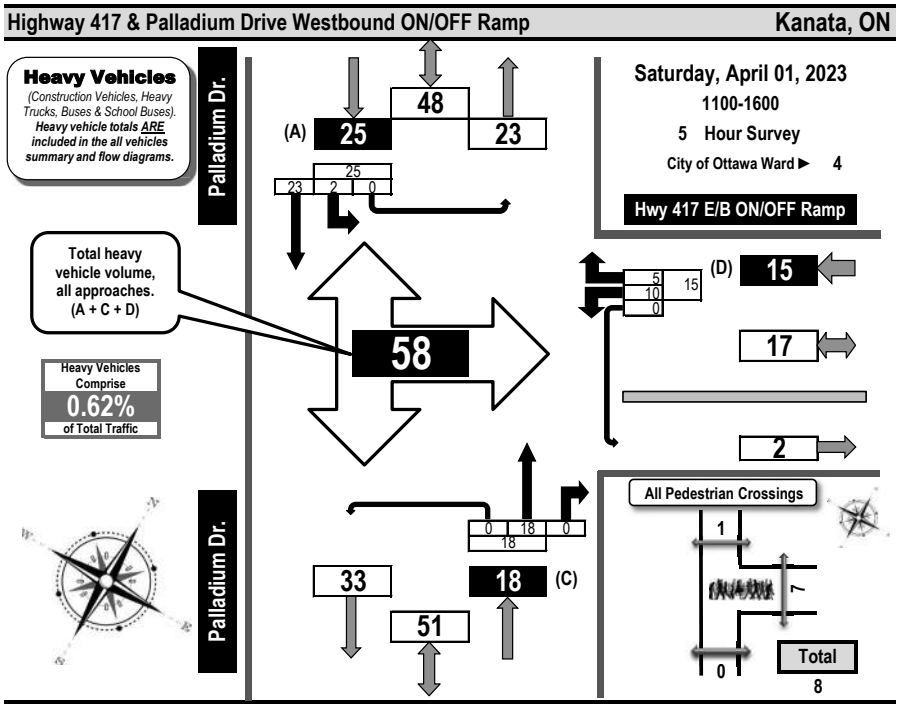
Summary - OFF Peak Hr.	
Peak Hr.	1345-1445
Volume	2098
PHF	0.98

Evening Peak Hour Flow Diagram



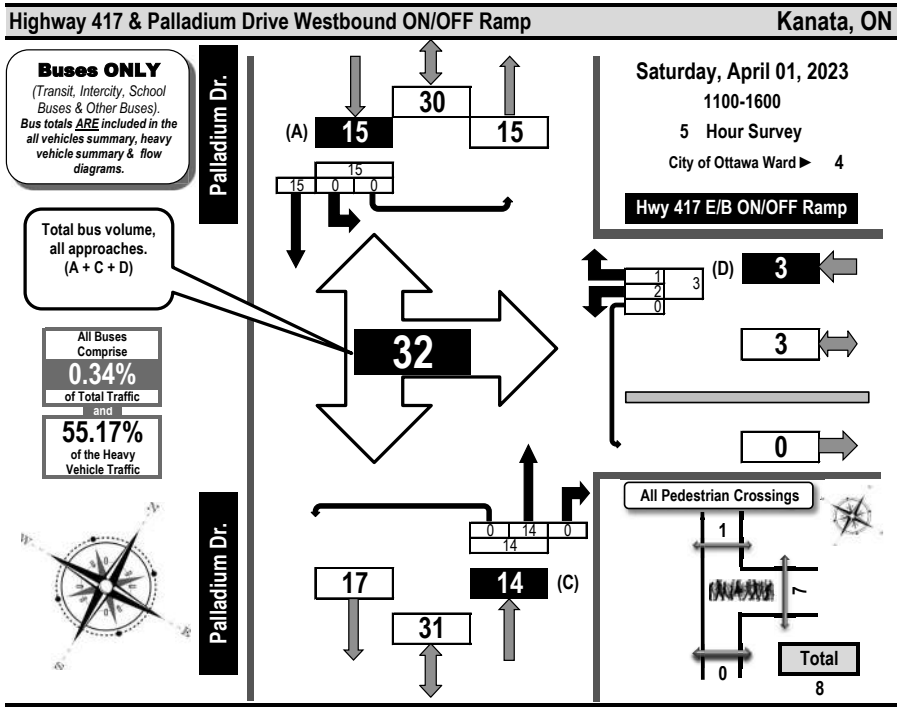
Summary - EVNG Peak Hr.	
Peak Hr.	N/A
Volume	N/A
PHF	N/A

Turning Movement Count
Heavy Vehicle Summary (FHWA Class 4 to 13)
Flow Diagram



	N/A					Hwy 417 E/B ON/OFF Ramp					Palladium Dr.					Palladium Dr.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200						1		1	0	2		3	0	0	3	0	3		0	3	8
1200-1300						2		0	0	2		4	0	0	4	0	6		0	6	12
1300-1400						3		2	0	5		4	0	0	4	0	3		0	3	12
1400-1500						3		1	0	4		4	0	0	4	1	6		0	7	15
1500-1600						1		1	0	2		3	0	0	3	1	5		0	6	11
Totals						10		5	0	15		18	0	0	18	2	23		0	25	58

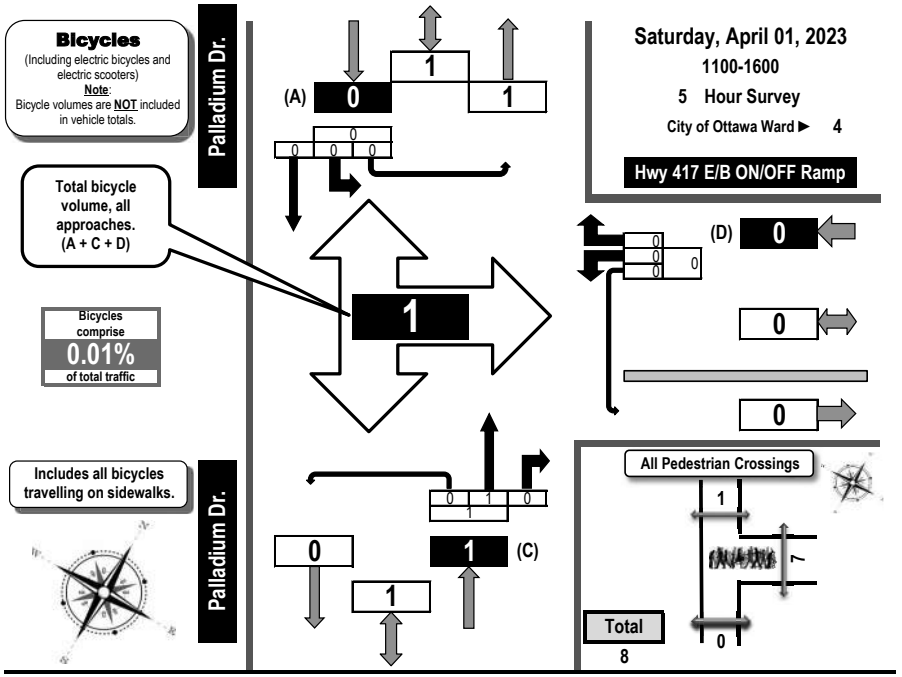
Turning Movement Count
All Buses Summary (FHWA Class 4 ONLY)
Flow Diagram



	N/A					Hwy 417 E/B ON/OFF Ramp					Palladium Dr.					Palladium Dr.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200						0		1	0	1		3	0	0	3	0	2		0	2	6
1200-1300						1		0	0	1		3	0	0	3	0	4		0	4	8
1300-1400						0		0	0	0		3	0	0	3	0	3		0	3	6
1400-1500						0		0	0	0		3	0	0	3	0	3		0	3	6
1500-1600						1		0	0	1		2	0	0	2	0	3		0	3	6
Totals						2		1	0	3		14	0	0	14	0	15		0	15	32

Turning Movement Count
Bicycle Summary
Flow Diagram

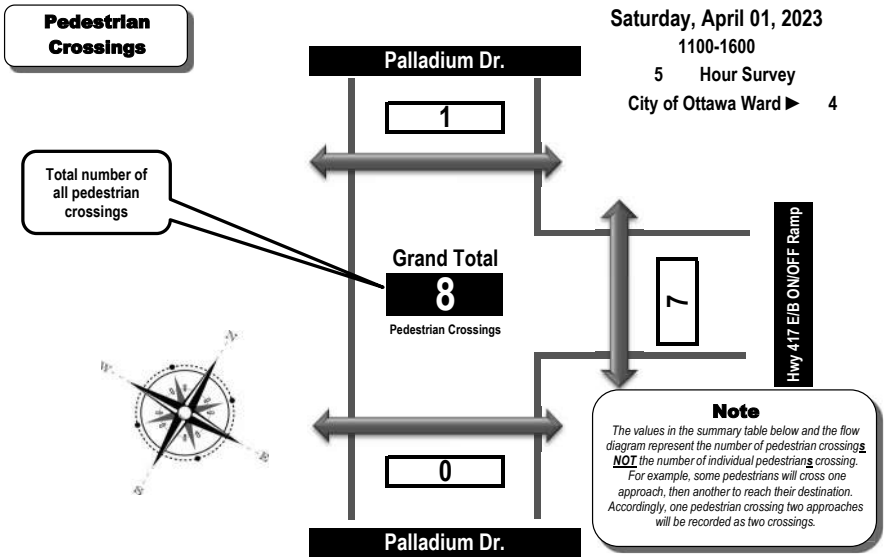
Highway 417 & Palladium Drive Westbound ON/OFF Ramp — **Kanata, ON**



	N/A					Hwy 417 E/B ON/OFF Ramp					Palladium Dr.					Palladium Dr.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200						0		0	0	0		0	0	0	0	0	0		0	0	0
1200-1300						0		0	0	0		0	0	0	0	0	0		0	0	0
1300-1400						0		0	0	0		0	0	0	0	0	0		0	0	0
1400-1500						0		0	0	0		0	0	0	0	0	0		0	0	0
1500-1600						0		0	0	0		1	0	0	1	0	0		0	0	1
Totals						0		0	0	0		1	0	0	1	0	0		0	0	1

Turning Movement Count
Pedestrian Crossings Summary and Flow Diagram

Highway 417 & Palladium Drive Westbound ON/OFF Ramp — **Kanata, ON**



Time Period	West Side Crossing N/A	East Side Crossing Hwy 417 E/B ON/OFF Ramp	Street Total	South Side Crossing Palladium Dr.	North Side Crossing Palladium Dr.	Street Total	Grand Total
1100-1200		0	0	0	0	0	0
1200-1300		3	3	0	0	0	3
1300-1400		2	2	0	0	0	2
1400-1500		0	0	0	0	0	0
1500-1600		2	2	0	1	1	3
Totals	0	7	7	0	1	1	8

Comments:
OC Transpo and Para Transpo buses comprise 55.17% of the heavy vehicle traffic. Traffic on the northbound to westbound ramp was not counted. 2 pedestrians walked along the west shoulder and are not included in the pedestrian crossings totals. Conflicts occurred throughout the count between S/B U-turns and W/B right turns.

ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count Summary Report

Including OFF Peak, PM Peak and PHF

All Vehicles Except Bicycles



Ontario

Hwy 417 @ PALLADIUM DR IC-142

Eastern

Intersection ID:495620000(--S--) **Count Day: Tuesday** **Count Date: 24-Apr-2018**

Highway 417 & Palladium Drive Westbound ON/OFF Ramp — Kanata, ON

Survey Date: Saturday, April 01, 2023 **Start Time:** 1100 **AADT Factor:** 1.0

Weather: AM: Drizzle +1° C **Survey Duration:** 5 Hrs. **Survey Hours:** 1100 - 1600

Weather PM: Mostly Sunny +8° C **Surveyor(s):** T. Carmody

	N/A					Hwy 417 E/B ON/OFF Ramp						Palladium Dr.					Palladium Dr.						
	Eastbound					Westbound						Northbound					Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
1100-1200	0	0	0	0	**0**	134	0	450	1	**585**	**585**	0	337	0	0	**337**	143	421	0	18	**582**	**919**	**1504**
1200-1300	0	0	0	0	**0**	167	0	548	1	**716**	**716**	0	322	0	3	**325**	132	457	0	28	**617**	**942**	**1658**
1300-1400	0	0	0	0	**0**	155	0	683	0	**838**	**838**	0	379	0	2	**381**	185	516	0	24	**725**	**1106**	**1944**
1400-1500	0	0	0	0	**0**	195	0	725	1	**921**	**921**	0	309	1	0	**310**	178	646	0	23	**847**	**1157**	**2078**
1500-1600	0	0	0	0	**0**	218	0	687	2	**907**	**907**	0	308	0	2	**310**	218	680	0	17	**915**	**1225**	**2132**
Totals	**0**	**0**	**0**	**0**	**0**	**869**	**0**	**3093**	**5**	**3967**	**3967**	**0**	**1655**	**1**	**7**	**1663**	**856**	**2720**	**0**	**110**	**3686**	**5349**	**9316**

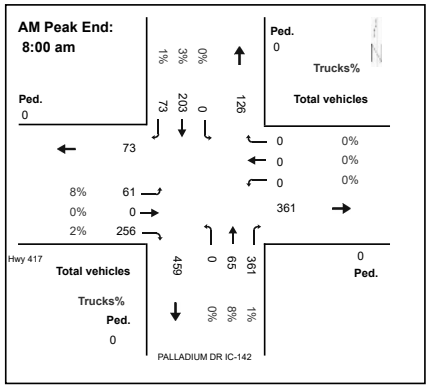
Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

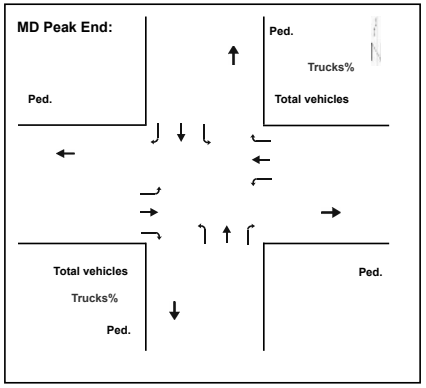
OFF Peak Hour Factor ➡ 0.98 — Highest Hourly Vehicle Volume Between 1100h & 1500h

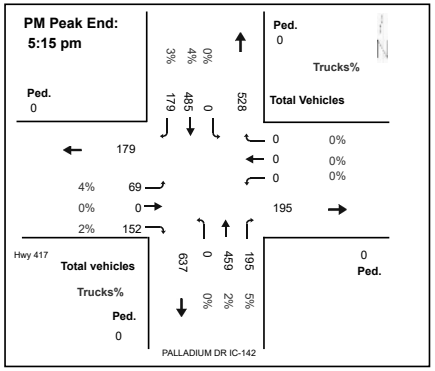
OFF Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1345-1445	0	0	0	0	**0**	201	0	713	1	**915**	**915**	0	334	1	2	**337**	169	645	0	32	**846**	**1183**	**2098**

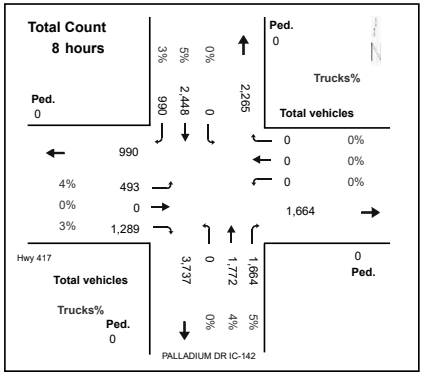
PM Peak Hour Factor ➡ 0.95 — Highest Hourly Vehicle Volume Between 1500h & 1900h

PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1500-1600	0	0	0	0	**0**	218	0	687	2	**907**	**907**	0	308	0	2	**310**	218	680	0	17	**915**	**1225**	**2132**









Comments:

OC Transpo and Para Transpo buses comprise 55.17% of the heavy vehicle traffic. Traffic on the northbound to westbound ramp was not counted. 2 pedestrians walked along the west shoulder and are not included in the pedestrian crossings totals. Conflicts occurred throughout the count between S/B U-turns and W/B right turns.

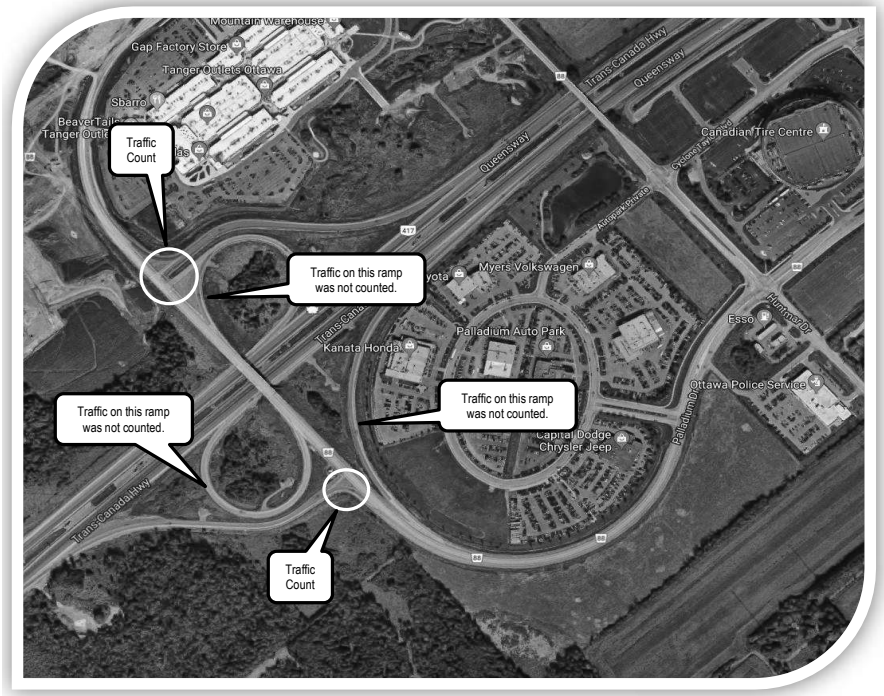
Notes:

1. Includes all vehicle types except bicycles and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Diagrams, Maps and Photographs

Highway 417 Eastbound Off Ramp & Palladium Drive

Saturday, April 01, 2023



Turning Movement Count

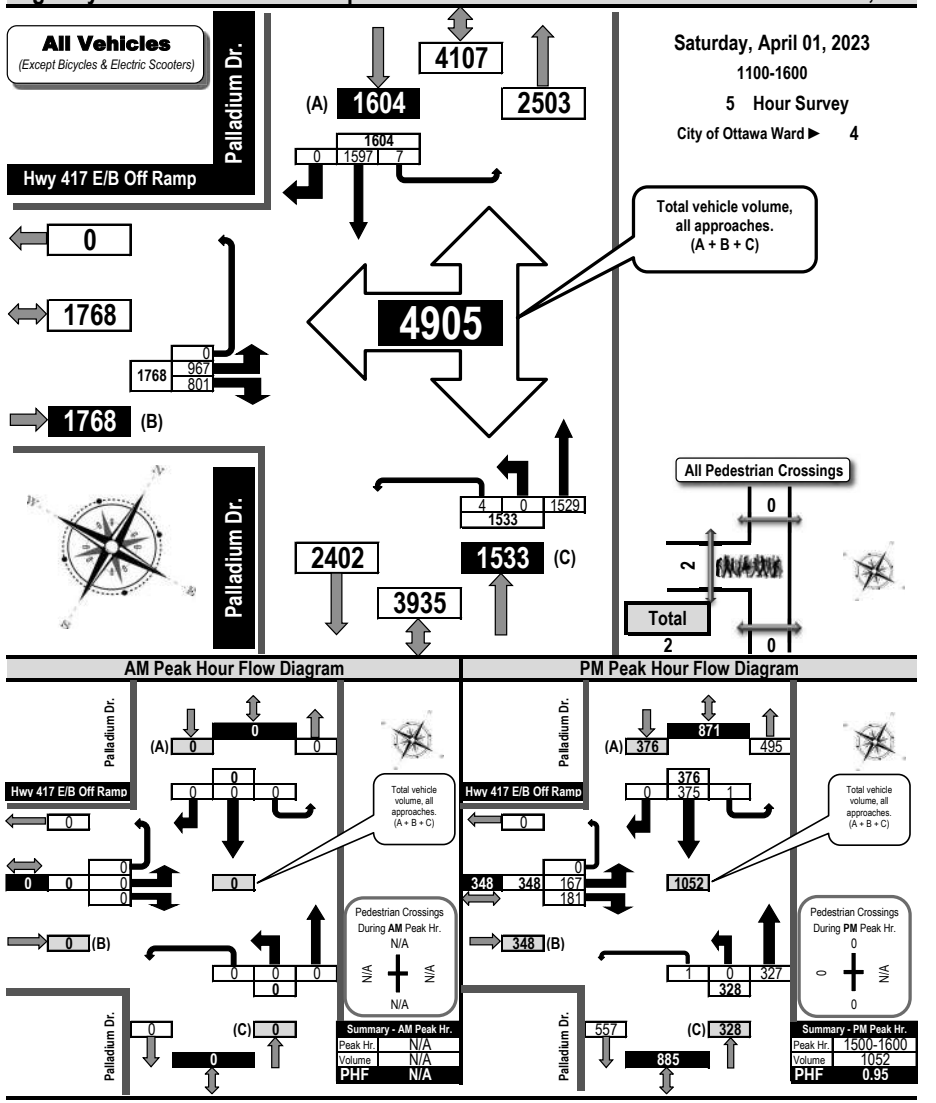
Summary, AM and PM Peak Hour Flow Diagrams

All Vehicles Except Bicycles

Highway 417 Eastbound Off Ramp & Palladium Drive — Kanata, ON

All Vehicles *(Except Bicycles & Electric Scooters)*

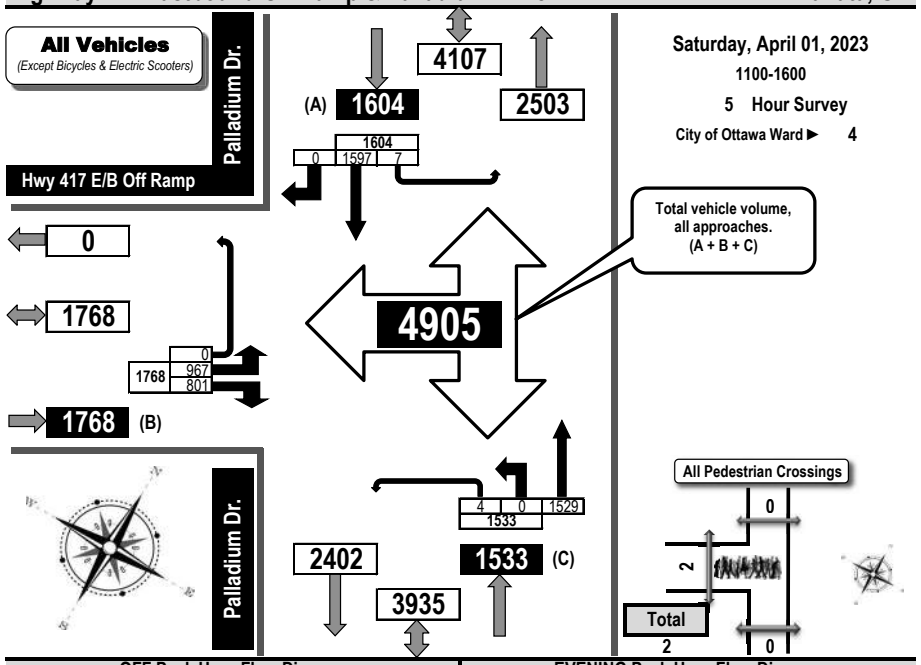
Saturday, April 01, 2023
1100-1600
5 Hour Survey
City of Ottawa Ward ► 4



Turning Movement Count
Summary, OFF and EVGN Peak Hour Flow Diagrams
All Vehicles Except Bicycles



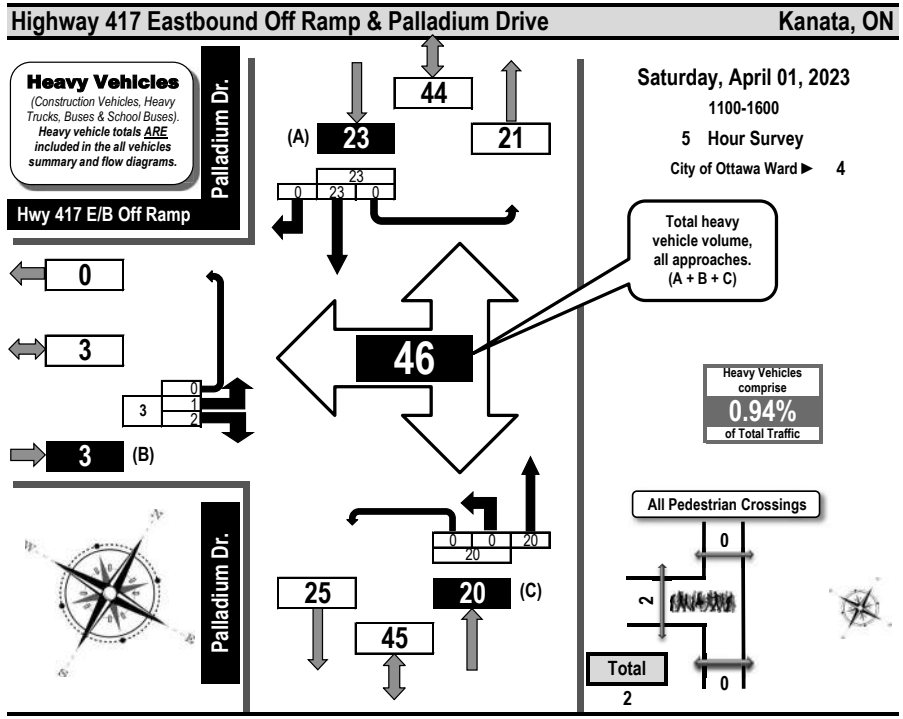
Highway 417 Eastbound Off Ramp & Palladium Drive — Kanata, ON



Turning Movement Count
Heavy Vehicle Summary (FHWA Class 4 to 13)
Flow Diagram



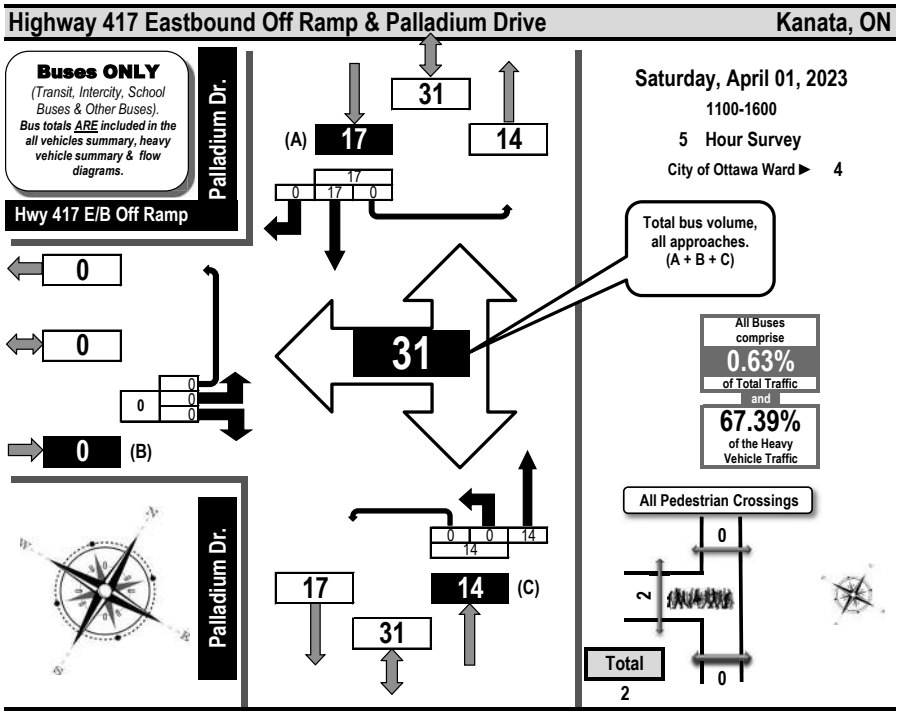
Highway 417 Eastbound Off Ramp & Palladium Drive — Kanata, ON



	Hwy 417 E/B Off Ramp					N/A					Palladium Dr.					Palladium Dr.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200	0		1	0	1						0	3		0	3		3	0	0	3	7
1200-1300	0		1	0	1						0	5		0	5		6	0	0	6	12
1300-1400	1		0	0	1						0	4		0	4		5	0	0	5	10
1400-1500	0		0	0	0						0	4		0	4		4	0	0	4	8
1500-1600	0		0	0	0						0	4		0	4		5	0	0	5	9
Totals	1		2	0	3						0	20		0	20		23	0	0	23	46

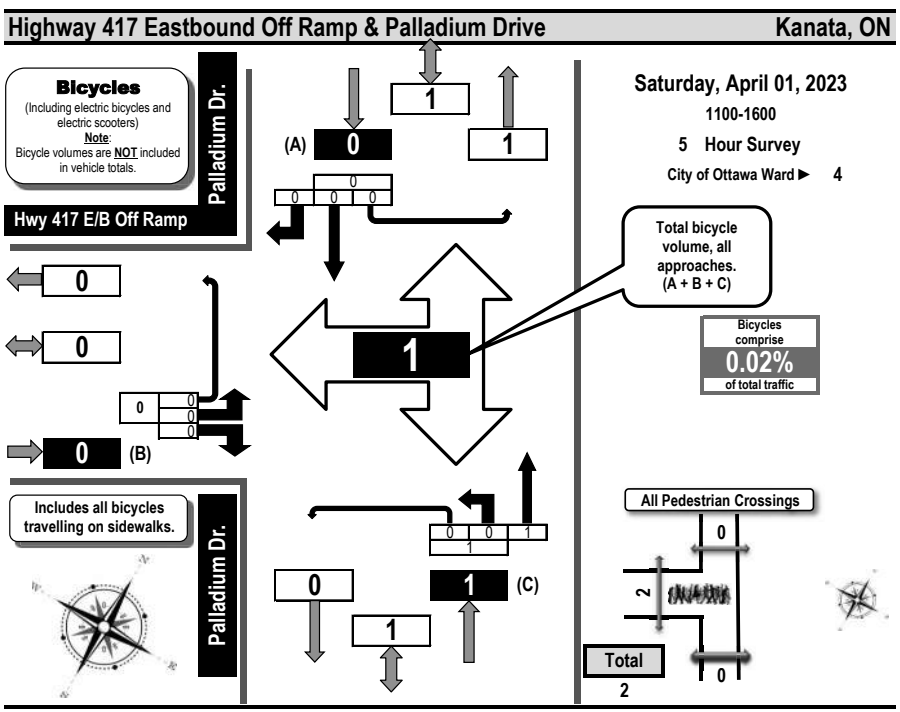
Turning Movement Count
All Buses Summary (FHWA Class 4 ONLY)
Flow Diagram





Hwy 417 E/B Off Ramp						N/A					Palladium Dr.					Palladium Dr.					
Eastbound						Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200	0		0	0	0						0	3		0	3		2	0	0	2	5
1200-1300	0		0	0	0						0	3		0	3		5	0	0	5	8
1300-1400	0		0	0	0						0	3		0	3		3	0	0	3	6
1400-1500	0		0	0	0						0	3		0	3		3	0	0	3	6
1500-1600	0		0	0	0						0	2		0	2		4	0	0	4	6
Totals	0		0	0	0						0	14		0	14		17	0	0	17	31

Turning Movement Count
Bicycle Summary
Flow Diagram



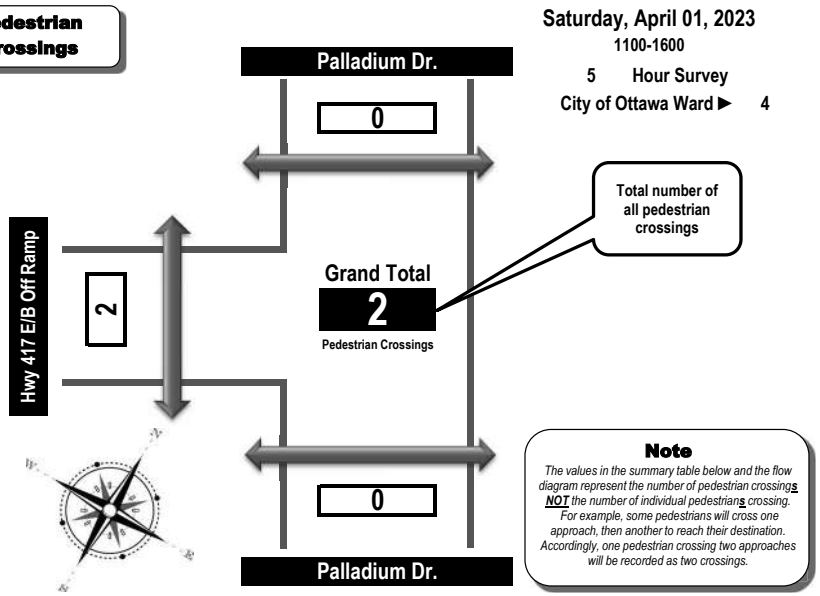
Hwy 417 E/B Off Ramp						N/A					Palladium Dr.					Palladium Dr.					
Eastbound						Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
1100-1200	0		0	0	0						0	0		0	0		0	0	0	0	0
1200-1300	0		0	0	0						0	0		0	0		0	0	0	0	0
1300-1400	0		0	0	0						0	0		0	0		0	0	0	0	0
1400-1500	0		0	0	0						0	0		0	0		0	0	0	0	0
1500-1600	0		0	0	0						0	1		0	1		0	0	0	0	1
Totals	0		0	0	0						0	1		0	1		0	0	0	0	1

Turning Movement Count
Pedestrian Crossings Summary and Flow Diagram

Highway 417 Eastbound Off Ramp & Palladium Drive — Kanata, ON

Pedestrian Crossings

Saturday, April 01, 2023
1100-1600
5 Hour Survey
City of Ottawa Ward ► 4



Note
*The values in the summary table below and the flow diagram represent the number of pedestrian crossings **NOT** the number of individual pedestrians crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Time Period	West Side Crossing Hwy 417 E/B Off Ramp	East Side Crossing N/A	Street Total	South Side Crossing Palladium Dr.	North Side Crossing Palladium Dr.	Street Total	Grand Total
1100-1200	0		0	0	0	0	0
1200-1300	1		1	0	0	0	1
1300-1400	1		1	0	0	0	1
1400-1500	0		0	0	0	0	0
1500-1600	0		0	0	0	0	0
Totals	2		2	0	0	0	2

Comments:
OC Transpo and Para Transpo buses comprise 67.39% of the heavy vehicle traffic. The bicycle total includes 1 E-scooter (stand-up type). 6 pedestrians walked along the east shoulder, 5 southbound and 1 northbound but are not included in the pedestrian crossings totals as they did not cross the off ramp. Traffic was not counted on the southbound and northbound on ramps to Hwy 417 eastbound.

Turning Movement Count
Summary Report
Including OFF Peak, PM Peak and PHF
All Vehicles Except Bicycles

Highway 417 Eastbound Off Ramp & Palladium Drive — Kanata, ON

Survey Date: Saturday, April 01, 2023 **Start Time:** 1100 **AADT Factor:** 1.0
Weather: AM: Drizzle +1° C **Survey Duration:** 5 Hrs. **Survey Hours:** 1100 - 1600
Weather PM: Mostly Sunny +8° C **Surveyor(s):** T. Carmody

	Hwy 417 E/B Off Ramp					N/A						Palladium Dr.					Palladium Dr.					
	Eastbound					Westbound						Northbound					Southbound					
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
1100-1200	203	0	178	0	381	0	0	0	0	0	381	0	273	0	0	273	0	263	0	2	265	538	919
1200-1300	199	0	168	0	367	0	0	0	0	0	367	0	290	0	2	292	0	318	0	0	318	610	977
1300-1400	218	0	137	0	355	0	0	0	0	0	355	0	326	0	1	327	0	291	0	2	293	620	975
1400-1500	180	0	137	0	317	0	0	0	0	0	317	0	313	0	0	313	0	350	0	2	352	665	982
1500-1600	167	0	181	0	348	0	0	0	0	0	348	0	327	0	1	328	0	375	0	1	376	704	1052
Totals	967	0	801	0	1768	0	0	0	0	0	1768	0	1529	0	4	1533	0	1597	0	7	1604	3137	4905

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

OFF Peak Hour Factor ➡ 0.97

OFF Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Highest Hourly Vehicle Volume Between 1100h & 1500h										
												LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1330-1430	213	0	143	0	356	0	0	0	0	0	356	0	334	0	1	335	0	346	0	2	348	683	1039

PM Peak Hour Factor ➡ 0.95

PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Highest Hourly Vehicle Volume Between 1500h & 1900h										
												LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1500-1600	167	0	181	0	348	0	0	0	0	0	348	0	327	0	1	328	0	375	0	1	376	704	1052

Comments:
OC Transpo and Para Transpo buses comprise 67.39% of the heavy vehicle traffic. The bicycle total includes 1 E-scooter (stand-up type). 6 pedestrians walked along the east shoulder, 5 southbound and 1 northbound but are not included in the pedestrian crossings totals as they did not cross the off ramp. Traffic was not counted on the southbound and northbound on ramps to Hwy 417 eastbound.

Notes:
1. Includes all vehicle types except bicycles and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #24-271 - WPE Engineering Ltd

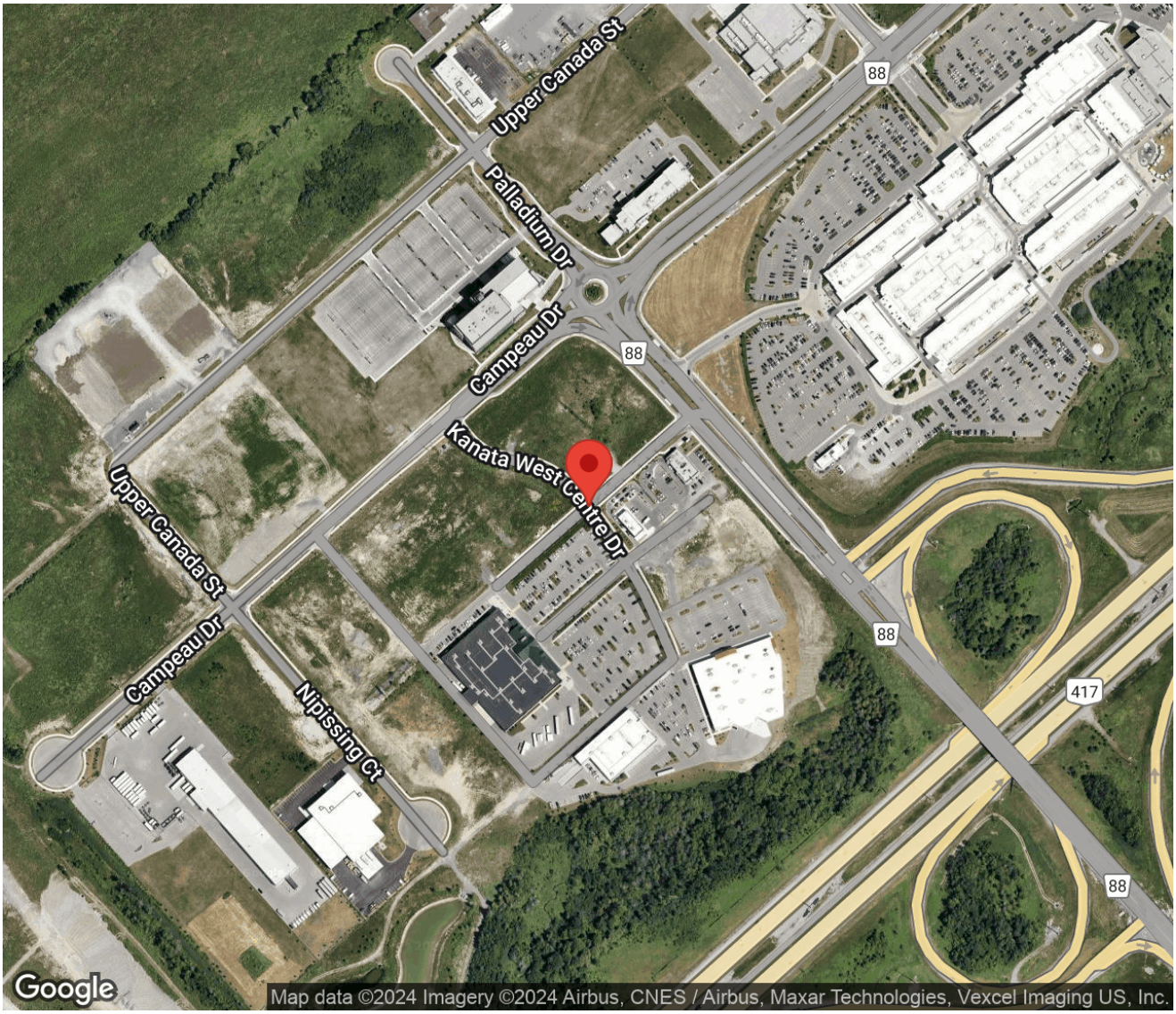
Intersection Count Report

Intersection:	Kanata West Centre Dr & Cabela's Way
Municipality:	Ottawa
Count Date:	Thursday, Jun 13, 2024
Site Code:	2427100001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Kanata West Centre Dr & Cabela's Way
Site Code:	2427100001
Municipality:	Ottawa
Count Date:	Jun 13, 2024



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100001
Municipality: Ottawa
Count Date: Jun 13, 2024

Kanata West Centre Dr - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	1	21	1	0	23	3	1	54	136	0	191	0	214
08:00 - 09:00	2	28	1	0	31	0	0	73	134	0	207	1	238
BREAK													
16:00 - 17:00	0	25	6	0	31	1	0	51	225	0	276	0	307
17:00 - 18:00	1	41	6	0	48	6	4	53	181	0	238	0	286
GRAND TOTAL	**4**	**115**	**14**	**0**	**133**	**10**	**5**	**231**	**676**	**0**	**912**	**1**	**1045**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100001
Municipality: Ottawa
Count Date: Jun 13, 2024

Cabela's Way - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	177	7	2	0	186	3	4	4	4	0	12	0	198
08:00 - 09:00	212	13	1	0	226	2	1	2	0	0	3	0	229
BREAK													
16:00 - 17:00	189	40	5	0	234	0	3	22	3	0	28	0	262
17:00 - 18:00	180	25	3	0	208	2	12	24	0	0	36	0	244
GRAND TOTAL	**758**	**85**	**11**	**0**	**854**	**7**	**20**	**52**	**7**	**0**	**79**	**0**	**933**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100001
Municipality: Ottawa
Count Date: Jun 13, 2024

North Approach - Kanata West Centre Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
07:00	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0
07:15	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	3
07:30	1	7	0	0	8	0	0	0	0	0	0	0	0	0	0	0
07:45	0	4	1	0	5	0	0	0	0	0	0	0	0	0	0	0
08:00	1	9	0	0	10	0	0	0	0	0	0	0	0	0	0	0
08:15	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0
08:30	0	10	0	0	10	1	0	0	0	1	0	0	0	0	0	0
08:45	0	6	1	0	7	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	2	49	2	0	53	1	0	0	0	1	0	0	0	0	0	3

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100001
Municipality: Ottawa
Count Date: Jun 13, 2024

North Approach - Kanata West Centre Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
16:00	0	9	1	0	10	0	0	0	0	0	0	0	0	0	0	0
16:15	0	7	2	0	9	0	0	0	0	0	0	0	0	0	0	1
16:30	0	5	1	0	6	0	1	0	0	1	0	0	0	0	0	0
16:45	0	3	2	0	5	0	0	0	0	0	0	0	0	0	0	0
17:00	0	15	2	0	17	0	0	0	0	0	0	0	0	0	0	3
17:15	0	8	1	0	9	0	0	0	0	0	0	0	0	0	0	0
17:30	0	5	3	0	8	0	0	0	0	0	0	0	0	0	0	0
17:45	1	13	0	0	14	0	0	0	0	0	0	0	0	0	0	3
SUBTOTAL	1	65	12	0	78	0	1	0	0	1	0	0	0	0	0	7
GRAND TOTAL	3	114	14	0	131	1	1	0	0	2	0	0	0	0	0	10

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100001
Municipality: Ottawa
Count Date: Jun 13, 2024

South Approach - Kanata West Centre Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	0	14	32	0	46	0	0	2	0	2	0	0	0	0	0	0
07:15	1	8	32	0	41	0	1	0	0	1	0	0	0	0	0	0
07:30	0	16	38	0	54	0	0	0	0	0	0	0	0	0	0	0
07:45	0	15	31	0	46	0	0	1	0	1	0	0	0	0	0	0
08:00	0	11	32	0	43	0	2	1	0	3	0	0	0	0	0	0
08:15	0	16	37	0	53	0	2	1	0	3	0	0	0	0	0	0
08:30	0	18	33	0	51	0	1	1	0	2	0	0	0	0	0	1
08:45	0	23	28	0	51	0	0	1	0	1	0	0	0	0	0	0
SUBTOTAL	1	121	263	0	385	0	6	7	0	13	0	0	0	0	0	1

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100001
Municipality: Ottawa
Count Date: Jun 13, 2024

South Approach - Kanata West Centre Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	0	14	55	0	69	0	0	0	0	0	0	0	0	0	0	0
16:15	0	9	56	0	65	0	0	0	0	0	0	0	0	0	0	0
16:30	0	16	48	0	64	0	0	0	0	0	0	0	0	0	0	0
16:45	0	12	65	0	77	0	0	1	0	1	0	0	0	0	0	0
17:00	0	12	46	0	58	0	0	1	0	1	0	0	0	0	0	0
17:15	2	10	43	0	55	0	0	0	0	0	0	0	0	0	0	0
17:30	0	16	56	0	72	0	0	1	0	1	0	0	0	0	0	0
17:45	2	15	34	0	51	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	4	104	403	0	511	0	0	3	0	3	0	0	0	0	0	0
GRAND TOTAL	5	225	666	0	896	0	6	10	0	16	0	0	0	0	0	1

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100001
Municipality: Ottawa
Count Date: Jun 13, 2024

East Approach - Cabela's Way

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	34	0	0	0	34	1	0	0	0	1	0	0	0	0	0	0
07:15	50	3	0	0	53	3	0	0	0	3	0	0	0	0	0	0
07:30	48	2	1	0	51	1	1	0	0	2	0	0	0	0	0	1
07:45	39	0	1	0	40	1	1	0	0	2	0	0	0	0	0	2
08:00	50	2	0	0	52	0	0	0	0	0	0	0	0	0	0	0
08:15	52	7	0	0	59	1	0	0	0	1	0	0	0	0	0	1
08:30	52	2	1	0	55	1	0	0	0	1	0	0	0	0	0	1
08:45	53	2	0	0	55	3	0	0	0	3	0	0	0	0	0	0
SUBTOTAL	378	18	3	0	399	11	2	0	0	13	0	0	0	0	0	5

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100001
Municipality: Ottawa
Count Date: Jun 13, 2024

East Approach - Cabela's Way

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	45	2	1	0	48	0	0	0	0	0	0	0	0	0	0	0
16:15	43	9	2	0	54	0	0	0	0	0	0	0	0	0	0	0
16:30	51	15	2	0	68	0	1	0	0	1	0	0	0	0	0	0
16:45	49	13	0	0	62	1	0	0	0	1	0	0	0	0	0	0
17:00	39	3	1	0	43	1	1	0	0	2	0	0	0	0	0	0
17:15	50	7	1	0	58	1	0	0	0	1	0	0	0	0	0	0
17:30	56	3	0	0	59	0	0	0	0	0	0	0	0	0	0	2
17:45	33	11	1	0	45	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	366	63	8	0	437	3	2	0	0	5	0	0	0	0	0	2
GRAND TOTAL	**744**	**81**	**11**	**0**	**836**	**14**	**4**	**0**	**0**	**18**	**0**	**0**	**0**	**0**	**0**	**7**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100001
Municipality: Ottawa
Count Date: Jun 13, 2024

West Approach - Cabela's Way

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
07:15	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0
07:30	3	0	3	0	6	0	3	0	0	3	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	5	3	4	0	12	0	3	0	0	3	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100001
Municipality: Ottawa
Count Date: Jun 13, 2024

West Approach - Cabela's Way

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
16:00	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0
16:15	2	5	1	0	8	0	0	0	0	0	0	0	0	0	0	0
16:30	0	9	2	0	11	0	0	0	0	0	0	0	0	0	0	0
16:45	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0
17:00	4	8	0	0	12	0	0	0	0	0	0	0	0	0	0	0
17:15	2	9	0	0	11	0	0	0	0	0	0	0	0	0	0	0
17:30	2	2	0	0	4	0	2	0	0	2	0	0	0	0	0	0
17:45	4	3	0	0	7	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	15	44	3	0	62	0	2	0	0	2	0	0	0	0	0	0
GRAND TOTAL	**20**	**47**	**7**	**0**	**74**	**0**	**5**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**

Peak Hour Diagram

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Specified Period		One Hour Peak	
From:	07:00:00	From:	08:00:00
To:	09:00:00	To:	09:00:00

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100001
Count Date: Jun 13, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Kanata West Centre Dr runs N/S

North Approach

	Out	In	Total
Cars	30	70	100
Trucks	1	5	6
Bicycles	0	0	0
	31	**75**	**106**

Kanata West Centre Dr

Bicycles	0	0	0	0
Trucks	0	0	1	0
Cars	1	28	1	0
Totals	**1**	**28**	**2**	**0**

East Approach

	Out	In	Total
Cars	221	133	354
Trucks	5	5	10
Bicycles	0	0	0
	226	**138**	**364**

Cabela's Way

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	0	1	**1**	
0	0	2	**2**	
0	0	0	**0**	

Peds: 0

Peds: 0

N
W E
S

Peds: 2

Cabela's Way

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	1	1	0	0
	13	13	0	0
	212	207	5	0

Peds: 1

West Approach

	Out	In	Total
Cars	3	14	17
Trucks	0	0	0
Bicycles	0	0	0
	3	**14**	**17**

Totals	**0**	**73**	**134**	**0**
Cars	0	68	130	0
Trucks	0	5	4	0
Bicycles	0	0	0	0

Kanata West Centre Dr

South Approach

	Out	In	Total
Cars	198	235	433
Trucks	9	5	14
Bicycles	0	0	0
	207	**240**	**447**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100001
Count Date: Jun 13, 2024
Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Kanata West Centre Dr						South Approach Kanata West Centre Dr						East Approach Cabela's Way						West Approach Cabela's Way						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:00	1	9	0	0	0	10	0	13	33	0	0	46	50	2	0	0	0	52	0	0	0	0	0	0	108
08:15	0	3	0	0	0	3	0	18	38	0	0	56	53	7	0	0	1	60	1	1	0	0	0	2	121
08:30	1	10	0	0	0	11	0	19	34	0	1	53	53	2	1	0	1	56	0	0	0	0	0	0	120
08:45	0	6	1	0	0	7	0	23	29	0	0	52	56	2	0	0	0	58	0	1	0	0	0	1	118
Grand Total	**2**	**28**	**1**	**0**	**0**	**31**	**0**	**73**	**134**	**0**	**1**	**207**	**212**	**13**	**1**	**0**	**2**	**226**	**1**	**2**	**0**	**0**	**0**	**3**	**467**
Approach %	6.5	90.3	3.2	0		-	0	35.3	64.7	0		-	93.8	5.8	0.4	0		-	33.3	66.7	0	0		-	
Totals %	0.4	6	0.2	0		6.6	0	15.6	28.7	0		44.3	45.4	2.8	0.2	0		48.4	0.2	0.4	0	0		0.6	
PHF	**0.5**	**0.7**	**0.25**	**0**		**0.7**	**0**	**0.79**	**0.88**	**0**		**0.92**	**0.95**	**0.46**	**0.25**	**0**		**0.94**	**0.25**	**0.5**	**0**	**0**		**0.38**	**0.96**
Cars	1	28	1	0		30	0	68	130	0		198	207	13	1	0		221	1	2	0	0		3	452
% Cars	50	100	100	0		96.8	0	93.2	97	0		95.7	97.6	100	100	0		97.8	100	100	0	0		100	96.8
Trucks	1	0	0	0		1	0	5	4	0		9	5	0	0	0		5	0	0	0	0		0	15
% Trucks	50	0	0	0		3.2	0	6.8	3	0		4.3	2.4	0	0	0		2.2	0	0	0	0		0	3.2
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					1	-					2	-					0	-	3
% Peds					0	-					33.3	-					66.7	-					0	-	

Peak Hour Diagram

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100001
Count Date: Jun 13, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Kanata West Centre Dr runs N/S

North Approach

	Out	In	Total
Cars	37	60	97
Trucks	1	0	1
Bicycles	0	0	0
	38	**60**	**98**

Kanata West Centre Dr

Bicycles	0	0	0	0
Trucks	0	1	0	0
Cars	7	30	0	0
Totals	**7**	**31**	**0**	**0**

East Approach

	Out	In	Total
Cars	227	243	470
Trucks	4	2	6
Bicycles	0	0	0
	231	**245**	**476**

Cabela's Way

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	0	6	**6**	
0	0	28	**28**	
0	0	3	**3**	

Peds: 4

Peds: 0



Peds: 0

Peds: 0

Cabela's Way

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	5	5	0	0
	42	40	2	0
	184	182	2	0

West Approach

	Out	In	Total
Cars	37	47	84
Trucks	0	2	2
Bicycles	0	0	0
	37	**49**	**86**

Kanata West Centre Dr

Totals	**0**	**49**	**217**	**0**
Cars	0	49	215	0
Trucks	0	0	2	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	264	215	479
Trucks	2	3	5
Bicycles	0	0	0
	266	**218**	**484**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100001
Count Date: Jun 13, 2024
Period: 16:00 - 18:00

Peak Hour Data (16:15 - 17:15)

Start Time	North Approach Kanata West Centre Dr						South Approach Kanata West Centre Dr						East Approach Cabela's Way						West Approach Cabela's Way						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:15	0	7	2	0	1	9	0	9	56	0	0	65	43	9	2	0	0	54	2	5	1	0	0	8	136
16:30	0	6	1	0	0	7	0	16	48	0	0	64	51	16	2	0	0	69	0	9	2	0	0	11	151
16:45	0	3	2	0	0	5	0	12	66	0	0	78	50	13	0	0	0	63	0	6	0	0	0	6	152
17:00	0	15	2	0	3	17	0	12	47	0	0	59	40	4	1	0	0	45	4	8	0	0	0	12	133
Grand Total	**0**	**31**	**7**	**0**	**4**	**38**	**0**	**49**	**217**	**0**	**0**	**266**	**184**	**42**	**5**	**0**	**0**	**231**	**6**	**28**	**3**	**0**	**0**	**37**	**572**
Approach %	0	81.6	18.4	0		-	0	18.4	81.6	0		-	79.7	18.2	2.2	0		-	16.2	75.7	8.1	0		-	
Totals %	0	5.4	1.2	0		6.6	0	8.6	37.9	0		46.5	32.2	7.3	0.9	0		40.4	1	4.9	0.5	0		6.5	
PHF	**0**	**0.52**	**0.88**	**0**		**0.56**	**0**	**0.77**	**0.82**	**0**		**0.85**	**0.9**	**0.66**	**0.63**	**0**		**0.84**	**0.38**	**0.78**	**0.38**	**0**		**0.77**	**0.94**
Cars	0	30	7	0		37	0	49	215	0		264	182	40	5	0		227	6	28	3	0		37	565
% Cars	0	96.8	100	0		97.4	0	100	99.1	0		99.2	98.9	95.2	100	0		98.3	100	100	100	0		100	98.8
Trucks	0	1	0	0		1	0	0	2	0		2	2	2	0	0		4	0	0	0	0		0	7
% Trucks	0	3.2	0	0		2.6	0	0	0.9	0		0.8	1.1	4.8	0	0		1.7	0	0	0	0		0	1.2
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					4	-					0	-					0	-					0	-	4
% Peds					100	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #24-271 - WPE Engineering Ltd

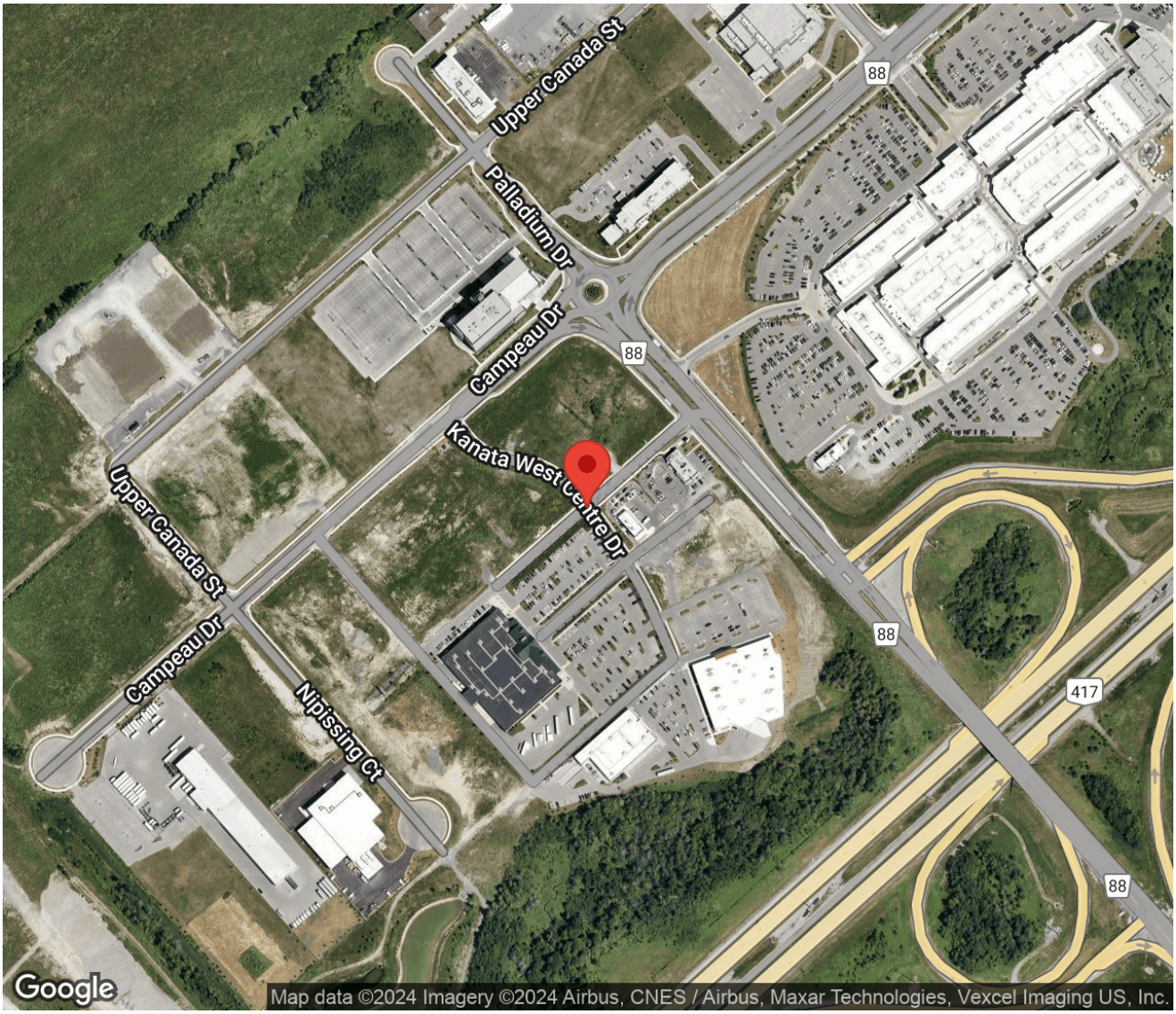
Intersection Count Report

Intersection:	Kanata West Centre Dr & Cabela's Way
Municipality:	Ottawa
Count Date:	Saturday, Jun 15, 2024
Site Code:	2427100002
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	15:00-16:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Kanata West Centre Dr & Cabela's Way
Site Code:	2427100002
Municipality:	Ottawa
Count Date:	Jun 15, 2024



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100002
Municipality: Ottawa
Count Date: Jun 15, 2024

Kanata West Centre Dr - Traffic Summary

Hour	North Approach Totals Includes Cars, Trucks, Bicycles						South Approach Totals Includes Cars, Trucks, Bicycles						Total
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
15:00 - 16:00	0	33	4	0	37	3	1	48	124	0	173	0	210
GRAND TOTAL	**0**	**33**	**4**	**0**	**37**	**3**	**1**	**48**	**124**	**0**	**173**	**0**	**210**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Kanata West Centre Dr & Cabela's Way
Site Code:	2427100002
Municipality:	Ottawa
Count Date:	Jun 15, 2024

Cabela's Way - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
15:00 - 16:00	154	5	2	0	161	2	2	16	2	0	20	0	181
GRAND TOTAL	**154**	**5**	**2**	**0**	**161**	**2**	**2**	**16**	**2**	**0**	**20**	**0**	**181**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100002
Municipality: Ottawa
Count Date: Jun 15, 2024

North Approach - Kanata West Centre Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
15:00	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0
15:15	0	9	1	0	10	0	1	0	0	1	0	0	0	0	0	2
15:30	0	10	2	0	12	0	0	0	0	0	0	0	0	0	0	1
15:45	0	5	1	0	6	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	32	4	0	36	0	1	0	0	1	0	0	0	0	0	3
GRAND TOTAL	0	32	4	0	36	0	1	0	0	1	0	0	0	0	0	3

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100002
Municipality: Ottawa
Count Date: Jun 15, 2024

South Approach - Kanata West Centre Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	0	12	28	0	40	0	0	1	0	1	0	0	0	0	0	0
15:15	0	8	26	0	34	0	0	0	0	0	0	0	0	0	0	0
15:30	1	14	35	0	50	0	1	2	0	3	0	0	0	0	0	0
15:45	0	13	32	0	45	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	1	47	121	0	169	0	1	3	0	4	0	0	0	0	0	0
GRAND TOTAL	**1**	**47**	**121**	**0**	**169**	**0**	**1**	**3**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100002
Municipality: Ottawa
Count Date: Jun 15, 2024

East Approach - Cabela's Way

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	28	0	0	0	28	2	0	0	0	2	0	0	0	0	0	0
15:15	43	1	0	0	44	1	1	0	0	2	0	0	0	0	0	1
15:30	39	2	2	0	43	1	1	0	0	2	0	0	0	0	0	1
15:45	39	0	0	0	39	1	0	0	0	1	0	0	0	0	0	0
SUBTOTAL	149	3	2	0	154	5	2	0	0	7	0	0	0	0	0	2
GRAND TOTAL	149	3	2	0	154	5	2	0	0	7	0	0	0	0	0	2

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100002
Municipality: Ottawa
Count Date: Jun 15, 2024

West Approach - Cabela's Way

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
15:00	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0
15:15	1	1	2	0	4	0	0	0	0	0	0	0	0	0	0	0
15:30	1	5	0	0	6	0	0	0	0	0	0	0	0	0	0	0
15:45	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	2	16	2	0	20	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL	2	16	2	0	20	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Diagram

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Specified Period		One Hour Peak	
From:	15:00:00	From:	15:00:00
To:	16:00:00	To:	16:00:00

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100002
Count Date: Jun 15, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Kanata West Centre Dr runs N/S

North Approach

	Out	In	Total
Cars	36	51	87
Trucks	1	1	2
Bicycles	0	0	0
	37	**52**	**89**

Kanata West Centre Dr

Bicycles	0	0	0	0
Trucks	0	1	0	0
Cars	4	32	0	0
Totals	**4**	**33**	**0**	**0**

East Approach

	Out	In	Total
Cars	154	137	291
Trucks	7	3	10
Bicycles	0	0	0
	161	**140**	**301**

Cabela's Way

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	2	**2**
0	0	16	**16**
0	0	2	**2**

Peds: 3

Peds: 0



Peds: 2

Peds: 0

Cabela's Way

Totals	Cars	Trucks	Bicycles
0	0	0	0
2	2	0	0
5	3	2	0
154	149	5	0

West Approach

	Out	In	Total
Cars	20	8	28
Trucks	0	2	2
Bicycles	0	0	0
	20	**10**	**30**

Kanata West Centre Dr

Totals	**1**	**48**	**124**	**0**
Cars	1	47	121	0
Trucks	0	1	3	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	169	183	352
Trucks	4	6	10
Bicycles	0	0	0
	173	**189**	**362**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Kanata West Centre Dr & Cabela's Way
Site Code: 2427100002
Count Date: Jun 15, 2024
Period: 15:00 - 16:00

Peak Hour Data (15:00 - 16:00)

Start Time	North Approach Kanata West Centre Dr						South Approach Kanata West Centre Dr						East Approach Cabela's Way						West Approach Cabela's Way						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
15:00	0	8	0	0	0	8	0	12	29	0	0	41	30	0	0	0	0	30	0	4	0	0	0	4	83
15:15	0	10	1	0	2	11	0	8	26	0	0	34	44	2	0	0	1	46	1	1	2	0	0	4	95
15:30	0	10	2	0	1	12	1	15	37	0	0	53	40	3	2	0	1	45	1	5	0	0	0	6	116
15:45	0	5	1	0	0	6	0	13	32	0	0	45	40	0	0	0	0	40	0	6	0	0	0	6	97
Grand Total	**0**	**33**	**4**	**0**	**3**	**37**	**1**	**48**	**124**	**0**	**0**	**173**	**154**	**5**	**2**	**0**	**2**	**161**	**2**	**16**	**2**	**0**	**0**	**20**	**391**
Approach %	0	89.2	10.8	0		-	0.6	27.7	71.7	0		-	95.7	3.1	1.2	0		-	10	80	10	0		-	
Totals %	0	8.4	1	0		9.5	0.3	12.3	31.7	0		44.2	39.4	1.3	0.5	0		41.2	0.5	4.1	0.5	0		5.1	
PHF	**0**	**0.83**	**0.5**	**0**		**0.77**	**0.25**	**0.8**	**0.84**	**0**		**0.82**	**0.88**	**0.42**	**0.25**	**0**		**0.88**	**0.5**	**0.67**	**0.25**	**0**		**0.83**	**0.84**
Cars	0	32	4	0		36	1	47	121	0		169	149	3	2	0		154	2	16	2	0		20	379
% Cars	0	97	100	0		97.3	100	97.9	97.6	0		97.7	96.8	60	100	0		95.7	100	100	100	0		100	96.9
Trucks	0	1	0	0		1	0	1	3	0		4	5	2	0	0		7	0	0	0	0		0	12
% Trucks	0	3	0	0		2.7	0	2.1	2.4	0		2.3	3.2	40	0	0		4.3	0	0	0	0		0	3.1
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					3	-					0	-					2	-					0	-	5
% Peds					60	-					0	-					40	-					0	-	

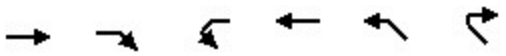
Appendix E

Synchro and Sidra Reports (Existing Condition)



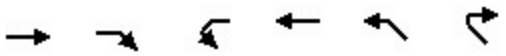
Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	31	5	26	65	3	72
Future Volume (vph)	31	5	26	65	3	72
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.980				0.870	
Flt Protected			0.950		0.998	
Satd. Flow (prot)	1710	0	1658	1745	1515	0
Flt Permitted			0.950		0.998	
Satd. Flow (perm)	1710	0	1658	1745	1515	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	265.4			178.7	158.4	
Travel Time (s)	19.1			12.9	11.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	34	6	29	72	3	80
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	0	29	72	83	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.7%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	0.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			15.0		15.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.980				0.870	
Flt Protected			0.950		0.998	
Satd. Flow (prot)	1710	0	1658	1745	1515	0
Flt Permitted			0.950		0.998	
Satd. Flow (perm)	1710	0	1658	1745	1515	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	265.4			178.7	158.4	
Travel Time (s)	19.1			12.9	11.2	

Intersection Summary	
Area Type:	Other



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	31	5	26	65	3	72
Future Volume (Veh/h)	31	5	26	65	3	72
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	34	6	29	72	3	80
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			40		167	37
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			40		167	37
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		100	92
cM capacity (veh/h)			1570		808	1035

Direction, Lane #	EB 1	WB 1	WB 2	NW 1
Volume Total	40	29	72	83
Volume Left	0	29	0	3
Volume Right	6	0	0	80
cSH	1700	1570	1700	1025
Volume to Capacity	0.02	0.02	0.04	0.08
Queue Length 95th (m)	0.0	0.4	0.0	2.0
Control Delay (s/veh)	0.0	7.3	0.0	8.8
Lane LOS		A		A
Approach Delay (s/veh)	0.0	2.1		8.8
Approach LOS				A

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	19.7%	ICU Level of Service	A
Analysis Period (min)	15		

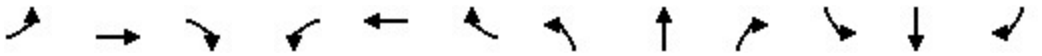
Intersection	
Int Delay, s/veh	4.2

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	31	5	26	65	3	72
Future Vol, veh/h	31	5	26	65	3	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	6	29	72	3	80

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	40	0	167	37
Stage 1	-	-	-	-	37	-
Stage 2	-	-	-	-	130	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1570	-	823	1035
Stage 1	-	-	-	-	985	-
Stage 2	-	-	-	-	896	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1570	-	808	1035
Mov Cap-2 Maneuver	-	-	-	-	808	-
Stage 1	-	-	-	-	985	-
Stage 2	-	-	-	-	880	-

Approach	EB	WB	NW
HCM Control Delay, s/v	0	2.1	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1023	-	-	1570	-
HCM Lane V/C Ratio	0.081	-	-	0.018	-
HCM Control Delay (s/veh)	8.8	-	-	7.3	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

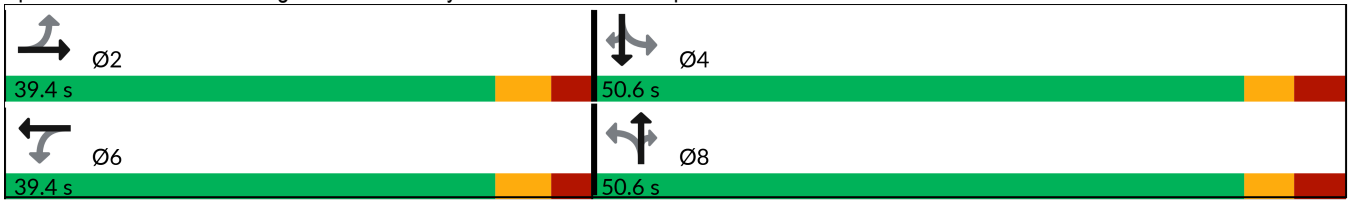


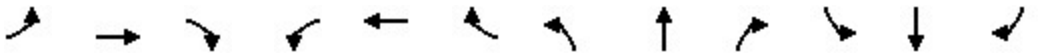
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	143	19	30	239	12	4	0	16	4	0	2
Future Volume (vph)	11	143	19	30	239	12	4	0	16	4	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.99			0.99		0.98	0.99		0.97
Frt		0.982			0.993				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3154	0	1658	3203	0	1658	1745	1401	1658	1745	1483
Flt Permitted	0.580			0.638			0.757			0.757		
Satd. Flow (perm)	1012	3154	0	1110	3203	0	1310	1745	1383	1320	1745	1454
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			6				613			428
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	
Confl. Peds. (#/hr)			3	3			10		1	1		10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	5%	5%	2%	5%	2%	2%	2%	8%	2%	2%	2%
Adj. Flow (vph)	12	159	21	33	266	13	4	0	18	4	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	180	0	33	279	0	4	0	18	4	0	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm		Perm	Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		6	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	39.4	39.4		39.4	39.4		39.8	39.8	39.8	39.8	39.8	39.8
Total Split (s)	39.4	39.4		39.4	39.4		50.6	50.6	50.6	50.6	50.6	50.6
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.2%	56.2%	56.2%	56.2%	56.2%	56.2%
Maximum Green (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7		2.7	2.7		3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		26.0	26.0	26.0	26.0	26.0	26.0
Pedestrian Calls (#/hr)	3	3		0	0		1	1	1	10	10	10
Act Effct Green (s)	14.5	14.5		14.5	14.5		44.4		44.4	44.4		44.4
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.61		0.61	0.61		0.61
v/c Ratio	0.05	0.27		0.14	0.43		0.00		0.01	0.00		0.00
Control Delay (s/veh)	21.9	21.9		23.7	25.9		8.7		0.0	8.7		0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Total Delay (s/veh)	21.9	21.9		23.7	25.9		8.7		0.0	8.7		0.0
LOS	C	C		C	C		A		A	A		A
Approach Delay (s/veh)		21.9			25.7			1.6			5.8	
Approach LOS		C			C			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 72.3			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay (s/veh): 23.1		Intersection LOS: C	
Intersection Capacity Utilization 62.7%		ICU Level of Service B	
Analysis Period (min) 15			

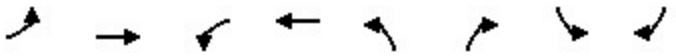
Splits and Phases: 3: Tanger Outlet/Journeyman & Cambrian/Campeau





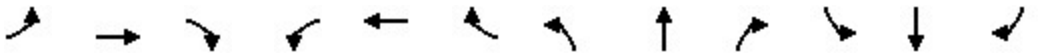
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.99			0.99		0.98	0.99		0.97
Frt		0.982			0.993				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3154	0	1658	3203	0	1658	1745	1401	1658	1745	1483
Flt Permitted	0.580			0.638			0.757			0.757		
Satd. Flow (perm)	1012	3154	0	1110	3203	0	1310	1745	1383	1320	1745	1454
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			6				613			428
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	

Intersection Summary	
Area Type:	Other



Lane Group	EBL	EBT	WBL	WBT	NBL	NBR	SBL	SBR
Lane Group Flow (vph)	12	180	33	279	4	18	4	2
v/c Ratio	0.05	0.27	0.14	0.43	0.00	0.01	0.00	0.00
Control Delay (s/veh)	21.9	21.9	23.7	25.9	8.7	0.0	8.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.9	21.9	23.7	25.9	8.7	0.0	8.7	0.0
Queue Length 50th (m)	1.3	9.6	3.7	16.9	0.2	0.0	0.2	0.0
Queue Length 95th (m)	4.9	16.7	9.8	26.0	2.0	0.0	2.0	0.0
Internal Link Dist (m)		316.8		140.3				
Turn Bay Length (m)	45.0		50.0		24.5		50.0	
Base Capacity (vph)	468	1468	513	1485	804	1085	810	1057
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.12	0.06	0.19	0.00	0.02	0.00	0.00

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	143	19	30	239	12	4	0	16	4	0	2
Future Volume (vph)	11	143	19	30	239	12	4	0	16	4	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.4	6.4		6.4	6.4		6.8		6.8	6.8		6.8
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00		0.98	1.00		0.98
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99		1.00	0.99		1.00
Frt	1.00	0.98		1.00	0.99		1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)	1658	3156		1654	3203		1647		1383	1657		1456
Flt Permitted	0.58	1.00		0.63	1.00		0.75		1.00	0.75		1.00
Satd. Flow (perm)	1013	3156		1111	3203		1313		1383	1321		1456
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	12	159	21	33	266	13	4	0	18	4	0	2
RTOR Reduction (vph)	0	14	0	0	5	0	0	0	7	0	0	1
Lane Group Flow (vph)	12	166	0	33	274	0	4	0	11	4	0	1
Confl. Peds. (#/hr)			3	3			10		1	1		10
Heavy Vehicles (%)	2%	5%	5%	2%	5%	2%	2%	2%	8%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm		Perm	Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	14.5	14.5		14.5	14.5		44.4		44.4	44.4		44.4
Effective Green, g (s)	14.5	14.5		14.5	14.5		44.4		44.4	44.4		44.4
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.62		0.62	0.62		0.62
Clearance Time (s)	6.4	6.4		6.4	6.4		6.8		6.8	6.8		6.8
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	203	634		223	644		808		851	813		896
v/s Ratio Prot		0.05			c0.09							
v/s Ratio Perm	0.01			0.03			0.00		c0.01	0.00		0.00
v/c Ratio	0.05	0.26		0.14	0.42		0.00		0.01	0.00		0.00
Uniform Delay, d1	23.2	24.2		23.7	25.1		5.3		5.3	5.3		5.3
Progression Factor	1.00	1.00		1.00	1.00		1.00		1.00	1.00		1.00
Incremental Delay, d2	0.1	0.2		0.3	0.4		0.0		0.0	0.0		0.0
Delay (s)	23.4	24.5		24.0	25.6		5.3		5.3	5.3		5.3
Level of Service	C	C		C	C		A		A	A		A
Approach Delay (s/veh)		24.4			25.4			5.3			5.3	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.11		
Actuated Cycle Length (s)	72.1	Sum of lost time (s)	13.2
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	2	28	1	0	73	134	1	2	0	212	13	1
Future Volume (vph)	2	28	1	0	73	134	1	2	0	212	13	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.912						0.999	
Flt Protected		0.997						0.984			0.955	
Satd. Flow (prot)	0	1714	0	0	1555	0	0	1752	0	0	1667	0
Flt Permitted		0.997						0.984			0.955	
Satd. Flow (perm)	0	1714	0	0	1555	0	0	1752	0	0	1667	0
Link Speed (k/h)		50			50			30			30	
Link Distance (m)		158.4			160.3			193.4			130.2	
Travel Time (s)		11.0			8.3			23.2			17.0	
Confl. Peds. (#/hr)	2					2			1	1		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	50%	0%	0%	0%	7%	3%	0%	0%	0%	2%	0%	0%
Adj. Flow (vph)	2	29	1	0	76	140	1	2	0	221	14	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	32	0	0	216	0	0	3	0	0	236	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.4%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		1	1		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.912						0.999	
Flt Protected		0.997						0.984			0.955	
Satd. Flow (prot)	0	1714	0	0	1555	0	0	1752	0	0	1667	0
Flt Permitted		0.997						0.984			0.955	
Satd. Flow (perm)	0	1714	0	0	1555	0	0	1752	0	0	1667	0
Link Speed (k/h)		50			50			30			30	
Link Distance (m)		158.4			160.3			193.4			130.2	
Travel Time (s)		11.0			8.3			23.2			17.0	

Intersection Summary	
Area Type:	Other

Intersection has too many legs for HCM analysis.

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	2	28	1	0	73	134	1	2	0	212	13	1
Future Vol, veh/h	2	28	1	0	73	134	1	2	0	212	13	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	50	0	0	0	7	3	0	0	0	2	0	0
Mvmt Flow	2	29	1	0	76	140	1	2	0	221	14	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	SE	NW	NE	SW
Opposing Approach	NW	SE	SW	NE
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SW	NE	SE	NW
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NE	SW	NW	SE
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.9	8.8	7.9	9.8
HCM LOS	A	A	A	A

Lane	NELn1	NWLn1	SELn1	SWLn1
Vol Left, %	33%	0%	6%	94%
Vol Thru, %	67%	35%	90%	6%
Vol Right, %	0%	65%	3%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	3	207	31	226
LT Vol	1	0	2	212
Through Vol	2	73	28	13
RT Vol	0	134	1	1
Lane Flow Rate	3	216	32	235
Geometry Grp	1	1	1	1
Degree of Util (X)	0.004	0.256	0.05	0.307
Departure Headway (Hd)	4.821	4.266	5.577	4.688
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	741	843	643	767
Service Time	2.859	2.286	3.607	2.715
HCM Lane V/C Ratio	0.004	0.256	0.05	0.306
HCM Control Delay, s/veh	7.9	8.8	8.9	9.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	1	0.2	1.3



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	138	161	405	316	65
Future Volume (vph)	0	138	161	405	316	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0	0.0	115.0			0.0
Storage Lanes	0	1	1			0
Taper Length (m)	15.0		15.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.865			0.974	
Flt Protected			0.950			
Satd. Flow (prot)	0	1510	1658	3252	2921	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	1510	1658	3252	2921	0
Link Speed (k/h)	30			60	60	
Link Distance (m)	130.2			213.7	149.4	
Travel Time (s)	12.4			12.8	9.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	4%	15%	2%
Adj. Flow (vph)	0	153	179	450	351	72
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	153	179	450	423	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	27.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)	0.0	0.0	115.0			0.0
Storage Lanes	0	1	1			0
Taper Length (m)	15.0		15.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.974	
Flt Protected			0.950			
Satd. Flow (prot)	0	1510	1658	3252	2921	0
Flt Permitted			0.950			
Satd. Flow (perm)	0	1510	1658	3252	2921	0
Link Speed (k/h)	30			60	60	
Link Distance (m)	130.2			213.7	149.4	
Travel Time (s)	12.4			12.8	9.0	

Intersection Summary	
Area Type:	Other



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	138	161	405	316	65
Future Volume (Veh/h)	0	138	161	405	316	65
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	153	179	450	351	72
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				214		
pX, platoon unblocked						
vC, conflicting volume	970	212	423			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	970	212	423			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	81	84			
cM capacity (veh/h)	211	794	1133			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	153	179	225	225	234	189
Volume Left	0	179	0	0	0	0
Volume Right	153	0	0	0	0	72
cSH	794	1133	1700	1700	1700	1700
Volume to Capacity	0.19	0.16	0.13	0.13	0.14	0.11
Queue Length 95th (m)	5.4	4.3	0.0	0.0	0.0	0.0
Control Delay (s/veh)	10.6	8.8	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s/veh)	10.6	2.5			0.0	
Approach LOS	B					

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	27.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	138	161	405	316	65
Future Vol, veh/h	0	138	161	405	316	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	115	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	4	15	2
Mvmt Flow	0	153	179	450	351	72

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	212	423	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	793	1133	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	793	1133	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	10.6	2.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1133	-	793	-	-
HCM Lane V/C Ratio	0.158	-	0.193	-	-
HCM Control Delay (s/veh)	8.8	-	10.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.6	-	0.7	-	-

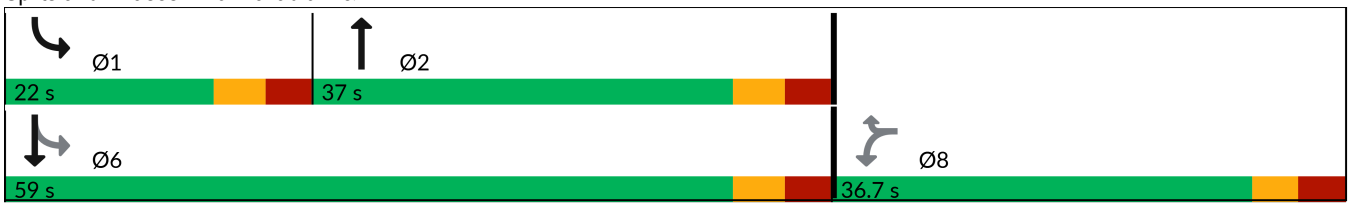


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	155	336	227	0	187	264
Future Volume (vph)	155	336	227	0	187	264
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor		0.98			0.99	
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3095	1469	3191	0	1510	2842
Flt Permitted	0.950				0.398	
Satd. Flow (perm)	3095	1450	3191	0	631	2842
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		373				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		413.8			213.7
Travel Time (s)	6.0		21.3			12.8
Confl. Peds. (#/hr)		1		2	2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	3%	6%	11%	12%	19%
Adj. Flow (vph)	172	373	252	0	208	293
Shared Lane Traffic (%)						
Lane Group Flow (vph)	172	373	252	0	208	293
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	15.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		5.0	10.0
Minimum Split (s)	33.0	33.0	39.0		12.1	17.0
Total Split (s)	36.7	36.7	37.0		22.0	59.0
Total Split (%)	38.3%	38.3%	38.7%		23.0%	61.7%
Maximum Green (s)	30.0	30.0	30.0		15.0	52.0
Yellow Time (s)	3.3	3.3	3.7		3.7	3.7
All-Red Time (s)	3.4	3.4	3.3		3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	7.0		7.0	7.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		None	None
Walk Time (s)	7.0	7.0	7.0			
Flash Dont Walk (s)	19.0	19.0	25.0			
Pedestrian Calls (#/hr)	1	1	2			
Act Effct Green (s)	12.7	12.7	13.5		31.1	31.1
Actuated g/C Ratio	0.22	0.22	0.23		0.53	0.53
v/c Ratio	0.25	0.61	0.34		0.42	0.19
Control Delay (s/veh)	21.3	7.9	20.3		10.5	7.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	21.3	7.9	20.3		10.5	7.6
LOS	C	A	C		B	A
Approach Delay (s/veh)	12.1		20.3			8.9
Approach LOS	B		C			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 58.4			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay (s/veh): 12.5		Intersection LOS: B	
Intersection Capacity Utilization 46.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: Palladium & WB HWY 417





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%		0%			0%
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor		0.98			0.99	
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3095	1469	3191	0	1510	2842
Flt Permitted	0.950				0.398	
Satd. Flow (perm)	3095	1450	3191	0	631	2842
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		373				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		413.8			213.7
Travel Time (s)	6.0		21.3			12.8

Intersection Summary	
Area Type:	Other



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	172	373	252	208	293
v/c Ratio	0.25	0.61	0.34	0.42	0.19
Control Delay (s/veh)	21.3	7.9	20.3	10.5	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.3	7.9	20.3	10.5	7.6
Queue Length 50th (m)	6.7	0.0	10.3	9.0	6.4
Queue Length 95th (m)	20.2	21.0	26.1	28.9	18.5
Internal Link Dist (m)	143.3		389.8		189.7
Turn Bay Length (m)		125.0		115.0	
Base Capacity (vph)	1698	964	1765	576	2601
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	0.39	0.14	0.36	0.11

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	155	336	227	0	187	264
Future Volume (vph)	155	336	227	0	187	264
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.7	6.7	7.0		7.0	7.0
Lane Util. Factor	0.97	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		0.99	1.00
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3095	1450	3191		1509	2842
Flt Permitted	0.95	1.00	1.00		0.39	1.00
Satd. Flow (perm)	3095	1450	3191		632	2842
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	172	373	252	0	208	293
RTOR Reduction (vph)	0	291	0	0	0	0
Lane Group Flow (vph)	172	82	252	0	208	293
Confl. Peds. (#/hr)		1		2	2	
Heavy Vehicles (%)	6%	3%	6%	11%	12%	19%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	12.7	12.7	14.1		31.1	31.1
Effective Green, g (s)	12.7	12.7	14.1		31.1	31.1
Actuated g/C Ratio	0.22	0.22	0.25		0.54	0.54
Clearance Time (s)	6.7	6.7	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	683	320	782		494	1537
v/s Ratio Prot			0.08		c0.07	0.10
v/s Ratio Perm	0.06	c0.06			c0.15	
v/c Ratio	0.25	0.25	0.32		0.42	0.19
Uniform Delay, d1	18.4	18.5	17.7		7.5	6.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	0.4	0.2		0.5	0.0
Delay (s)	18.6	18.9	18.0		8.1	6.8
Level of Service	B	B	B		A	A
Approach Delay (s/veh)	18.8		18.0			7.3
Approach LOS	B		B			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	57.5	Sum of lost time (s)	20.7
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	108	256	0	201	314	0
Future Volume (vph)	108	256	0	201	314	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	0.905					
Flt Protected	0.985					
Satd. Flow (prot)	1529	0	0	3131	3283	0
Flt Permitted	0.985					
Satd. Flow (perm)	1529	0	0	3131	3283	0
Link Speed (k/h)	100			70	70	
Link Distance (m)	299.5			189.0	413.8	
Travel Time (s)	10.8			9.7	21.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	2%	2%	8%	3%	2%
Adj. Flow (vph)	120	284	0	223	349	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	404	0	0	223	349	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.8%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)	0.0	0.0	0.0			0.0
Storage Lanes	1	0	0			0
Taper Length (m)	15.0		15.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt	0.905					
Flt Protected	0.985					
Satd. Flow (prot)	1529	0	0	3131	3283	0
Flt Permitted	0.985					
Satd. Flow (perm)	1529	0	0	3131	3283	0
Link Speed (k/h)	100			70	70	
Link Distance (m)	299.5			189.0	413.8	
Travel Time (s)	10.8			9.7	21.6	

Intersection Summary	
Area Type:	Other



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	108	256	0	201	314	0
Future Volume (Veh/h)	108	256	0	201	314	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	120	284	0	223	349	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	461	175	349			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	461	175	349			
tC, single (s)	7.0	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	77	66	100			
cM capacity (veh/h)	515	839	1207			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	404	112	112	175	175
Volume Left	120	0	0	0	0
Volume Right	284	0	0	0	0
cSH	706	1700	1700	1700	1700
Volume to Capacity	0.57	0.07	0.07	0.10	0.10
Queue Length 95th (m)	27.8	0.0	0.0	0.0	0.0
Control Delay (s/veh)	16.7	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s/veh)	16.7	0.0		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay	6.9			
Intersection Capacity Utilization	38.8%	ICU Level of Service		A
Analysis Period (min)	15			

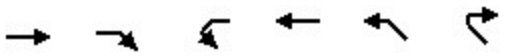
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	108	256	0	201	314	0
Future Vol, veh/h	108	256	0	201	314	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	8	2	2	8	3	2
Mvmt Flow	120	284	0	223	349	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	461	-	-	0	-	0
Stage 1	349	-	-	-	-	-
Stage 2	112	-	-	-	-	-
Critical Hdwy	6.96	-	-	-	-	-
Critical Hdwy Stg 1	5.96	-	-	-	-	-
Critical Hdwy Stg 2	5.96	-	-	-	-	-
Follow-up Hdwy	3.58	-	-	-	-	-
Pot Cap-1 Maneuver	514	0	0	-	-	0
Stage 1	668	0	0	-	-	0
Stage 2	883	0	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	514	-	-	-	-	-
Mov Cap-2 Maneuver	514	-	-	-	-	-
Stage 1	668	-	-	-	-	-
Stage 2	883	-	-	-	-	-

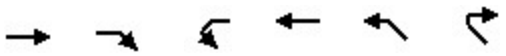
Approach	EB	NB	SB
HCM Control Delay, s/v	14.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	514	-
HCM Lane V/C Ratio	-	0.233	-
HCM Control Delay (s/veh)	-	14.1	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	0.9	-



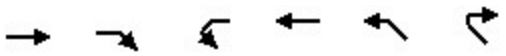
Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	18	1	37	17	2	58
Future Volume (vph)	18	1	37	17	2	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.869	
Flt Protected			0.950		0.998	
Satd. Flow (prot)	1735	0	1658	1745	1513	0
Flt Permitted			0.950		0.998	
Satd. Flow (perm)	1735	0	1658	1745	1513	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	20	1	41	19	2	64
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	41	19	66	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.4%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	0.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			15.0		15.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.994				0.869	
Flt Protected			0.950		0.998	
Satd. Flow (prot)	1735	0	1658	1745	1513	0
Flt Permitted			0.950		0.998	
Satd. Flow (perm)	1735	0	1658	1745	1513	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	

Intersection Summary	
Area Type:	Other



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	18	1	37	17	2	58
Future Volume (Veh/h)	18	1	37	17	2	58
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	20	1	41	19	2	64
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			21		122	21
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			21		122	21
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	94
cM capacity (veh/h)			1595		851	1057

Direction, Lane #	EB 1	WB 1	WB 2	NW 1
Volume Total	21	41	19	66
Volume Left	0	41	0	2
Volume Right	1	0	0	64
cSH	1700	1595	1700	1049
Volume to Capacity	0.01	0.03	0.01	0.06
Queue Length 95th (m)	0.0	0.6	0.0	1.5
Control Delay (s/veh)	0.0	7.3	0.0	8.7
Lane LOS		A		A
Approach Delay (s/veh)	0.0	5.0		8.7
Approach LOS				A

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	19.4%	ICU Level of Service	A
Analysis Period (min)	15		

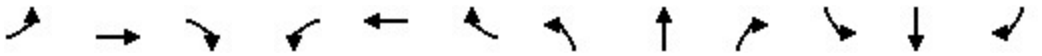
Intersection	
Int Delay, s/veh	6

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	18	1	37	17	2	58
Future Vol, veh/h	18	1	37	17	2	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	1	41	19	2	64

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	21	0	122	21
Stage 1	-	-	-	-	21	-
Stage 2	-	-	-	-	101	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1595	-	873	1056
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	923	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1595	-	850	1056
Mov Cap-2 Maneuver	-	-	-	-	850	-
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	899	-

Approach	EB	WB	NW
HCM Control Delay, s/v	0	5	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1048	-	-	1595	-
HCM Lane V/C Ratio	0.064	-	-	0.026	-
HCM Control Delay (s/veh)	8.7	-	-	7.3	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

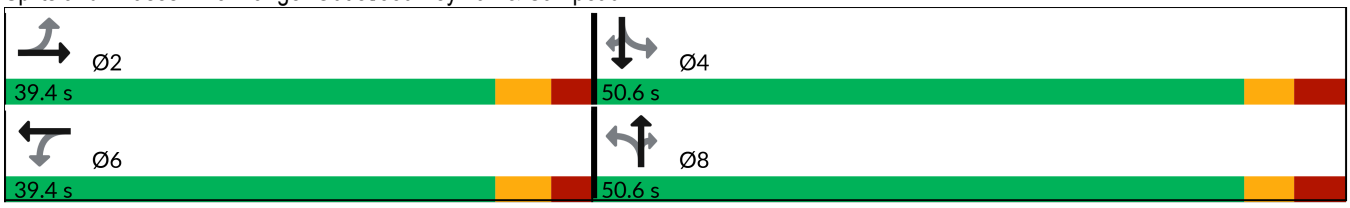


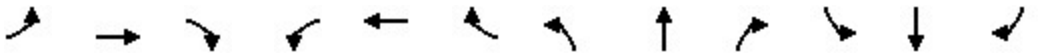
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	315	15	85	209	6	40	0	81	11	0	7
Future Volume (vph)	14	315	15	85	209	6	40	0	81	11	0	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.993			0.996				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3292	0	1658	3271	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.603			0.515			0.757			0.757		
Satd. Flow (perm)	1052	3292	0	899	3271	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			4				316			483
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	
Confl. Peds. (#/hr)							5					5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	16	350	17	94	232	7	44	0	90	12	0	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	367	0	94	239	0	44	0	90	12	0	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm		Perm	Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		6	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	39.4	39.4		39.4	39.4		39.8	39.8	39.8	39.8	39.8	39.8
Total Split (s)	39.4	39.4		39.4	39.4		50.6	50.6	50.6	50.6	50.6	50.6
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.2%	56.2%	56.2%	56.2%	56.2%	56.2%
Maximum Green (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7		2.7	2.7		3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		26.0	26.0	26.0	26.0	26.0	26.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	5	5	5
Act Effct Green (s)	13.6	13.6		13.6	13.6		43.9		43.9	43.9		43.9
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.62		0.62	0.62		0.62
v/c Ratio	0.07	0.57		0.54	0.37		0.05		0.08	0.01		0.00
Control Delay (s/veh)	23.6	29.1		38.1	25.9		6.4		0.1	6.3		0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Total Delay (s/veh)	23.6	29.1		38.1	25.9		6.4		0.1	6.3		0.0
LOS	C	C		D	C		A		A	A		A
Approach Delay (s/veh)		28.9			29.4			2.2			3.8	
Approach LOS		C			C			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 70.7			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay (s/veh): 24.4		Intersection LOS: C	
Intersection Capacity Utilization 61.9%		ICU Level of Service B	
Analysis Period (min) 15			

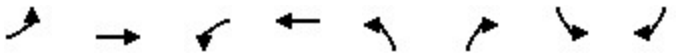
Splits and Phases: 3: Tanger Outlet/Journeyman & Campeau





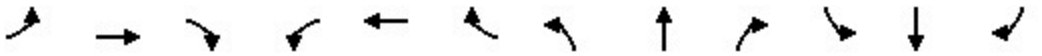
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.993			0.996				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3292	0	1658	3271	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.603			0.515			0.757			0.757		
Satd. Flow (perm)	1052	3292	0	899	3271	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			4				316			483
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	

Intersection Summary	
Area Type:	Other



Lane Group	EBL	EBT	WBL	WBT	NBL	NBR	SBL	SBR
Lane Group Flow (vph)	16	367	94	239	44	90	12	8
v/c Ratio	0.07	0.57	0.54	0.37	0.05	0.08	0.01	0.00
Control Delay (s/veh)	23.6	29.1	38.1	25.9	6.4	0.1	6.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	23.6	29.1	38.1	25.9	6.4	0.1	6.3	0.0
Queue Length 50th (m)	1.8	23.0	11.3	14.3	1.9	0.0	0.5	0.0
Queue Length 95th (m)	6.3	34.9	24.9	23.5	6.5	0.0	2.7	0.0
Internal Link Dist (m)		316.8		140.3				
Turn Bay Length (m)	45.0		50.0		24.5		50.0	
Base Capacity (vph)	492	1543	420	1532	808	1040	820	1089
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.24	0.22	0.16	0.05	0.09	0.01	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	315	15	85	209	6	40	0	81	11	0	7
Future Volume (vph)	14	315	15	85	209	6	40	0	81	11	0	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.4	6.4		6.4	6.4		6.8		6.8	6.8		6.8
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00		1.00	1.00		0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99		1.00	1.00		1.00
Frt	1.00	0.99		1.00	0.99		1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)	1658	3293		1658	3270		1636		1483	1658		1461
Flt Permitted	0.60	1.00		0.51	1.00		0.75		1.00	0.75		1.00
Satd. Flow (perm)	1053	3293		899	3270		1304		1483	1321		1461
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	16	350	17	94	232	7	44	0	90	12	0	8
RTOR Reduction (vph)	0	5	0	0	3	0	0	0	34	0	0	3
Lane Group Flow (vph)	16	362	0	94	236	0	44	0	56	12	0	5
Confl. Peds. (#/hr)							5					5
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm		Perm	Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	13.6	13.6		13.6	13.6		43.9		43.9	43.9		43.9
Effective Green, g (s)	13.6	13.6		13.6	13.6		43.9		43.9	43.9		43.9
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.62		0.62	0.62		0.62
Clearance Time (s)	6.4	6.4		6.4	6.4		6.8		6.8	6.8		6.8
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	202	633		172	629		809		920	820		907
v/s Ratio Prot		c0.11			0.07							
v/s Ratio Perm	0.02			0.10			0.03		c0.04	0.01		0.00
v/c Ratio	0.07	0.57		0.54	0.37		0.05		0.06	0.01		0.00
Uniform Delay, d1	23.4	25.9		25.7	24.8		5.2		5.2	5.1		5.0
Progression Factor	1.00	1.00		1.00	1.00		1.00		1.00	1.00		1.00
Incremental Delay, d2	0.1	1.2		3.5	0.3		0.1		0.1	0.0		0.0
Delay (s)	23.5	27.1		29.2	25.2		5.3		5.4	5.1		5.1
Level of Service	C	C		C	C		A		A	A		A
Approach Delay (s/veh)		27.0			26.3			5.3			5.1	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	70.7	Sum of lost time (s)	13.2
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	31	7	0	49	217	6	28	3	184	42	5
Future Volume (vph)	0	31	7	0	49	217	6	28	3	184	42	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.976			0.890			0.990			0.997	
Flt Protected								0.992			0.962	
Satd. Flow (prot)	0	1695	0	0	1571	0	0	1748	0	0	1678	0
Flt Permitted								0.992			0.962	
Satd. Flow (perm)	0	1695	0	0	1571	0	0	1748	0	0	1678	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	
Confl. Peds. (#/hr)							4					4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	3%	0%	0%	0%	1%	0%	0%	0%	1%	5%	0%
Adj. Flow (vph)	0	33	7	0	52	231	6	30	3	196	45	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	40	0	0	283	0	0	39	0	0	246	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.976			0.890			0.990			0.997	
Flt Protected								0.992			0.962	
Satd. Flow (prot)	0	1695	0	0	1571	0	0	1748	0	0	1678	0
Flt Permitted								0.992			0.962	
Satd. Flow (perm)	0	1695	0	0	1571	0	0	1748	0	0	1678	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	

Intersection Summary	
Area Type:	Other

Intersection has too many legs for HCM analysis.

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	31	7	0	49	217	6	28	3	184	42	5
Future Vol, veh/h	0	31	7	0	49	217	6	28	3	184	42	5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	0	0	0	1	0	0	0	1	5	0
Mvmt Flow	0	33	7	0	52	231	6	30	3	196	45	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	SE	NW	NE	SW
Opposing Approach	NW	SE	SW	NE
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SW	NE	SE	NW
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NE	SW	NW	SE
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.2	9.2	8.2	10.2
HCM LOS	A	A	A	B

Lane	NELn1	NWLn1	SELn1	SWLn1
Vol Left, %	16%	0%	0%	80%
Vol Thru, %	76%	18%	82%	18%
Vol Right, %	8%	82%	18%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	37	266	38	231
LT Vol	6	0	0	184
Through Vol	28	49	31	42
RT Vol	3	217	7	5
Lane Flow Rate	39	283	40	246
Geometry Grp	1	1	1	1
Degree of Util (X)	0.054	0.328	0.055	0.328
Departure Headway (Hd)	4.898	4.171	4.864	4.81
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	727	860	734	745
Service Time	2.955	2.199	2.91	2.858
HCM Lane V/C Ratio	0.054	0.329	0.054	0.33
HCM Control Delay, s/veh	8.2	9.2	8.2	10.2
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.2	1.4	0.2	1.4



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	141	479	420	90	0	245
Future Volume (vph)	141	479	420	90	0	245
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.974			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3229	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3229	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	157	532	467	100	0	272
Shared Lane Traffic (%)						
Lane Group Flow (vph)	157	532	567	0	0	272
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.0%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.974			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3229	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3229	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	

Intersection Summary	
Area Type:	Other



Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	141	479	420	90	0	245
Future Volume (Veh/h)	141	479	420	90	0	245
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	157	532	467	100	0	272
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		214				
pX, platoon unblocked						
vC, conflicting volume	567				1097	284
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	567				1097	284
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	84				100	62
cM capacity (veh/h)	1001				175	713

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	NE 1
Volume Total	157	266	266	311	256	272
Volume Left	157	0	0	0	0	0
Volume Right	0	0	0	0	100	272
cSH	1001	1700	1700	1700	1700	713
Volume to Capacity	0.16	0.16	0.16	0.18	0.15	0.38
Queue Length 95th (m)	4.2	0.0	0.0	0.0	0.0	13.6
Control Delay (s/veh)	9.3	0.0	0.0	0.0	0.0	13.1
Lane LOS	A					B
Approach Delay (s/veh)	2.1			0.0		13.1
Approach LOS						B

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	38.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.3

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	141	479	420	90	0	245
Future Vol, veh/h	141	479	420	90	0	245
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	157	532	467	100	0	272

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	567	0	-	0	-	284
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	-	3.32
Pot Cap-1 Maneuver	1001	-	-	-	0	713
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1001	-	-	-	-	713
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	NB	SB	NE
HCM Control Delay, s/v	2.1	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NBL	NBT	SBT	SBR
Capacity (veh/h)	713	1001	-	-	-
HCM Lane V/C Ratio	0.382	0.157	-	-	-
HCM Control Delay (s/veh)	13.1	9.3	-	-	-
HCM Lane LOS	B	A	-	-	-
HCM 95th %tile Q(veh)	1.8	0.6	-	-	-

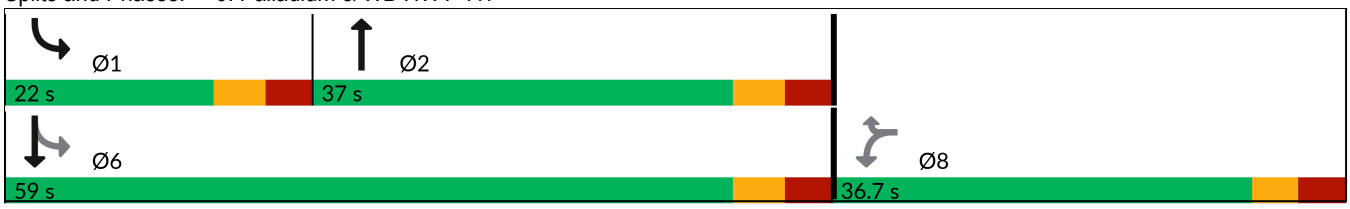


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	274	310	310	0	280	383
Future Volume (vph)	274	310	310	0	280	383
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.345	
Satd. Flow (perm)	3185	1483	3191	0	602	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		344				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Adj. Flow (vph)	304	344	344	0	311	426
Shared Lane Traffic (%)						
Lane Group Flow (vph)	304	344	344	0	311	426
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	15.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases	8	8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		5.0	10.0
Minimum Split (s)	33.0	33.0	39.0		12.1	17.0
Total Split (s)	36.7	36.7	37.0		22.0	59.0
Total Split (%)	38.3%	38.3%	38.7%		23.0%	61.7%
Maximum Green (s)	30.0	30.0	30.0		15.0	52.0
Yellow Time (s)	3.3	3.3	3.7		3.7	3.7
All-Red Time (s)	3.4	3.4	3.3		3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	7.0		7.0	7.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		None	None
Walk Time (s)	7.0	7.0	7.0			
Flash Dont Walk (s)	19.0	19.0	25.0			
Pedestrian Calls (#/hr)	0	0	0			
Act Effct Green (s)	11.7	11.7	12.0		30.6	30.6
Actuated g/C Ratio	0.21	0.21	0.21		0.55	0.55
v/c Ratio	0.45	0.59	0.50		0.57	0.23
Control Delay (s/veh)	22.7	7.7	23.0		11.8	7.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	22.7	7.7	23.0		11.8	7.1
LOS	C	A	C		B	A
Approach Delay (s/veh)	14.8		23.1			9.1
Approach LOS	B		C			A

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 56.1			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay (s/veh): 14.0		Intersection LOS: B	
Intersection Capacity Utilization 51.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: Palladium & WB HWY 417





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%		0%			0%
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.345	
Satd. Flow (perm)	3185	1483	3191	0	602	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		344				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8

Intersection Summary	
Area Type:	Other



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	304	344	344	311	426
v/c Ratio	0.45	0.59	0.50	0.57	0.23
Control Delay (s/veh)	22.7	7.7	23.0	11.8	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.7	7.7	23.0	11.8	7.1
Queue Length 50th (m)	13.8	0.0	15.9	15.1	10.1
Queue Length 95th (m)	26.7	18.0	30.5	32.4	19.3
Internal Link Dist (m)	143.3		396.7		189.7
Turn Bay Length (m)		125.0		115.0	
Base Capacity (vph)	1724	960	1727	613	3024
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.36	0.20	0.51	0.14

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	274	310	310	0	280	383
Future Volume (vph)	274	310	310	0	280	383
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.7	6.7	7.0		7.0	7.0
Lane Util. Factor	0.97	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3185	1483	3191		1658	3283
Flt Permitted	0.95	1.00	1.00		0.34	1.00
Satd. Flow (perm)	3185	1483	3191		603	3283
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	304	344	344	0	311	426
RTOR Reduction (vph)	0	272	0	0	0	0
Lane Group Flow (vph)	304	72	344	0	311	426
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	11.7	11.7	12.1		30.6	30.6
Effective Green, g (s)	11.7	11.7	12.1		30.6	30.6
Actuated g/C Ratio	0.21	0.21	0.22		0.55	0.55
Clearance Time (s)	6.7	6.7	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	665	309	689		546	1793
v/s Ratio Prot			0.11		c0.12	0.13
v/s Ratio Perm	c0.10	0.05			c0.19	
v/c Ratio	0.45	0.23	0.49		0.56	0.23
Uniform Delay, d1	19.3	18.4	19.2		7.7	6.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.5	0.3	0.5		1.3	0.0
Delay (s)	19.8	18.8	19.8		9.1	6.6
Level of Service	B	B	B		A	A
Approach Delay (s/veh)	19.3		19.8			7.7
Approach LOS	B		B			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	56.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	125	152	0	525	528	0
Future Volume (vph)	125	152	0	525	528	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	0.926					
Flt Protected	0.978					
Satd. Flow (prot)	1567	0	0	3316	3252	0
Flt Permitted	0.978					
Satd. Flow (perm)	1567	0	0	3316	3252	0
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	2%	2%	2%	4%	3%
Adj. Flow (vph)	139	169	0	583	587	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	308	0	0	583	587	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.2%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)	0.0	0.0	0.0			0.0
Storage Lanes	1	0	0			0
Taper Length (m)	15.0		15.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt	0.926					
Flt Protected	0.978					
Satd. Flow (prot)	1567	0	0	3316	3252	0
Flt Permitted	0.978					
Satd. Flow (perm)	1567	0	0	3316	3252	0
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	

Intersection Summary	
Area Type:	Other



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	125	152	0	525	528	0
Future Volume (Veh/h)	125	152	0	525	528	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	139	169	0	583	587	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	879	294	587			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	879	294	587			
tC, single (s)	6.9	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	51	76	100			
cM capacity (veh/h)	283	703	984			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	308	292	292	294	294
Volume Left	139	0	0	0	0
Volume Right	169	0	0	0	0
cSH	421	1700	1700	1700	1700
Volume to Capacity	0.73	0.17	0.17	0.17	0.17
Queue Length 95th (m)	44.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	33.5	0.0	0.0	0.0	0.0
Lane LOS	D				
Approach Delay (s/veh)	33.5	0.0		0.0	
Approach LOS	D				

Intersection Summary				
Average Delay	7.0			
Intersection Capacity Utilization	39.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	125	152	0	525	528	0
Future Vol, veh/h	125	152	0	525	528	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	4	2	2	2	4	3
Mvmt Flow	139	169	0	583	587	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	879	-	-	0	-	0
Stage 1	587	-	-	-	-	-
Stage 2	292	-	-	-	-	-
Critical Hdwy	6.88	-	-	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	-	-	-	-	-
Pot Cap-1 Maneuver	283	0	0	-	-	0
Stage 1	513	0	0	-	-	0
Stage 2	726	0	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	283	-	-	-	-	-
Mov Cap-2 Maneuver	283	-	-	-	-	-
Stage 1	513	-	-	-	-	-
Stage 2	726	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	29.4	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	283	-
HCM Lane V/C Ratio	-	0.491	-
HCM Control Delay (s/veh)	-	29.4	-
HCM Lane LOS	-	D	-
HCM 95th %tile Q(veh)	-	2.5	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	11	1	72	5	4	138
Future Volume (vph)	11	1	72	5	4	138
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990				0.868	
Flt Protected			0.950		0.999	
Satd. Flow (prot)	1728	0	1658	1745	1513	0
Flt Permitted			0.950		0.999	
Satd. Flow (perm)	1728	0	1658	1745	1513	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	156.0	
Travel Time (s)	15.9			10.7	11.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	12	1	80	6	4	153
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	80	6	157	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.8%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	0.0		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			15.0		15.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.990				0.868	
Flt Protected			0.950		0.999	
Satd. Flow (prot)	1728	0	1658	1745	1513	0
Flt Permitted			0.950		0.999	
Satd. Flow (perm)	1728	0	1658	1745	1513	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	156.0	
Travel Time (s)	15.9			10.7	11.2	

Intersection Summary	
Area Type:	Other



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	11	1	72	5	4	138
Future Volume (Veh/h)	11	1	72	5	4	138
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	12	1	80	6	4	153
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			13		179	13
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			13		179	13
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		99	86
cM capacity (veh/h)			1606		771	1068

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	13	80	6	157
Volume Left	0	80	0	4
Volume Right	1	0	0	153
cSH	1700	1606	1700	1058
Volume to Capacity	0.01	0.05	0.00	0.15
Queue Length 95th (m)	0.0	1.2	0.0	4.0
Control Delay (s/veh)	0.0	7.4	0.0	9.0
Lane LOS		A		A
Approach Delay (s/veh)	0.0	6.8		9.0
Approach LOS				A

Intersection Summary			
Average Delay	7.8		
Intersection Capacity Utilization	26.8%	ICU Level of Service	A
Analysis Period (min)	15		

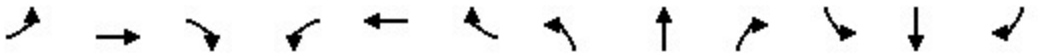
Intersection	
Int Delay, s/veh	7.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	11	1	72	5	4	138
Future Vol, veh/h	11	1	72	5	4	138
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	1	80	6	4	153

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	13	0	179	13
Stage 1	-	-	-	-	13	-
Stage 2	-	-	-	-	166	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1606	-	811	1067
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	863	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1606	-	770	1067
Mov Cap-2 Maneuver	-	-	-	-	770	-
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	820	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	6.9	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1056	-	-	1606	-
HCM Lane V/C Ratio	0.149	-	-	0.05	-
HCM Control Delay (s/veh)	9	-	-	7.4	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

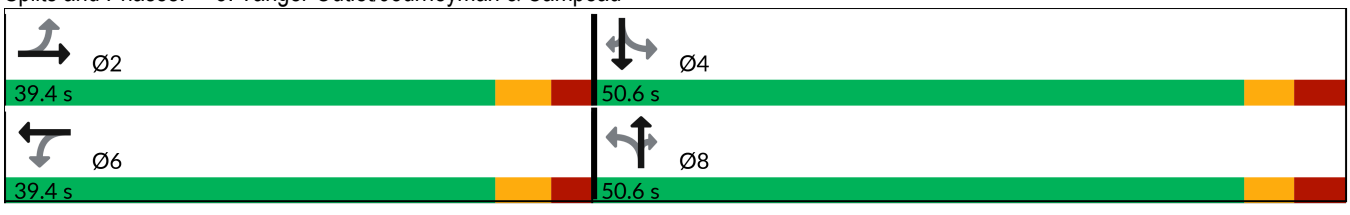


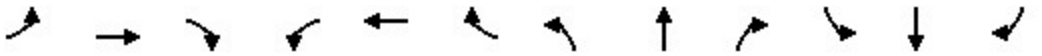
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	264	181	220	190	3	155	1	234	1	2	9
Future Volume (vph)	24	264	181	220	190	3	155	1	234	1	2	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99	0.99		0.98		0.98	0.99		0.97
Frt		0.939			0.998				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3085	0	1658	3308	0	1658	1745	1483	1658	1745	1483
Flt Permitted	0.618			0.422			0.757			0.757		
Satd. Flow (perm)	1077	3085	0	735	3308	0	1305	1745	1463	1319	1745	1448
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		201			2				260			41
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	
Confl. Peds. (#/hr)	1		2	2		1	15		2	2		15
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	293	201	244	211	3	172	1	260	1	2	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	494	0	244	214	0	172	1	260	1	2	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		6	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	39.4	39.4		39.4	39.4		39.8	39.8	39.8	39.8	39.8	39.8
Total Split (s)	39.4	39.4		39.4	39.4		50.6	50.6	50.6	50.6	50.6	50.6
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.2%	56.2%	56.2%	56.2%	56.2%	56.2%
Maximum Green (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7		2.7	2.7		3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		26.0	26.0	26.0	26.0	26.0	26.0
Pedestrian Calls (#/hr)	2	2		1	1		2	2	2	15	15	15
Act Effct Green (s)	31.0	31.0		31.0	31.0		43.9	43.9	43.9	43.9	43.9	43.9
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.50	0.50	0.50	0.50	0.50	0.50
v/c Ratio	0.07	0.40		0.94	0.18		0.26	0.00	0.30	0.00	0.00	0.01
Control Delay (s/veh)	19.2	13.2		73.9	19.8		14.8	12.0	2.7	12.0	12.0	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.2	13.2		73.9	19.8		14.8	12.0	2.7	12.0	12.0	0.0
LOS	B	B		E	B		B	B	A	B	B	A
Approach Delay (s/veh)		13.6			48.6			7.6			2.8	
Approach LOS		B			D			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 88.1			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay (s/veh): 22.9		Intersection LOS: C	
Intersection Capacity Utilization 71.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: Tanger Outlet/Journeyman & Campeau





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99	0.99		0.98		0.98	0.99		0.97
Frt		0.939			0.998				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3085	0	1658	3308	0	1658	1745	1483	1658	1745	1483
Flt Permitted	0.618			0.422			0.757			0.757		
Satd. Flow (perm)	1077	3085	0	735	3308	0	1305	1745	1463	1319	1745	1448
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		201			2				260			41
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	

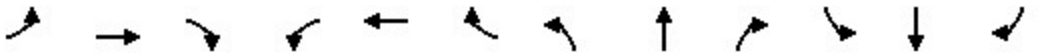
Intersection Summary	
Area Type:	Other



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	27	494	244	214	172	1	260	1	2	10
v/c Ratio	0.07	0.40	0.94	0.18	0.26	0.00	0.30	0.00	0.00	0.01
Control Delay (s/veh)	19.2	13.2	73.9	19.8	14.8	12.0	2.7	12.0	12.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.2	13.2	73.9	19.8	14.8	12.0	2.7	12.0	12.0	0.0
Queue Length 50th (m)	3.0	18.3	39.4	12.8	16.8	0.1	0.0	0.1	0.2	0.0
Queue Length 95th (m)	8.4	30.7	#84.0	20.5	29.9	0.9	11.6	0.9	1.3	0.0
Internal Link Dist (m)		316.8		140.3		49.2			97.1	
Turn Bay Length (m)	45.0		50.0		24.5			50.0		
Base Capacity (vph)	403	1282	275	1242	650	869	858	656	869	741
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.39	0.89	0.17	0.26	0.00	0.30	0.00	0.00	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	264	181	220	190	3	155	1	234	1	2	9
Future Volume (vph)	24	264	181	220	190	3	155	1	234	1	2	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.98	1.00	1.00	0.97
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.98	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.93		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1656	3085		1656	3308		1638	1745	1463	1655	1745	1448
Flt Permitted	0.61	1.00		0.42	1.00		0.75	1.00	1.00	0.75	1.00	1.00
Satd. Flow (perm)	1077	3085		736	3308		1304	1745	1463	1319	1745	1448
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	27	293	201	244	211	3	172	1	260	1	2	10
RTOR Reduction (vph)	0	130	0	0	1	0	0	0	130	0	0	5
Lane Group Flow (vph)	27	364	0	244	213	0	172	1	130	1	2	5
Confl. Peds. (#/hr)	1		2	2		1	15		2	2		15
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	31.0	31.0		31.0	31.0		43.9	43.9	43.9	43.9	43.9	43.9
Effective Green, g (s)	31.0	31.0		31.0	31.0		43.9	43.9	43.9	43.9	43.9	43.9
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.50	0.50	0.50	0.50	0.50	0.50
Clearance Time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	378	1085		258	1163		649	869	729	657	869	721
v/s Ratio Prot		0.12			0.06			0.00			0.00	
v/s Ratio Perm	0.03			c0.33			c0.13		0.09	0.00		0.00
v/c Ratio	0.07	0.33		0.94	0.18		0.26	0.00	0.17	0.00	0.00	0.00
Uniform Delay, d1	18.9	20.9		27.7	19.7		12.7	11.0	12.1	11.0	11.1	11.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	0.1		41.0	0.0		0.9	0.0	0.5	0.0	0.0	0.0
Delay (s)	19.0	21.1		68.7	19.8		13.7	11.0	12.6	11.1	11.1	11.1
Level of Service	B	C		E	B		B	B	B	B	B	B
Approach Delay (s/veh)		21.0			45.9			13.1			11.1	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	88.1	Sum of lost time (s)	13.2
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	1	48	124	0	33	4	2	16	2	154	5	2
Future Volume (vph)	1	48	124	0	33	4	2	16	2	154	5	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.903			0.987			0.988			0.998	
Flt Protected								0.995			0.954	
Satd. Flow (prot)	0	1576	0	0	1711	0	0	1750	0	0	1626	0
Flt Permitted								0.995			0.954	
Satd. Flow (perm)	0	1576	0	0	1711	0	0	1750	0	0	1626	0
Link Speed (k/h)		30			30			30			30	
Link Distance (m)		166.3			156.0			205.9			133.5	
Travel Time (s)		12.0			11.2			14.8			9.6	
Confl. Peds. (#/hr)			2	2			3					3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	2%	2%	0%	3%	0%	0%	0%	0%	3%	40%	0%
Adj. Flow (vph)	1	53	138	0	37	4	2	18	2	171	6	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	192	0	0	41	0	0	22	0	0	179	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.7%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.903			0.987			0.988			0.998	
Flt Protected								0.995			0.954	
Satd. Flow (prot)	0	1576	0	0	1711	0	0	1750	0	0	1626	0
Flt Permitted								0.995			0.954	
Satd. Flow (perm)	0	1576	0	0	1711	0	0	1750	0	0	1626	0
Link Speed (k/h)		30			30			30			30	
Link Distance (m)		166.3			156.0			205.9			133.5	
Travel Time (s)		12.0			11.2			14.8			9.6	

Intersection Summary	
Area Type:	Other

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	48	124	0	33	4	2	16	2	154	5	2
Future Volume (vph)	1	48	124	0	33	4	2	16	2	154	5	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	53	138	0	37	4	2	18	2	171	6	2

Direction, Lane #	NB 1	SB 1	NE 1	SW 1
Volume Total (vph)	192	41	22	179
Volume Left (vph)	1	0	2	171
Volume Right (vph)	138	4	2	2
Hadj (s)	-0.40	-0.01	-0.04	0.26
Departure Headway (s)	4.1	4.6	4.6	4.7
Degree Utilization, x	0.22	0.05	0.03	0.23
Capacity (veh/h)	846	731	732	727
Control Delay (s/veh)	8.2	7.8	7.7	9.1
Approach Delay (s/veh)	8.2	7.8	7.7	9.1
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.5			
Level of Service	A			
Intersection Capacity Utilization	34.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	1	48	124	0	33	4	2	16	2	154	5	2
Future Vol, veh/h	1	48	124	0	33	4	2	16	2	154	5	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	2	2	0	3	0	0	0	0	3	40	0
Mvmt Flow	1	53	138	0	37	4	2	18	2	171	6	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	NB	SB	NE	SW
Opposing Approach	SB	NB	SW	NE
Opposing Lanes	1	1	1	1
Conflicting Approach Left	NE	SW	SB	NB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	SW	NE	NB	SB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.1	7.8	7.7	9.1
HCM LOS	A	A	A	A

Lane	NELn1	NBLn1	SBLn1	SWLn1
Vol Left, %	10%	1%	0%	96%
Vol Thru, %	80%	28%	89%	3%
Vol Right, %	10%	72%	11%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	173	37	161
LT Vol	2	1	0	154
Through Vol	16	48	33	5
RT Vol	2	124	4	2
Lane Flow Rate	22	192	41	179
Geometry Grp	1	1	1	1
Degree of Util (X)	0.028	0.214	0.052	0.232
Departure Headway (Hd)	4.57	4.008	4.573	4.676
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	784	898	784	773
Service Time	2.596	2.024	2.595	2.676
HCM Lane V/C Ratio	0.028	0.214	0.052	0.232
HCM Control Delay, s/veh	7.7	8.1	7.8	9.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.8	0.2	0.9



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	295	741	520	123	0	387
Future Volume (vph)	295	741	520	123	0	387
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.971			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3220	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3220	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		133.5	
Travel Time (s)		12.8	9.0		9.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	328	823	578	137	0	430
Shared Lane Traffic (%)						
Lane Group Flow (vph)	328	823	715	0	0	430
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.0	7.0		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.3%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	1			0	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.971			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3220	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3220	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		133.5	
Travel Time (s)		12.8	9.0		9.6	

Intersection Summary	
Area Type:	Other



Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	295	741	520	123	0	387
Future Volume (Veh/h)	295	741	520	123	0	387
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	328	823	578	137	0	430
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		214				
pX, platoon unblocked						
vC, conflicting volume	715				1714	358
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	715				1714	358
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	63				100	33
cM capacity (veh/h)	881				51	639

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	NE 1
Volume Total	328	412	412	385	330	430
Volume Left	328	0	0	0	0	0
Volume Right	0	0	0	0	137	430
cSH	881	1700	1700	1700	1700	639
Volume to Capacity	0.37	0.24	0.24	0.23	0.19	0.67
Queue Length 95th (m)	13.2	0.0	0.0	0.0	0.0	39.2
Control Delay (s/veh)	11.5	0.0	0.0	0.0	0.0	21.4
Lane LOS	B					C
Approach Delay (s/veh)	3.3			0.0		21.4
Approach LOS						C

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	5.7

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	295	741	520	123	0	387
Future Vol, veh/h	295	741	520	123	0	387
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	328	823	578	137	0	430

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	715	0	-	0	-	358
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	-	3.32
Pot Cap-1 Maneuver	881	-	-	-	0	638
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	881	-	-	-	-	638
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	NB	SB	NE
HCM Control Delay, s/v	3.3	0	21.5
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NBL	NBT	SBT	SBR
Capacity (veh/h)	638	881	-	-	-
HCM Lane V/C Ratio	0.674	0.372	-	-	-
HCM Control Delay (s/veh)	21.5	11.5	-	-	-
HCM Lane LOS	C	B	-	-	-
HCM 95th %tile Q(veh)	5.2	1.7	-	-	-

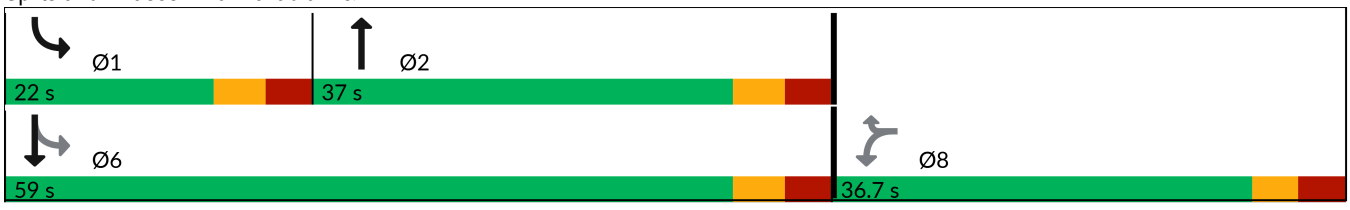


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	218	687	308	0	218	680
Future Volume (vph)	218	687	308	0	218	680
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor		0.98			0.99	
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3216	1483	3316	0	1658	3316
Flt Permitted	0.950				0.379	
Satd. Flow (perm)	3216	1464	3316	0	660	3316
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		539				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8
Confl. Peds. (#/hr)		1			2	
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	242	763	342	0	242	756
Shared Lane Traffic (%)						
Lane Group Flow (vph)	242	763	342	0	242	756
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	15.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		5.0	10.0
Minimum Split (s)	33.0	33.0	39.0		12.1	17.0
Total Split (s)	36.7	36.7	37.0		22.0	59.0
Total Split (%)	38.3%	38.3%	38.7%		23.0%	61.7%
Maximum Green (s)	30.0	30.0	30.0		15.0	52.0
Yellow Time (s)	3.3	3.3	3.7		3.7	3.7
All-Red Time (s)	3.4	3.4	3.3		3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	7.0		7.0	7.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		None	None
Walk Time (s)	7.0	7.0	7.0			
Flash Dont Walk (s)	19.0	19.0	25.0			
Pedestrian Calls (#/hr)	1	1	2			
Act Effct Green (s)	24.3	24.3	15.5		35.0	35.0
Actuated g/C Ratio	0.33	0.33	0.21		0.47	0.47
v/c Ratio	0.22	0.90	0.48		0.50	0.48
Control Delay (s/veh)	19.7	23.8	29.0		16.6	14.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	19.7	23.8	29.0		16.6	14.7
LOS	B	C	C		B	B
Approach Delay (s/veh)	22.8		29.0			15.2
Approach LOS	C		C			B

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 73.7			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay (s/veh): 20.5		Intersection LOS: C	
Intersection Capacity Utilization 65.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Palladium & WB HWY 417





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%		0%			0%
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor		0.98			0.99	
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3216	1483	3316	0	1658	3316
Flt Permitted	0.950				0.379	
Satd. Flow (perm)	3216	1464	3316	0	660	3316
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		539				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8

Intersection Summary	
Area Type:	Other



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	242	763	342	242	756
v/c Ratio	0.22	0.90	0.48	0.50	0.48
Control Delay (s/veh)	19.7	23.8	29.0	16.6	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.7	23.8	29.0	16.6	14.7
Queue Length 50th (m)	11.5	26.0	24.4	22.6	41.1
Queue Length 95th (m)	26.9	#131.1	36.6	36.2	54.0
Internal Link Dist (m)	143.3		396.7		189.7
Turn Bay Length (m)		125.0		115.0	
Base Capacity (vph)	1377	935	1433	527	2450
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.82	0.24	0.46	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	218	687	308	0	218	680
Future Volume (vph)	218	687	308	0	218	680
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.7	6.7	7.0		7.0	7.0
Lane Util. Factor	0.97	1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		0.99	1.00
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3216	1464	3316		1657	3316
Flt Permitted	0.95	1.00	1.00		0.37	1.00
Satd. Flow (perm)	3216	1464	3316		661	3316
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	242	763	342	0	242	756
RTOR Reduction (vph)	0	360	0	0	0	0
Lane Group Flow (vph)	242	403	342	0	242	756
Confl. Peds. (#/hr)		1			2	
Confl. Bikes (#/hr)				1		
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	24.3	24.3	15.9		35.0	35.0
Effective Green, g (s)	24.3	24.3	15.9		35.0	35.0
Actuated g/C Ratio	0.33	0.33	0.22		0.48	0.48
Clearance Time (s)	6.7	6.7	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	1070	487	722		482	1589
v/s Ratio Prot			0.10		0.08	c0.23
v/s Ratio Perm	0.08	c0.28			c0.16	
v/c Ratio	0.22	0.82	0.47		0.50	0.47
Uniform Delay, d1	17.5	22.4	24.9		12.0	12.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	11.1	0.4		0.8	0.2
Delay (s)	17.6	33.5	25.3		12.8	13.0
Level of Service	B	C	C		B	B
Approach Delay (s/veh)	29.7		25.3			12.9
Approach LOS	C		C			B

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	167	181	0	327	375	0
Future Volume (vph)	167	181	0	327	375	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	0.930					
Flt Protected	0.977					
Satd. Flow (prot)	1586	0	0	3316	3316	0
Flt Permitted	0.977					
Satd. Flow (perm)	1586	0	0	3316	3316	0
Link Speed (k/h)	100			70	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			9.7	21.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	186	201	0	363	417	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	387	0	0	363	417	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.1%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)	0.0	0.0	0.0			0.0
Storage Lanes	1	0	0			0
Taper Length (m)	15.0		15.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt	0.930					
Flt Protected	0.977					
Satd. Flow (prot)	1586	0	0	3316	3316	0
Flt Permitted	0.977					
Satd. Flow (perm)	1586	0	0	3316	3316	0
Link Speed (k/h)	100			70	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			9.7	21.6	

Intersection Summary	
Area Type:	Other



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	167	181	0	327	375	0
Future Volume (Veh/h)	167	181	0	327	375	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	186	201	0	363	417	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	599	209	417			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	599	209	417			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	57	75	100			
cM capacity (veh/h)	433	797	1138			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	387	182	182	209	209
Volume Left	186	0	0	0	0
Volume Right	201	0	0	0	0
cSH	568	1700	1700	1700	1700
Volume to Capacity	0.68	0.11	0.11	0.12	0.12
Queue Length 95th (m)	39.6	0.0	0.0	0.0	0.0
Control Delay (s/veh)	23.8	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s/veh)	23.8	0.0		0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	7.9		
Intersection Capacity Utilization	39.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	167	181	0	327	375	0
Future Vol, veh/h	167	181	0	327	375	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	186	201	0	363	417	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	599	-	-	0	-	0
Stage 1	417	-	-	-	-	-
Stage 2	182	-	-	-	-	-
Critical Hdwy	6.84	-	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	-	-	-	-	-
Pot Cap-1 Maneuver	433	0	0	-	-	0
Stage 1	633	0	0	-	-	0
Stage 2	831	0	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	433	-	-	-	-	-
Mov Cap-2 Maneuver	433	-	-	-	-	-
Stage 1	633	-	-	-	-	-
Stage 2	831	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	19.4	0	0
HCM LOS	C		

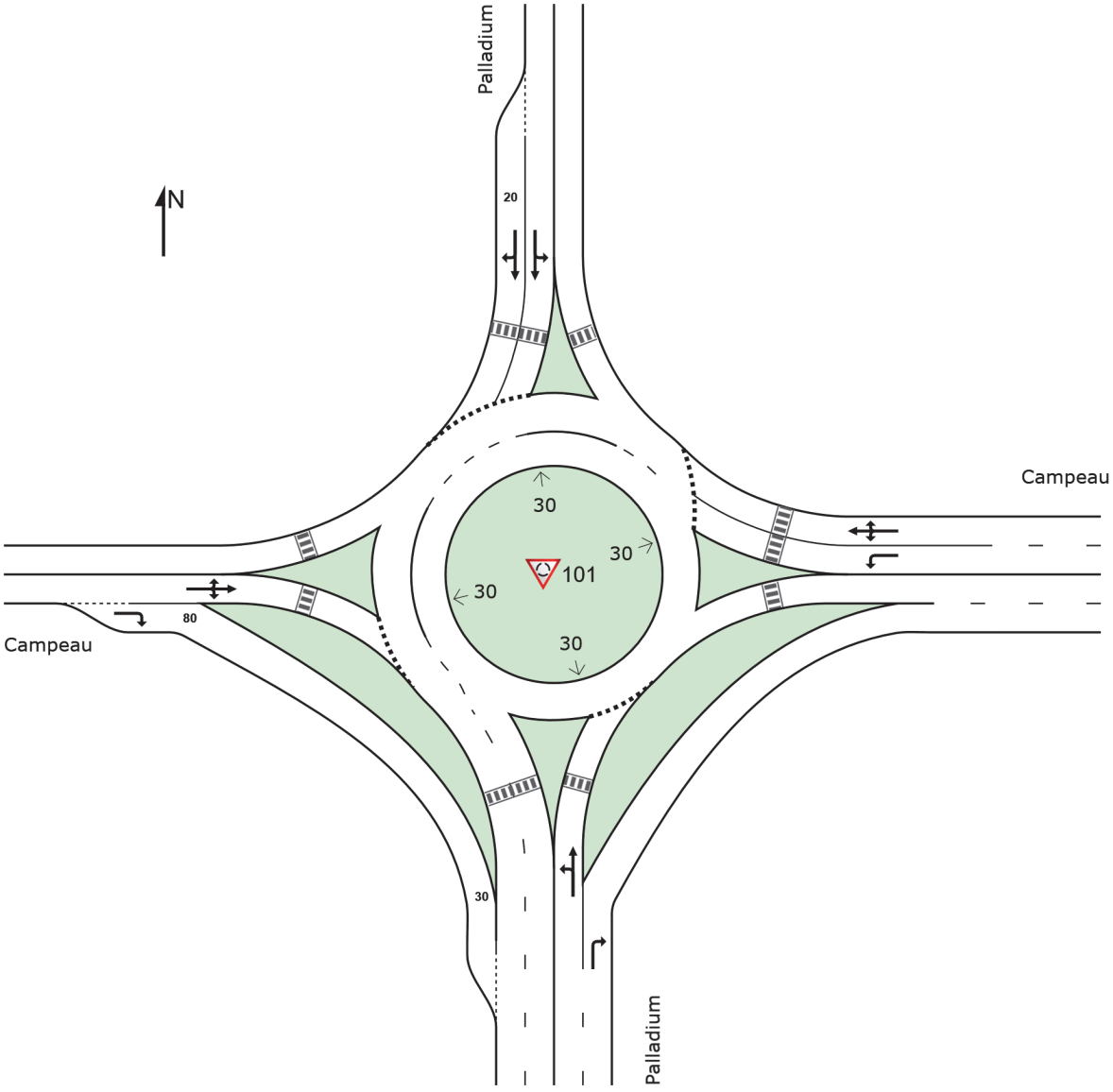
Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	433	-
HCM Lane V/C Ratio	-	0.429	-
HCM Control Delay (s/veh)	-	19.4	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	2.1	-

SITE LAYOUT

Site: 101 [Palladium at Campeau Existing 2024 AM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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



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MOVEMENT SUMMARY

Site: 101 [Palladium at Campeau Existing 2024 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Palladium															
1	L2	All MCs	77	2.0	77	2.0	0.186	9.4	LOS A	1.1	7.6	0.21	0.42	0.21	53.4
2	T1	All MCs	234	2.0	234	2.0	0.186	3.2	LOS A	1.1	7.6	0.21	0.42	0.21	54.5
3	R2	All MCs	127	2.0	127	2.0	0.067	3.0	LOS A	0.0	0.0	0.00	0.40	0.00	56.2
Approach			438	2.0	438	2.0	0.186	4.3	LOS A	1.1	7.6	0.15	0.41	0.15	54.8
East: Campeau															
4	L2	All MCs	208	2.0	208	2.0	0.107	10.4	LOS B	0.6	4.2	0.44	0.61	0.44	50.3
5	T1	All MCs	32	2.0	32	2.0	0.107	4.5	LOS A	0.6	4.2	0.43	0.58	0.43	52.2
6	R2	All MCs	32	2.0	32	2.0	0.107	4.5	LOS A	0.6	4.2	0.43	0.58	0.43	51.8
Approach			272	2.0	272	2.0	0.107	9.0	LOS A	0.6	4.2	0.44	0.60	0.44	50.7
North: Palladium															
7	L2	All MCs	21	2.0	21	2.0	0.071	10.1	LOS B	0.3	2.0	0.37	0.53	0.37	52.2
8	T1	All MCs	138	2.0	138	2.0	0.071	4.6	LOS A	0.3	2.0	0.37	0.49	0.37	53.6
9	R2	All MCs	7	2.0	7	2.0	0.071	4.6	LOS A	0.3	2.0	0.36	0.46	0.36	53.5
Approach			166	2.0	166	2.0	0.071	5.3	LOS A	0.3	2.0	0.37	0.49	0.37	53.4
West: Campeau															
10	L2	All MCs	4	2.0	4	2.0	0.068	10.1	LOS B	0.3	1.9	0.37	0.48	0.37	53.3
11	T1	All MCs	44	2.0	44	2.0	0.068	4.3	LOS A	0.3	1.9	0.37	0.48	0.37	54.3
12	R2	All MCs	66	2.0	66	2.0	0.068	3.9	LOS A	0.3	1.9	0.19	0.45	0.19	54.9
Approach			114	2.0	114	2.0	0.068	4.3	LOS A	0.3	1.9	0.27	0.47	0.27	54.6
All Vehicles			990	2.0	990	2.0	0.186	5.7	LOS A	1.1	7.6	0.28	0.48	0.28	53.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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QUEUE ANALYSIS

Site: 101 [Palladium at Campeau Existing 2024 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Lane Queues (Distance)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (m)	Back of Queue (m)		Queue at Start of Gap (m)		Cycle-Average Queue (m)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.186	1.000	0.0	3.1	7.6	2.5	6.3	0.1	0.3	0.01	0.02	0.0	NA	NA
Lane 2	Y	0.067	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.186			3.1	7.6	2.5	6.3	0.1	0.3	0.01	0.02			
East: Campeau															
Lane 1		0.107	1.000	0.0	1.6	4.0	1.5	3.7	0.3	0.6	0.00	0.01	0.0	NA	NA
Lane 2		0.107	1.000	0.0	1.7	4.2	1.5	3.8	0.3	0.6	0.00	0.01	0.0	NA	NA
Approach		0.107			1.7	4.2	1.5	3.8	0.3	0.6	0.00	0.01			
North: Palladium															
Lane 1		0.071	1.000	0.0	0.8	2.0	0.8	1.9	0.2	0.3	0.00	0.00	0.0	NA	NA
Lane 2		0.071	1.000	0.0	0.8	2.0	0.8	1.9	0.1	0.3	0.04	0.10	NA	0.0	1
Approach		0.071			0.8	2.0	0.8	1.9	0.2	0.3	0.00	0.00			
West: Campeau															
Lane 1		0.068	1.000	0.0	0.8	1.9	0.7	1.8	0.2	0.3	0.00	0.00	0.0	NA	NA
Lane 2	Y	0.017	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.068			0.8	1.9	0.7	1.8	0.2	0.3	0.00	0.00			
Intersection		0.186			3.1	7.6	2.5	6.3	0.3	0.6	0.01	0.02			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Lane Queues (Vehicles)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (veh)	Back of Queue (veh)		Queue at Start of Gap (veh)		Cycle-Average Queue (veh)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.186	1.000	0.0	0.4	1.1	0.4	0.9	0.0	0.0	0.01	0.02	0.0	NA	NA
Lane 2	Y	0.067	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.186			0.4	1.1	0.4	0.9	0.0	0.0	0.01	0.02			
East: Campeau															
Lane 1		0.107	1.000	0.0	0.2	0.6	0.2	0.5	0.0	0.1	0.00	0.01	0.0	NA	NA
Lane 2		0.107	1.000	0.0	0.2	0.6	0.2	0.5	0.0	0.1	0.00	0.01	0.0	NA	NA
Approach		0.107			0.2	0.6	0.2	0.5	0.0	0.1	0.00	0.01			
North: Palladium															
Lane 1		0.071	1.000	0.0	0.1	0.3	0.1	0.3	0.0	0.0	0.00	0.00	0.0	NA	NA
Lane 2		0.071	1.000	0.0	0.1	0.3	0.1	0.3	0.0	0.0	0.04	0.10	NA	0.0	1

Approach		0.071			0.1	0.3	0.1	0.3	0.0	0.0	0.00	0.00			
West: Campeau															
Lane 1		0.068	1.000	0.0	0.1	0.3	0.1	0.2	0.0	0.0	0.00	0.00	0.0	NA	NA
Lane 2	Y	0.017	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.068			0.1	0.3	0.1	0.2	0.0	0.0	0.00	0.00			
Intersection		0.186			0.4	1.1	0.4	0.9	0.0	0.1	0.01	0.02			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Continuous Lane Performance

Lane Number	Deg. Satn	Unint. Speed	Unint. Travel Delay	Hdwy Spacing		Aver. Vehicle Length	Occup. Time	Space Time	Space Occup. Ratio	Time Occup. Ratio	Density		LOS (Density Method)
	v/c	km/h	sec	sec	m	m	sec	sec	%	%	veh/km	pc/km	
South: Palladium													
Lane 2	0.067	60.0	0.0	28.42	473.5	4.6	0.40	28.02	1.0	1.4	2.1	2.1	LOS A
West: Campeau													
Lane 2	0.017	60.0	0.0	109.91	1831.7	4.6	0.40	109.52	0.3	0.4	0.5	0.6	LOS A

Midblock Effective Detection Zone Length = 2 m

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INTERSECTION SUMMARY

Site: 101 [Palladium at Campeau Existing 2024 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	53.3	53.3 km/h
Travel Distance (Total)	veh-km/h	1035.4	1242.4 pers-km/h
Travel Time (Total)	veh-h/h	19.4	23.3 pers-h/h
Desired Speed	km/h	60.0	
Speed Efficiency		0.89	
Travel Time Index		8.76	
Congestion Coefficient		1.13	
Demand Flows (Total)	veh/h	990	1188 pers/h
Arrival Flows (Total)	veh/h	990	
Percent Heavy Vehicles (Demand)	%	2.0	
Percent Heavy Vehicles (Arrivals)	%	2.0	
Degree of Saturation		0.186	
Practical Spare Capacity	%	356.5	
Effective Intersection Capacity	veh/h	5317	
Control Delay (Total)	veh-h/h	1.58	1.90 pers-h/h
Control Delay (Average)	sec	5.7	5.7 sec
Control Delay (Worst Lane by MC)	sec	10.5	
Control Delay (Worst Movement by MC)	sec	11.7	11.7 sec
Geometric Delay (Average)	sec	5.1	
Stop-Line Delay (Average)	sec	0.6	
Idling Time (Average)	sec	0.0	
Intersection Level of Service (LOS)		LOS A	
95% Back of Queue - Veh (Worst Lane)	veh	1.1	
95% Back of Queue - Dist (Worst Lane)	m	7.6	
Ave. Que Storage Ratio (Worst Lane)		0.01	
Effective Stops (Total)	veh/h	479	575 pers/h
Effective Stop Rate		0.48	0.48
Proportion Queued		0.28	0.28
Performance Index		25.8	25.8
Cost (Total)	$/h	840.38	840.38 $/h
Fuel Consumption (Total)	L/h	87.7	
Carbon Dioxide (Total)	kg/h	207.2	
Hydrocarbons (Total)	kg/h	0.017	
Carbon Monoxide (Total)	kg/h	0.23	
NOx (Total)	kg/h	0.230	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 1.0 %
Number of Iterations: 4 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 1.5% 1.3% 0.7%

Intersection Performance - Annual Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Demand Flows (Total)	veh/y	475,200	570,240 pers/y
Delay (Total)	veh-h/y	759	911 pers-h/y

Effective Stops (Total)	veh/y	230,061	276,073	pers/y
Travel Distance (Total)	veh-km/y	496,980	596,376	pers-km/y
Travel Time (Total)	veh-h/y	9,320	11,185	pers-h/y
Cost (Total)	$/y	403,382	403,382	$/y
Fuel Consumption (Total)	L/y	42,084		
Carbon Dioxide (Total)	kg/y	99,440		
Hydrocarbons (Total)	kg/y	8		
Carbon Monoxide (Total)	kg/y	112		
NOx (Total)	kg/y	110		

1 Hours per Year: 480 (Site)

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ROUNDABOUT ANALYSIS

Site: 101 [Palladium at Campeau Existing 2024 AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Roundabout Basic Parameters

Location	Name	Central Island Diam m	Circ Width m	Insc Diam m	Entry Radius m	Entry Angle °	Circ Lanes	Entry Lanes	Av.Entry Lane Width m	App. Dist m	Prop Queued Upstr Signal	Extra Bunching %
South	Palladium	30.00	6.00	45.5	20.0	30.0	1	2[18]	4.00	500.0	NA[5]	0.0
East	Campeau	30.00	6.00	45.5	20.0	30.0	1	2	4.00	500.0	NA[5]	0.0
North	Palladium	30.00	9.50	45.5	20.0	30.0	2	2	4.00	500.0	NA[5]	0.0
West	Campeau	30.00	9.50	45.5	20.0	30.0	2	2[18]	4.00	500.0	NA[5]	0.0

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

5 Not Applicable (single Site analysis or unconnected Site in Network analysis).
18 Exclusive slip/bypass lane is included in Entry Lanes count.

Roundabout Entry and Circulating / Exiting Stream Parameters

To Approach	Turn	Lane No	Lane Type	Opng Flow veh/h	Opng Flow pcu/h	In-Bunch Hdwy sec	Prop. Bunched	Cap Const Effect	Priority Sharing	OD Factor	Gap Acc Factor	Follow-up Hdwy (tf) sec	Critical Gap (tc) [Hdwy sec	Critical Gap (tc) Dist] m	Ratio tf / tc
South: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
West	L2	1	Dominant	70	71	2.00	0.083	No	Yes[10]	0.994	1.01	2.02	3.90	36.8	0.52
North	T1	1	Dominant	70	71	2.00	0.083	No	Yes[10]	0.994	1.01	2.02	3.90	36.8	0.52
East	R2	2	Continuous												
East: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
South	L2	1	Subdom.	316	319	2.00	0.321	No	Yes[10]	0.984	1.01	2.33	4.31	44.6	0.54
South	L2	2	Dominant	316	319	2.00	0.321	No	Yes[10]	0.984	1.01	1.97	3.65	37.8	0.54
West	T1	2	Dominant	316	319	2.00	0.321	No	Yes[10]	0.984	1.01	1.97	3.65	37.8	0.54
North	R2	2	Dominant	316	319	2.00	0.321	No	Yes[10]	0.984	1.01	1.97	3.65	37.8	0.54
North: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
East	L2	1	Subdom.	317	320	1.17	0.203	No	No	0.975	1.01	2.51	3.94	29.1	0.64
South	T1	1	Subdom.	317	320	1.17	0.203	No	No	0.975	1.01	2.51	3.94	29.1	0.64
South	T1	2	Dominant	317	320	1.17	0.203	No	No	0.975	1.01	2.33	3.65	27.0	0.64
West	R2	2	Dominant	317	320	1.17	0.203	No	No	0.975	1.01	2.33	3.65	27.0	0.64
West: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
North	L2	1	Dominant	367	370	1.08	0.215	No	No	0.979	1.01	2.31	3.58	29.6	0.64
East	T1	1	Dominant	367	370	1.08	0.215	No	No	0.979	1.01	2.31	3.58	29.6	0.64
South	R2	1	Dominant	367	370	1.08	0.215	No	No	0.979	1.01	2.31	3.58	29.6	0.64
South	R2	2	Continuous												

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

10 Priority sharing means Follow-up Headway plus Intra-bunch Headway is larger than the Critical Gap.

Circulating Lane Flow Rates			
Circ. Lane No	Circulating Flow Rate		
	veh/h	pcu/h	Percent
South: Palladium			
Lane 1	70	71	100.0
Approach	70	71	
East: Campeau			
Lane 1	316	319	100.0
Approach	316	319	
North: Palladium			
Lane 1	122	124	38.7
Lane 2	194	196	61.3
Approach	317	320	
West: Campeau			
Lane 1	201	203	54.9
Lane 2	165	167	45.1
Approach	367	370	

Roundabout Capacity Model: The SIDRA Standard Roundabout Capacity Model option is in use. This model takes into account the total circulating flow as well as the effect of flow distribution in circulating lanes on the entry capacity results.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Lanes)					
Opposed Lane	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium					
1	57.85	3.52	54.33	0.939	0.2
East: Campeau					
1	20.03	5.16	14.86	0.742	1.1
2	19.08	4.40	14.68	0.769	0.8
North: Palladium					
1	18.04	4.13	13.92	0.771	0.8
2	17.63	3.81	13.82	0.784	0.7
West: Campeau					
1	15.88	3.72	12.17	0.766	0.8

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Movements)							
To Approach	Turn	Opsd Lane No	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium							
West	L2	1	57.85	3.52	54.33	0.939	0.2
North	T1	1	57.85	3.52	54.33	0.939	0.2
East: Campeau							
South	L2	1	20.03	5.16	14.86	0.742	1.1
South	L2	2	19.08	4.40	14.68	0.769	0.8
West	T1	2	19.08	4.40	14.68	0.769	0.8
North	R2	2	19.08	4.40	14.68	0.769	0.8
North: Palladium							
East	L2	1	18.04	4.13	13.92	0.771	0.8
South	T1	1	18.04	4.13	13.92	0.771	0.8

South	T1	2	17.63	3.81	13.82	0.784	0.7
West	R2	2	17.63	3.81	13.82	0.784	0.7
West: Campeau							
North	L2	1	15.88	3.72	12.17	0.766	0.8
East	T1	1	15.88	3.72	12.17	0.766	0.8
South	R2	1	15.88	3.72	12.17	0.766	0.8

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

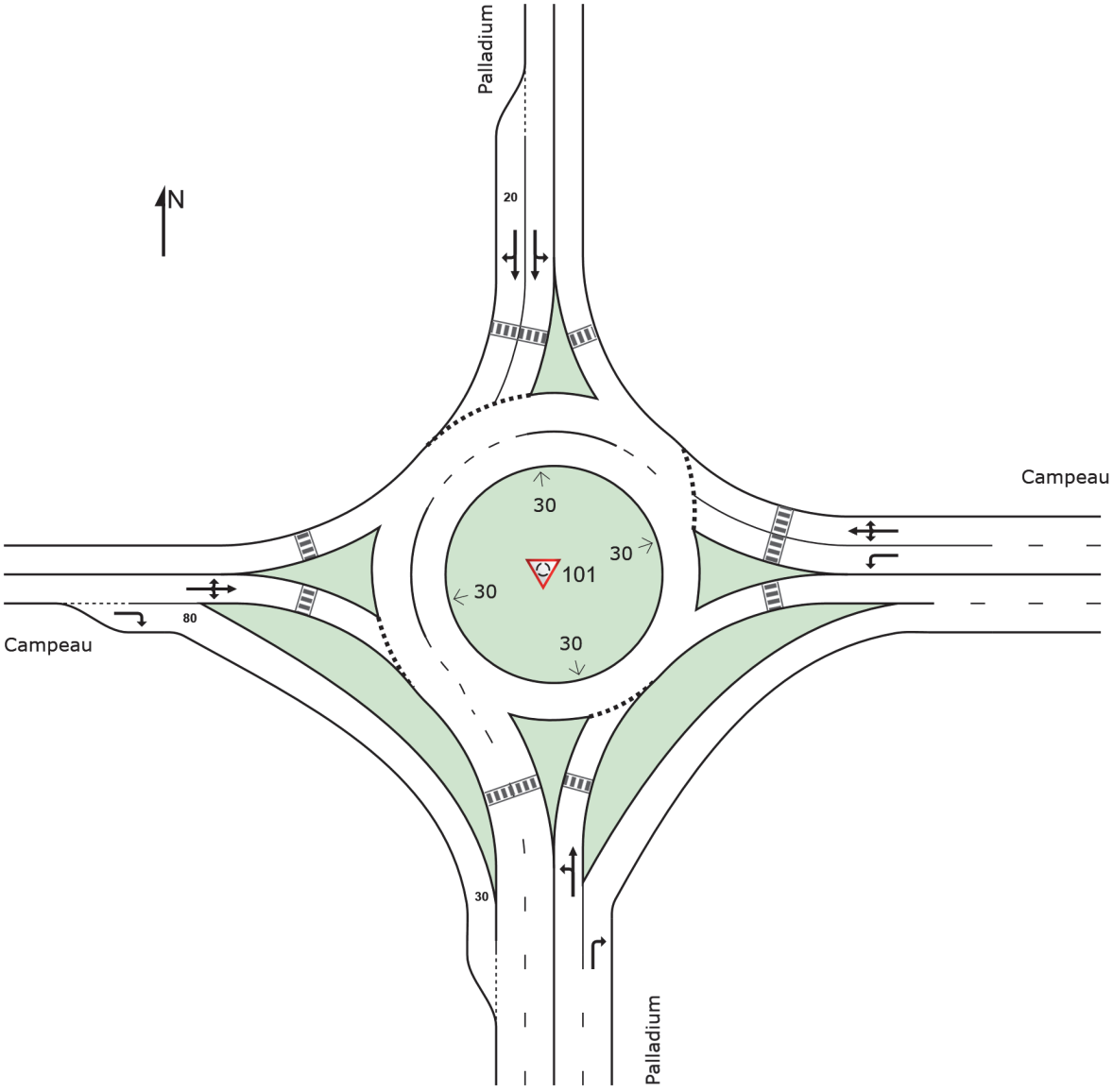
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SITE LAYOUT

Site: 101 [Palladium at Campeau Existing 2024 PM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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



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MOVEMENT SUMMARY

Site: 101 [Palladium at Campeau Existing 2024 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Palladium															
1	L2	All MCs	134	2.0	134	2.0	0.152	9.5	LOS A	0.8	6.0	0.25	0.51	0.25	52.1
2	T1	All MCs	110	2.0	110	2.0	0.152	3.3	LOS A	0.8	6.0	0.25	0.51	0.25	53.1
3	R2	All MCs	281	2.0	281	2.0	0.148	3.0	LOS A	0.0	0.0	0.00	0.40	0.00	56.2
Approach			526	2.0	526	2.0	0.152	4.8	LOS A	0.8	6.0	0.12	0.45	0.12	54.4
East: Campeau															
4	L2	All MCs	239	2.0	239	2.0	0.107	10.1	LOS B	0.6	4.1	0.39	0.60	0.39	50.3
5	T1	All MCs	34	2.0	34	2.0	0.107	4.2	LOS A	0.6	4.1	0.38	0.58	0.38	51.8
6	R2	All MCs	11	2.0	11	2.0	0.107	4.3	LOS A	0.6	4.1	0.38	0.58	0.38	51.5
Approach			284	2.0	284	2.0	0.107	9.1	LOS A	0.6	4.1	0.39	0.60	0.39	50.5
North: Palladium															
7	L2	All MCs	34	2.0	34	2.0	0.107	10.4	LOS B	0.4	3.1	0.42	0.57	0.42	51.9
8	T1	All MCs	200	2.0	200	2.0	0.107	4.9	LOS A	0.4	3.1	0.41	0.51	0.41	53.3
9	R2	All MCs	2	2.0	2	2.0	0.107	4.9	LOS A	0.4	3.1	0.41	0.48	0.41	53.3
Approach			237	2.0	237	2.0	0.107	5.7	LOS A	0.4	3.1	0.41	0.52	0.41	53.1
West: Campeau															
10	L2	All MCs	2	2.0	2	2.0	0.060	10.3	LOS B	0.2	1.6	0.40	0.47	0.40	53.0
11	T1	All MCs	67	2.0	67	2.0	0.060	4.5	LOS A	0.2	1.6	0.40	0.47	0.40	54.0
12	R2	All MCs	16	2.0	16	2.0	0.008	3.7	LOS A	0.0	0.0	0.00	0.42	0.00	55.9
Approach			84	2.0	84	2.0	0.060	4.5	LOS A	0.2	1.6	0.33	0.46	0.33	54.3
All Vehicles			1131	2.0	1131	2.0	0.152	6.0	LOS A	0.8	6.0	0.26	0.50	0.26	53.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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QUEUE ANALYSIS

Site: 101 [Palladium at Campeau Existing 2024 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Lane Queues (Distance)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (m)	Back of Queue (m)		Queue at Start of Gap (m)		Cycle-Average Queue (m)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.152	1.000	0.0	2.4	6.0	2.1	5.2	0.2	0.3	0.00	0.01	0.0	NA	NA
Lane 2	Y	0.148	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.152			2.4	6.0	2.1	5.2	0.2	0.3	0.00	0.01			
East: Campeau															
Lane 1		0.107	1.000	0.0	1.6	4.0	1.5	3.7	0.3	0.5	0.00	0.01	0.0	NA	NA
Lane 2		0.107	1.000	0.0	1.7	4.1	1.5	3.8	0.3	0.5	0.00	0.01	0.0	NA	NA
Approach		0.107			1.7	4.1	1.5	3.8	0.3	0.5	0.00	0.01			
North: Palladium															
Lane 1		0.107	1.000	0.0	1.2	3.1	1.1	2.8	0.3	0.5	0.00	0.01	0.0	NA	NA
Lane 2		0.107	1.000	0.0	1.3	3.1	1.2	2.9	0.3	0.5	0.06	0.16	NA	0.0	1
Approach		0.107			1.3	3.1	1.2	2.9	0.3	0.5	0.00	0.01			
West: Campeau															
Lane 1		0.060	1.000	0.0	0.6	1.6	0.6	1.5	0.2	0.3	0.00	0.00	0.0	NA	NA
Lane 2	Y	0.008	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.060			0.6	1.6	0.6	1.5	0.2	0.3	0.00	0.00			
Intersection		0.152			2.4	6.0	2.1	5.2	0.3	0.5	0.00	0.01			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Lane Queues (Vehicles)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (veh)	Back of Queue (veh)		Queue at Start of Gap (veh)		Cycle-Average Queue (veh)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.152	1.000	0.0	0.3	0.8	0.3	0.7	0.0	0.0	0.00	0.01	0.0	NA	NA
Lane 2	Y	0.148	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.152			0.3	0.8	0.3	0.7	0.0	0.0	0.00	0.01			
East: Campeau															
Lane 1		0.107	1.000	0.0	0.2	0.6	0.2	0.5	0.0	0.1	0.00	0.01	0.0	NA	NA
Lane 2		0.107	1.000	0.0	0.2	0.6	0.2	0.5	0.0	0.1	0.00	0.01	0.0	NA	NA
Approach		0.107			0.2	0.6	0.2	0.5	0.0	0.1	0.00	0.01			
North: Palladium															
Lane 1		0.107	1.000	0.0	0.2	0.4	0.2	0.4	0.0	0.1	0.00	0.01	0.0	NA	NA
Lane 2		0.107	1.000	0.0	0.2	0.4	0.2	0.4	0.0	0.1	0.06	0.16	NA	0.0	1

Approach		0.107			0.2	0.4	0.2	0.4	0.0	0.1	0.00	0.01			
West: Campeau															
Lane 1		0.060	1.000	0.0	0.1	0.2	0.1	0.2	0.0	0.0	0.00	0.00	0.0	NA	NA
Lane 2	Y	0.008	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.060			0.1	0.2	0.1	0.2	0.0	0.0	0.00	0.00			
Intersection		0.152			0.3	0.8	0.3	0.7	0.0	0.1	0.00	0.01			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Continuous Lane Performance

Lane Number	Deg. Satn	Unint. Speed	Unint. Travel Delay	Hdwy Spacing		Aver. Vehicle Length	Occup. Time	Space Time	Space Occup. Ratio	Time Occup. Ratio	Density		LOS (Density Method)
	v/c	km/h	sec	sec	m	m	sec	sec	%	%	veh/km	pc/km	
South: Palladium													
Lane 2	0.148	59.9	0.0	12.81	213.2	4.6	0.40	12.41	2.2	3.1	4.7	4.8	LOS A
West: Campeau													
Lane 2	0.008	60.0	0.0	231.43	3856.9	4.6	0.40	231.03	0.1	0.2	0.3	0.3	LOS A

Midblock Effective Detection Zone Length = 2 m

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INTERSECTION SUMMARY

Site: 101 [Palladium at Campeau Existing 2024 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	53.1	53.1 km/h
Travel Distance (Total)	veh-km/h	1183.3	1419.9 pers-km/h
Travel Time (Total)	veh-h/h	22.3	26.8 pers-h/h
Desired Speed	km/h	60.0	
Speed Efficiency		0.88	
Travel Time Index		8.72	
Congestion Coefficient		1.13	
Demand Flows (Total)	veh/h	1131	1357 pers/h
Arrival Flows (Total)	veh/h	1131	
Percent Heavy Vehicles (Demand)	%	2.0	
Percent Heavy Vehicles (Arrivals)	%	2.0	
Degree of Saturation		0.152	
Practical Spare Capacity	%	460.6	
Effective Intersection Capacity	veh/h	7460	
Control Delay (Total)	veh-h/h	1.90	2.28 pers-h/h
Control Delay (Average)	sec	6.0	6.0 sec
Control Delay (Worst Lane by MC)	sec	10.2	
Control Delay (Worst Movement by MC)	sec	12.0	12.0 sec
Geometric Delay (Average)	sec	5.4	
Stop-Line Delay (Average)	sec	0.6	
Idling Time (Average)	sec	0.0	
Intersection Level of Service (LOS)		LOS A	
95% Back of Queue - Veh (Worst Lane)	veh	0.8	
95% Back of Queue - Dist (Worst Lane)	m	6.0	
Ave. Que Storage Ratio (Worst Lane)		0.00	
Effective Stops (Total)	veh/h	570	683 pers/h
Effective Stop Rate		0.50	0.50
Proportion Queued		0.26	0.26
Performance Index		28.9	28.9
Cost (Total)	$/h	965.48	965.48 $/h
Fuel Consumption (Total)	L/h	100.9	
Carbon Dioxide (Total)	kg/h	238.4	
Hydrocarbons (Total)	kg/h	0.019	
Carbon Monoxide (Total)	kg/h	0.27	
NOx (Total)	kg/h	0.265	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 1.0 %
Number of Iterations: 4 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 1.5% 1.3% 0.7%

Intersection Performance - Annual Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Demand Flows (Total)	veh/y	542,933	651,520 pers/y
Delay (Total)	veh-h/y	912	1,095 pers-h/y

Effective Stops (Total)	veh/y	273,396	328,076	pers/y
Travel Distance (Total)	veh-km/y	567,961	681,554	pers-km/y
Travel Time (Total)	veh-h/y	10,703	12,843	pers-h/y
Cost (Total)	$/y	463,433	463,433	$/y
Fuel Consumption (Total)	L/y	48,425		
Carbon Dioxide (Total)	kg/y	114,422		
Hydrocarbons (Total)	kg/y	9		
Carbon Monoxide (Total)	kg/y	129		
NOx (Total)	kg/y	127		

1 Hours per Year: 480 (Site)

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ROUNDABOUT ANALYSIS

Site: 101 [Palladium at Campeau Existing 2024 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Roundabout Basic Parameters

Location	Name	Central Island Diam m	Circ Width m	Insc Diam m	Entry Radius m	Entry Angle °	Circ Lanes	Entry Lanes	Av.Entry Lane Width m	App. Dist m	Prop Queued Upstr Signal	Extra Bunching %
South	Palladium	30.00	6.00	45.5	20.0	30.0	1	2[18]	4.00	500.0	NA[5]	0.0
East	Campeau	30.00	6.00	45.5	20.0	30.0	1	2	4.00	500.0	NA[5]	0.0
North	Palladium	30.00	9.50	45.5	20.0	30.0	2	2	4.00	500.0	NA[5]	0.0
West	Campeau	30.00	9.50	45.5	20.0	30.0	2	2[18]	4.00	500.0	NA[5]	0.0

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

5 Not Applicable (single Site analysis or unconnected Site in Network analysis).
18 Exclusive slip/bypass lane is included in Entry Lanes count.

Roundabout Entry and Circulating / Exiting Stream Parameters

To Approach	Turn	Lane No	Lane Type	Opng Flow veh/h	Opng Flow pcu/h	In-Bunch Hdwy sec	Prop. Bunched	Cap Const Effect	Priority Sharing	OD Factor	Gap Acc Factor	Follow-up Hdwy (tf) sec	Critical Gap (tc) [Hdwy sec	Critical Gap (tc) Dist] m	Ratio tf / tc
South: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
West	L2	1	Dominant	103	104	2.00	0.119	No	Yes[10]	0.992	1.01	2.03	3.90	37.0	0.52
North	T1	1	Dominant	103	104	2.00	0.119	No	Yes[10]	0.992	1.01	2.03	3.90	37.0	0.52
East	R2	2	Continuous												
East: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
South	L2	1	Subdom.	247	249	2.00	0.261	No	No	0.984	1.01	2.35	4.39	39.7	0.53
South	L2	2	Dominant	247	249	2.00	0.261	No	Yes[10]	0.984	1.01	2.00	3.74	33.8	0.53
West	T1	2	Dominant	247	249	2.00	0.261	No	Yes[10]	0.984	1.01	2.00	3.74	33.8	0.53
North	R2	2	Dominant	247	249	2.00	0.261	No	Yes[10]	0.984	1.01	2.00	3.74	33.8	0.53
North: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
East	L2	1	Subdom.	408	412	1.27	0.271	No	No	0.975	1.01	2.50	3.85	28.2	0.65
South	T1	1	Subdom.	408	412	1.27	0.271	No	No	0.975	1.01	2.50	3.85	28.2	0.65
South	T1	2	Dominant	408	412	1.27	0.271	No	Yes[10]	0.975	1.01	2.29	3.53	25.9	0.65
West	R2	2	Dominant	408	412	1.27	0.271	No	Yes[10]	0.975	1.01	2.29	3.53	25.9	0.65
West: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
North	L2	1	Dominant	473	478	1.01	0.255	No	No	0.978	1.01	2.27	3.45	29.0	0.66
East	T1	1	Dominant	473	478	1.01	0.255	No	No	0.978	1.01	2.27	3.45	29.0	0.66
South	R2	2	Continuous												

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

10 Priority sharing means Follow-up Headway plus Intra-bunch Headway is larger than the Critical Gap.

Circulating Lane Flow Rates			
Circ. Lane No	Circulating Flow Rate		
	veh/h	pcu/h	Percent
South: Palladium			
Lane 1	103	104	100.0
Approach	103	104	
East: Campeau			
Lane 1	247	249	100.0
Approach	247	249	
North: Palladium			
Lane 1	129	130	31.6
Lane 2	279	282	68.4
Approach	408	412	
West: Campeau			
Lane 1	241	243	50.9
Lane 2	232	235	49.1
Approach	473	478	

Roundabout Capacity Model: The SIDRA Standard Roundabout Capacity Model option is in use. This model takes into account the total circulating flow as well as the effect of flow distribution in circulating lanes on the entry capacity results.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Lanes)					
Opposed Lane	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium					
1	41.58	3.67	37.91	0.912	0.2
East: Campeau					
1	22.89	4.87	18.02	0.787	0.8
2	22.03	4.18	17.85	0.810	0.6
North: Palladium					
1	15.83	4.32	11.51	0.727	1.0
2	15.35	3.95	11.41	0.743	0.9
West: Campeau					
1	13.65	3.77	9.88	0.724	0.9

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Movements)							
To Approach	Turn	Opsd Lane No	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium							
West	L2	1	41.58	3.67	37.91	0.912	0.2
North	T1	1	41.58	3.67	37.91	0.912	0.2
East: Campeau							
South	L2	1	22.89	4.87	18.02	0.787	0.8
South	L2	2	22.03	4.18	17.85	0.810	0.6
West	T1	2	22.03	4.18	17.85	0.810	0.6
North	R2	2	22.03	4.18	17.85	0.810	0.6
North: Palladium							
East	L2	1	15.83	4.32	11.51	0.727	1.0
South	T1	1	15.83	4.32	11.51	0.727	1.0

South	T1	2	15.35	3.95	11.41	0.743	0.9
West	R2	2	15.35	3.95	11.41	0.743	0.9
West: Campeau							
North	L2	1	13.65	3.77	9.88	0.724	0.9
East	T1	1	13.65	3.77	9.88	0.724	0.9

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

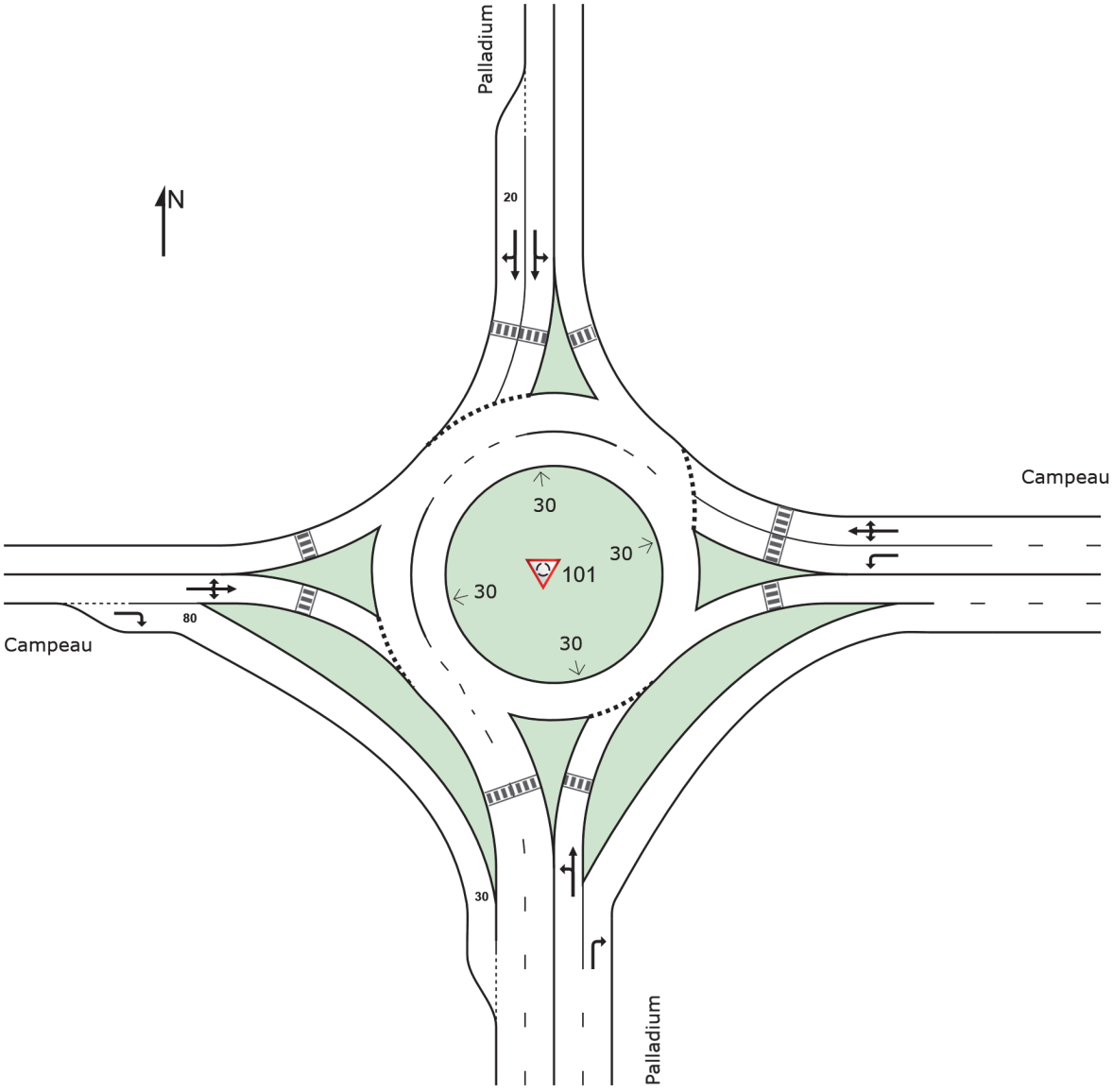
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SITE LAYOUT

Site: 101 [Palladium at Campeau Existing 2024 SAT (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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



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MOVEMENT SUMMARY

Site: 101 [Palladium at Campeau Existing 2024 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Palladium															
1	L2	All MCs	393	2.0	393	2.0	0.256	9.7	LOS A	1.6	11.6	0.34	0.59	0.34	50.0
2	T1	All MCs	7	2.0	7	2.0	0.256	3.6	LOS A	1.6	11.6	0.34	0.59	0.34	51.0
3	R2	All MCs	342	2.0	342	2.0	0.180	3.0	LOS A	0.0	0.0	0.00	0.40	0.00	56.2
Approach			742	2.0	742	2.0	0.256	6.6	LOS A	1.6	11.6	0.18	0.50	0.18	52.6
East: Campeau															
4	L2	All MCs	353	2.0	353	2.0	0.178	10.9	LOS B	1.1	7.8	0.54	0.64	0.54	49.8
5	T1	All MCs	62	2.0	62	2.0	0.178	4.9	LOS A	1.1	7.8	0.53	0.62	0.53	51.3
6	R2	All MCs	6	2.0	6	2.0	0.178	5.0	LOS A	1.1	7.8	0.53	0.62	0.53	51.0
Approach			421	2.0	421	2.0	0.178	9.9	LOS A	1.1	7.8	0.54	0.64	0.54	50.1
North: Palladium															
7	L2	All MCs	6	2.0	6	2.0	0.009	11.6	LOS B	0.0	0.3	0.55	0.66	0.55	50.1
8	T1	All MCs	10	2.0	10	2.0	0.009	5.9	LOS A	0.0	0.3	0.55	0.56	0.55	52.6
9	R2	All MCs	1	2.0	1	2.0	0.009	5.8	LOS A	0.0	0.3	0.55	0.54	0.55	52.7
Approach			17	2.0	17	2.0	0.009	7.8	LOS A	0.0	0.3	0.55	0.59	0.55	51.7
West: Campeau															
10	L2	All MCs	1	2.0	1	2.0	0.121	10.2	LOS B	0.5	3.7	0.41	0.45	0.41	53.0
11	T1	All MCs	140	2.0	140	2.0	0.121	4.4	LOS A	0.5	3.7	0.41	0.45	0.41	54.0
12	R2	All MCs	21	2.0	21	2.0	0.011	3.6	LOS A	0.0	0.0	0.00	0.42	0.00	55.9
Approach			162	2.0	162	2.0	0.121	4.3	LOS A	0.5	3.7	0.36	0.44	0.36	54.2
All Vehicles			1342	2.0	1342	2.0	0.256	7.4	LOS A	1.6	11.6	0.32	0.54	0.32	51.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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QUEUE ANALYSIS

Site: 101 [Palladium at Campeau Existing 2024 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Lane Queues (Distance)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (m)	Back of Queue (m)		Queue at Start of Gap (m)		Cycle-Average Queue (m)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.256	1.000	0.0	4.7	11.6	3.6	9.0	0.4	0.8	0.01	0.02	0.0	NA	NA
Lane 2	Y	0.180	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.256			4.7	11.6	3.6	9.0	0.4	0.8	0.01	0.02			
East: Campeau															
Lane 1		0.178	1.000	0.0	3.0	7.3	2.6	6.5	0.7	1.3	0.01	0.01	0.0	NA	NA
Lane 2		0.178	1.000	0.0	3.1	7.8	2.7	6.8	0.7	1.3	0.01	0.02	0.0	NA	NA
Approach		0.178			3.1	7.8	2.7	6.8	0.7	1.3	0.01	0.02			
North: Palladium															
Lane 1		0.009	1.000	0.0	0.1	0.3	0.1	0.3	0.0	0.1	0.00	0.00	0.0	NA	NA
Lane 2		0.009	1.000	0.0	0.1	0.3	0.1	0.3	0.0	0.1	0.01	0.01	NA	0.0	1
Approach		0.009			0.1	0.3	0.1	0.3	0.0	0.1	0.00	0.00			
West: Campeau															
Lane 1		0.121	1.000	0.0	1.5	3.7	1.3	3.4	0.3	0.5	0.00	0.01	0.0	NA	NA
Lane 2	Y	0.011	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.121			1.5	3.7	1.3	3.4	0.3	0.5	0.00	0.01			
Intersection		0.256			4.7	11.6	3.6	9.0	0.7	1.3	0.01	0.02			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Lane Queues (Vehicles)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (veh)	Back of Queue (veh)		Queue at Start of Gap (veh)		Cycle-Average Queue (veh)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.256	1.000	0.0	0.7	1.6	0.5	1.3	0.1	0.1	0.01	0.02	0.0	NA	NA
Lane 2	Y	0.180	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.256			0.7	1.6	0.5	1.3	0.1	0.1	0.01	0.02			
East: Campeau															
Lane 1		0.178	1.000	0.0	0.4	1.0	0.4	0.9	0.1	0.2	0.01	0.01	0.0	NA	NA
Lane 2		0.178	1.000	0.0	0.4	1.1	0.4	1.0	0.1	0.2	0.01	0.02	0.0	NA	NA
Approach		0.178			0.4	1.1	0.4	1.0	0.1	0.2	0.01	0.02			
North: Palladium															
Lane 1		0.009	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Lane 2		0.009	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.01	NA	0.0	1

Approach		0.009			0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00			
West: Campeau															
Lane 1		0.121	1.000	0.0	0.2	0.5	0.2	0.5	0.0	0.1	0.00	0.01	0.0	NA	NA
Lane 2	Y	0.011	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.121			0.2	0.5	0.2	0.5	0.0	0.1	0.00	0.01			
Intersection		0.256			0.7	1.6	0.5	1.3	0.1	0.2	0.01	0.02			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Continuous Lane Performance

Lane Number	Deg. Satn	Unint. Speed	Unint. Travel Delay	Hdwy Spacing		Aver. Vehicle Length	Occup. Time	Space Time	Space Occup. Ratio	Time Occup. Ratio	Density		LOS (Density Method)
	v/c	km/h	sec	sec	m	m	sec	sec	%	%	veh/km	pc/km	
South: Palladium													
Lane 2	0.180	59.9	0.0	10.52	175.1	4.6	0.40	10.12	2.6	3.8	5.7	5.8	LOS A
West: Campeau													
Lane 2	0.011	60.0	0.0	170.53	2841.9	4.6	0.40	170.13	0.2	0.2	0.4	0.4	LOS A

Midblock Effective Detection Zone Length = 2 m

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INTERSECTION SUMMARY

Site: 101 [Palladium at Campeau Existing 2024 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	51.9	51.9 km/h
Travel Distance (Total)	veh-km/h	1411.8	1694.1 pers-km/h
Travel Time (Total)	veh-h/h	27.2	32.6 pers-h/h
Desired Speed	km/h	60.0	
Speed Efficiency		0.87	
Travel Time Index		8.51	
Congestion Coefficient		1.16	
Demand Flows (Total)	veh/h	1342	1611 pers/h
Arrival Flows (Total)	veh/h	1342	
Percent Heavy Vehicles (Demand)	%	2.0	
Percent Heavy Vehicles (Arrivals)	%	2.0	
Degree of Saturation		0.256	
Practical Spare Capacity	%	231.6	
Effective Intersection Capacity	veh/h	5237	
Control Delay (Total)	veh-h/h	2.75	3.30 pers-h/h
Control Delay (Average)	sec	7.4	7.4 sec
Control Delay (Worst Lane by MC)	sec	11.1	
Control Delay (Worst Movement by MC)	sec	14.2	14.2 sec
Geometric Delay (Average)	sec	6.5	
Stop-Line Delay (Average)	sec	0.9	
Idling Time (Average)	sec	0.0	
Intersection Level of Service (LOS)		LOS A	
95% Back of Queue - Veh (Worst Lane)	veh	1.6	
95% Back of Queue - Dist (Worst Lane)	m	11.6	
Ave. Que Storage Ratio (Worst Lane)		0.01	
Effective Stops (Total)	veh/h	721	865 pers/h
Effective Stop Rate		0.54	0.54
Proportion Queued		0.32	0.32
Performance Index		36.5	36.5
Cost (Total)	$/h	1182.12	1182.12 $/h
Fuel Consumption (Total)	L/h	125.3	
Carbon Dioxide (Total)	kg/h	296.0	
Hydrocarbons (Total)	kg/h	0.024	
Carbon Monoxide (Total)	kg/h	0.33	
NOx (Total)	kg/h	0.330	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 2.0 %
Number of Iterations: 5 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 3.2% 1.9% 1.0%

Intersection Performance - Annual Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Demand Flows (Total)	veh/y	644,267	773,120 pers/y
Delay (Total)	veh-h/y	1,321	1,585 pers-h/y

Effective Stops (Total)	veh/y	345,972	415,166	pers/y
Travel Distance (Total)	veh-km/y	677,653	813,184	pers-km/y
Travel Time (Total)	veh-h/y	13,047	15,656	pers-h/y
Cost (Total)	$/y	567,415	567,415	$/y
Fuel Consumption (Total)	L/y	60,134		
Carbon Dioxide (Total)	kg/y	142,070		
Hydrocarbons (Total)	kg/y	12		
Carbon Monoxide (Total)	kg/y	158		
NOx (Total)	kg/y	158		

1 Hours per Year: 480 (Site)

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ROUNDABOUT ANALYSIS

Site: 101 [Palladium at Campeau Existing 2024 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Roundabout Basic Parameters

Location	Name	Central Island Diam m	Circ Width m	Insc Diam m	Entry Radius m	Entry Angle °	Circ Lanes	Entry Lanes	Av.Entry Lane Width m	App. Dist m	Prop Queued Upstr Signal	Extra Bunching %
South	Palladium	30.00	6.00	45.5	20.0	30.0	1	2[18]	4.00	500.0	NA[5]	0.0
East	Campeau	30.00	6.00	45.5	20.0	30.0	1	2	4.00	500.0	NA[5]	0.0
North	Palladium	30.00	9.50	45.5	20.0	30.0	2	2	4.00	500.0	NA[5]	0.0
West	Campeau	30.00	9.50	45.5	20.0	30.0	2	2[18]	4.00	500.0	NA[5]	0.0

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

5 Not Applicable (single Site analysis or unconnected Site in Network analysis).
18 Exclusive slip/bypass lane is included in Entry Lanes count.

Roundabout Entry and Circulating / Exiting Stream Parameters

To Approach	Turn	Lane No	Lane Type	Opng Flow veh/h	Opng Flow pcu/h	In-Bunch Hdwy sec	Prop. Bunched	Cap Const Effect	Priority Sharing	OD Factor	Gap Acc Factor	Follow-up Hdwy (tf) sec	Critical Gap (tc) [Hdwy sec	Dist] m	Ratio tf / tc
South: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
West	L2	1	Dominant	147	148	2.00	0.165	No	Yes[10]	0.984	1.01	2.01	3.83	41.0	0.52
North	T1	1	Dominant	147	148	2.00	0.165	No	Yes[10]	0.984	1.01	2.01	3.83	41.0	0.52
East	R2	2	Continuous												
East: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
South	L2	1	Subdom.	401	405	2.00	0.390	No	Yes[10]	0.965	1.01	2.31	4.22	30.1	0.55
South	L2	2	Dominant	401	405	2.00	0.390	No	Yes[10]	0.965	1.01	1.94	3.54	25.3	0.55
West	T1	2	Dominant	401	405	2.00	0.390	No	Yes[10]	0.965	1.01	1.94	3.54	25.3	0.55
North	R2	2	Dominant	401	405	2.00	0.390	No	Yes[10]	0.965	1.01	1.94	3.54	25.3	0.55
North: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
East	L2	1	Subdom.	809	817	1.38	0.501	No	Yes[10]	0.933	1.01	2.43	3.49	25.5	0.70
South	T1	1	Subdom.	809	817	1.38	0.501	No	Yes[10]	0.933	1.01	2.43	3.49	25.5	0.70
South	T1	2	Dominant	809	817	1.38	0.501	No	Yes[10]	0.933	1.01	2.14	3.07	22.5	0.70
West	R2	2	Dominant	809	817	1.38	0.501	No	Yes[10]	0.933	1.01	2.14	3.07	22.5	0.70
West: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
North	L2	1	Dominant	369	373	1.05	0.211	No	No	0.956	1.01	2.31	3.58	25.3	0.64
East	T1	1	Dominant	369	373	1.05	0.211	No	No	0.956	1.01	2.31	3.58	25.3	0.64
South	R2	2	Continuous												

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

10 Priority sharing means Follow-up Headway plus Intra-bunch Headway is larger than the Critical Gap.

Circulating Lane Flow Rates			
Circ. Lane No	Circulating Flow Rate		
	veh/h	pcu/h	Percent
South: Palladium			
Lane 1	147	148	100.0
Approach	147	148	
East: Campeau			
Lane 1	401	405	100.0
Approach	401	405	
North: Palladium			
Lane 1	187	189	23.2
Lane 2	621	628	76.8
Approach	809	817	
West: Campeau			
Lane 1	195	197	52.9
Lane 2	174	176	47.1
Approach	369	373	

Roundabout Capacity Model: The SIDRA Standard Roundabout Capacity Model option is in use. This model takes into account the total circulating flow as well as the effect of flow distribution in circulating lanes on the entry capacity results.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Lanes)					
Opposed Lane	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium					
1	31.68	3.97	27.71	0.875	0.4
East: Campeau					
1	18.38	5.93	12.44	0.677	1.5
2	17.31	5.05	12.26	0.708	1.1
North: Palladium					
1	13.39	6.12	7.28	0.543	2.2
2	12.51	5.38	7.13	0.570	1.8
West: Campeau					
1	16.15	4.08	12.07	0.748	0.8

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Movements)							
To Approach	Turn	Opsd Lane No	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium							
West	L2	1	31.68	3.97	27.71	0.875	0.4
North	T1	1	31.68	3.97	27.71	0.875	0.4
East: Campeau							
South	L2	1	18.38	5.93	12.44	0.677	1.5
South	L2	2	17.31	5.05	12.26	0.708	1.1
West	T1	2	17.31	5.05	12.26	0.708	1.1
North	R2	2	17.31	5.05	12.26	0.708	1.1
North: Palladium							
East	L2	1	13.39	6.12	7.28	0.543	2.2
South	T1	1	13.39	6.12	7.28	0.543	2.2

South	T1	2	12.51	5.38	7.13	0.570	1.8
West	R2	2	12.51	5.38	7.13	0.570	1.8
West: Campeau							
North	L2	1	16.15	4.08	12.07	0.748	0.8
East	T1	1	16.15	4.08	12.07	0.748	0.8

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

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Appendix F

Collision Data

In [ ]:
```
import pandas as pd
from plotnine import *
```

In [ ]:
```
df = pd.read_csv('Traffic_Collision_Data.csv')
```

In [ ]:
```
df_filtered_campeau = df[df['Location'].str.contains('CAMPEAU')]
df_filtered_palladium = df[df['Location'].str.contains('PALLADIUM')]
df_filtered_hwy417 = df[df['Location'].str.contains('HWY 417')]

df_filtered_J2 = df_filtered_campeau[df_filtered_campeau['Location'].str.contains('PALLADIUM')]
df_filtered_J3 = df_filtered_campeau[df_filtered_campeau['Location'].str.contains('JOURNEYMAN')]
df_filtered_J5 = df_filtered_palladium[df_filtered_palladium['Location'].str.contains('HWY 417')]

df_list = [df_filtered_J2, df_filtered_J3, df_filtered_J5]
df_filtered = pd.DataFrame()
for dataframe in df_list:
    df_filtered = pd.concat([df_filtered, dataframe], axis=0)
```

In [ ]:
```
target_cols = ['Accident_Date', 'Location', 'Light', 'Classification_Of_Accident', 'Traffic_Control', 'Environment_Condition', 'Initial_Impact_Type']
df_filtered = df_filtered[target_cols]
df_filtered
```

Out[ ]:

	Accident_Date	Location	Light	Classification_Of_Accident	Traffic_Control	Environment_Condition	Initial_Impact_Type
29783	2019/01/16	PALLADIUM DR btwn CAMPEAU DR & HWY417 IC142 RA...	01 - Daylight	03 - P.D. only	10 - No control	03 - Snow	07 - SMV other
43650	2019/12/26	CAMPEAU DR @ PALLADIUM DR (0017186)	01 - Daylight	03 - P.D. only	11 - Roundabout	01 - Clear	03 - Rear end
47336	2020/02/20	CAMPEAU DR @ PALLADIUM DR (0017186)	07 - Dark	03 - P.D. only	11 - Roundabout	01 - Clear	02 - Angle
50786	2020/08/13	PALLADIUM DR btwn CAMPEAU DR & HWY417 IC142 RA...	01 - Daylight	03 - P.D. only	10 - No control	01 - Clear	03 - Rear end
61755	2021/10/10	CAMPEAU DR @ PALLADIUM DR (0017186)	07 - Dark	03 - P.D. only	11 - Roundabout	01 - Clear	04 - Sideswipe
66146	2022/02/05	CAMPEAU DR btwn PALLADIUM DR & JOURNEYMAN ST (...	01 - Daylight	02 - Non-fatal injury	10 - No control	01 - Clear	04 - Sideswipe
69433	2022/05/24	CAMPEAU DR @ PALLADIUM DR (0017186)	01 - Daylight	03 - P.D. only	11 - Roundabout	01 - Clear	03 - Rear end
73775	2022/11/26	CAMPEAU DR @ PALLADIUM DR (0017186)	01 - Daylight	03 - P.D. only	11 - Roundabout	01 - Clear	04 - Sideswipe
26415	2018/12/27	CAMPEAU DR @ JOURNEYMAN ST (0016431)	07 - Dark	02 - Non-fatal injury	01 - Traffic signal	01 - Clear	02 - Angle
29284	2019/01/05	CAMPEAU DR @ JOURNEYMAN ST (0016431)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	05 - Turning movement
31066	2019/02/11	CAMPEAU DR @ JOURNEYMAN ST (0016431)	07 - Dark	03 - P.D. only	01 - Traffic signal	01 - Clear	05 - Turning movement
66146	2022/02/05	CAMPEAU DR btwn PALLADIUM DR & JOURNEYMAN ST (...	01 - Daylight	02 - Non-fatal injury	10 - No control	01 - Clear	04 - Sideswipe
68520	2022/05/14	CAMPEAU DR @ JOURNEYMAN ST (0016431)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	03 - Rear end
2037	2017/03/18	PALLADIUM DR @ HWY 417 PALLADIU IC142R36/63 (0...	05 - Dusk	03 - P.D. only	02 - Stop sign	01 - Clear	03 - Rear end
9966	2017/11/01	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	05 - Dusk	03 - P.D. only	01 - Traffic signal	02 - Rain	05 - Turning movement
11295	2017/12/08	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	02 - Angle
12419	2017/12/29	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	04 - Sideswipe
19238	2018/06/10	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	03 - Rear end
23640	2018/10/07	PALLADIUM DR @ HWY 417 PALLADIU IC142R36/63 (0...	07 - Dark	03 - P.D. only	02 - Stop sign	01 - Clear	07 - SMV other
24601	2018/11/08	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	07 - Dark	03 - P.D. only	01 - Traffic signal	01 - Clear	03 - Rear end
29031	2019/01/20	PALLADIUM DR @ HWY 417 PALLADIU IC142R36/63 (0...	01 - Daylight	03 - P.D. only	02 - Stop sign	03 - Snow	02 - Angle
37700	2019/08/20	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	03 - Dawn	03 - P.D. only	01 - Traffic signal	01 - Clear	05 - Turning movement
46923	2020/02/01	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	07 - Dark	03 - P.D. only	01 - Traffic signal	01 - Clear	03 - Rear end
47429	2020/02/09	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	03 - Rear end
50303	2020/07/24	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	05 - Turning movement
58523	2021/06/12	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	05 - Turning movement
62753	2021/11/26	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	07 - Dark	03 - P.D. only	01 - Traffic signal	01 - Clear	03 - Rear end
62930	2021/12/01	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	02 - Non-fatal injury	01 - Traffic signal	01 - Clear	03 - Rear end
65489	2022/01/04	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	03 - Rear end
67506	2022/03/25	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	03 - Rear end

In [ ]:
```
print(f'Number of collisions: {df_filtered.Location.shape[0]}. \n')

print('Classification of accidents')
print(f"Number of Property damage: {df_filtered.Classification_Of_Accident.str.count('P.D.').sum()}.")
print(f"Number of Non-fatal injuries: {df_filtered.Classification_Of_Accident.str.count('Non-fatal').sum()}. \n")

print('Initial Imapct Types')
print(f"Number of Rear-end collisions: {df_filtered.Initial_Impact_Type.str.count('Rear').sum()}.")
print(f"Number of Angle collisions: {df_filtered.Initial_Impact_Type.str.count('Angle').sum()}.")
print(f"Number of Turning collisions: {df_filtered.Initial_Impact_Type.str.count('Turning').sum()}.")
print(f"Number of Sideswipes: {df_filtered.Initial_Impact_Type.str.count('Sideswipe').sum()}.")
print(f"Number of SMV Others: {df_filtered.Initial_Impact_Type.str.count('SMV').sum()}. \n")

print('Road Surface Conditions')
print(f"Number of accidents associated with Clear: {df_filtered.Environment_Condition.str.count('Clear').sum()}.")
print(f"Number of accidents associated with Rain: {df_filtered.Environment_Condition.str.count('Rain').sum()}.")
print(f"Number of accidents associated with Snow: {df_filtered.Environment_Condition.str.count('Snow').sum()}.")
```

```
Number of collisions: 30.

Classification of accidents
Number of Property damage: 26.
Number of Non-fatal injuries: 4.

Initial Imapct Types
Number of Rear-end collisions: 13.
Number of Angle collisions: 4.
Number of Turning collisions: 6.
Number of Sideswipes: 5.
Number of SMV Others: 2.

Road Surface Conditions
Number of accidents associated with Clear: 27.
Number of accidents associated with Rain: 1.
Number of accidents associated with Snow: 2.
```

In [ ]:
```
#Highway 417 WB Off-ramp
df_filtered_wb = df_filtered[df_filtered['Location'].str.contains('IC142R52')]

print('For Highway 417 Westbound Off-ramp: \n')
print(f'Number of collisions: {df_filtered_wb.Location.shape[0]}. \n')

print('Classification of accidents')
print(f"Number of Property damage: {df_filtered_wb.Classification_Of_Accident.str.count('P.D.').sum()}.")
print(f"Number of Non-fatal injuries: {df_filtered_wb.Classification_Of_Accident.str.count('Non-fatal').sum()}. \n")

print('Initial Imapct Types')
print(f"Number of Rear-end collisions: {df_filtered_wb.Initial_Impact_Type.str.count('Rear').sum()}.")
print(f"Number of Angle collisions: {df_filtered_wb.Initial_Impact_Type.str.count('Angle').sum()}.")
print(f"Number of Turning collisions: {df_filtered_wb.Initial_Impact_Type.str.count('Turning').sum()}.")
print(f"Number of Sideswipes: {df_filtered_wb.Initial_Impact_Type.str.count('Sideswipe').sum()}.")
print(f"Number of SMV Others: {df_filtered_wb.Initial_Impact_Type.str.count('SMV').sum()}. \n")

print('Road Surface Conditions')
print(f"Number of accidents associated with Clear: {df_filtered_wb.Environment_Condition.str.count('Clear').sum()}.")
print(f"Number of accidents associated with Rain: {df_filtered_wb.Environment_Condition.str.count('Rain').sum()}.")
print(f"Number of accidents associated with Snow: {df_filtered_wb.Environment_Condition.str.count('Snow').sum()}.")
```

```
For Highway 417 Westbound Off-ramp:

Number of collisions: 14.

Classification of accidents
Number of Property damage: 13.
Number of Non-fatal injuries: 1.

Initial Imapct Types
Number of Rear-end collisions: 8.
Number of Angle collisions: 1.
Number of Turning collisions: 4.
Number of Sideswipes: 1.
Number of SMV Others: 0.

Road Surface Conditions
Number of accidents associated with Clear: 13.
Number of accidents associated with Rain: 1.
Number of accidents associated with Snow: 0.
```

In [ ]:
```
df_filtered_wb
```

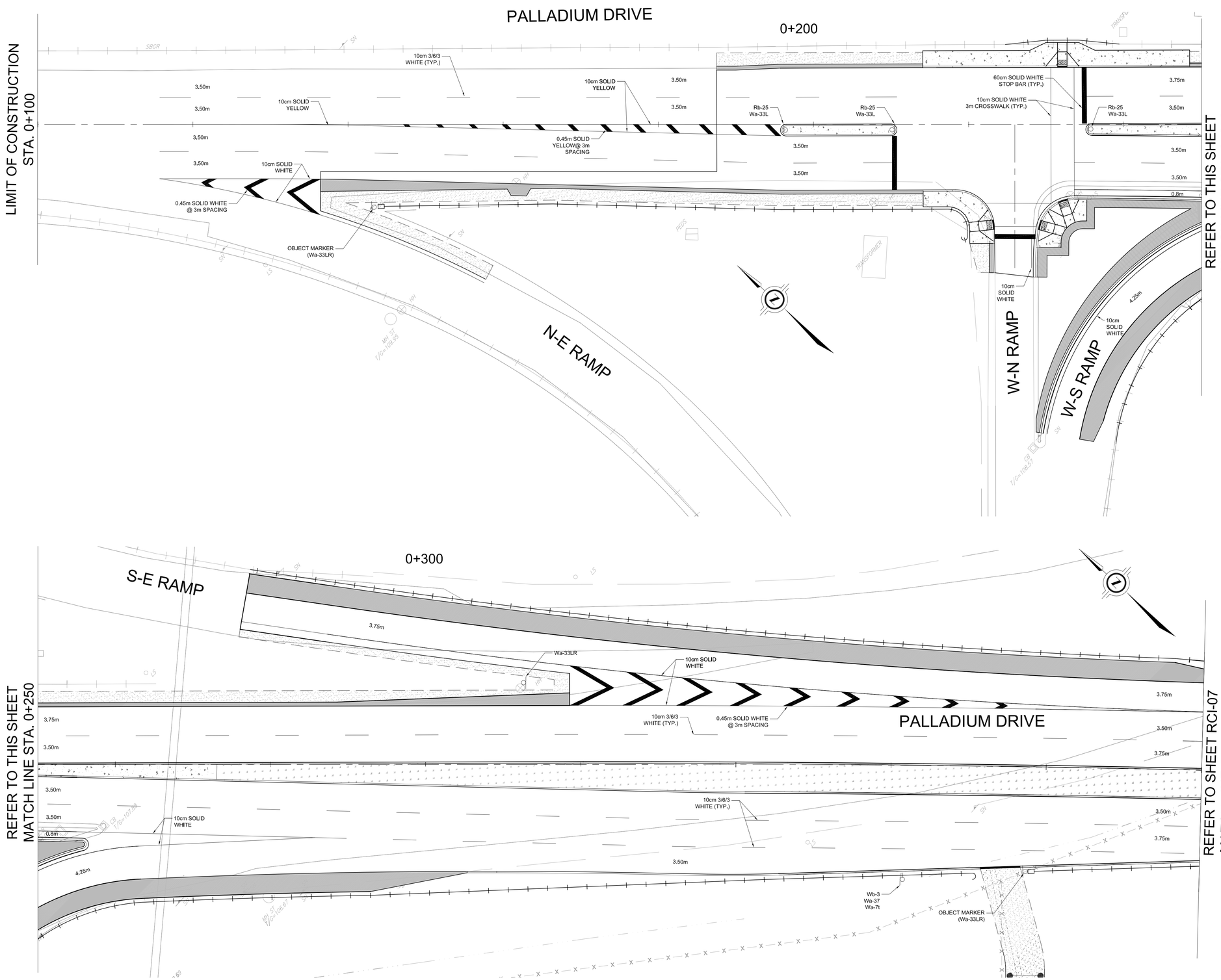
Out[ ]:

	Accident_Date	Location	Light	Classification_Of_Accident	Traffic_Control	Environment_Condition	Initial_Impact_Type
9966	2017/11/01	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	05 - Dusk	03 - P.D. only	01 - Traffic signal	02 - Rain	05 - Turning movement
11295	2017/12/08	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	02 - Angle
12419	2017/12/29	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	04 - Sideswipe
19238	2018/06/10	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	03 - Rear end
24601	2018/11/08	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	07 - Dark	03 - P.D. only	01 - Traffic signal	01 - Clear	03 - Rear end
37700	2019/08/20	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	03 - Dawn	03 - P.D. only	01 - Traffic signal	01 - Clear	05 - Turning movement
46923	2020/02/01	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	07 - Dark	03 - P.D. only	01 - Traffic signal	01 - Clear	03 - Rear end
47429	2020/02/09	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	03 - Rear end
50303	2020/07/24	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	05 - Turning movement
58523	2021/06/12	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	05 - Turning movement
62753	2021/11/26	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	07 - Dark	03 - P.D. only	01 - Traffic signal	01 - Clear	03 - Rear end
62930	2021/12/01	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	02 - Non-fatal injury	01 - Traffic signal	01 - Clear	03 - Rear end
65489	2022/01/04	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	03 - Rear end
67506	2022/03/25	HWY 417 PALLADI IC142R52 @ PALLADIUM DR (0010683)	01 - Daylight	03 - P.D. only	01 - Traffic signal	01 - Clear	03 - Rear end

In [ ]:
```
df_filtered.to_csv()
```

Appendix G

Junction Geometric Design at Eastbound Ramp of Highway 417



195 HUNTMAR DRIVE
HWY 417 RAMP TERMINAL TO
NORTH ROUNDABOUT LIMITS

PAVEMENT MARKINGS & SIGNAGE I
STA. 0+100 TO STA. 0+250
STA. 0+250 TO STA. 0+400

Robinson Consultants

LICENSED PROFESSIONAL ENGINEER
R. E COTNAM
100078713
PROVINCE OF ONTARIO
22/07/21

Ottawa

Contract No.	Dwg. No.
	RCI-06

Sheet - of -

Asset No.

Asset Group

Des.	Chk'd.
O.M.	R.G.
Dwn.	Chk'd.
O.M.	R.G.
Utility Circ. No.	Index No.

Const. Inspector

Scale: HORIZONTAL
0m 5 10

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

REVISIONS

No.	Description	By	Date (dd/mm/yy)
0	ISSUED FOR COMMENTS - INTERNAL CIRCULATION	R.G.	27.01.21
1	PRELIMINARY DESIGN SUBMISSION	R.G.	05.02.21
2	90% SUBMISSION	R.G.	30.04.21
3	90% SUBMISSION RE-ISSUED	R.G.	12.05.21
4	90% SUBMISSION RE-ISSUED	R.G.	12.06.08
5	100% SUBMISSION	R.G.	22.07.21

NOT FOR CONSTRUCTION


Ra-2


Rb-21
Wa-38


Rb-25
Wa-33L

Wa-17
Wa-33LR


Ra-5L

Ra-5R



SIGN 2

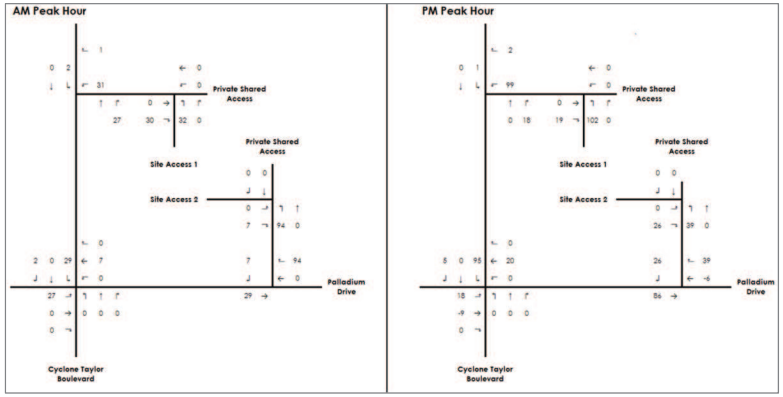


Wb-3
Wa-37
Wa-7t

Appendix H

Trip Generations of Background Developments

Figure 12 - Net Site Generated Traffic Volumes



As shown in **Table 4.1**, the proposed development is anticipated to generate 110 two-way trips (61 inbound and 49 outbound) during the AM peak hours and 119 two-way trips (60 inbound and 59 outbound) during the PM peak hours.

The assumptions for the trip distribution rates are based on the existing traffic patterns at the Campeau Drive and Palladium Drive intersection, and routes that drivers would likely take to access the subject site and engineering judgement based on ease of site access. As a result, site trip distribution is summarized for the inbound and outbound site traffic movements during the morning and afternoon peak hours in **Table 4.2**.

Table 4.2 – Site Traffic Trip Distribution

Direction	Via	AM Peak Hour		PM Peak Hour	
		Inbound	Outbound	Inbound	Outbound
North	Palladium Drive	8%	8%	2%	2%
South	Palladium Drive	42%	42%	55%	55%
East	Campeau Drive	36%	36%	32%	32%
West	Campeau Drive	14%	14%	11%	11%
Total		**100%**	**100%**	**100%**	**100%**

Figure 4-1 - Site Generated Traffic Volumes

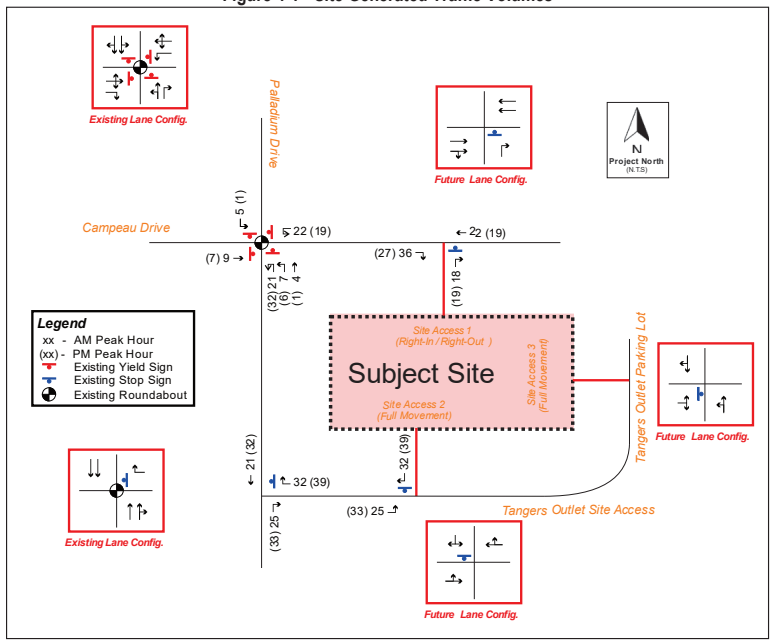


Table 4: Mode Shares for the Office Building Development

Travel Mode	Mode Share	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
		In	Out	Total	In	Out	Total
Auto Driver	60%	111	18	129	21	108	129
Auto Passenger	15%	28	5	33	5	27	32
Transit	10%	18	3	21	3	18	21
Non-motorized	15%	27	4	31	5	27	32
Total Person Trips	100%	184	30	214	34	180	214
Total 'New' Auto Trips		**111**	**18**	**129**	**21**	**108**	**129**

As shown in **Table 4**, the number of Total Person Trips and number of 'New' Auto Trips expected to be generated by the proposed development are approximately 214 person trips/h and 129 vehicle trips/h, respectively, during both the morning and afternoon weekday peak hour periods.

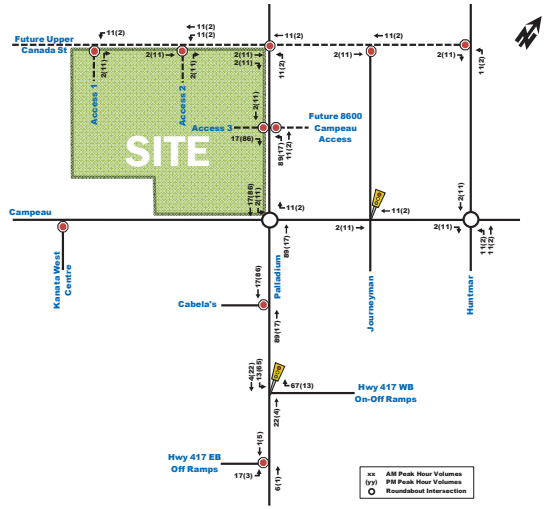
3.1.2. TRIP DISTRIBUTION AND ASSIGNMENT

Based on the 2011 NCR Household Origin-Destination Survey (Kanata – Stittsville district) and the location of adjacent arterial roadways and neighbourhoods, the distribution of site-generated traffic volumes was estimated as follows:

- 25% to/from the north;
- 10% to/from the south;
- 60% to/from the east; and,
- 5% to/from the west.

The expected site-generated auto trips in **Table 4** were then assigned to the road networks as shown in **Figure 9** below, based on existing traffic volumes, estimated travel times and engineering judgement.

Figure 9: Kinaxis Office Development Site-Generated Traffic



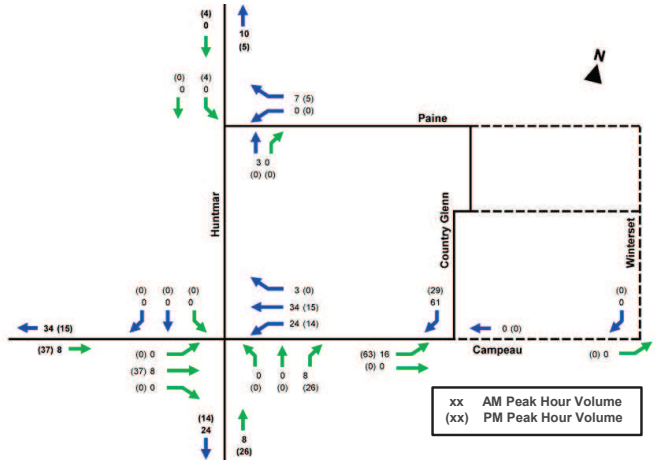


Figure 5: Site-Generated Traffic – Stage 3 Build-Out

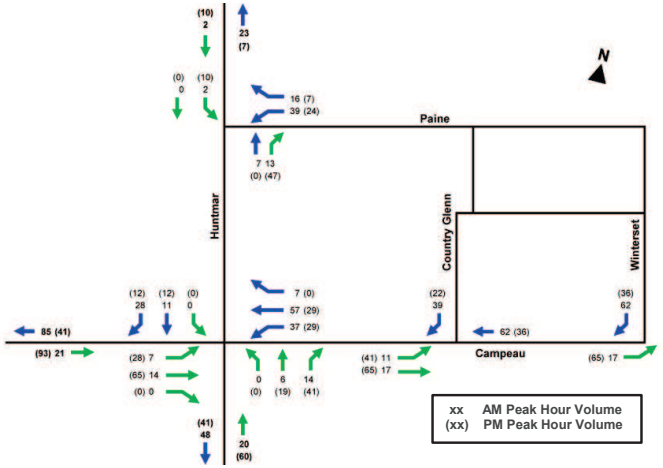


Figure 6: Site-Generated Traffic – Stage 3 and 4 Build-Out

3.1.3. TRIP DISTRIBUTION AND ASSIGNMENT

Given the low projected number of vehicle trips projected to be generated by the proposed development, the future roadway network impact is considered negligible. However, a review of the number of vehicles projected to enter/exit the site at the proposed site driveways is provided as Figure 7.

Figure 7: Site-Generated Vehicle Trips

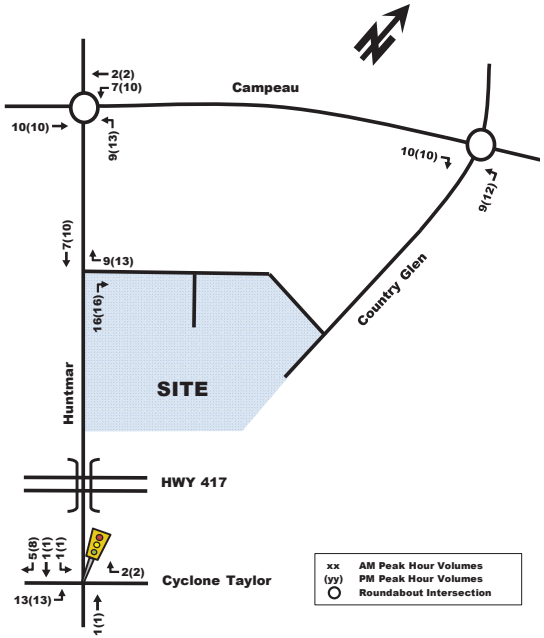
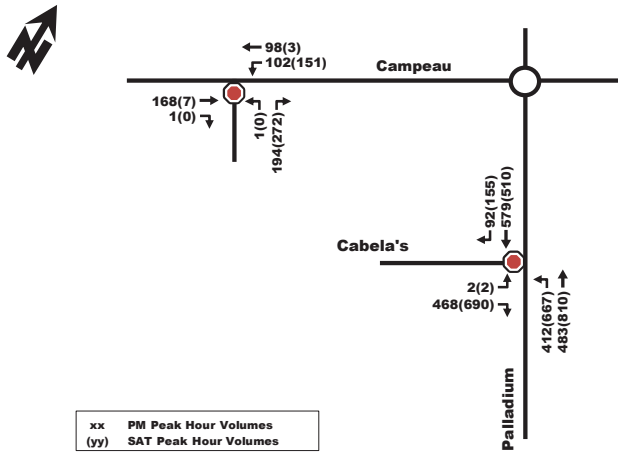


Figure 5: Scenario 1 – Existing and Projected Site-Generated Vehicle Trips



Scenario 1 assumed that the Campeau Drive extension across the Carp River is not yet completed. As such, the majority of site-related traffic is projected to travel to/from HWY 417 along Palladium Drive and as a result the unsignalized left-in/right-in/right-out driveway is heavily used.

Figure 6: Scenario 2 – Existing and Projected Site-Generated Vehicle Trips

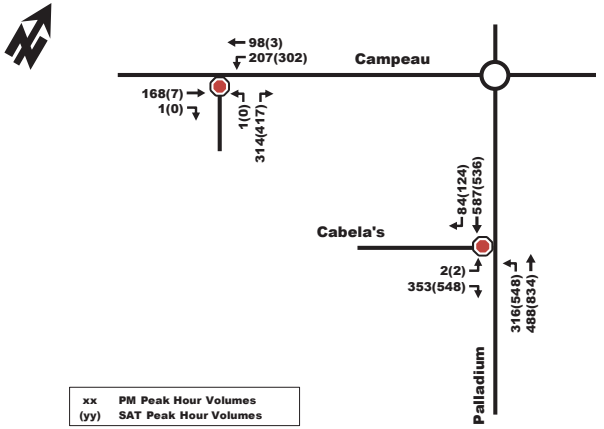


Table 4: Projected Site Traffic Generation as of 2017 Site Plan (AM/PM and SAT peak hour)

Land Use	Area	AM Peak (veh/h)			PM Peak (veh/h)			SAT Peak (veh/h)		
		In	Out	Total	In	Out	Total	In	Out	Total
Sporting Goods (Cabela's)	68,890 ft²	0	0	0	51	78	129	244	261	505
Large Format Retail	120,000 ft²	88	72	159	212	230	442	317	316	633
Shopping Centre	68,262 ft²	65	41	106	188	205	393	300	277	577
Fast Food Restaurant	5,220 ft²	103	99	202	75	70	145	133	128	261
Auto Parts/ Furniture Stores	83,115 ft²	41	39	80	108	115	223	10	12	22
UPS Distribution	53,184 ft²	60	68	128	69	59	128	0	0	0
Industrial Park	165,000 ft²	97	22	119	28	107	135	0	0	0
Large Format Retail Pass-by (30%)		-24	-24	-48	-66	-66	-132	-95	-95	-190
Shopping Centre Pass-by (30%)		-16	-16	-32	-59	-59	-118	-87	-87	-174
Fast Food Restaurant Pass-by (50%)		-51	-51	-102	-36	-36	-72	-65	-65	-130
Auto Parts/Furniture Stores Pass-by (5%)		-2	-2	-4	-6	-6	-12	-1	-1	-2
Multi-Purpose Trips (5%)		-18	-13	-31	-28	-34	-62	-31	-30	-61
Addendum #12 'New' Auto Trips		**343**	**235**	**577**	**536**	**663**	**1,199**	**725**	**716**	**1,441**
Previous Site Plan 'New' Auto Trips (2015 and 2014)		*492*	*174*	*666*	*474*	*760*	*1,234*	*665*	*607*	*1,272*

As shown in Table 2, the total projected site-generated vehicle trips associated with the revised Plan are approximately 575 veh/h, 1,200 veh/h and 1,440 veh/h two-way total, during the weekday morning, afternoon and Saturday peak hours, respectively. When compared to the previously submitted Site Plan, the weekday morning and afternoon peak hour traffic generations are relatively consistent. During the Saturday peak hour, the revised Site Plan is expected to generate an additional 170 veh/h than previously estimated (only a 12% increase).

3.3 Future Traffic Conditions

The figures listed below present the following future traffic conditions:

- Proposed site-generated traffic volumes in 2024 are shown in **Figure 5**;
- Background traffic volumes in 2024 are shown in **Figure 6**;
- Background traffic volumes in 2029 are shown in **Figure 7**;
- Total traffic volumes in 2024 are shown in **Figure 8**;
- Total traffic volumes in 2029 are shown in **Figure 9**.

Figure 5: Site-Generated Volumes

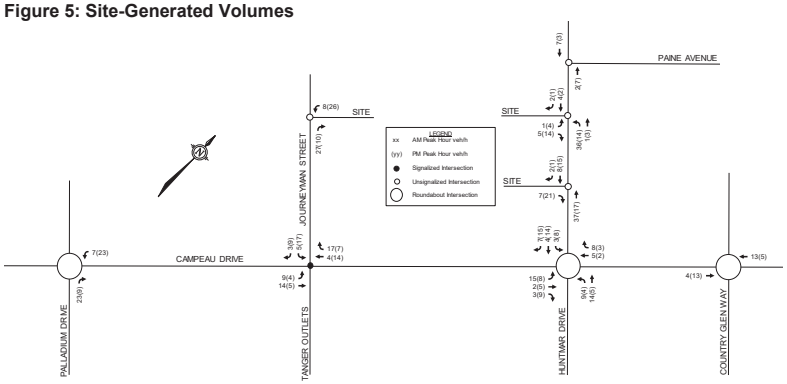


Figure 11: New Site Generation Auto Volumes

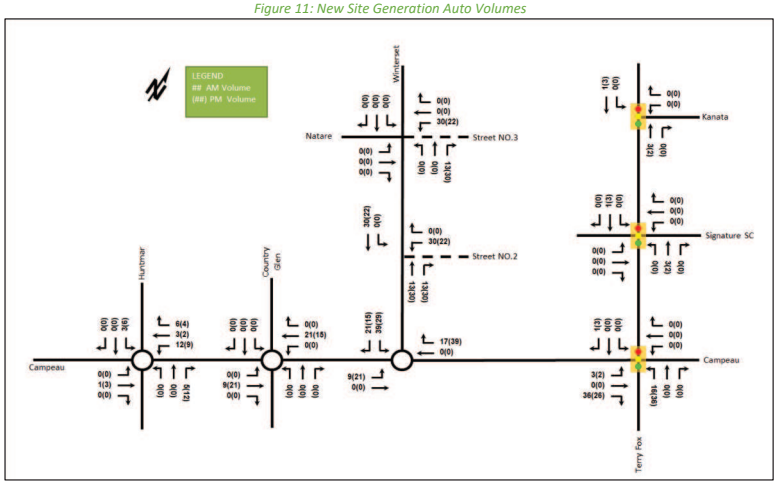


Figure 11: New Site Generation Auto Volumes

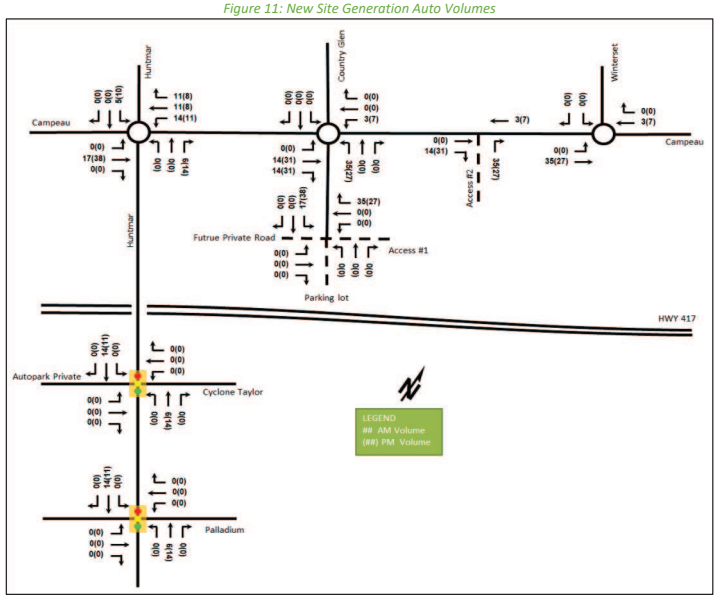


Figure 20: Trip Assignment

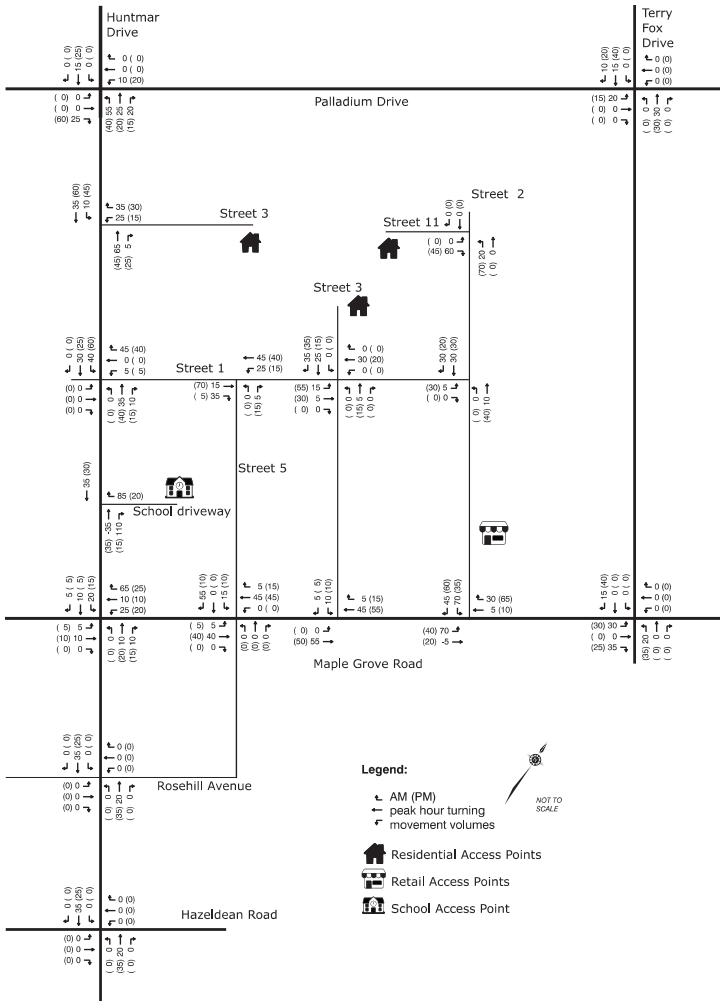
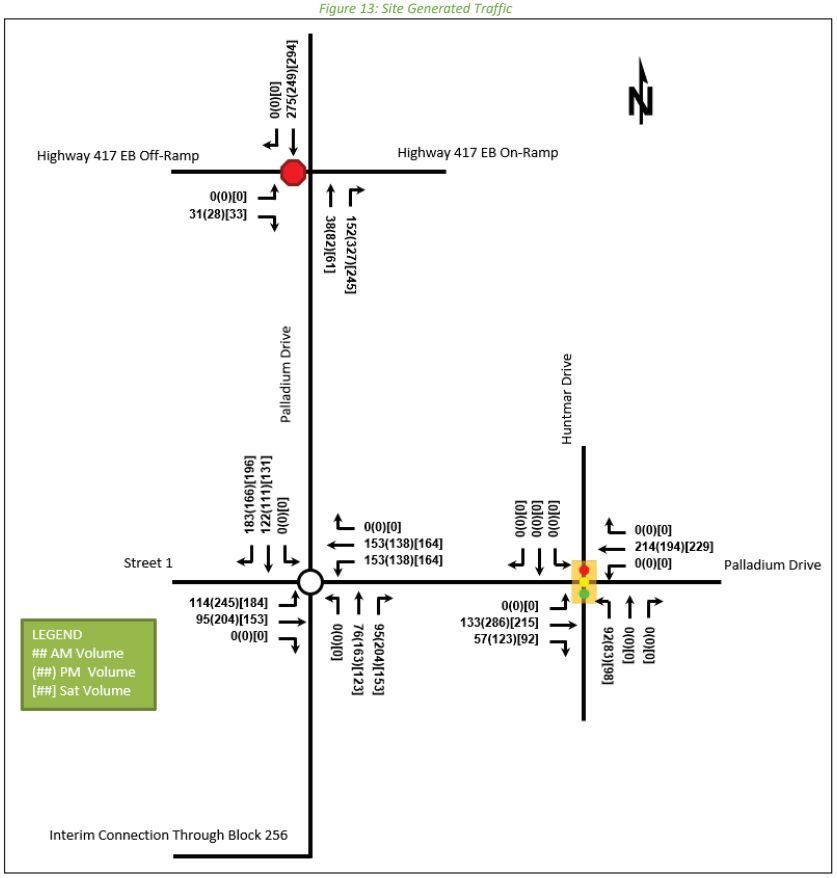


Figure 13: Site Generated Traffic



3.1.2. TRIP DISTRIBUTION AND ASSIGNMENT

Based on the 2011 NCR Household Origin-Destination Survey (Kanata – Stittsville district) and the location of adjacent arterial roadways and neighbourhoods, the distribution of site-generated traffic volumes was estimated as follows:

- 25% to/from the north;
- 10% to/from the south;
- 60% to/from the east; and,
- 5% to/from the west.

The expected site-generated auto trips in Table 15 and Table 16 were then assigned to the road networks as shown in Figure 12 and Figure 13, by assessing the flow of existing traffic volumes and the estimated travel times.

Figure 12: Purolator Facility Site-Generated Traffic (Phase 1)

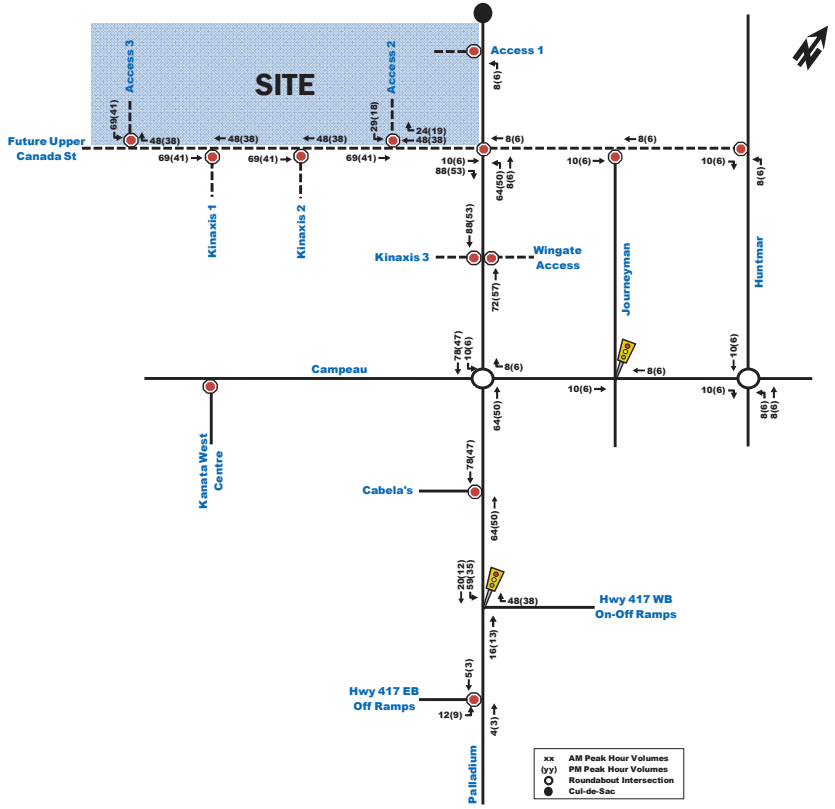
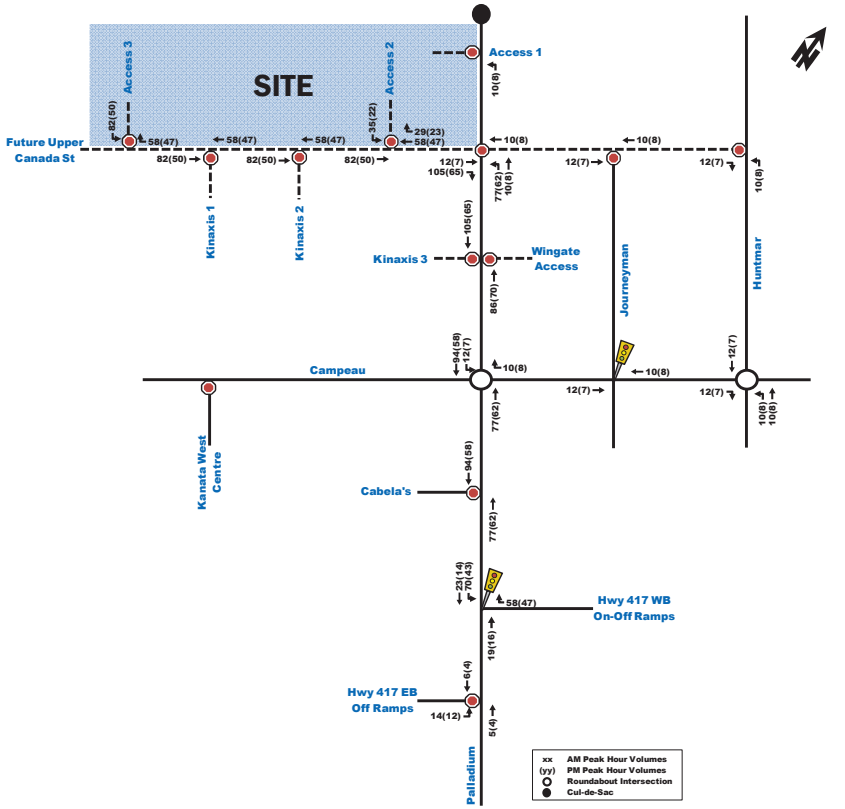


Figure 13: Purolator Facility Site-Generated Traffic (Phase 2)



It was assumed that 25% of site traffic would travel to/from Huntmar Rd, while 75% would use Hwy 417. The majority of employees and customers were anticipated to use Site Access 3, along the future Upper Canada Street, to enter and exit the development site. The remainder would use accesses 1 and 2, with access 1 being used mainly by inbound delivery and transport trucks.

Table 6: Site-Generated Trips by Travel Mode, Horizon Year 2023

Travel Mode	Mode Share	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
		In	Out	Total	In	Out	Total
Auto Driver	65%	26	8	34	10	26	36
Auto Passenger	15%	6	2	8	2	6	8
Transit	15%	6	2	8	2	6	8
Walk	2%	0	0	0	0	1	1
Bike	3%	1	0	1	0	1	1
Total Person Trips	100%	39	12	51	14	40	54
Total Auto Trips		**26**	**8**	**34**	**10**	**26**	**36**

As shown in Table 6, the anticipated number of total auto trips generated by proposed development is approximately 34 to 36 veh/h at horizon year 2023, during the morning and afternoon peak hours.

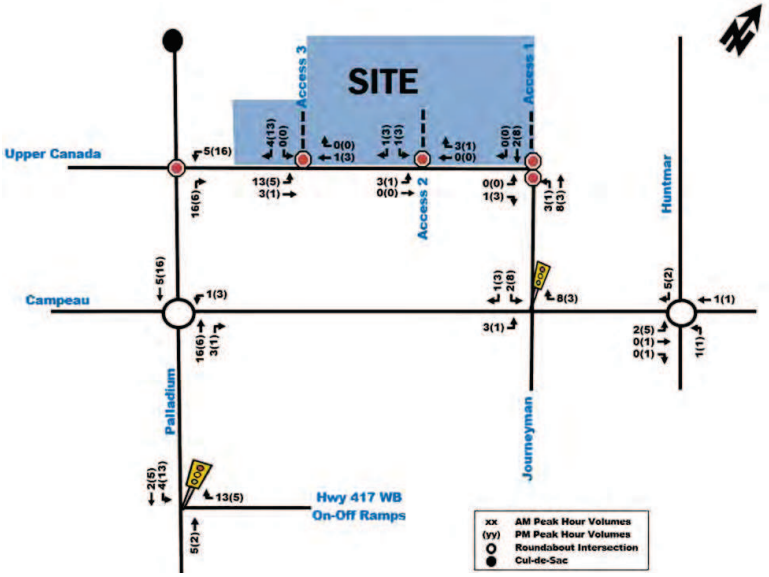
3.1.2. Trip Distribution and Assignment

Based on the 2011 OD Survey (Kanata – Stittsville district) and the location of adjacent arterial roadways and neighbourhoods, the distribution of site-generated traffic volumes was estimated as follows:

- 25% to/from the north;
- 5% to/from the south;
- 60% to/from the east; and,
- 10% to/from the west.

The anticipated site-generated auto trips for the proposed development from Table 6 were then assigned to the road network as shown in Figure 10.

Figure 10: Site-Generated Traffic



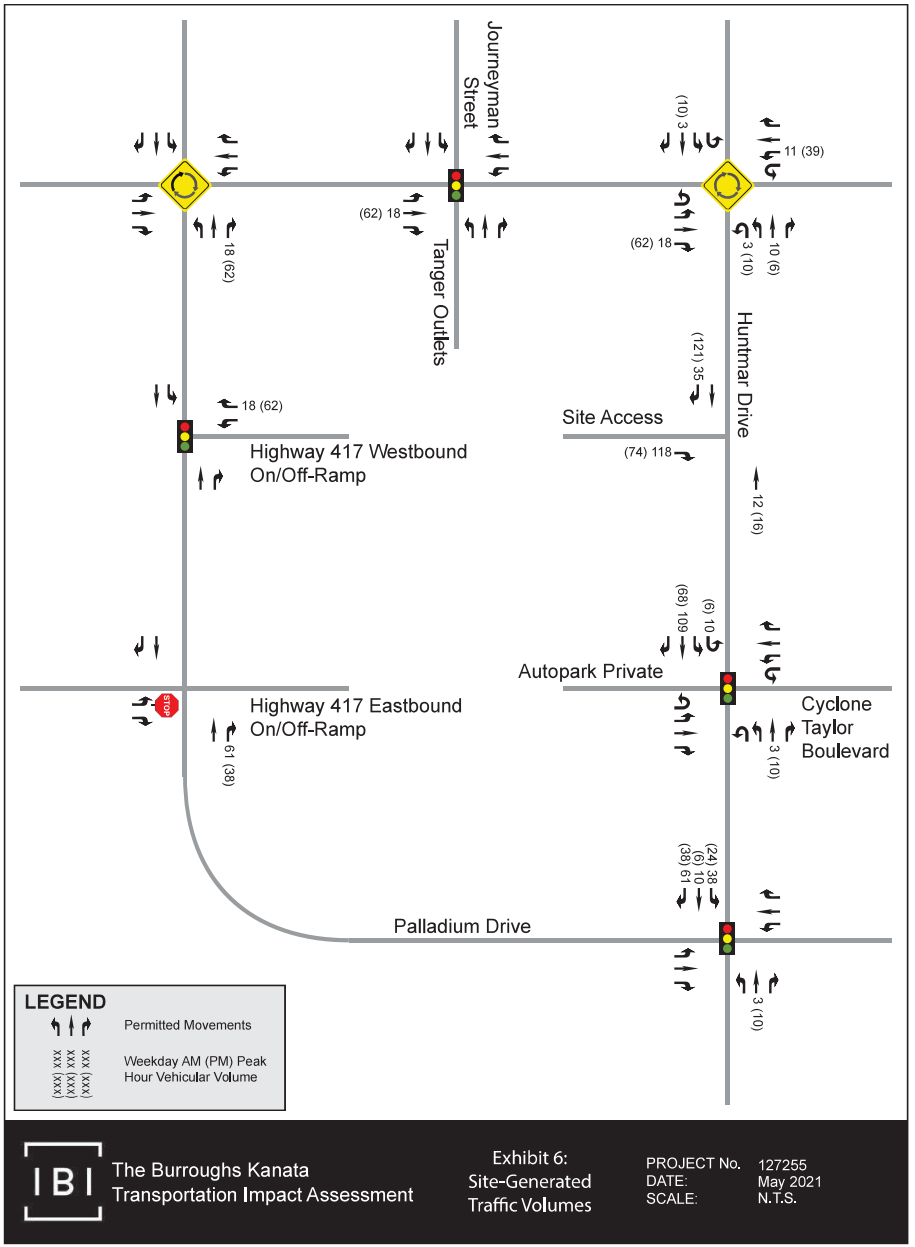


Figure 12: Maritime Ontario Facility Site-Generated Traffic (Phase 1)

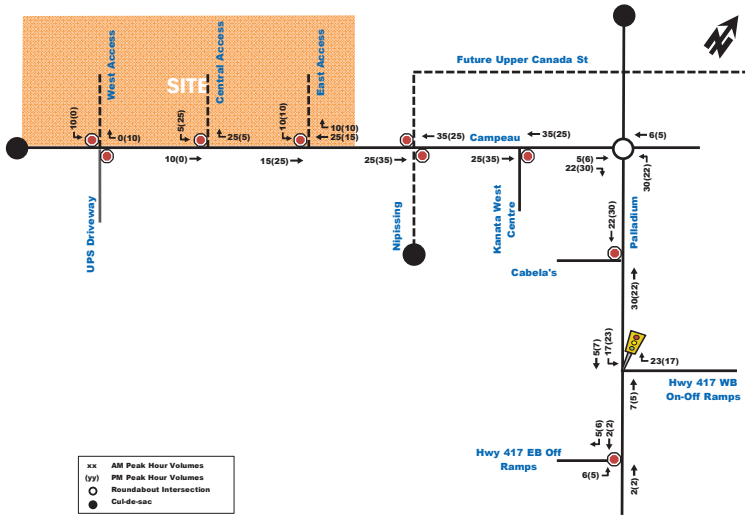


Figure 13: Maritime Ontario Facility Site-Generated Traffic (Phase 2)

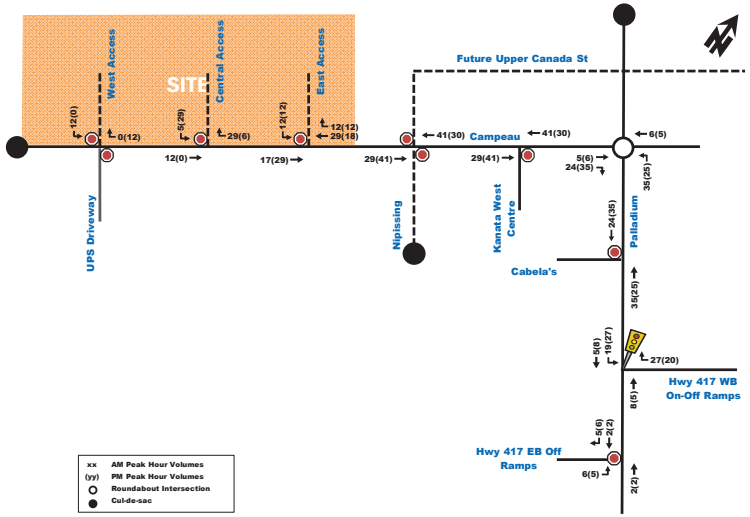


Figure 12: New Site Generation Auto Volumes

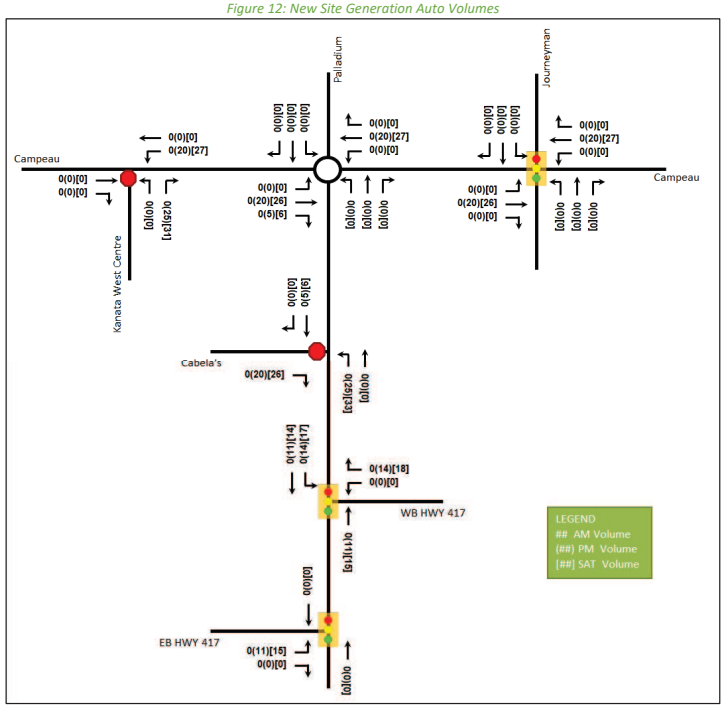


Figure 13: Pass-By Volumes

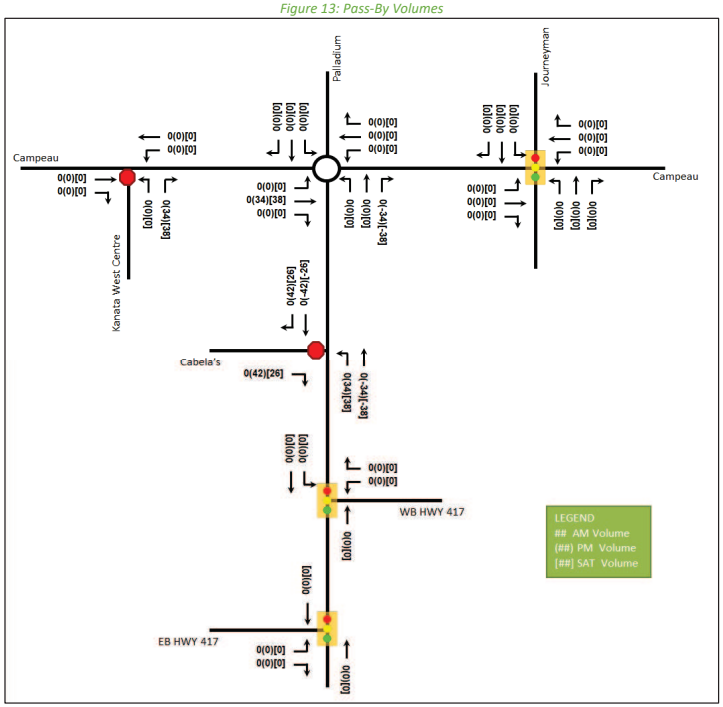
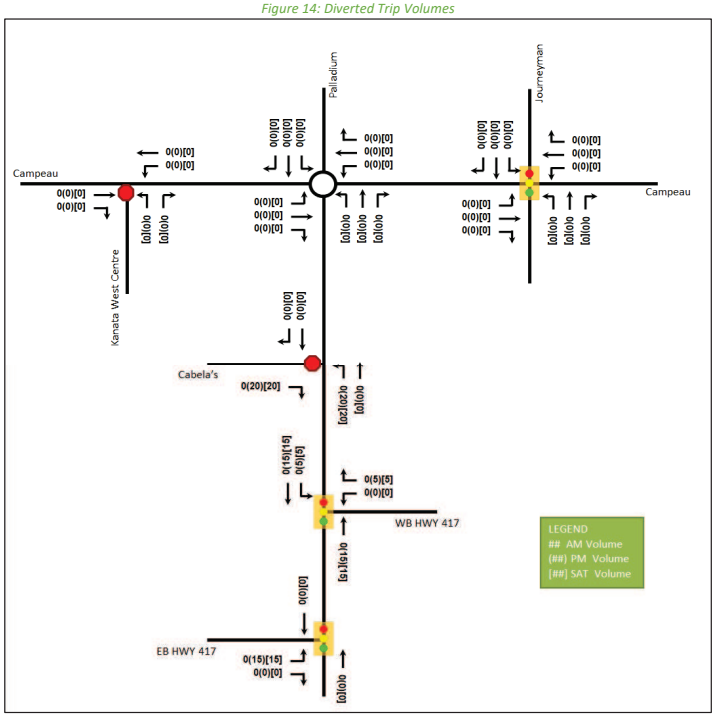


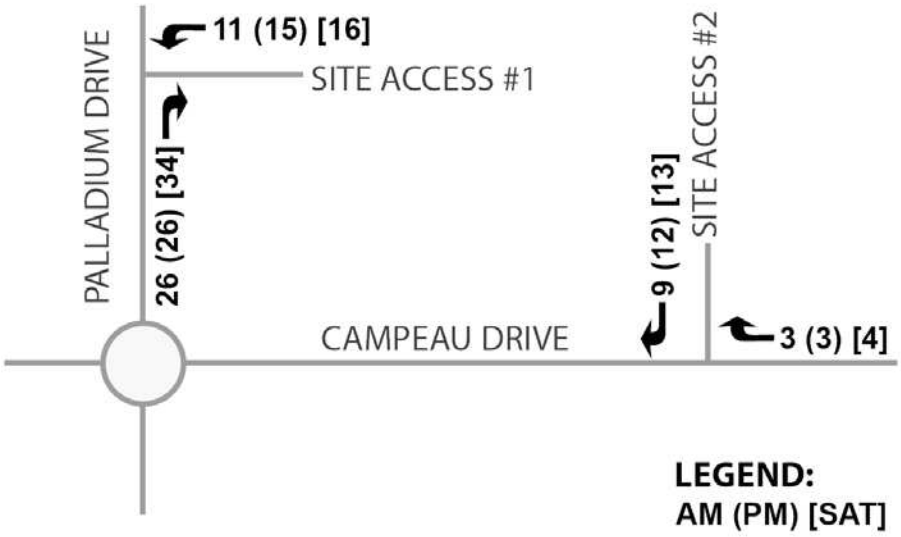
Figure 14: Diverted Trip Volumes



3.1.7 Trip Assignment

Utilizing the estimated number of new auto trips and applying the above distribution, future site-generated traffic volumes at each of the proposed site access driveways have been illustrated in **Figure 3** as follows**:**

Figure 3 - Site-Generated Traffic



- **Based on the anticipated turning movement volumes illustrated in Figure 3 above, it is not expected that there will be any operational impacts at either of the site access driveways and therefore no further analysis is required.**

3.2 Background Network Traffic

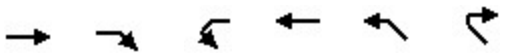
The purpose of this module of the TIA Guidelines is to develop future background traffic volumes by building on existing volumes through the application of site generated traffic volumes from adjacent planned developments and the application of an annual growth rate to capture any non-specific background traffic growth that the study area may experience. A significant amount of analysis has been previously undertaken by Parsons as part of the Community Transportation Study for the Kanata West Business Park to determine the future road network needs in accommodating both the build-out of the Business Park and the surrounding area. As such, the evaluation of future traffic conditions has already been completed and the road network has been designed and constructed to accommodate the future long-terms needs of the area. According to Addendum #12 (May 2017) of the CTS, the latest total trip generation volumes for the build-out of the Business Park were found to be generally consistent with those of the original study. This recent update confirms the adequacy of this newly-built infrastructure to accommodate the expected growth over the 20-year build-out of the surrounding lands.

3.2.1 Transportation Network Plans

Not Applicable. Future changes to the transportation network were considered in the design and construction of the boundary streets to the site.

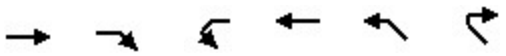
Appendix I

Synchro and Sidra Reports (Background 2027)



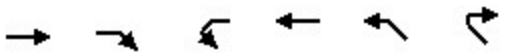
Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	86	1	59	57	2	106
Future Volume (vph)	86	1	59	57	2	106
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.867	
Flt Protected			0.950		0.999	
Satd. Flow (prot)	1743	0	1658	1745	1511	0
Flt Permitted			0.950		0.999	
Satd. Flow (perm)	1743	0	1658	1745	1511	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	96	1	66	63	2	118
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	0	66	63	120	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.8%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	0.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			15.0		15.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.999				0.867	
Flt Protected			0.950		0.999	
Satd. Flow (prot)	1743	0	1658	1745	1511	0
Flt Permitted			0.950		0.999	
Satd. Flow (perm)	1743	0	1658	1745	1511	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	

Intersection Summary	
Area Type:	Other



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	86	1	59	57	2	106
Future Volume (Veh/h)	86	1	59	57	2	106
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	96	1	66	63	2	118
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			97		292	97
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			97		292	97
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		100	88
cM capacity (veh/h)			1496		668	960

Direction, Lane #	EB 1	WB 1	WB 2	NW 1
Volume Total	97	66	63	120
Volume Left	0	66	0	2
Volume Right	1	0	0	118
cSH	1700	1496	1700	953
Volume to Capacity	0.06	0.04	0.04	0.13
Queue Length 95th (m)	0.0	1.1	0.0	3.3
Control Delay (s/veh)	0.0	7.5	0.0	9.3
Lane LOS		A		A
Approach Delay (s/veh)	0.0	3.8		9.3
Approach LOS				A

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	23.8%	ICU Level of Service	A
Analysis Period (min)	15		

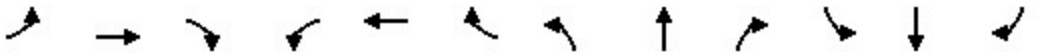
Intersection	
Int Delay, s/veh	4.6

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	86	1	59	57	2	106
Future Vol, veh/h	86	1	59	57	2	106
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	96	1	66	63	2	118

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	97	0	292	97
Stage 1	-	-	-	-	97	-
Stage 2	-	-	-	-	195	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1496	-	699	959
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	838	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1496	-	668	959
Mov Cap-2 Maneuver	-	-	-	-	668	-
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	801	-

Approach	EB	WB	NW
HCM Control Delay, s/v	0	3.8	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	951	-	-	1496	-
HCM Lane V/C Ratio	0.126	-	-	0.044	-
HCM Control Delay (s/veh)	9.3	-	-	7.5	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

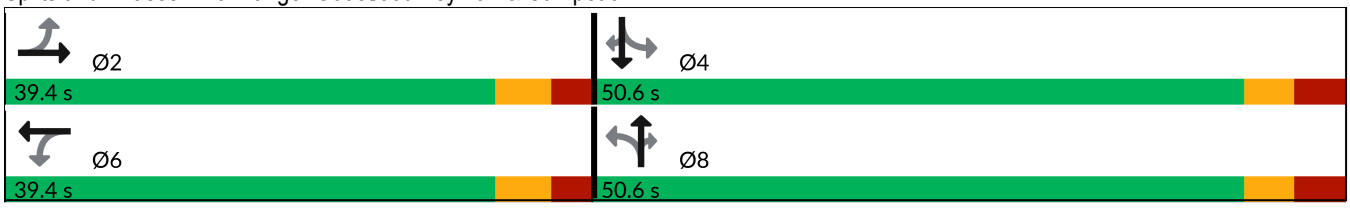


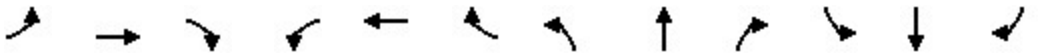
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	575	18	100	343	13	41	0	98	30	0	17
Future Volume (vph)	21	575	18	100	343	13	41	0	98	30	0	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.995			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3299	0	1658	3268	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.494			0.270			0.757			0.757		
Satd. Flow (perm)	862	3299	0	471	3268	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			5				108			283
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	
Confl. Peds. (#/hr)							5					5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	23	639	20	111	381	14	46	0	109	33	0	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	659	0	111	395	0	46	0	109	33	0	19
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm		Perm	Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		6	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	39.4	39.4		39.4	39.4		39.8	39.8	39.8	39.8	39.8	39.8
Total Split (s)	39.4	39.4		39.4	39.4		50.6	50.6	50.6	50.6	50.6	50.6
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.2%	56.2%	56.2%	56.2%	56.2%	56.2%
Maximum Green (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7		2.7	2.7		3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		26.0	26.0	26.0	26.0	26.0	26.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	5	5	5
Act Effct Green (s)	22.3	22.3		22.3	22.3		44.1		44.1	44.1		44.1
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.55		0.55	0.55		0.55
v/c Ratio	0.09	0.71		0.84	0.43		0.06		0.12	0.04		0.02
Control Delay (s/veh)	20.9	29.8		74.2	24.1		10.6		3.0	10.6		0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Total Delay (s/veh)	20.9	29.8		74.2	24.1		10.6		3.0	10.6		0.0
LOS	C	C		E	C		B		A	B		A
Approach Delay (s/veh)		29.6			35.1			5.3			6.7	
Approach LOS		C			D			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 79.7			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay (s/veh): 28.0		Intersection LOS: C	
Intersection Capacity Utilization 69.5%		ICU Level of Service C	
Analysis Period (min) 15			

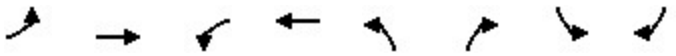
Splits and Phases: 3: Tanger Outlet/Journeyman & Campeau





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.995			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3299	0	1658	3268	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.494			0.270			0.757			0.757		
Satd. Flow (perm)	862	3299	0	471	3268	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			5				108			283
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	

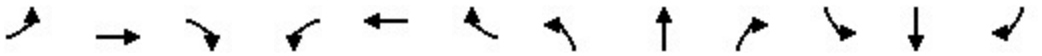
Intersection Summary	
Area Type:	Other



Lane Group	EBL	EBT	WBL	WBT	NBL	NBR	SBL	SBR
Lane Group Flow (vph)	23	659	111	395	46	109	33	19
v/c Ratio	0.09	0.71	0.84	0.43	0.06	0.12	0.04	0.02
Control Delay (s/veh)	20.9	29.8	74.2	24.1	10.6	3.0	10.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.9	29.8	74.2	24.1	10.6	3.0	10.6	0.0
Queue Length 50th (m)	2.5	46.3	15.6	25.1	2.8	0.1	2.0	0.0
Queue Length 95th (m)	7.7	62.8	#40.9	36.4	9.7	7.9	7.6	0.0
Internal Link Dist (m)		316.8		140.3				
Turn Bay Length (m)	45.0		50.0		24.5		50.0	
Base Capacity (vph)	359	1377	196	1365	720	869	730	934
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.48	0.57	0.29	0.06	0.13	0.05	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	575	18	100	343	13	41	0	98	30	0	17
Future Volume (vph)	21	575	18	100	343	13	41	0	98	30	0	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.4	6.4		6.4	6.4		6.8		6.8	6.8		6.8
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00		1.00	1.00		0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99		1.00	1.00		1.00
Frt	1.00	0.99		1.00	0.99		1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)	1658	3301		1658	3267		1636		1483	1658		1460
Flt Permitted	0.49	1.00		0.27	1.00		0.75		1.00	0.75		1.00
Satd. Flow (perm)	862	3301		472	3267		1304		1483	1321		1460
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	639	20	111	381	14	46	0	109	33	0	19
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	48	0	0	8
Lane Group Flow (vph)	23	656	0	111	391	0	46	0	61	33	0	11
Confl. Peds. (#/hr)							5					5
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm		Perm	Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	22.3	22.3		22.3	22.3		44.1		44.1	44.1		44.1
Effective Green, g (s)	22.3	22.3		22.3	22.3		44.1		44.1	44.1		44.1
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.55		0.55	0.55		0.55
Clearance Time (s)	6.4	6.4		6.4	6.4		6.8		6.8	6.8		6.8
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	241	924		132	915		722		821	731		808
v/s Ratio Prot		0.20			0.12							
v/s Ratio Perm	0.03			c0.24			0.04		c0.04	0.02		0.01
v/c Ratio	0.09	0.71		0.84	0.42		0.06		0.07	0.04		0.01
Uniform Delay, d1	21.1	25.7		26.9	23.4		8.2		8.2	8.1		7.9
Progression Factor	1.00	1.00		1.00	1.00		1.00		1.00	1.00		1.00
Incremental Delay, d2	0.1	2.5		35.7	0.3		0.1		0.1	0.1		0.0
Delay (s)	21.3	28.3		62.7	23.7		8.3		8.4	8.2		8.0
Level of Service	C	C		E	C		A		A	A		A
Approach Delay (s/veh)		28.1			32.3			8.4			8.1	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	26.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	79.6	Sum of lost time (s)	13.2
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	33	7	0	71	224	6	29	3	207	47	6
Future Volume (vph)	0	33	7	0	71	224	6	29	3	207	47	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.976			0.898			0.990			0.997	
Flt Protected								0.992			0.962	
Satd. Flow (prot)	0	1695	0	0	1586	0	0	1748	0	0	1679	0
Flt Permitted								0.992			0.962	
Satd. Flow (perm)	0	1695	0	0	1586	0	0	1748	0	0	1679	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	
Confl. Peds. (#/hr)							4					4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	3%	0%	0%	0%	1%	0%	0%	0%	1%	5%	0%
Adj. Flow (vph)	0	37	8	0	79	249	7	32	3	230	52	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	45	0	0	328	0	0	42	0	0	289	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.976			0.898			0.990			0.997	
Flt Protected								0.992			0.962	
Satd. Flow (prot)	0	1695	0	0	1586	0	0	1748	0	0	1679	0
Flt Permitted								0.992			0.962	
Satd. Flow (perm)	0	1695	0	0	1586	0	0	1748	0	0	1679	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	

Intersection Summary	
Area Type:	Other

Intersection has too many legs for HCM analysis.

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	33	7	0	71	224	6	29	3	207	47	6
Future Vol, veh/h	0	33	7	0	71	224	6	29	3	207	47	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	3	0	0	0	1	0	0	0	1	5	0
Mvmt Flow	0	37	8	0	79	249	7	32	3	230	52	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	SE	NW	NE	SW
Opposing Approach	NW	SE	SW	NE
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SW	NE	SE	NW
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NE	SW	NW	SE
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.5	10.2	8.5	11.3
HCM LOS	A	B	A	B

Lane	NELn1	NWLn1	SELn1	SWLn1
Vol Left, %	16%	0%	0%	80%
Vol Thru, %	76%	24%	83%	18%
Vol Right, %	8%	76%	18%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	295	40	260
LT Vol	6	0	0	207
Through Vol	29	71	33	47
RT Vol	3	224	7	6
Lane Flow Rate	42	328	44	289
Geometry Grp	1	1	1	1
Degree of Util (X)	0.06	0.395	0.063	0.397
Departure Headway (Hd)	5.102	4.343	5.072	4.944
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	695	826	701	722
Service Time	3.184	2.386	3.141	3.008
HCM Lane V/C Ratio	0.06	0.397	0.063	0.4
HCM Control Delay, s/veh	8.5	10.2	8.5	11.3
HCM Lane LOS	A	B	A	B
HCM 95th-tile Q	0.2	1.9	0.2	1.9



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	186	758	593	99	0	273
Future Volume (vph)	186	758	593	99	0	273
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.979			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3246	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3246	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	207	842	659	110	0	303
Shared Lane Traffic (%)						
Lane Group Flow (vph)	207	842	769	0	0	303
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.1%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.979			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3246	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3246	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	

Intersection Summary	
Area Type:	Other



Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	186	758	593	99	0	273
Future Volume (Veh/h)	186	758	593	99	0	273
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	207	842	659	110	0	303
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		214				
pX, platoon unblocked					0.92	
vC, conflicting volume	769				1549	385
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	769				1431	385
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	75				100	51
cM capacity (veh/h)	841				87	614

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	NE 1
Volume Total	207	421	421	439	330	303
Volume Left	207	0	0	0	0	0
Volume Right	0	0	0	0	110	303
cSH	841	1700	1700	1700	1700	614
Volume to Capacity	0.25	0.25	0.25	0.26	0.19	0.49
Queue Length 95th (m)	7.4	0.0	0.0	0.0	0.0	20.8
Control Delay (s/veh)	10.7	0.0	0.0	0.0	0.0	16.4
Lane LOS	B					C
Approach Delay (s/veh)	2.1			0.0		16.4
Approach LOS						C

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.4

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	186	758	593	99	0	273
Future Vol, veh/h	186	758	593	99	0	273
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	207	842	659	110	0	303

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	769	0	-	0	-	385
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	-	3.32
Pot Cap-1 Maneuver	841	-	-	-	0	613
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	841	-	-	-	-	613
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	NB	SB	NE
HCM Control Delay, s/v	2.1	0	16.5
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NBL	NBT	SBT	SBR
Capacity (veh/h)	613	841	-	-	-
HCM Lane V/C Ratio	0.495	0.246	-	-	-
HCM Control Delay (s/veh)	16.5	10.7	-	-	-
HCM Lane LOS	C	B	-	-	-
HCM 95th %tile Q(veh)	2.7	1	-	-	-

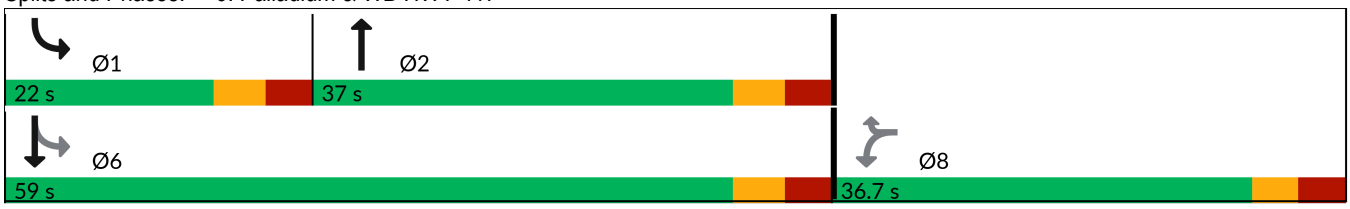


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	519	491	457	0	369	501
Future Volume (vph)	519	491	457	0	369	501
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.280	
Satd. Flow (perm)	3185	1483	3191	0	489	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		449				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Adj. Flow (vph)	577	546	508	0	410	557
Shared Lane Traffic (%)						
Lane Group Flow (vph)	577	546	508	0	410	557
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	15.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases	8	8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		5.0	10.0
Minimum Split (s)	33.0	33.0	39.0		12.1	17.0
Total Split (s)	36.7	36.7	37.0		22.0	59.0
Total Split (%)	38.3%	38.3%	38.7%		23.0%	61.7%
Maximum Green (s)	30.0	30.0	30.0		15.0	52.0
Yellow Time (s)	3.3	3.3	3.7		3.7	3.7
All-Red Time (s)	3.4	3.4	3.3		3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	7.0		7.0	7.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		None	None
Walk Time (s)	7.0	7.0	7.0			
Flash Dont Walk (s)	19.0	19.0	25.0			
Pedestrian Calls (#/hr)	0	0	0			
Act Effct Green (s)	19.9	19.9	17.1		39.0	39.0
Actuated g/C Ratio	0.27	0.27	0.23		0.53	0.53
v/c Ratio	0.66	0.74	0.68		0.82	0.31
Control Delay (s/veh)	27.7	12.2	31.2		28.7	10.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	27.7	12.2	31.2		28.7	10.7
LOS	C	B	C		C	B
Approach Delay (s/veh)	20.2		31.2			18.4
Approach LOS	C		C			B

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 72.9			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay (s/veh): 21.7		Intersection LOS: C	
Intersection Capacity Utilization 67.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Palladium & WB HWY 417





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%		0%			0%
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.280	
Satd. Flow (perm)	3185	1483	3191	0	489	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		449				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8

Intersection Summary	
Area Type:	Other



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	577	546	508	410	557
v/c Ratio	0.66	0.74	0.68	0.82	0.31
Control Delay (s/veh)	27.7	12.2	31.2	28.7	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	27.7	12.2	31.2	28.7	10.7
Queue Length 50th (m)	35.7	10.2	33.3	31.8	20.6
Queue Length 95th (m)	56.8	46.1	56.1	#90.6	38.8
Internal Link Dist (m)	143.3		396.7		189.7
Turn Bay Length (m)		125.0		115.0	
Base Capacity (vph)	1340	884	1342	507	2394
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.43	0.62	0.38	0.81	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	519	491	457	0	369	501
Future Volume (vph)	519	491	457	0	369	501
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.7	6.7	7.0		7.0	7.0
Lane Util. Factor	0.97	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3185	1483	3191		1658	3283
Flt Permitted	0.95	1.00	1.00		0.28	1.00
Satd. Flow (perm)	3185	1483	3191		489	3283
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	577	546	508	0	410	557
RTOR Reduction (vph)	0	326	0	0	0	0
Lane Group Flow (vph)	577	220	508	0	410	557
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	19.9	19.9	17.3		39.0	39.0
Effective Green, g (s)	19.9	19.9	17.3		39.0	39.0
Actuated g/C Ratio	0.27	0.27	0.24		0.54	0.54
Clearance Time (s)	6.7	6.7	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	873	406	760		499	1763
v/s Ratio Prot			0.16		c0.17	0.17
v/s Ratio Perm	c0.18	0.15			c0.27	
v/c Ratio	0.66	0.54	0.66		0.82	0.31
Uniform Delay, d1	23.3	22.4	25.0		11.6	9.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.8	1.4	2.2		10.4	0.1
Delay (s)	25.2	23.9	27.2		22.0	9.4
Level of Service	C	C	C		C	A
Approach Delay (s/veh)	24.6		27.2			14.8
Approach LOS	C		C			B

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	72.6	Sum of lost time (s)	20.7
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

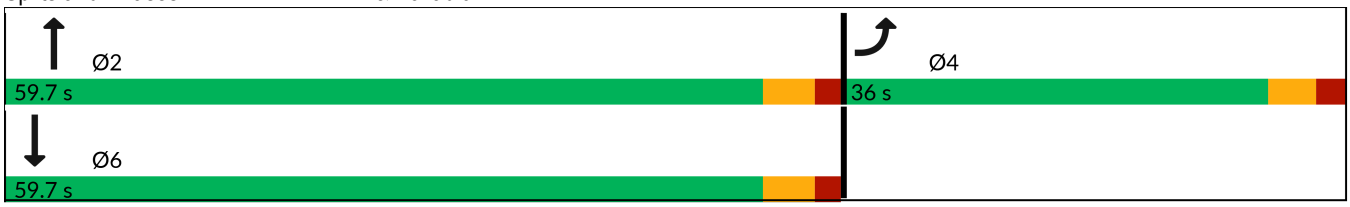


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	159	185	0	702	857	0
Future Volume (vph)	159	185	0	702	857	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	0.927					
Flt Protected	0.977					
Satd. Flow (prot)	1566	0	0	3316	3252	0
Flt Permitted	0.977					
Satd. Flow (perm)	1566	0	0	3316	3252	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	64					
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	2%	2%	2%	4%	3%
Adj. Flow (vph)	177	206	0	780	952	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	383	0	0	780	952	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1			2	2	
Detector Template	Left			Thru	Thru	
Leading Detector (m)	2.0			10.0	10.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	2.0			0.6	0.6	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot			NA	NA	
Protected Phases	4			2	6	
Permitted Phases						
Detector Phase	4			2	6	
Switch Phase						

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	10.0			10.0	10.0	
Minimum Split (s)	29.5			23.6	25.0	
Total Split (s)	36.0			59.7	59.7	
Total Split (%)	37.6%			62.4%	62.4%	
Maximum Green (s)	30.5			54.1	54.1	
Yellow Time (s)	3.3			3.7	3.7	
All-Red Time (s)	2.2			1.9	1.9	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.5			5.6	5.6	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	None			None	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	16.7			22.4	22.4	
Actuated g/C Ratio	0.33			0.44	0.44	
v/c Ratio	0.69			0.53	0.66	
Control Delay (s/veh)	20.5			12.3	14.3	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	20.5			12.3	14.3	
LOS	C			B	B	
Approach Delay (s/veh)	20.5			12.4	14.3	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 50.9			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay (s/veh): 14.7		Intersection LOS: B	
Intersection Capacity Utilization 55.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: EB HWY 417 & Palladium





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)	0.0	0.0	0.0			0.0
Storage Lanes	1	0	0			0
Taper Length (m)	15.0		15.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt	0.927					
Flt Protected	0.977					
Satd. Flow (prot)	1566	0	0	3316	3252	0
Flt Permitted	0.977					
Satd. Flow (perm)	1566	0	0	3316	3252	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	64					
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	

Intersection Summary	
Area Type:	Other



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	383	780	952
v/c Ratio	0.69	0.53	0.66
Control Delay (s/veh)	20.5	12.3	14.3
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	20.5	12.3	14.3
Queue Length 50th (m)	23.0	23.6	31.2
Queue Length 95th (m)	59.5	50.7	66.0
Internal Link Dist (m)	231.1	165.0	396.7
Turn Bay Length (m)			
Base Capacity (vph)	1022	3107	3047
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.37	0.25	0.31

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	159	185	0	702	857	0
Future Volume (vph)	159	185	0	702	857	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.5			5.6	5.6	
Lane Util. Factor	1.00			0.95	0.95	
Frt	0.92			1.00	1.00	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1568			3316	3252	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1568			3316	3252	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	177	206	0	780	952	0
RTOR Reduction (vph)	43	0	0	0	0	0
Lane Group Flow (vph)	340	0	0	780	952	0
Heavy Vehicles (%)	4%	2%	2%	2%	4%	3%
Turn Type	Prot			NA	NA	
Protected Phases	4			2	6	
Permitted Phases						
Actuated Green, G (s)	16.7			22.4	22.4	
Effective Green, g (s)	16.7			22.4	22.4	
Actuated g/C Ratio	0.33			0.45	0.45	
Clearance Time (s)	5.5			5.6	5.6	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	521			1479	1451	
v/s Ratio Prot	c0.22			0.24	c0.29	
v/s Ratio Perm						
v/c Ratio	0.65			0.52	0.65	
Uniform Delay, d1	14.2			10.0	10.8	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	2.9			0.3	1.0	
Delay (s)	17.2			10.4	11.9	
Level of Service	B			B	B	
Approach Delay (s/veh)	17.2			10.4	11.9	
Approach LOS	B			B	B	

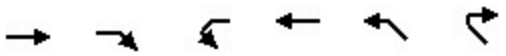
Intersection Summary			
HCM 2000 Control Delay (s/veh)	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	50.2	Sum of lost time (s)	11.1
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	25	1	100	13	1	209
Future Volume (vph)	25	1	100	13	1	209
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995				0.866	
Flt Protected			0.950			
Satd. Flow (prot)	1736	0	1658	1745	1511	0
Flt Permitted			0.950			
Satd. Flow (perm)	1736	0	1658	1745	1511	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	1	111	14	1	232
Shared Lane Traffic (%)						
Lane Group Flow (vph)	29	0	111	14	233	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.9%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	0.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			15.0		15.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.995				0.866	
Flt Protected			0.950			
Satd. Flow (prot)	1736	0	1658	1745	1511	0
Flt Permitted			0.950			
Satd. Flow (perm)	1736	0	1658	1745	1511	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	

Intersection Summary	
Area Type:	Other



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	25	1	100	13	1	209
Future Volume (Veh/h)	25	1	100	13	1	209
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	1	111	14	1	232
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			29		265	29
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			29		265	29
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		100	78
cM capacity (veh/h)			1584		674	1046

Direction, Lane #	EB 1	WB 1	WB 2	NW 1
Volume Total	29	111	14	233
Volume Left	0	111	0	1
Volume Right	1	0	0	232
cSH	1700	1584	1700	1044
Volume to Capacity	0.02	0.07	0.01	0.22
Queue Length 95th (m)	0.0	1.7	0.0	6.5
Control Delay (s/veh)	0.0	7.4	0.0	9.4
Lane LOS		A		A
Approach Delay (s/veh)	0.0	6.6		9.4
Approach LOS				A

Intersection Summary			
Average Delay	7.8		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

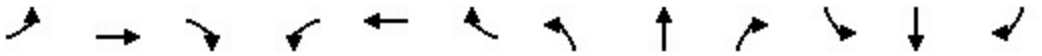
Intersection	
Int Delay, s/veh	7.8

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	25	1	100	13	1	209
Future Vol, veh/h	25	1	100	13	1	209
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	1	111	14	1	232

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	29	0	265	29
Stage 1	-	-	-	-	29	-
Stage 2	-	-	-	-	236	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1584	-	724	1046
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	803	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1584	-	673	1046
Mov Cap-2 Maneuver	-	-	-	-	673	-
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	747	-

Approach	EB	WB	NW
HCM Control Delay, s/v	0	6.6	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1043	-	-	1584	-
HCM Lane V/C Ratio	0.224	-	-	0.07	-
HCM Control Delay (s/veh)	9.4	-	-	7.4	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.9	-	-	0.2	-

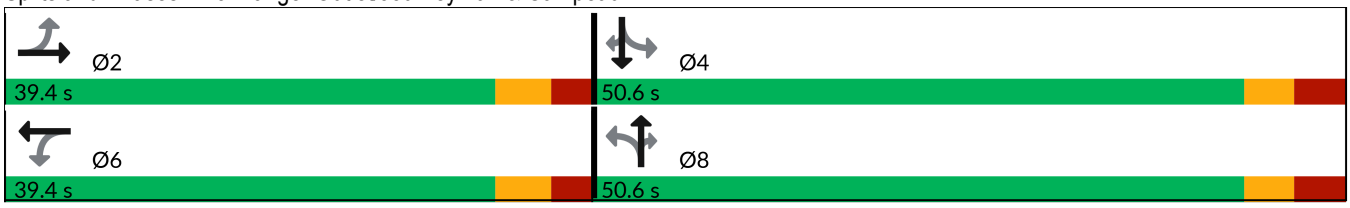


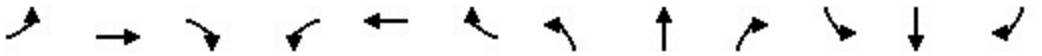
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	351	183	220	255	3	156	1	236	3	2	10
Future Volume (vph)	26	351	183	220	255	3	156	1	236	3	2	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.949			0.998				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3147	0	1658	3277	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.576			0.356			0.757			0.757		
Satd. Flow (perm)	1005	3147	0	621	3277	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		118			1				262			41
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	
Confl. Peds. (#/hr)							5					5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	29	390	203	244	283	3	173	1	262	3	2	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	593	0	244	286	0	173	1	262	3	2	11
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		6	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	39.4	39.4		39.4	39.4		39.8	39.8	39.8	39.8	39.8	39.8
Total Split (s)	39.4	39.4		39.4	39.4		50.6	50.6	50.6	50.6	50.6	50.6
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.2%	56.2%	56.2%	56.2%	56.2%	56.2%
Maximum Green (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7		2.7	2.7		3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		26.0	26.0	26.0	26.0	26.0	26.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	5	5	5
Act Effct Green (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.49	0.49	0.49	0.49	0.49	0.49
v/c Ratio	0.07	0.48		1.07	0.23		0.27	0.00	0.30	0.00	0.00	0.01
Control Delay (s/veh)	19.4	18.8		112.1	20.3		15.1	12.0	2.7	12.0	12.0	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.4	18.8		112.1	20.3		15.1	12.0	2.7	12.0	12.0	0.0
LOS	B	B		F	C		B	B	A	B	B	A
Approach Delay (s/veh)		18.8			62.6			7.7			3.8	
Approach LOS		B			E			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay (s/veh): 30.1		Intersection LOS: C	
Intersection Capacity Utilization 73.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Tanger Outlet/Journeyman & Campeau





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.949			0.998				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3147	0	1658	3277	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.576			0.356			0.757			0.757		
Satd. Flow (perm)	1005	3147	0	621	3277	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		118			1				262			41
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	

Intersection Summary	
Area Type:	Other

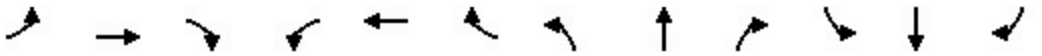


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	29	593	244	286	173	1	262	3	2	11
v/c Ratio	0.07	0.48	1.07	0.23	0.27	0.00	0.30	0.00	0.00	0.01
Control Delay (s/veh)	19.4	18.8	112.1	20.3	15.1	12.0	2.7	12.0	12.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.4	18.8	112.1	20.3	15.1	12.0	2.7	12.0	12.0	0.0
Queue Length 50th (m)	3.2	32.2	~47.3	17.6	16.9	0.1	0.0	0.3	0.2	0.0
Queue Length 95th (m)	9.0	47.0	#91.6	26.8	30.1	0.9	11.6	1.6	1.3	0.0
Internal Link Dist (m)		316.8		140.3		49.2			97.1	
Turn Bay Length (m)	45.0		50.0		24.5			50.0		
Base Capacity (vph)	368	1228	227	1202	634	849	856	642	849	731
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.48	1.07	0.24	0.27	0.00	0.31	0.00	0.00	0.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	351	183	220	255	3	156	1	236	3	2	10
Future Volume (vph)	26	351	183	220	255	3	156	1	236	3	2	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1658	3145		1658	3279		1635	1745	1483	1658	1745	1460
Flt Permitted	0.57	1.00		0.35	1.00		0.75	1.00	1.00	0.75	1.00	1.00
Satd. Flow (perm)	1006	3145		621	3279		1302	1745	1483	1321	1745	1460
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	390	203	244	283	3	173	1	262	3	2	11
RTOR Reduction (vph)	0	75	0	0	1	0	0	0	134	0	0	6
Lane Group Flow (vph)	29	518	0	244	285	0	173	1	128	3	2	5
Confl. Peds. (#/hr)							5					5
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Effective Green, g (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.49	0.49	0.49	0.49	0.49	0.49
Clearance Time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	368	1153		227	1202		633	849	721	642	849	710
v/s Ratio Prot		0.16			0.09			0.00			0.00	
v/s Ratio Perm	0.03			c0.39			c0.13		0.09	0.00		0.00
v/c Ratio	0.07	0.44		1.07	0.23		0.27	0.00	0.17	0.00	0.00	0.00
Uniform Delay, d1	18.5	21.6		28.5	19.7		13.6	11.8	12.9	11.8	11.8	11.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	0.2		81.0	0.1		1.0	0.0	0.5	0.0	0.0	0.0
Delay (s)	18.6	21.8		109.5	19.8		14.7	11.8	13.5	11.8	11.8	11.9
Level of Service	B	C		F	B		B	B	B	B	B	B
Approach Delay (s/veh)		21.7			61.1			13.9			11.9	
Approach LOS		C			E			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	34	4	1	48	124	2	16	2	174	10	3
Future Volume (vph)	0	34	4	1	48	124	2	16	2	174	10	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.987			0.903			0.988			0.998	
Flt Protected								0.995			0.955	
Satd. Flow (prot)	0	1710	0	0	1596	0	0	1750	0	0	1676	0
Flt Permitted								0.995			0.955	
Satd. Flow (perm)	0	1710	0	0	1596	0	0	1750	0	0	1676	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	
Confl. Peds. (#/hr)							4					4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	3%	0%	0%	0%	1%	0%	0%	0%	1%	5%	0%
Adj. Flow (vph)	0	38	4	1	53	138	2	18	2	193	11	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	42	0	0	192	0	0	22	0	0	207	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.9%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.987			0.903			0.988			0.998	
Flt Protected								0.995			0.955	
Satd. Flow (prot)	0	1710	0	0	1596	0	0	1750	0	0	1676	0
Flt Permitted								0.995			0.955	
Satd. Flow (perm)	0	1710	0	0	1596	0	0	1750	0	0	1676	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	

Intersection Summary	
Area Type:	Other

Intersection has too many legs for HCM analysis.

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	34	4	1	48	124	2	16	2	174	10	3
Future Vol, veh/h	0	34	4	1	48	124	2	16	2	174	10	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	3	0	0	0	1	0	0	0	1	5	0
Mvmt Flow	0	38	4	1	53	138	2	18	2	193	11	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	SE	NW	NE	SW
Opposing Approach	NW	SE	SW	NE
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SW	NE	SE	NW
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NE	SW	NW	SE
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.9	8.2	7.8	9.3
HCM LOS	A	A	A	A

Lane	NELn1	NWLn1	SELn1	SWLn1
Vol Left, %	10%	1%	0%	93%
Vol Thru, %	80%	28%	89%	5%
Vol Right, %	10%	72%	11%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	173	38	187
LT Vol	2	1	0	174
Through Vol	16	48	34	10
RT Vol	2	124	4	3
Lane Flow Rate	22	192	42	208
Geometry Grp	1	1	1	1
Degree of Util (X)	0.028	0.218	0.055	0.267
Departure Headway (Hd)	4.611	4.079	4.648	4.622
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	776	882	771	777
Service Time	2.644	2.095	2.672	2.648
HCM Lane V/C Ratio	0.028	0.218	0.054	0.268
HCM Control Delay, s/veh	7.8	8.2	7.9	9.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.8	0.2	1.1



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	346	763	580	145	0	413
Future Volume (vph)	346	763	580	145	0	413
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.970			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3216	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3216	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	384	848	644	161	0	459
Shared Lane Traffic (%)						
Lane Group Flow (vph)	384	848	805	0	0	459
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.5%		ICU Level of Service B	
Analysis Period (min) 15			



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.970			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3216	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3216	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	

Intersection Summary	
Area Type:	Other



Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	346	763	580	145	0	413
Future Volume (Veh/h)	346	763	580	145	0	413
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	384	848	644	161	0	459
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		214				
pX, platoon unblocked					0.98	
vC, conflicting volume	805				1917	403
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	805				1900	403
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	53				100	23
cM capacity (veh/h)	815				32	597

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	NE 1
Volume Total	384	424	424	429	376	459
Volume Left	384	0	0	0	0	0
Volume Right	0	0	0	0	161	459
cSH	815	1700	1700	1700	1700	597
Volume to Capacity	0.47	0.25	0.25	0.25	0.22	0.77
Queue Length 95th (m)	19.4	0.0	0.0	0.0	0.0	53.7
Control Delay (s/veh)	13.3	0.0	0.0	0.0	0.0	28.2
Lane LOS	B					D
Approach Delay (s/veh)	4.1			0.0		28.2
Approach LOS						D

Intersection Summary			
Average Delay	7.2		
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	7.2

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	346	763	580	145	0	413
Future Vol, veh/h	346	763	580	145	0	413
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	384	848	644	161	0	459

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	805	0	-	0	-	403
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	-	3.32
Pot Cap-1 Maneuver	815	-	-	-	0	597
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	815	-	-	-	-	597
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	NB	SB	NE
HCM Control Delay, s/v	4.1	0	28.2
HCM LOS			D

Minor Lane/Major Mvmt	NELn1	NBL	NBT	SBT	SBR
Capacity (veh/h)	597	815	-	-	-
HCM Lane V/C Ratio	0.769	0.472	-	-	-
HCM Control Delay (s/veh)	28.2	13.3	-	-	-
HCM Lane LOS	D	B	-	-	-
HCM 95th %tile Q(veh)	7.1	2.6	-	-	-

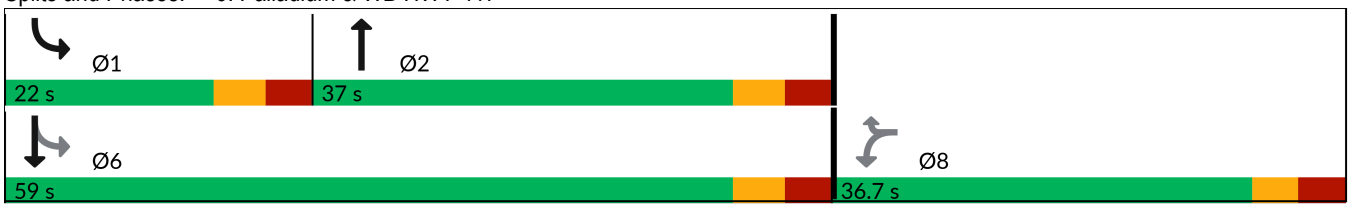


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	506	708	408	0	243	749
Future Volume (vph)	506	708	408	0	243	749
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.287	
Satd. Flow (perm)	3185	1483	3191	0	501	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		472				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Adj. Flow (vph)	562	787	453	0	270	832
Shared Lane Traffic (%)						
Lane Group Flow (vph)	562	787	453	0	270	832
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	15.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases	8	8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		5.0	10.0
Minimum Split (s)	33.0	33.0	39.0		12.1	17.0
Total Split (s)	36.7	36.7	37.0		22.0	59.0
Total Split (%)	38.3%	38.3%	38.7%		23.0%	61.7%
Maximum Green (s)	30.0	30.0	30.0		15.0	52.0
Yellow Time (s)	3.3	3.3	3.7		3.7	3.7
All-Red Time (s)	3.4	3.4	3.3		3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	7.0		7.0	7.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		None	None
Walk Time (s)	7.0	7.0	7.0			
Flash Dont Walk (s)	19.0	19.0	25.0			
Pedestrian Calls (#/hr)	0	0	0			
Act Effct Green (s)	30.2	30.2	16.5		36.6	36.6
Actuated g/C Ratio	0.38	0.38	0.20		0.45	0.45
v/c Ratio	0.47	0.92	0.69		0.65	0.55
Control Delay (s/veh)	21.7	29.3	35.8		21.9	17.4
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	21.7	29.3	35.8		21.9	17.4
LOS	C	C	D		C	B
Approach Delay (s/veh)	26.2		35.8			18.5
Approach LOS	C		D			B

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 80.5			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay (s/veh): 24.8		Intersection LOS: C	
Intersection Capacity Utilization 69.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Palladium & WB HWY 417





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%		0%			0%
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.287	
Satd. Flow (perm)	3185	1483	3191	0	501	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		472				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8

Intersection Summary	
Area Type:	Other



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	562	787	453	270	832
v/c Ratio	0.47	0.92	0.69	0.65	0.55
Control Delay (s/veh)	21.7	29.3	35.8	21.9	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.7	29.3	35.8	21.9	17.4
Queue Length 50th (m)	33.6	51.7	34.4	25.7	46.7
Queue Length 95th (m)	53.2	#143.8	49.8	41.8	62.1
Internal Link Dist (m)	143.3		396.7		189.7
Turn Bay Length (m)		125.0		115.0	
Base Capacity (vph)	1193	850	1195	444	2132
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.47	0.93	0.38	0.61	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	506	708	408	0	243	749
Future Volume (vph)	506	708	408	0	243	749
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.7	6.7	7.0		7.0	7.0
Lane Util. Factor	0.97	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3185	1483	3191		1658	3283
Flt Permitted	0.95	1.00	1.00		0.28	1.00
Satd. Flow (perm)	3185	1483	3191		501	3283
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	562	787	453	0	270	832
RTOR Reduction (vph)	0	295	0	0	0	0
Lane Group Flow (vph)	562	492	453	0	270	832
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	30.1	30.1	16.5		36.5	36.5
Effective Green, g (s)	30.1	30.1	16.5		36.5	36.5
Actuated g/C Ratio	0.37	0.37	0.21		0.45	0.45
Clearance Time (s)	6.7	6.7	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	1193	555	655		415	1492
v/s Ratio Prot			0.14		0.11	c0.25
v/s Ratio Perm	0.18	c0.33			c0.19	
v/c Ratio	0.47	0.88	0.69		0.65	0.55
Uniform Delay, d1	19.0	23.4	29.5		15.1	16.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.2	15.6	3.1		3.6	0.4
Delay (s)	19.3	39.1	32.7		18.7	16.4
Level of Service	B	D	C		B	B
Approach Delay (s/veh)	30.9		32.7			17.0
Approach LOS	C		C			B

Intersection Summary			
HCM 2000 Control Delay (s/veh)	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	80.3	Sum of lost time (s)	20.7
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

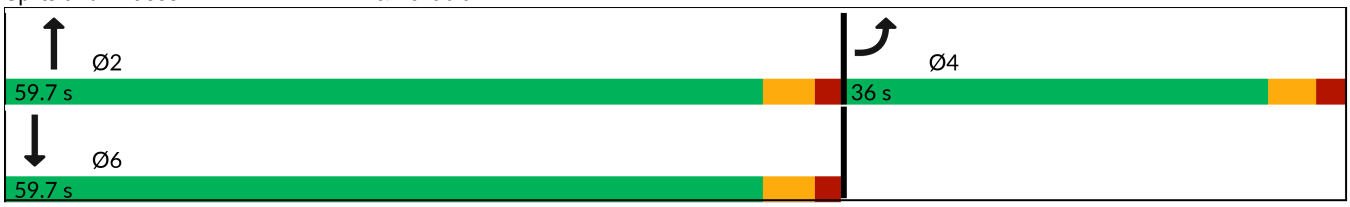


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	191	221	0	408	693	0
Future Volume (vph)	191	221	0	408	693	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	0.927					
Flt Protected	0.977					
Satd. Flow (prot)	1566	0	0	3316	3252	0
Flt Permitted	0.977					
Satd. Flow (perm)	1566	0	0	3316	3252	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	64					
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	2%	2%	2%	4%	3%
Adj. Flow (vph)	212	246	0	453	770	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	458	0	0	453	770	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1			2	2	
Detector Template	Left			Thru	Thru	
Leading Detector (m)	2.0			10.0	10.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	2.0			0.6	0.6	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot			NA	NA	
Protected Phases	4			2	6	
Permitted Phases						
Detector Phase	4			2	6	
Switch Phase						

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	10.0			10.0	10.0	
Minimum Split (s)	29.5			23.6	25.0	
Total Split (s)	36.0			59.7	59.7	
Total Split (%)	37.6%			62.4%	62.4%	
Maximum Green (s)	30.5			54.1	54.1	
Yellow Time (s)	3.3			3.7	3.7	
All-Red Time (s)	2.2			1.9	1.9	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.5			5.6	5.6	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	None			None	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	19.7			19.2	19.2	
Actuated g/C Ratio	0.39			0.38	0.38	
v/c Ratio	0.70			0.35	0.62	
Control Delay (s/veh)	18.4			12.8	15.9	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	18.4			12.8	15.9	
LOS	B			B	B	
Approach Delay (s/veh)	18.4			12.9	15.9	
Approach LOS	B			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 50.6			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay (s/veh): 15.8		Intersection LOS: B	
Intersection Capacity Utilization 55.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 7: EB HWY 417 & Palladium





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)	0.0	0.0	0.0			0.0
Storage Lanes	1	0	0			0
Taper Length (m)	15.0		15.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt	0.927					
Flt Protected	0.977					
Satd. Flow (prot)	1566	0	0	3316	3252	0
Flt Permitted	0.977					
Satd. Flow (perm)	1566	0	0	3316	3252	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	64					
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	

Intersection Summary	
Area Type:	Other



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	458	453	770
v/c Ratio	0.70	0.35	0.62
Control Delay (s/veh)	18.4	12.8	15.9
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	18.4	12.8	15.9
Queue Length 50th (m)	28.5	14.3	27.5
Queue Length 95th (m)	64.8	30.3	55.0
Internal Link Dist (m)	231.1	165.0	396.7
Turn Bay Length (m)			
Base Capacity (vph)	1014	3154	3093
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.45	0.14	0.25

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	191	221	0	408	693	0
Future Volume (vph)	191	221	0	408	693	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.5			5.6	5.6	
Lane Util. Factor	1.00			0.95	0.95	
Frt	0.92			1.00	1.00	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1568			3316	3252	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1568			3316	3252	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	212	246	0	453	770	0
RTOR Reduction (vph)	39	0	0	0	0	0
Lane Group Flow (vph)	419	0	0	453	770	0
Heavy Vehicles (%)	4%	2%	2%	2%	4%	3%
Turn Type	Prot			NA	NA	
Protected Phases	4			2	6	
Permitted Phases						
Actuated Green, G (s)	19.7			19.2	19.2	
Effective Green, g (s)	19.7			19.2	19.2	
Actuated g/C Ratio	0.39			0.38	0.38	
Clearance Time (s)	5.5			5.6	5.6	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	617			1273	1248	
v/s Ratio Prot	c0.27			0.14	c0.24	
v/s Ratio Perm						
v/c Ratio	0.67			0.35	0.61	
Uniform Delay, d1	12.5			10.9	12.4	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	2.9			0.1	0.9	
Delay (s)	15.5			11.1	13.3	
Level of Service	B			B	B	
Approach Delay (s/veh)	15.5			11.1	13.3	
Approach LOS	B			B	B	

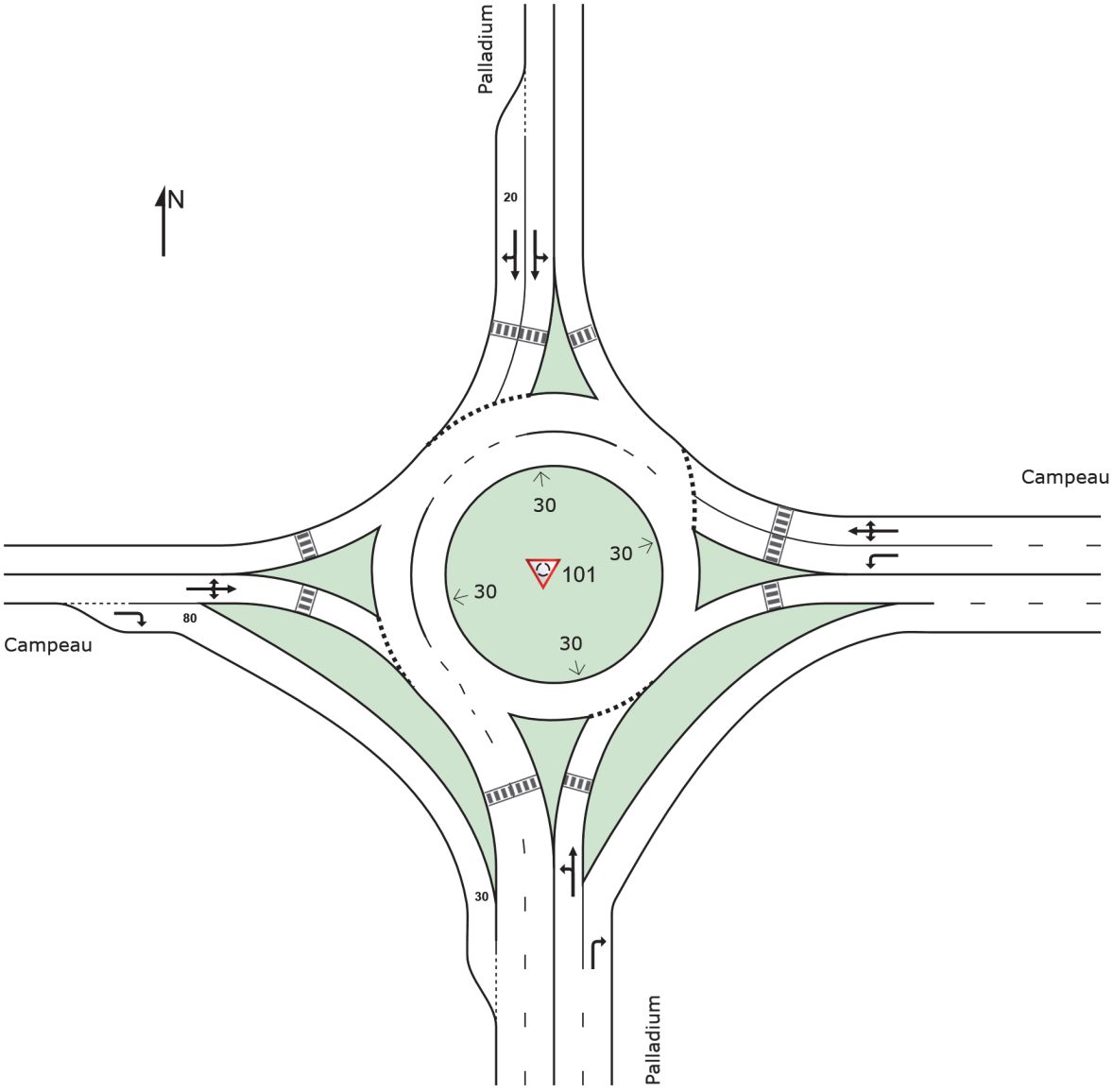
Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	11.1
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

SITE LAYOUT

Site: 101 [Palladium at Campeau BG 2027 PM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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



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MOVEMENT SUMMARY

Site: 101 [Palladium at Campeau BG 2027 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Palladium															
1	L2	All MCs	185	2.0	185	2.0	0.205	9.8	LOS A	1.2	8.8	0.35	0.54	0.35	51.6
2	T1	All MCs	128	2.0	128	2.0	0.205	3.6	LOS A	1.2	8.8	0.35	0.54	0.35	52.6
3	R2	All MCs	445	2.0	445	2.0	0.234	3.1	LOS A	0.0	0.0	0.00	0.40	0.00	56.1
Approach			758	2.0	758	2.0	0.234	4.8	LOS A	1.2	8.8	0.14	0.46	0.14	54.3
East: Campeau															
4	L2	All MCs	315	2.0	315	2.0	0.155	10.4	LOS B	0.9	6.5	0.47	0.62	0.47	50.1
5	T1	All MCs	62	2.0	62	2.0	0.155	4.5	LOS A	0.9	6.5	0.46	0.59	0.46	51.8
6	R2	All MCs	14	2.0	14	2.0	0.155	4.6	LOS A	0.9	6.5	0.46	0.59	0.46	51.4
Approach			391	2.0	391	2.0	0.155	9.3	LOS A	0.9	6.5	0.47	0.61	0.47	50.4
North: Palladium															
7	L2	All MCs	37	2.0	37	2.0	0.123	10.9	LOS B	0.5	3.6	0.49	0.61	0.49	51.5
8	T1	All MCs	211	2.0	211	2.0	0.123	5.4	LOS A	0.5	3.7	0.49	0.55	0.49	53.0
9	R2	All MCs	2	2.0	2	2.0	0.123	5.3	LOS A	0.5	3.7	0.48	0.52	0.48	52.9
Approach			250	2.0	250	2.0	0.123	6.2	LOS A	0.5	3.7	0.49	0.56	0.49	52.8
West: Campeau															
10	L2	All MCs	2	2.0	2	2.0	0.121	10.6	LOS B	0.5	3.4	0.46	0.49	0.46	52.8
11	T1	All MCs	131	2.0	131	2.0	0.121	4.8	LOS A	0.5	3.4	0.46	0.49	0.46	53.7
12	R2	All MCs	56	2.0	56	2.0	0.030	3.8	LOS A	0.0	0.0	0.00	0.42	0.00	55.9
Approach			189	2.0	189	2.0	0.121	4.6	LOS A	0.5	3.4	0.32	0.47	0.32	54.3
All Vehicles			1588	2.0	1588	2.0	0.234	6.1	LOS A	1.2	8.8	0.30	0.51	0.30	53.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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QUEUE ANALYSIS

Site: 101 [Palladium at Campeau BG 2027 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Lane Queues (Distance)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (m)	Back of Queue (m)		Queue at Start of Gap (m)		Cycle-Average Queue (m)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.205	1.000	0.0	3.5	8.8	2.9	7.2	0.4	0.7	0.01	0.02	0.0	NA	NA
Lane 2	Y	0.234	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.234			3.5	8.8	2.9	7.2	0.4	0.7	0.01	0.02			
East: Campeau															
Lane 1		0.155	1.000	0.0	2.5	6.2	2.2	5.5	0.5	0.9	0.01	0.01	0.0	NA	NA
Lane 2		0.155	1.000	0.0	2.6	6.5	2.3	5.8	0.5	0.9	0.01	0.01	0.0	NA	NA
Approach		0.155			2.6	6.5	2.3	5.8	0.5	0.9	0.01	0.01			
North: Palladium															
Lane 1		0.123	1.000	0.0	1.5	3.6	1.3	3.3	0.4	0.8	0.00	0.01	0.0	NA	NA
Lane 2		0.123	1.000	0.0	1.5	3.7	1.4	3.4	0.4	0.7	0.08	0.19	NA	0.0	1
Approach		0.123			1.5	3.7	1.4	3.4	0.4	0.8	0.00	0.01			
West: Campeau															
Lane 1		0.121	1.000	0.0	1.4	3.4	1.3	3.1	0.4	0.7	0.00	0.01	0.0	NA	NA
Lane 2	Y	0.030	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.121			1.4	3.4	1.3	3.1	0.4	0.7	0.00	0.01			
Intersection		0.234			3.5	8.8	2.9	7.2	0.5	0.9	0.01	0.02			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Lane Queues (Vehicles)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (veh)	Back of Queue (veh)		Queue at Start of Gap (veh)		Cycle-Average Queue (veh)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.205	1.000	0.0	0.5	1.2	0.4	1.0	0.1	0.1	0.01	0.02	0.0	NA	NA
Lane 2	Y	0.234	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.234			0.5	1.2	0.4	1.0	0.1	0.1	0.01	0.02			
East: Campeau															
Lane 1		0.155	1.000	0.0	0.4	0.9	0.3	0.8	0.1	0.1	0.01	0.01	0.0	NA	NA
Lane 2		0.155	1.000	0.0	0.4	0.9	0.3	0.8	0.1	0.1	0.01	0.01	0.0	NA	NA
Approach		0.155			0.4	0.9	0.3	0.8	0.1	0.1	0.01	0.01			
North: Palladium															
Lane 1		0.123	1.000	0.0	0.2	0.5	0.2	0.5	0.1	0.1	0.00	0.01	0.0	NA	NA
Lane 2		0.123	1.000	0.0	0.2	0.5	0.2	0.5	0.1	0.1	0.08	0.19	NA	0.0	1

Approach		0.123			0.2	0.5	0.2	0.5	0.1	0.1	0.00	0.01			
West: Campeau															
Lane 1		0.121	1.000	0.0	0.2	0.5	0.2	0.4	0.1	0.1	0.00	0.01	0.0	NA	NA
Lane 2	Y	0.030	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.121			0.2	0.5	0.2	0.4	0.1	0.1	0.00	0.01			
Intersection		0.234			0.5	1.2	0.4	1.0	0.1	0.1	0.01	0.02			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Continuous Lane Performance

Lane Number	Deg. Satn	Unint. Speed	Unint. Travel Delay	Hdwy Spacing		Aver. Vehicle Length	Occup. Time	Space Time	Space Occup. Ratio	Time Occup. Ratio	Density		LOS (Density Method)
	v/c	km/h	sec	sec	m	m	sec	sec	%	%	veh/km	pc/km	
South: Palladium													
Lane 2	0.234	59.9	0.1	8.09	134.5	4.6	0.40	7.69	3.4	4.9	7.4	7.6	LOS B
West: Campeau													
Lane 2	0.030	60.0	0.0	64.29	1071.2	4.6	0.40	63.89	0.4	0.6	0.9	0.9	LOS A

Midblock Effective Detection Zone Length = 2 m

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INTERSECTION SUMMARY

Site: 101 [Palladium at Campeau BG 2027 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	53.0	53.0 km/h
Travel Distance (Total)	veh-km/h	1658.1	1989.8 pers-km/h
Travel Time (Total)	veh-h/h	31.3	37.5 pers-h/h
Desired Speed	km/h	60.0	
Speed Efficiency		0.88	
Travel Time Index		8.71	
Congestion Coefficient		1.13	
Demand Flows (Total)	veh/h	1588	1906 pers/h
Arrival Flows (Total)	veh/h	1588	
Percent Heavy Vehicles (Demand)	%	2.0	
Percent Heavy Vehicles (Arrivals)	%	2.0	
Degree of Saturation		0.234	
Practical Spare Capacity	%	314.8	
Effective Intersection Capacity	veh/h	6772	
Control Delay (Total)	veh-h/h	2.69	3.23 pers-h/h
Control Delay (Average)	sec	6.1	6.1 sec
Control Delay (Worst Lane by MC)	sec	10.6	
Control Delay (Worst Movement by MC)	sec	13.0	13.0 sec
Geometric Delay (Average)	sec	5.2	
Stop-Line Delay (Average)	sec	0.8	
Idling Time (Average)	sec	0.0	
Intersection Level of Service (LOS)		LOS A	
95% Back of Queue - Veh (Worst Lane)	veh	1.2	
95% Back of Queue - Dist (Worst Lane)	m	8.8	
Ave. Que Storage Ratio (Worst Lane)		0.01	
Effective Stops (Total)	veh/h	812	975 pers/h
Effective Stop Rate		0.51	0.51
Proportion Queued		0.30	0.30
Performance Index		41.0	41.0
Cost (Total)	$/h	1355.41	1355.41 $/h
Fuel Consumption (Total)	L/h	142.2	
Carbon Dioxide (Total)	kg/h	336.0	
Hydrocarbons (Total)	kg/h	0.028	
Carbon Monoxide (Total)	kg/h	0.38	
NOx (Total)	kg/h	0.374	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 1.3 %
Number of Iterations: 5 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.1% 1.2% 0.7%

Intersection Performance - Annual Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Demand Flows (Total)	veh/y	762,240	914,688 pers/y
Delay (Total)	veh-h/y	1,291	1,549 pers-h/y

Effective Stops (Total)	veh/y	389,994	467,993	pers/y
Travel Distance (Total)	veh-km/y	795,906	955,088	pers-km/y
Travel Time (Total)	veh-h/y	15,007	18,008	pers-h/y
Cost (Total)	$/y	650,594	650,594	$/y
Fuel Consumption (Total)	L/y	68,249		
Carbon Dioxide (Total)	kg/y	161,263		
Hydrocarbons (Total)	kg/y	13		
Carbon Monoxide (Total)	kg/y	182		
NOx (Total)	kg/y	179		

1 Hours per Year: 480 (Site)

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ROUNDABOUT ANALYSIS

Site: 101 [Palladium at Campeau BG 2027 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Roundabout Basic Parameters

Location	Name	Central Island Diam m	Circ Width m	Insc Diam m	Entry Radius m	Entry Angle °	Circ Lanes	Entry Lanes	Av.Entry Lane Width m	App. Dist m	Prop Queued Upstr Signal	Extra Bunching %
South	Palladium	30.00	6.00	45.5	20.0	30.0	1	2[18]	4.00	500.0	NA[5]	0.0
East	Campeau	30.00	6.00	45.5	20.0	30.0	1	2	4.00	500.0	NA[5]	0.0
North	Palladium	30.00	9.50	45.5	20.0	30.0	2	2	4.00	500.0	NA[5]	0.0
West	Campeau	30.00	9.50	45.5	20.0	30.0	2	2[18]	4.00	500.0	NA[5]	0.0

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

5 Not Applicable (single Site analysis or unconnected Site in Network analysis).
18 Exclusive slip/bypass lane is included in Entry Lanes count.

Roundabout Entry and Circulating / Exiting Stream Parameters

To Approach	Turn	Lane No	Lane Type	Opng Flow veh/h	Opng Flow pcu/h	In-Bunch Hdwy sec	Prop. Bunched	Cap Const Effect	Priority Sharing	OD Factor	Gap Acc Factor	Follow-up Hdwy (tf) sec	Critical Gap (tc) [Hdwy sec	Dist] m	Ratio tf / tc
South: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
West	L2	1	Dominant	170	172	2.00	0.188	No	Yes[10]	0.984	1.01	2.02	3.83	38.1	0.53
North	T1	1	Dominant	170	172	2.00	0.188	No	Yes[10]	0.984	1.01	2.02	3.83	38.1	0.53
East	R2	2	Continuous												
East: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
South	L2	1	Subdom.	315	318	2.00	0.321	No	Yes[10]	0.972	1.01	2.33	4.31	38.2	0.54
South	L2	2	Dominant	315	318	2.00	0.321	No	Yes[10]	0.972	1.01	1.97	3.65	32.4	0.54
West	T1	2	Dominant	315	318	2.00	0.321	No	Yes[10]	0.972	1.01	1.97	3.65	32.4	0.54
North	R2	2	Dominant	315	318	2.00	0.321	No	Yes[10]	0.972	1.01	1.97	3.65	32.4	0.54
North: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
East	L2	1	Subdom.	562	568	1.27	0.355	No	Yes[10]	0.956	1.01	2.47	3.70	27.5	0.67
South	T1	1	Subdom.	562	568	1.27	0.355	No	Yes[10]	0.956	1.01	2.47	3.70	27.5	0.67
South	T1	2	Dominant	562	568	1.27	0.355	No	Yes[10]	0.956	1.01	2.23	3.34	24.8	0.67
West	R2	2	Dominant	562	568	1.27	0.355	No	Yes[10]	0.956	1.01	2.23	3.34	24.8	0.67
West: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
North	L2	1	Dominant	563	569	1.03	0.300	No	No	0.966	1.01	2.23	3.34	27.6	0.67
East	T1	1	Dominant	563	569	1.03	0.300	No	No	0.966	1.01	2.23	3.34	27.6	0.67
South	R2	2	Continuous												

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

10 Priority sharing means Follow-up Headway plus Intra-bunch Headway is larger than the Critical Gap.

Circulating Lane Flow Rates			
Circ. Lane No	Circulating Flow Rate		
	veh/h	pcu/h	Percent
South: Palladium			
Lane 1	170	172	100.0
Approach	170	172	
East: Campeau			
Lane 1	315	318	100.0
Approach	315	318	
North: Palladium			
Lane 1	176	178	31.3
Lane 2	386	390	68.7
Approach	562	568	
West: Campeau			
Lane 1	292	295	51.9
Lane 2	271	273	48.1
Approach	563	569	

Roundabout Capacity Model: The SIDRA Standard Roundabout Capacity Model option is in use. This model takes into account the total circulating flow as well as the effect of flow distribution in circulating lanes on the entry capacity results.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Lanes)					
Opposed Lane	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium					
1	28.40	4.02	24.37	0.858	0.4
East: Campeau					
1	20.28	5.40	14.88	0.734	1.1
2	19.33	4.62	14.70	0.761	0.8
North: Palladium					
1	14.02	4.91	9.10	0.649	1.4
2	13.39	4.41	8.98	0.671	1.2
West: Campeau					
1	12.70	4.01	8.68	0.684	1.1

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Movements)							
To Approach	Turn	Opsd Lane No	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium							
West	L2	1	28.40	4.02	24.37	0.858	0.4
North	T1	1	28.40	4.02	24.37	0.858	0.4
East: Campeau							
South	L2	1	20.28	5.40	14.88	0.734	1.1
South	L2	2	19.33	4.62	14.70	0.761	0.8
West	T1	2	19.33	4.62	14.70	0.761	0.8
North	R2	2	19.33	4.62	14.70	0.761	0.8
North: Palladium							
East	L2	1	14.02	4.91	9.10	0.649	1.4
South	T1	1	14.02	4.91	9.10	0.649	1.4

South	T1	2	13.39	4.41	8.98	0.671	1.2
West	R2	2	13.39	4.41	8.98	0.671	1.2
West: Campeau							
North	L2	1	12.70	4.01	8.68	0.684	1.1
East	T1	1	12.70	4.01	8.68	0.684	1.1

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

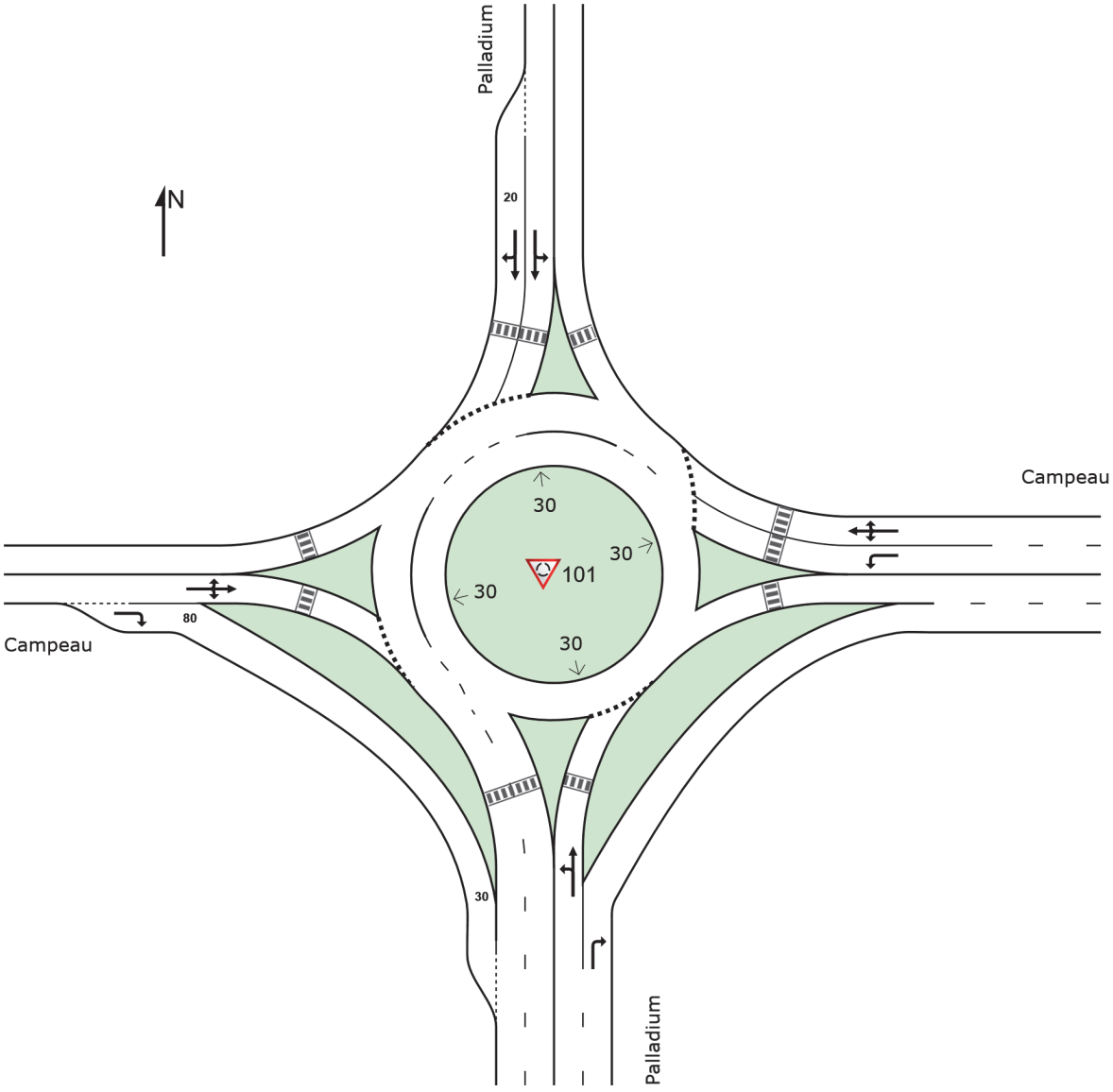
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SITE LAYOUT

Site: 101 [Palladium at Campeau BG 2027 SAT (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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



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MOVEMENT SUMMARY

Site: 101 [Palladium at Campeau BG 2027 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Palladium															
1	L2	All MCs	410	2.0	410	2.0	0.288	10.0	LOS B	1.9	13.5	0.43	0.60	0.43	49.8
2	T1	All MCs	15	2.0	15	2.0	0.288	3.9	LOS A	1.9	13.5	0.43	0.60	0.43	50.8
3	R2	All MCs	357	2.0	357	2.0	0.188	3.0	LOS A	0.0	0.0	0.00	0.40	0.00	56.2
Approach			782	2.0	782	2.0	0.288	6.7	LOS A	1.9	13.5	0.23	0.51	0.23	52.5
East: Campeau															
4	L2	All MCs	331	2.0	331	2.0	0.183	11.1	LOS B	1.2	8.3	0.57	0.64	0.57	49.8
5	T1	All MCs	85	2.0	85	2.0	0.183	5.1	LOS A	1.2	8.3	0.56	0.61	0.56	51.6
6	R2	All MCs	5	2.0	5	2.0	0.183	5.1	LOS A	1.2	8.3	0.56	0.61	0.56	51.2
Approach			421	2.0	421	2.0	0.183	9.8	LOS A	1.2	8.3	0.57	0.64	0.57	50.2
North: Palladium															
7	L2	All MCs	6	2.0	6	2.0	0.010	11.7	LOS B	0.0	0.3	0.56	0.66	0.56	49.9
8	T1	All MCs	10	2.0	10	2.0	0.010	5.9	LOS A	0.0	0.3	0.56	0.56	0.56	52.6
9	R2	All MCs	1	2.0	1	2.0	0.010	5.9	LOS A	0.0	0.3	0.55	0.54	0.55	52.6
Approach			17	2.0	17	2.0	0.010	7.9	LOS A	0.0	0.3	0.56	0.60	0.56	51.6
West: Campeau															
10	L2	All MCs	1	2.0	1	2.0	0.180	10.2	LOS B	0.8	5.8	0.42	0.45	0.42	53.0
11	T1	All MCs	210	2.0	210	2.0	0.180	4.4	LOS A	0.8	5.8	0.42	0.45	0.42	53.9
12	R2	All MCs	26	2.0	26	2.0	0.014	3.5	LOS A	0.0	0.0	0.00	0.42	0.00	55.9
Approach			237	2.0	237	2.0	0.180	4.3	LOS A	0.8	5.8	0.38	0.44	0.38	54.1
All Vehicles			1457	2.0	1457	2.0	0.288	7.2	LOS A	1.9	13.5	0.36	0.54	0.36	52.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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QUEUE ANALYSIS

Site: 101 [Palladium at Campeau BG 2027 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Lane Queues (Distance)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (m)	Back of Queue (m)		Queue at Start of Gap (m)		Cycle-Average Queue (m)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.288	1.000	0.0	5.4	13.5	4.1	10.3	0.7	1.3	0.01	0.03	0.0	NA	NA
Lane 2	Y	0.188	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.288			5.4	13.5	4.1	10.3	0.7	1.3	0.01	0.03			
East: Campeau															
Lane 1		0.183	1.000	0.0	3.1	7.8	2.7	6.8	0.8	1.4	0.01	0.02	0.0	NA	NA
Lane 2		0.183	1.000	0.0	3.3	8.3	2.9	7.3	0.8	1.4	0.01	0.02	0.0	NA	NA
Approach		0.183			3.3	8.3	2.9	7.3	0.8	1.4	0.01	0.02			
North: Palladium															
Lane 1		0.010	1.000	0.0	0.1	0.3	0.1	0.3	0.0	0.1	0.00	0.00	0.0	NA	NA
Lane 2		0.010	1.000	0.0	0.1	0.3	0.1	0.3	0.0	0.1	0.01	0.02	NA	0.0	1
Approach		0.010			0.1	0.3	0.1	0.3	0.0	0.1	0.00	0.00			
West: Campeau															
Lane 1		0.180	1.000	0.0	2.3	5.8	2.0	5.0	0.4	0.8	0.00	0.01	0.0	NA	NA
Lane 2	Y	0.014	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.180			2.3	5.8	2.0	5.0	0.4	0.8	0.00	0.01			
Intersection		0.288			5.4	13.5	4.1	10.3	0.8	1.4	0.01	0.03			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Lane Queues (Vehicles)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (veh)	Back of Queue (veh)		Queue at Start of Gap (veh)		Cycle-Average Queue (veh)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.288	1.000	0.0	0.8	1.9	0.6	1.4	0.1	0.2	0.01	0.03	0.0	NA	NA
Lane 2	Y	0.188	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.288			0.8	1.9	0.6	1.4	0.1	0.2	0.01	0.03			
East: Campeau															
Lane 1		0.183	1.000	0.0	0.4	1.1	0.4	1.0	0.1	0.2	0.01	0.02	0.0	NA	NA
Lane 2		0.183	1.000	0.0	0.5	1.2	0.4	1.0	0.1	0.2	0.01	0.02	0.0	NA	NA
Approach		0.183			0.5	1.2	0.4	1.0	0.1	0.2	0.01	0.02			
North: Palladium															
Lane 1		0.010	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Lane 2		0.010	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.02	NA	0.0	1

Approach		0.010			0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00			
West: Campeau															
Lane 1		0.180	1.000	0.0	0.3	0.8	0.3	0.7	0.1	0.1	0.00	0.01	0.0	NA	NA
Lane 2	Y	0.014	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.180			0.3	0.8	0.3	0.7	0.1	0.1	0.00	0.01			
Intersection		0.288			0.8	1.9	0.6	1.4	0.1	0.2	0.01	0.03			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Continuous Lane Performance

Lane Number	Deg. Satn	Unint. Speed	Unint. Travel Delay	Hdwy Spacing		Aver. Vehicle Length	Occup. Time	Space Time	Space Occup. Ratio	Time Occup. Ratio	Density		LOS (Density Method)
	v/c	km/h	sec	sec	m	m	sec	sec	%	%	veh/km	pc/km	
South: Palladium													
Lane 2	0.188	59.9	0.0	10.08	167.8	4.6	0.40	9.69	2.7	3.9	6.0	6.1	LOS A
West: Campeau													
Lane 2	0.014	60.0	0.0	138.46	2307.5	4.6	0.40	138.06	0.2	0.3	0.4	0.4	LOS A

Midblock Effective Detection Zone Length = 2 m

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INTERSECTION SUMMARY

Site: 101 [Palladium at Campeau BG 2027 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	52.0	52.0 km/h
Travel Distance (Total)	veh-km/h	1530.9	1837.1 pers-km/h
Travel Time (Total)	veh-h/h	29.4	35.3 pers-h/h
Desired Speed	km/h	60.0	
Speed Efficiency		0.87	
Travel Time Index		8.52	
Congestion Coefficient		1.15	
Demand Flows (Total)	veh/h	1457	1748 pers/h
Arrival Flows (Total)	veh/h	1457	
Percent Heavy Vehicles (Demand)	%	2.0	
Percent Heavy Vehicles (Arrivals)	%	2.0	
Degree of Saturation		0.288	
Practical Spare Capacity	%	195.2	
Effective Intersection Capacity	veh/h	5060	
Control Delay (Total)	veh-h/h	2.93	3.51 pers-h/h
Control Delay (Average)	sec	7.2	7.2 sec
Control Delay (Worst Lane by MC)	sec	11.3	
Control Delay (Worst Movement by MC)	sec	14.3	14.3 sec
Geometric Delay (Average)	sec	6.3	
Stop-Line Delay (Average)	sec	1.0	
Idling Time (Average)	sec	0.0	
Intersection Level of Service (LOS)		LOS A	
95% Back of Queue - Veh (Worst Lane)	veh	1.9	
95% Back of Queue - Dist (Worst Lane)	m	13.5	
Ave. Que Storage Ratio (Worst Lane)		0.01	
Effective Stops (Total)	veh/h	780	936 pers/h
Effective Stop Rate		0.54	0.54
Proportion Queued		0.36	0.36
Performance Index		40.0	40.0
Cost (Total)	$/h	1280.49	1280.49 $/h
Fuel Consumption (Total)	L/h	135.9	
Carbon Dioxide (Total)	kg/h	321.2	
Hydrocarbons (Total)	kg/h	0.027	
Carbon Monoxide (Total)	kg/h	0.36	
NOx (Total)	kg/h	0.358	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 1.7 %
Number of Iterations: 6 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.0% 1.1% 0.6%

Intersection Performance - Annual Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Demand Flows (Total)	veh/y	699,360	839,232 pers/y
Delay (Total)	veh-h/y	1,405	1,686 pers-h/y

Effective Stops (Total)	veh/y	374,574	449,489	pers/y
Travel Distance (Total)	veh-km/y	734,854	881,824	pers-km/y
Travel Time (Total)	veh-h/y	14,125	16,950	pers-h/y
Cost (Total)	$/y	614,634	614,634	$/y
Fuel Consumption (Total)	L/y	65,251		
Carbon Dioxide (Total)	kg/y	154,160		
Hydrocarbons (Total)	kg/y	13		
Carbon Monoxide (Total)	kg/y	172		
NOx (Total)	kg/y	172		

1 Hours per Year: 480 (Site)

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ROUNDABOUT ANALYSIS

Site: 101 [Palladium at Campeau BG 2027 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Roundabout Basic Parameters

Location	Name	Central Island Diam m	Circ Width m	Insc Diam m	Entry Radius m	Entry Angle °	Circ Lanes	Entry Lanes	Av.Entry Lane Width m	App. Dist m	Prop Queued Upstr Signal	Extra Bunching %
South	Palladium	30.00	6.00	45.5	20.0	30.0	1	2[18]	4.00	500.0	NA[5]	0.0
East	Campeau	30.00	6.00	45.5	20.0	30.0	1	2	4.00	500.0	NA[5]	0.0
North	Palladium	30.00	9.50	45.5	20.0	30.0	2	2	4.00	500.0	NA[5]	0.0
West	Campeau	30.00	9.50	45.5	20.0	30.0	2	2[18]	4.00	500.0	NA[5]	0.0

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

5 Not Applicable (single Site analysis or unconnected Site in Network analysis).
18 Exclusive slip/bypass lane is included in Entry Lanes count.

Roundabout Entry and Circulating / Exiting Stream Parameters

To Approach	Turn	Lane No	Lane Type	Opng Flow veh/h	Opng Flow pcu/h	In-Bunch Hdwy sec	Prop. Bunched	Cap Const Effect	Priority Sharing	OD Factor	Gap Acc Factor	Follow-up Hdwy (tf) sec	Critical Gap (tc) [Hdwy sec	Critical Gap (tc) Dist] m	Ratio tf / tc
South: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
West	L2	1	Dominant	217	219	2.00	0.234	No	Yes[10]	0.977	1.01	2.00	3.76	40.4	0.53
North	T1	1	Dominant	217	219	2.00	0.234	No	Yes[10]	0.977	1.01	2.00	3.76	40.4	0.53
East	R2	2	Continuous												
East: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
South	L2	1	Subdom.	426	430	2.00	0.409	No	Yes[10]	0.952	1.01	2.31	4.19	30.3	0.55
South	L2	2	Dominant	426	430	2.00	0.409	No	Yes[10]	0.952	1.01	1.93	3.51	25.3	0.55
West	T1	2	Dominant	426	430	2.00	0.409	No	Yes[10]	0.952	1.01	1.93	3.51	25.3	0.55
North	R2	2	Dominant	426	430	2.00	0.409	No	Yes[10]	0.952	1.01	1.93	3.51	25.3	0.55
North: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
East	L2	1	Subdom.	826	834	1.39	0.511	No	Yes[10]	0.928	1.01	2.42	3.47	25.8	0.70
South	T1	1	Subdom.	826	834	1.39	0.511	No	Yes[10]	0.928	1.01	2.42	3.47	25.8	0.70
South	T1	2	Dominant	826	834	1.39	0.511	No	Yes[10]	0.928	1.01	2.13	3.06	22.7	0.70
West	R2	2	Dominant	826	834	1.39	0.511	No	Yes[10]	0.928	1.01	2.13	3.06	22.7	0.70
West: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
North	L2	1	Dominant	347	350	1.09	0.208	No	No	0.956	1.01	2.32	3.61	25.5	0.64
East	T1	1	Dominant	347	350	1.09	0.208	No	No	0.956	1.01	2.32	3.61	25.5	0.64
South	R2	2	Continuous												

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

10 Priority sharing means Follow-up Headway plus Intra-bunch Headway is larger than the Critical Gap.

Circulating Lane Flow Rates			
Circ. Lane No	Circulating Flow Rate		
	veh/h	pcu/h	Percent
South: Palladium			
Lane 1	217	219	100.0
Approach	217	219	
East: Campeau			
Lane 1	426	430	100.0
Approach	426	430	
North: Palladium			
Lane 1	187	189	22.6
Lane 2	639	646	77.4
Approach	826	834	
West: Campeau			
Lane 1	195	197	56.1
Lane 2	152	154	43.9
Approach	347	350	

Roundabout Capacity Model: The SIDRA Standard Roundabout Capacity Model option is in use. This model takes into account the total circulating flow as well as the effect of flow distribution in circulating lanes on the entry capacity results.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Lanes)					
Opposed Lane	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium					
1	24.10	4.28	19.83	0.823	0.5
East: Campeau					
1	18.21	6.29	11.92	0.654	1.6
2	17.10	5.36	11.73	0.686	1.2
North: Palladium					
1	13.46	6.27	7.19	0.534	2.3
2	12.55	5.51	7.05	0.561	1.9
West: Campeau					
1	16.84	4.10	12.74	0.756	0.7

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Movements)							
To Approach	Turn	Opsd Lane No	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium							
West	L2	1	24.10	4.28	19.83	0.823	0.5
North	T1	1	24.10	4.28	19.83	0.823	0.5
East: Campeau							
South	L2	1	18.21	6.29	11.92	0.654	1.6
South	L2	2	17.10	5.36	11.73	0.686	1.2
West	T1	2	17.10	5.36	11.73	0.686	1.2
North	R2	2	17.10	5.36	11.73	0.686	1.2
North: Palladium							
East	L2	1	13.46	6.27	7.19	0.534	2.3
South	T1	1	13.46	6.27	7.19	0.534	2.3

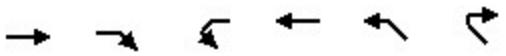
South	T1	2	12.55	5.51	7.05	0.561	1.9
West	R2	2	12.55	5.51	7.05	0.561	1.9
West: Campeau							
North	L2	1	16.84	4.10	12.74	0.756	0.7
East	T1	1	16.84	4.10	12.74	0.756	0.7

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

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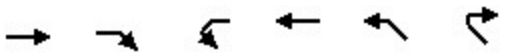
Appendix J

Synchro and Sidra Reports (Background 2032)



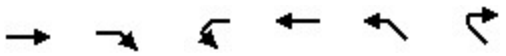
Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	91	1	59	59	2	106
Future Volume (vph)	91	1	59	59	2	106
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.867	
Flt Protected			0.950		0.999	
Satd. Flow (prot)	1743	0	1658	1745	1511	0
Flt Permitted			0.950		0.999	
Satd. Flow (perm)	1743	0	1658	1745	1511	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	101	1	66	66	2	118
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	66	66	120	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.8%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	0.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			15.0		15.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.999				0.867	
Flt Protected			0.950		0.999	
Satd. Flow (prot)	1743	0	1658	1745	1511	0
Flt Permitted			0.950		0.999	
Satd. Flow (perm)	1743	0	1658	1745	1511	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	

Intersection Summary	
Area Type:	Other



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	91	1	59	59	2	106
Future Volume (Veh/h)	91	1	59	59	2	106
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	101	1	66	66	2	118
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			102		300	102
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			102		300	102
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		100	88
cM capacity (veh/h)			1490		661	954

Direction, Lane #	EB 1	WB 1	WB 2	NW 1
Volume Total	102	66	66	120
Volume Left	0	66	0	2
Volume Right	1	0	0	118
cSH	1700	1490	1700	947
Volume to Capacity	0.06	0.04	0.04	0.13
Queue Length 95th (m)	0.0	1.1	0.0	3.3
Control Delay (s/veh)	0.0	7.5	0.0	9.4
Lane LOS		A		A
Approach Delay (s/veh)	0.0	3.8		9.4
Approach LOS				A

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	23.8%	ICU Level of Service	A
Analysis Period (min)	15		

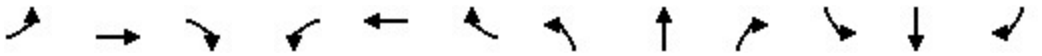
Intersection	
Int Delay, s/veh	4.6

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	91	1	59	59	2	106
Future Vol, veh/h	91	1	59	59	2	106
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	101	1	66	66	2	118

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	102	0	300	102
Stage 1	-	-	-	-	102	-
Stage 2	-	-	-	-	198	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1490	-	691	953
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	835	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1490	-	661	953
Mov Cap-2 Maneuver	-	-	-	-	661	-
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	798	-

Approach	EB	WB	NW
HCM Control Delay, s/v	0	3.8	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	945	-	-	1490	-
HCM Lane V/C Ratio	0.127	-	-	0.044	-
HCM Control Delay (s/veh)	9.4	-	-	7.5	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

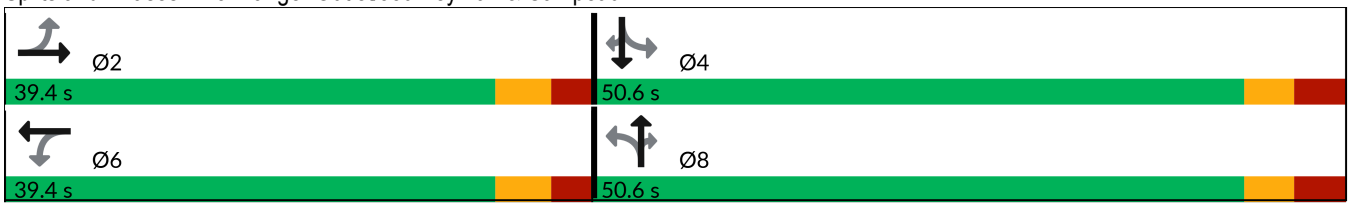


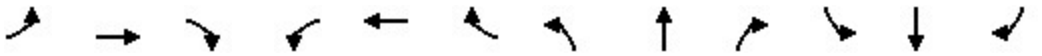
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	604	18	100	360	13	41	0	98	30	0	17
Future Volume (vph)	21	604	18	100	360	13	41	0	98	30	0	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.996			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3302	0	1658	3268	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.477			0.254			0.757			0.757		
Satd. Flow (perm)	832	3302	0	443	3268	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			4				96			264
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	
Confl. Peds. (#/hr)							5					5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	23	671	20	111	400	14	46	0	109	33	0	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	691	0	111	414	0	46	0	109	33	0	19
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm		Perm	Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		6	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	39.4	39.4		39.4	39.4		39.8	39.8	39.8	39.8	39.8	39.8
Total Split (s)	39.4	39.4		39.4	39.4		50.6	50.6	50.6	50.6	50.6	50.6
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.2%	56.2%	56.2%	56.2%	56.2%	56.2%
Maximum Green (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7		2.7	2.7		3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		26.0	26.0	26.0	26.0	26.0	26.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	5	5	5
Act Effct Green (s)	23.4	23.4		23.4	23.4		44.1		44.1	44.1		44.1
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.55		0.55	0.55		0.55
v/c Ratio	0.09	0.71		0.86	0.43		0.06		0.12	0.04		0.02
Control Delay (s/veh)	20.7	29.8		79.5	24.0		11.0		3.8	11.0		0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Total Delay (s/veh)	20.7	29.8		79.5	24.0		11.0		3.8	11.0		0.0
LOS	C	C		E	C		B		A	B		A
Approach Delay (s/veh)		29.5			35.8			6.0			7.0	
Approach LOS		C			D			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 80.8			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay (s/veh): 28.5		Intersection LOS: C	
Intersection Capacity Utilization 70.4%		ICU Level of Service C	
Analysis Period (min) 15			

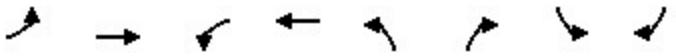
Splits and Phases: 3: Tanger Outlet/Journeyman & Campeau





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.996			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3302	0	1658	3268	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.477			0.254			0.757			0.757		
Satd. Flow (perm)	832	3302	0	443	3268	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			4				96			264
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	

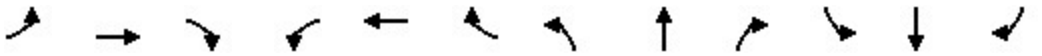
Intersection Summary	
Area Type:	Other



Lane Group	EBL	EBT	WBL	WBT	NBL	NBR	SBL	SBR
Lane Group Flow (vph)	23	691	111	414	46	109	33	19
v/c Ratio	0.09	0.71	0.86	0.43	0.06	0.12	0.04	0.02
Control Delay (s/veh)	20.7	29.8	79.5	24.0	11.0	3.8	11.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.7	29.8	79.5	24.0	11.0	3.8	11.0	0.0
Queue Length 50th (m)	2.5	49.1	16.0	26.5	3.0	0.8	2.1	0.0
Queue Length 95th (m)	7.7	66.4	#42.8	38.2	9.7	9.1	7.6	0.0
Internal Link Dist (m)		316.8		140.3				
Turn Bay Length (m)	45.0		50.0		24.5		50.0	
Base Capacity (vph)	342	1359	182	1345	711	853	720	916
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.51	0.61	0.31	0.06	0.13	0.05	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	604	18	100	360	13	41	0	98	30	0	17
Future Volume (vph)	21	604	18	100	360	13	41	0	98	30	0	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.4	6.4		6.4	6.4		6.8		6.8	6.8		6.8
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00		1.00	1.00		0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99		1.00	1.00		1.00
Frt	1.00	0.99		1.00	0.99		1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)	1658	3301		1658	3268		1636		1483	1658		1460
Flt Permitted	0.47	1.00		0.25	1.00		0.75		1.00	0.75		1.00
Satd. Flow (perm)	832	3301		443	3268		1304		1483	1321		1460
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	671	20	111	400	14	46	0	109	33	0	19
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	44	0	0	9
Lane Group Flow (vph)	23	688	0	111	411	0	46	0	65	33	0	10
Confl. Peds. (#/hr)							5					5
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm		Perm	Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	23.4	23.4		23.4	23.4		44.1		44.1	44.1		44.1
Effective Green, g (s)	23.4	23.4		23.4	23.4		44.1		44.1	44.1		44.1
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.55		0.55	0.55		0.55
Clearance Time (s)	6.4	6.4		6.4	6.4		6.8		6.8	6.8		6.8
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	241	957		128	947		712		810	721		797
v/s Ratio Prot		0.21			0.13							
v/s Ratio Perm	0.03			c0.25			0.04		c0.04	0.02		0.01
v/c Ratio	0.09	0.71		0.86	0.43		0.06		0.08	0.04		0.01
Uniform Delay, d1	20.9	25.7		27.1	23.2		8.6		8.6	8.5		8.3
Progression Factor	1.00	1.00		1.00	1.00		1.00		1.00	1.00		1.00
Incremental Delay, d2	0.1	2.6		41.8	0.3		0.1		0.1	0.1		0.0
Delay (s)	21.0	28.3		69.0	23.5		8.7		8.8	8.6		8.3
Level of Service	C	C		E	C		A		A	A		A
Approach Delay (s/veh)		28.0			33.2			8.8			8.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	80.7	Sum of lost time (s)	13.2
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	33	8	0	71	224	6	29	3	207	47	6
Future Volume (vph)	0	33	8	0	71	224	6	29	3	207	47	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.974			0.898			0.990			0.997	
Flt Protected								0.992			0.962	
Satd. Flow (prot)	0	1693	0	0	1586	0	0	1748	0	0	1679	0
Flt Permitted								0.992			0.962	
Satd. Flow (perm)	0	1693	0	0	1586	0	0	1748	0	0	1679	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	
Confl. Peds. (#/hr)							4					4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	3%	0%	0%	0%	1%	0%	0%	0%	1%	5%	0%
Adj. Flow (vph)	0	37	9	0	79	249	7	32	3	230	52	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	46	0	0	328	0	0	42	0	0	289	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.974			0.898			0.990			0.997	
Flt Protected								0.992			0.962	
Satd. Flow (prot)	0	1693	0	0	1586	0	0	1748	0	0	1679	0
Flt Permitted								0.992			0.962	
Satd. Flow (perm)	0	1693	0	0	1586	0	0	1748	0	0	1679	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	

Intersection Summary	
Area Type:	Other

Intersection has too many legs for HCM analysis.

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	33	8	0	71	224	6	29	3	207	47	6
Future Vol, veh/h	0	33	8	0	71	224	6	29	3	207	47	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	3	0	0	0	1	0	0	0	1	5	0
Mvmt Flow	0	37	9	0	79	249	7	32	3	230	52	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	SE	NW	NE	SW
Opposing Approach	NW	SE	SW	NE
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SW	NE	SE	NW
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NE	SW	NW	SE
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.5	10.2	8.5	11.3
HCM LOS	A	B	A	B

Lane	NELn1	NWLn1	SELn1	SWLn1
Vol Left, %	16%	0%	0%	80%
Vol Thru, %	76%	24%	80%	18%
Vol Right, %	8%	76%	20%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	295	41	260
LT Vol	6	0	0	207
Through Vol	29	71	33	47
RT Vol	3	224	8	6
Lane Flow Rate	42	328	46	289
Geometry Grp	1	1	1	1
Degree of Util (X)	0.06	0.396	0.064	0.397
Departure Headway (Hd)	5.104	4.344	5.06	4.946
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	695	826	702	722
Service Time	3.188	2.387	3.13	3.011
HCM Lane V/C Ratio	0.06	0.397	0.066	0.4
HCM Control Delay, s/veh	8.5	10.2	8.5	11.3
HCM Lane LOS	A	B	A	B
HCM 95th-tile Q	0.2	1.9	0.2	1.9



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	186	797	623	99	0	273
Future Volume (vph)	186	797	623	99	0	273
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.979			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3246	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3246	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	207	886	692	110	0	303
Shared Lane Traffic (%)						
Lane Group Flow (vph)	207	886	802	0	0	303
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.979			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3246	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3246	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	

Intersection Summary	
Area Type:	Other



Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	186	797	623	99	0	273
Future Volume (Veh/h)	186	797	623	99	0	273
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	207	886	692	110	0	303
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		214				
pX, platoon unblocked					0.91	
vC, conflicting volume	802				1604	401
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	802				1474	401
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	75				100	49
cM capacity (veh/h)	817				80	599

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	NE 1
Volume Total	207	443	443	461	341	303
Volume Left	207	0	0	0	0	0
Volume Right	0	0	0	0	110	303
cSH	817	1700	1700	1700	1700	599
Volume to Capacity	0.25	0.26	0.26	0.27	0.20	0.51
Queue Length 95th (m)	7.6	0.0	0.0	0.0	0.0	21.7
Control Delay (s/veh)	10.9	0.0	0.0	0.0	0.0	17.0
Lane LOS	B					C
Approach Delay (s/veh)	2.1			0.0		17.0
Approach LOS						C

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.4

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	186	797	623	99	0	273
Future Vol, veh/h	186	797	623	99	0	273
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	207	886	692	110	0	303

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	802	0	-	0	-	401
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	-	3.32
Pot Cap-1 Maneuver	817	-	-	-	0	599
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	817	-	-	-	-	599
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	NB	SB	NE
HCM Control Delay, s/v	2.1	0	17
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NBL	NBT	SBT	SBR
Capacity (veh/h)	599	817	-	-	-
HCM Lane V/C Ratio	0.506	0.253	-	-	-
HCM Control Delay (s/veh)	17	10.9	-	-	-
HCM Lane LOS	C	B	-	-	-
HCM 95th %tile Q(veh)	2.9	1	-	-	-

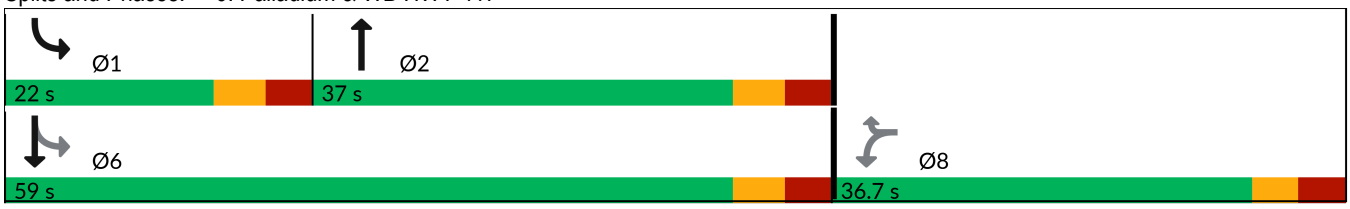


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	519	516	481	0	373	527
Future Volume (vph)	519	516	481	0	373	527
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.267	
Satd. Flow (perm)	3185	1483	3191	0	466	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		440				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Adj. Flow (vph)	577	573	534	0	414	586
Shared Lane Traffic (%)						
Lane Group Flow (vph)	577	573	534	0	414	586
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	15.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases	8	8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		5.0	10.0
Minimum Split (s)	33.0	33.0	39.0		12.1	17.0
Total Split (s)	36.7	36.7	37.0		22.0	59.0
Total Split (%)	38.3%	38.3%	38.7%		23.0%	61.7%
Maximum Green (s)	30.0	30.0	30.0		15.0	52.0
Yellow Time (s)	3.3	3.3	3.7		3.7	3.7
All-Red Time (s)	3.4	3.4	3.3		3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	7.0		7.0	7.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		None	None
Walk Time (s)	7.0	7.0	7.0			
Flash Dont Walk (s)	19.0	19.0	25.0			
Pedestrian Calls (#/hr)	0	0	0			
Act Effct Green (s)	20.1	20.1	17.9		40.0	40.0
Actuated g/C Ratio	0.27	0.27	0.24		0.54	0.54
v/c Ratio	0.66	0.79	0.69		0.84	0.33
Control Delay (s/veh)	28.5	15.5	31.3		30.6	10.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	28.5	15.5	31.3		30.6	10.7
LOS	C	B	C		C	B
Approach Delay (s/veh)	22.1		31.3			19.0
Approach LOS	C		C			B

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 74.1			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay (s/veh): 22.8		Intersection LOS: C	
Intersection Capacity Utilization 68.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Palladium & WB HWY 417





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%		0%			0%
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.267	
Satd. Flow (perm)	3185	1483	3191	0	466	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		440				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8

Intersection Summary	
Area Type:	Other



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	577	573	534	414	586
v/c Ratio	0.66	0.79	0.69	0.84	0.33
Control Delay (s/veh)	28.5	15.5	31.3	30.6	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.5	15.5	31.3	30.6	10.7
Queue Length 50th (m)	36.2	14.6	35.5	32.4	22.0
Queue Length 95th (m)	58.9	58.7	58.9	#95.2	40.8
Internal Link Dist (m)	143.3		396.7		189.7
Turn Bay Length (m)		125.0		115.0	
Base Capacity (vph)	1318	871	1321	498	2355
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.66	0.40	0.83	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	519	516	481	0	373	527
Future Volume (vph)	519	516	481	0	373	527
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.7	6.7	7.0		7.0	7.0
Lane Util. Factor	0.97	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3185	1483	3191		1658	3283
Flt Permitted	0.95	1.00	1.00		0.26	1.00
Satd. Flow (perm)	3185	1483	3191		466	3283
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	577	573	534	0	414	586
RTOR Reduction (vph)	0	320	0	0	0	0
Lane Group Flow (vph)	577	253	534	0	414	586
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	20.1	20.1	18.1		40.0	40.0
Effective Green, g (s)	20.1	20.1	18.1		40.0	40.0
Actuated g/C Ratio	0.27	0.27	0.25		0.54	0.54
Clearance Time (s)	6.7	6.7	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	867	403	782		493	1779
v/s Ratio Prot			0.17		c0.17	0.18
v/s Ratio Perm	c0.18	0.17			c0.29	
v/c Ratio	0.66	0.62	0.68		0.83	0.32
Uniform Delay, d1	23.8	23.5	25.2		11.8	9.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.9	3.0	2.4		11.9	0.1
Delay (s)	25.8	26.6	27.7		23.7	9.5
Level of Service	C	C	C		C	A
Approach Delay (s/veh)	26.2		27.7			15.4
Approach LOS	C		C			B

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	73.8	Sum of lost time (s)	20.7
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



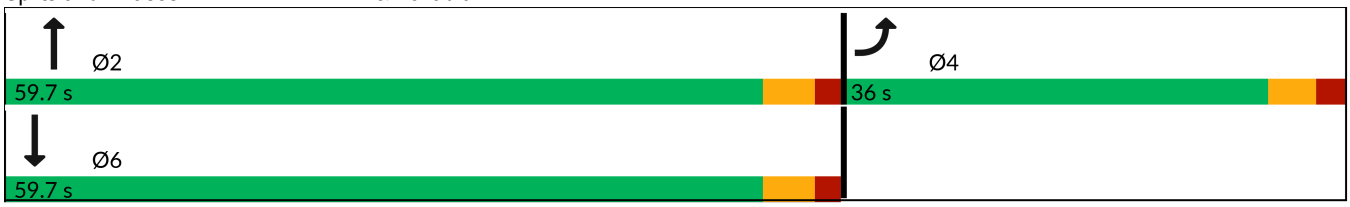
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	159	185	0	738	900	0
Future Volume (vph)	159	185	0	738	900	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	0.927					
Flt Protected	0.977					
Satd. Flow (prot)	1566	0	0	3316	3252	0
Flt Permitted	0.977					
Satd. Flow (perm)	1566	0	0	3316	3252	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	64					
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	2%	2%	2%	4%	3%
Adj. Flow (vph)	177	206	0	820	1000	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	383	0	0	820	1000	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1			2	2	
Detector Template	Left			Thru	Thru	
Leading Detector (m)	2.0			10.0	10.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	2.0			0.6	0.6	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot			NA	NA	
Protected Phases	4			2	6	
Permitted Phases						
Detector Phase	4			2	6	
Switch Phase						



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	10.0			10.0	10.0	
Minimum Split (s)	29.5			23.6	25.0	
Total Split (s)	36.0			59.7	59.7	
Total Split (%)	37.6%			62.4%	62.4%	
Maximum Green (s)	30.5			54.1	54.1	
Yellow Time (s)	3.3			3.7	3.7	
All-Red Time (s)	2.2			1.9	1.9	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.5			5.6	5.6	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	None			None	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	17.1			24.2	24.2	
Actuated g/C Ratio	0.32			0.45	0.45	
v/c Ratio	0.69			0.54	0.67	
Control Delay (s/veh)	21.6			12.5	14.5	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	21.6			12.5	14.5	
LOS	C			B	B	
Approach Delay (s/veh)	21.6			12.5	14.6	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 53.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay (s/veh): 15.0		Intersection LOS: B	
Intersection Capacity Utilization 56.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: EB HWY 417 & Palladium





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)	0.0	0.0	0.0			0.0
Storage Lanes	1	0	0			0
Taper Length (m)	15.0		15.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt	0.927					
Flt Protected	0.977					
Satd. Flow (prot)	1566	0	0	3316	3252	0
Flt Permitted	0.977					
Satd. Flow (perm)	1566	0	0	3316	3252	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	64					
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	

Intersection Summary	
Area Type:	Other



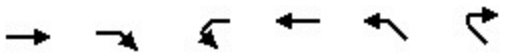
Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	383	820	1000
v/c Ratio	0.69	0.54	0.67
Control Delay (s/veh)	21.6	12.5	14.5
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	21.6	12.5	14.5
Queue Length 50th (m)	24.9	26.1	34.6
Queue Length 95th (m)	62.6	55.4	72.6
Internal Link Dist (m)	231.1	165.0	396.7
Turn Bay Length (m)			
Base Capacity (vph)	983	3060	3000
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.39	0.27	0.33

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	159	185	0	738	900	0
Future Volume (vph)	159	185	0	738	900	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.5			5.6	5.6	
Lane Util. Factor	1.00			0.95	0.95	
Frt	0.92			1.00	1.00	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1568			3316	3252	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1568			3316	3252	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	177	206	0	820	1000	0
RTOR Reduction (vph)	43	0	0	0	0	0
Lane Group Flow (vph)	340	0	0	820	1000	0
Heavy Vehicles (%)	4%	2%	2%	2%	4%	3%
Turn Type	Prot			NA	NA	
Protected Phases	4			2	6	
Permitted Phases						
Actuated Green, G (s)	17.2			24.2	24.2	
Effective Green, g (s)	17.2			24.2	24.2	
Actuated g/C Ratio	0.33			0.46	0.46	
Clearance Time (s)	5.5			5.6	5.6	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	513			1528	1499	
v/s Ratio Prot	c0.22			0.25	c0.31	
v/s Ratio Perm						
v/c Ratio	0.66			0.53	0.66	
Uniform Delay, d1	15.1			10.1	11.0	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	3.2			0.3	1.1	
Delay (s)	18.3			10.4	12.1	
Level of Service	B			B	B	
Approach Delay (s/veh)	18.3			10.4	12.1	
Approach LOS	B			B	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	52.5	Sum of lost time (s)	11.1
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

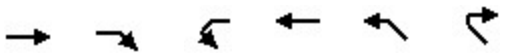


Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	26	1	100	14	4	209
Future Volume (vph)	26	1	100	14	4	209
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995				0.867	
Flt Protected			0.950		0.999	
Satd. Flow (prot)	1736	0	1658	1745	1511	0
Flt Permitted			0.950		0.999	
Satd. Flow (perm)	1736	0	1658	1745	1511	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	1	111	16	4	232
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	0	111	16	236	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.1%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	0.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			15.0		15.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.995				0.867	
Flt Protected			0.950		0.999	
Satd. Flow (prot)	1736	0	1658	1745	1511	0
Flt Permitted			0.950		0.999	
Satd. Flow (perm)	1736	0	1658	1745	1511	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	

Intersection Summary	
Area Type:	Other



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	26	1	100	14	4	209
Future Volume (Veh/h)	26	1	100	14	4	209
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	29	1	111	16	4	232
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			30		268	30
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			30		268	30
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		99	78
cM capacity (veh/h)			1583		671	1045

Direction, Lane #	EB 1	WB 1	WB 2	NW 1
Volume Total	30	111	16	236
Volume Left	0	111	0	4
Volume Right	1	0	0	232
cSH	1700	1583	1700	1035
Volume to Capacity	0.02	0.07	0.01	0.23
Queue Length 95th (m)	0.0	1.7	0.0	6.7
Control Delay (s/veh)	0.0	7.4	0.0	9.5
Lane LOS		A		A
Approach Delay (s/veh)	0.0	6.5		9.5
Approach LOS				A

Intersection Summary			
Average Delay	7.8		
Intersection Capacity Utilization	33.1%	ICU Level of Service	A
Analysis Period (min)	15		

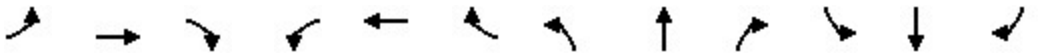
Intersection	
Int Delay, s/veh	7.8

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	26	1	100	14	4	209
Future Vol, veh/h	26	1	100	14	4	209
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	1	111	16	4	232

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	30	0	268	30
Stage 1	-	-	-	-	30	-
Stage 2	-	-	-	-	238	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1583	-	721	1044
Stage 1	-	-	-	-	993	-
Stage 2	-	-	-	-	802	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1583	-	671	1044
Mov Cap-2 Maneuver	-	-	-	-	671	-
Stage 1	-	-	-	-	993	-
Stage 2	-	-	-	-	746	-

Approach	EB	WB	NW
HCM Control Delay, s/v	0	6.5	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1033	-	-	1583	-
HCM Lane V/C Ratio	0.229	-	-	0.07	-
HCM Control Delay (s/veh)	9.5	-	-	7.4	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.9	-	-	0.2	-

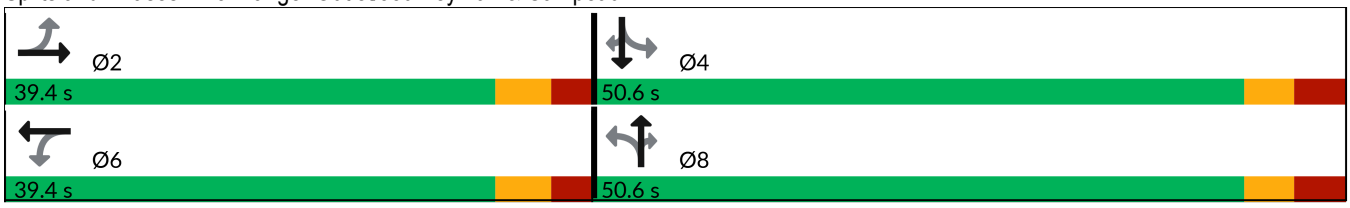


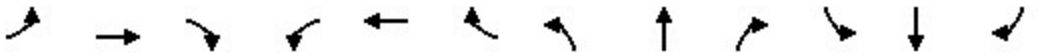
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	369	183	220	268	3	156	1	236	3	2	10
Future Volume (vph)	26	369	183	220	268	3	156	1	236	3	2	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.950			0.999				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3150	0	1658	3281	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.568			0.343			0.757			0.757		
Satd. Flow (perm)	991	3150	0	599	3281	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		107			1				254			41
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	
Confl. Peds. (#/hr)							5					5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	29	410	203	244	298	3	173	1	262	3	2	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	613	0	244	301	0	173	1	262	3	2	11
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		6	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	39.4	39.4		39.4	39.4		39.8	39.8	39.8	39.8	39.8	39.8
Total Split (s)	39.4	39.4		39.4	39.4		50.6	50.6	50.6	50.6	50.6	50.6
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.2%	56.2%	56.2%	56.2%	56.2%	56.2%
Maximum Green (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7		2.7	2.7		3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		26.0	26.0	26.0	26.0	26.0	26.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	5	5	5
Act Effct Green (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.49	0.49	0.49	0.49	0.49	0.49
v/c Ratio	0.07	0.50		1.11	0.25		0.27	0.00	0.30	0.00	0.00	0.01
Control Delay (s/veh)	19.5	19.6		125.4	20.5		15.1	12.0	3.0	12.0	12.0	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.5	19.6		125.4	20.5		15.1	12.0	3.0	12.0	12.0	0.0
LOS	B	B		F	C		B	B	A	B	B	A
Approach Delay (s/veh)		19.6			67.5			7.9			3.8	
Approach LOS		B			E			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.11			
Intersection Signal Delay (s/veh): 32.3		Intersection LOS: C	
Intersection Capacity Utilization 73.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Tanger Outlet/Journeyman & Campeau





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.950			0.999				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3150	0	1658	3281	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.568			0.343			0.757			0.757		
Satd. Flow (perm)	991	3150	0	599	3281	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		107			1				254			41
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	

Intersection Summary	
Area Type:	Other

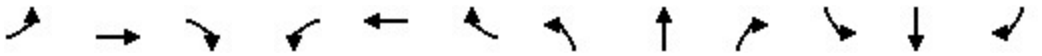


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	29	613	244	301	173	1	262	3	2	11
v/c Ratio	0.07	0.50	1.11	0.25	0.27	0.00	0.30	0.00	0.00	0.01
Control Delay (s/veh)	19.5	19.6	125.4	20.5	15.1	12.0	3.0	12.0	12.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.5	19.6	125.4	20.5	15.1	12.0	3.0	12.0	12.0	0.0
Queue Length 50th (m)	3.2	34.7	~48.8	18.7	16.9	0.1	0.7	0.3	0.2	0.0
Queue Length 95th (m)	9.0	50.1	#93.1	28.2	30.1	0.9	12.4	1.6	1.3	0.0
Internal Link Dist (m)		316.8		140.3		49.2			97.1	
Turn Bay Length (m)	45.0		50.0		24.5			50.0		
Base Capacity (vph)	363	1222	219	1203	634	849	852	642	849	731
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.50	1.11	0.25	0.27	0.00	0.31	0.00	0.00	0.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	369	183	220	268	3	156	1	236	3	2	10
Future Volume (vph)	26	369	183	220	268	3	156	1	236	3	2	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1658	3151		1658	3279		1635	1745	1483	1658	1745	1460
Flt Permitted	0.56	1.00		0.34	1.00		0.75	1.00	1.00	0.75	1.00	1.00
Satd. Flow (perm)	992	3151		598	3279		1302	1745	1483	1321	1745	1460
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	410	203	244	298	3	173	1	262	3	2	11
RTOR Reduction (vph)	0	68	0	0	1	0	0	0	130	0	0	6
Lane Group Flow (vph)	29	545	0	244	300	0	173	1	132	3	2	5
Confl. Peds. (#/hr)							5					5
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Effective Green, g (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.49	0.49	0.49	0.49	0.49	0.49
Clearance Time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	363	1155		219	1202		633	849	721	642	849	710
v/s Ratio Prot		0.17			0.09			0.00			0.00	
v/s Ratio Perm	0.03			c0.41			c0.13		0.09	0.00		0.00
v/c Ratio	0.07	0.47		1.11	0.24		0.27	0.00	0.18	0.00	0.00	0.00
Uniform Delay, d1	18.5	21.8		28.5	19.8		13.6	11.8	13.0	11.8	11.8	11.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	0.3		94.8	0.1		1.0	0.0	0.5	0.0	0.0	0.0
Delay (s)	18.6	22.1		123.3	19.9		14.7	11.8	13.5	11.8	11.8	11.9
Level of Service	B	C		F	B		B	B	B	B	B	B
Approach Delay (s/veh)		21.9			66.2			14.0			11.9	
Approach LOS		C			E			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	34	4	1	48	124	2	16	2	174	10	3
Future Volume (vph)	0	34	4	1	48	124	2	16	2	174	10	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.987			0.903			0.988			0.998	
Flt Protected								0.995			0.955	
Satd. Flow (prot)	0	1710	0	0	1596	0	0	1750	0	0	1676	0
Flt Permitted								0.995			0.955	
Satd. Flow (perm)	0	1710	0	0	1596	0	0	1750	0	0	1676	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	
Confl. Peds. (#/hr)							4					4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	3%	0%	0%	0%	1%	0%	0%	0%	1%	5%	0%
Adj. Flow (vph)	0	38	4	1	53	138	2	18	2	193	11	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	42	0	0	192	0	0	22	0	0	207	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.9%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.987			0.903			0.988			0.998	
Flt Protected								0.995			0.955	
Satd. Flow (prot)	0	1710	0	0	1596	0	0	1750	0	0	1676	0
Flt Permitted								0.995			0.955	
Satd. Flow (perm)	0	1710	0	0	1596	0	0	1750	0	0	1676	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	

Intersection Summary	
Area Type:	Other

Intersection has too many legs for HCM analysis.

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	34	4	1	48	124	2	16	2	174	10	3
Future Vol, veh/h	0	34	4	1	48	124	2	16	2	174	10	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	3	0	0	0	1	0	0	0	1	5	0
Mvmt Flow	0	38	4	1	53	138	2	18	2	193	11	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	SE	NW	NE	SW
Opposing Approach	NW	SE	SW	NE
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SW	NE	SE	NW
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NE	SW	NW	SE
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.9	8.2	7.8	9.3
HCM LOS	A	A	A	A

Lane	NELn1	NWLn1	SELn1	SWLn1
Vol Left, %	10%	1%	0%	93%
Vol Thru, %	80%	28%	89%	5%
Vol Right, %	10%	72%	11%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	173	38	187
LT Vol	2	1	0	174
Through Vol	16	48	34	10
RT Vol	2	124	4	3
Lane Flow Rate	22	192	42	208
Geometry Grp	1	1	1	1
Degree of Util (X)	0.028	0.218	0.055	0.267
Departure Headway (Hd)	4.611	4.079	4.648	4.622
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	776	882	771	777
Service Time	2.644	2.095	2.672	2.648
HCM Lane V/C Ratio	0.028	0.218	0.054	0.268
HCM Control Delay, s/veh	7.8	8.2	7.9	9.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.8	0.2	1.1



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	346	802	610	145	0	413
Future Volume (vph)	346	802	610	145	0	413
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.971			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3220	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3220	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	384	891	678	161	0	459
Shared Lane Traffic (%)						
Lane Group Flow (vph)	384	891	839	0	0	459
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.3%		ICU Level of Service B	
Analysis Period (min) 15			



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.971			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3220	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3220	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	

Intersection Summary	
Area Type:	Other



Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	346	802	610	145	0	413
Future Volume (Veh/h)	346	802	610	145	0	413
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	384	891	678	161	0	459
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		214				
pX, platoon unblocked					0.97	
vC, conflicting volume	839				1972	420
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	839				1938	420
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	51				100	21
cM capacity (veh/h)	791				29	582

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	NE 1
Volume Total	384	446	446	452	387	459
Volume Left	384	0	0	0	0	0
Volume Right	0	0	0	0	161	459
cSH	791	1700	1700	1700	1700	582
Volume to Capacity	0.49	0.26	0.26	0.27	0.23	0.79
Queue Length 95th (m)	20.4	0.0	0.0	0.0	0.0	57.0
Control Delay (s/veh)	13.8	0.0	0.0	0.0	0.0	30.3
Lane LOS	B					D
Approach Delay (s/veh)	4.1			0.0		30.3
Approach LOS						D

Intersection Summary			
Average Delay	7.5		
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	7.5

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	346	802	610	145	0	413
Future Vol, veh/h	346	802	610	145	0	413
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	384	891	678	161	0	459

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	839	0	-	0	-	420
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	-	3.32
Pot Cap-1 Maneuver	791	-	-	-	0	582
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	791	-	-	-	-	582
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	NB	SB	NE
HCM Control Delay, s/v	4.2	0	30.4
HCM LOS			D

Minor Lane/Major Mvmt	NELn1	NBL	NBT	SBT	SBR
Capacity (veh/h)	582	791	-	-	-
HCM Lane V/C Ratio	0.788	0.486	-	-	-
HCM Control Delay (s/veh)	30.4	13.8	-	-	-
HCM Lane LOS	D	B	-	-	-
HCM 95th %tile Q(veh)	7.5	2.7	-	-	-

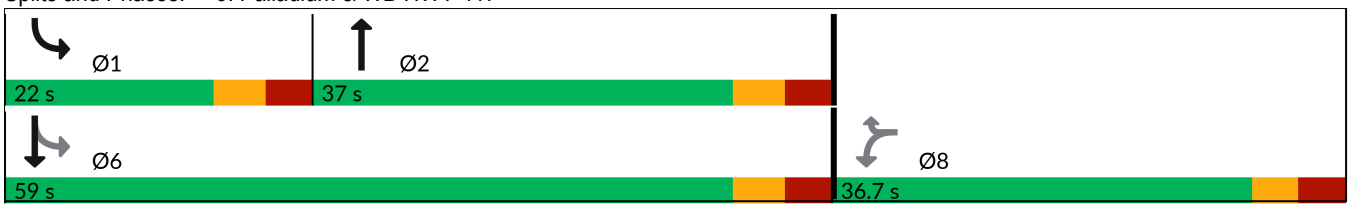


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	506	726	428	0	243	787
Future Volume (vph)	506	726	428	0	243	787
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.275	
Satd. Flow (perm)	3185	1483	3191	0	480	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		462				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Adj. Flow (vph)	562	807	476	0	270	874
Shared Lane Traffic (%)						
Lane Group Flow (vph)	562	807	476	0	270	874
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	15.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases	8	8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		5.0	10.0
Minimum Split (s)	33.0	33.0	39.0		12.1	17.0
Total Split (s)	36.7	36.7	37.0		22.0	59.0
Total Split (%)	38.3%	38.3%	38.7%		23.0%	61.7%
Maximum Green (s)	30.0	30.0	30.0		15.0	52.0
Yellow Time (s)	3.3	3.3	3.7		3.7	3.7
All-Red Time (s)	3.4	3.4	3.3		3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	7.0		7.0	7.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		None	None
Walk Time (s)	7.0	7.0	7.0			
Flash Dont Walk (s)	19.0	19.0	25.0			
Pedestrian Calls (#/hr)	0	0	0			
Act Effct Green (s)	30.1	30.1	17.1		37.2	37.2
Actuated g/C Ratio	0.37	0.37	0.21		0.46	0.46
v/c Ratio	0.47	0.95	0.70		0.66	0.58
Control Delay (s/veh)	22.1	35.9	35.9		22.2	17.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	22.1	35.9	35.9		22.2	17.7
LOS	C	D	D		C	B
Approach Delay (s/veh)	30.3		36.0			18.8
Approach LOS	C		D			B

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 81.1			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay (s/veh): 26.8		Intersection LOS: C	
Intersection Capacity Utilization 71.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Palladium & WB HWY 417





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%		0%			0%
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.275	
Satd. Flow (perm)	3185	1483	3191	0	480	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		462				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8

Intersection Summary	
Area Type:	Other



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	562	807	476	270	874
v/c Ratio	0.47	0.95	0.70	0.66	0.58
Control Delay (s/veh)	22.1	35.9	35.9	22.2	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.1	35.9	35.9	22.2	17.7
Queue Length 50th (m)	34.1	60.5	36.5	25.7	49.9
Queue Length 95th (m)	54.0	#155.5	52.5	41.7	66.1
Internal Link Dist (m)	143.3		396.7		189.7
Turn Bay Length (m)		125.0		115.0	
Base Capacity (vph)	1183	841	1186	439	2115
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.48	0.96	0.40	0.62	0.41

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	506	726	428	0	243	787
Future Volume (vph)	506	726	428	0	243	787
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.7	6.7	7.0		7.0	7.0
Lane Util. Factor	0.97	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3185	1483	3191		1658	3283
Flt Permitted	0.95	1.00	1.00		0.27	1.00
Satd. Flow (perm)	3185	1483	3191		480	3283
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	562	807	476	0	270	874
RTOR Reduction (vph)	0	290	0	0	0	0
Lane Group Flow (vph)	562	517	476	0	270	874
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	30.2	30.2	17.2		37.2	37.2
Effective Green, g (s)	30.2	30.2	17.2		37.2	37.2
Actuated g/C Ratio	0.37	0.37	0.21		0.46	0.46
Clearance Time (s)	6.7	6.7	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	1186	552	676		409	1505
v/s Ratio Prot			0.15		0.11	c0.27
v/s Ratio Perm	0.18	c0.35			c0.20	
v/c Ratio	0.47	0.93	0.70		0.66	0.58
Uniform Delay, d1	19.3	24.5	29.5		15.1	16.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	23.4	3.3		3.9	0.5
Delay (s)	19.6	48.0	32.9		19.1	16.7
Level of Service	B	D	C		B	B
Approach Delay (s/veh)	36.3		32.9			17.3
Approach LOS	D		C			B

Intersection Summary			
HCM 2000 Control Delay (s/veh)	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	81.1	Sum of lost time (s)	20.7
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



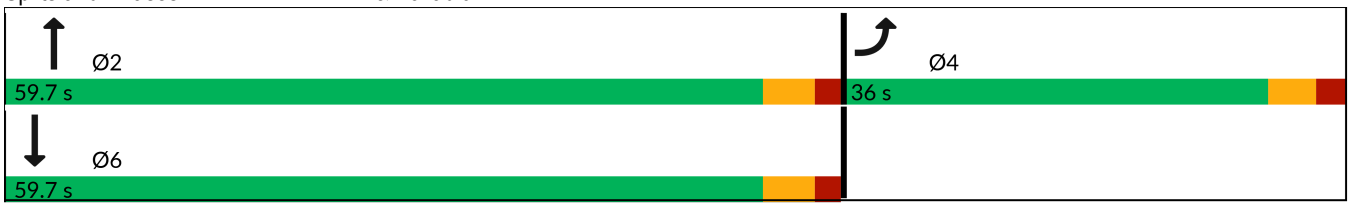
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	191	221	0	429	729	0
Future Volume (vph)	191	221	0	429	729	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	0.927					
Flt Protected	0.977					
Satd. Flow (prot)	1566	0	0	3316	3252	0
Flt Permitted	0.977					
Satd. Flow (perm)	1566	0	0	3316	3252	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	64					
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	2%	2%	2%	4%	3%
Adj. Flow (vph)	212	246	0	477	810	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	458	0	0	477	810	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1			2	2	
Detector Template	Left			Thru	Thru	
Leading Detector (m)	2.0			10.0	10.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	2.0			0.6	0.6	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot			NA	NA	
Protected Phases	4			2	6	
Permitted Phases						
Detector Phase	4			2	6	
Switch Phase						



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	10.0			10.0	10.0	
Minimum Split (s)	29.5			23.6	25.0	
Total Split (s)	36.0			59.7	59.7	
Total Split (%)	37.6%			62.4%	62.4%	
Maximum Green (s)	30.5			54.1	54.1	
Yellow Time (s)	3.3			3.7	3.7	
All-Red Time (s)	2.2			1.9	1.9	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.5			5.6	5.6	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	None			None	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	20.1			20.4	20.4	
Actuated g/C Ratio	0.39			0.39	0.39	
v/c Ratio	0.71			0.36	0.63	
Control Delay (s/veh)	19.1			12.9	16.2	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	19.1			12.9	16.2	
LOS	B			B	B	
Approach Delay (s/veh)	19.2			12.9	16.2	
Approach LOS	B			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 52.2			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay (s/veh): 16.1		Intersection LOS: B	
Intersection Capacity Utilization 56.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: EB HWY 417 & Palladium





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)	0.0	0.0	0.0			0.0
Storage Lanes	1	0	0			0
Taper Length (m)	15.0		15.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt	0.927					
Flt Protected	0.977					
Satd. Flow (prot)	1566	0	0	3316	3252	0
Flt Permitted	0.977					
Satd. Flow (perm)	1566	0	0	3316	3252	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	64					
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	

Intersection Summary	
Area Type:	Other



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	458	477	810
v/c Ratio	0.71	0.36	0.63
Control Delay (s/veh)	19.1	12.9	16.2
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	19.1	12.9	16.2
Queue Length 50th (m)	29.7	15.4	29.8
Queue Length 95th (m)	66.9	32.5	59.4
Internal Link Dist (m)	231.1	165.0	396.7
Turn Bay Length (m)			
Base Capacity (vph)	986	3121	3061
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.46	0.15	0.26

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	191	221	0	429	729	0
Future Volume (vph)	191	221	0	429	729	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.5			5.6	5.6	
Lane Util. Factor	1.00			0.95	0.95	
Frt	0.92			1.00	1.00	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1568			3316	3252	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1568			3316	3252	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	212	246	0	477	810	0
RTOR Reduction (vph)	39	0	0	0	0	0
Lane Group Flow (vph)	419	0	0	477	810	0
Heavy Vehicles (%)	4%	2%	2%	2%	4%	3%
Turn Type	Prot			NA	NA	
Protected Phases	4			2	6	
Permitted Phases						
Actuated Green, G (s)	20.1			20.4	20.4	
Effective Green, g (s)	20.1			20.4	20.4	
Actuated g/C Ratio	0.39			0.40	0.40	
Clearance Time (s)	5.5			5.6	5.6	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	610			1310	1285	
v/s Ratio Prot	c0.27			0.14	c0.25	
v/s Ratio Perm						
v/c Ratio	0.68			0.36	0.63	
Uniform Delay, d1	13.1			11.0	12.5	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	3.2			0.1	1.0	
Delay (s)	16.3			11.1	13.5	
Level of Service	B			B	B	
Approach Delay (s/veh)	16.3			11.1	13.5	
Approach LOS	B			B	B	

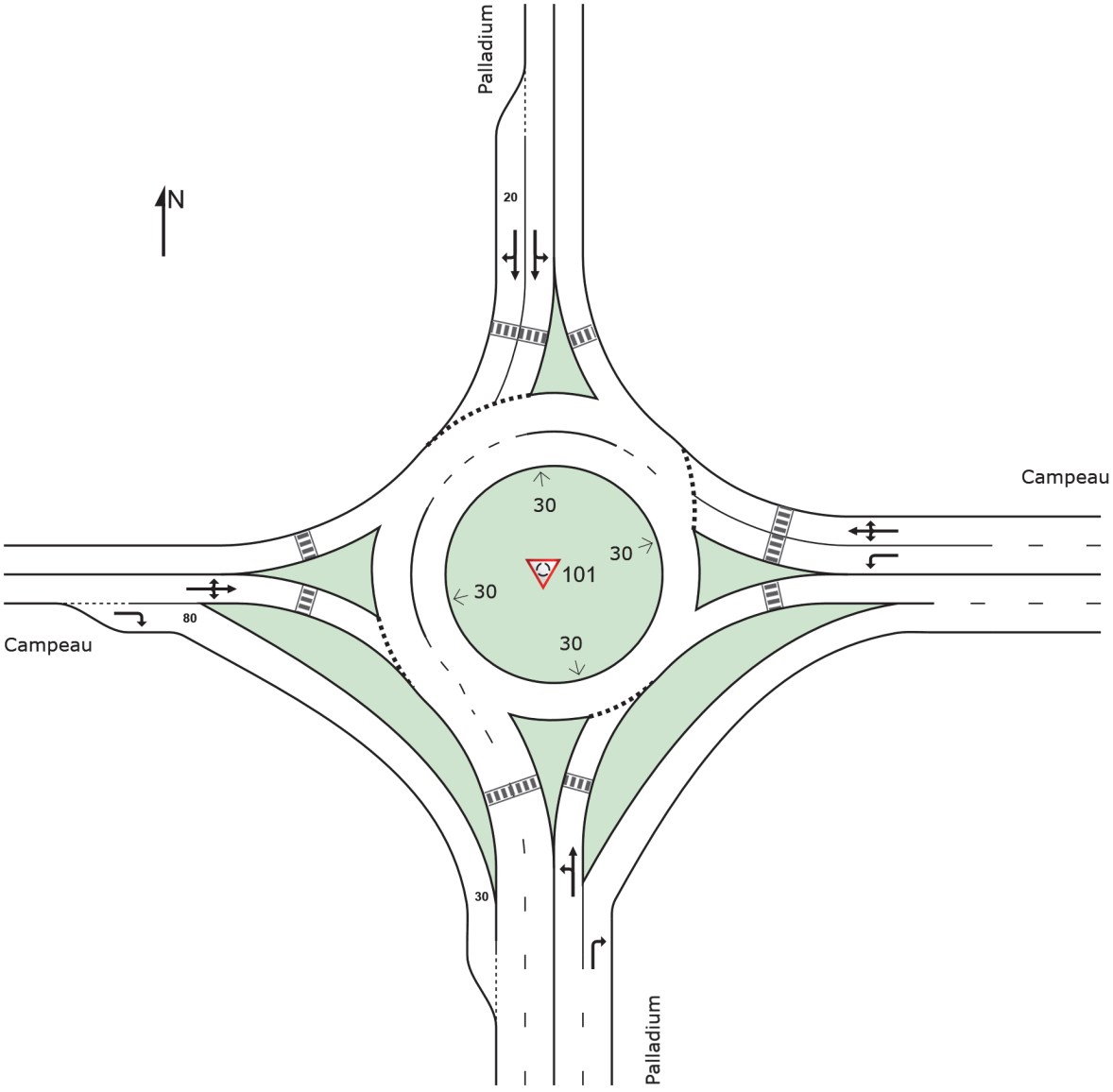
Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	51.6	Sum of lost time (s)	11.1
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

SITE LAYOUT

Site: 101 [Palladium at Campeau BG 2032 PM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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



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MOVEMENT SUMMARY

Site: 101 [Palladium at Campeau BG 2032 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Palladium															
1	L2	All MCs	185	2.0	185	2.0	0.210	9.8	LOS A	1.3	9.0	0.36	0.54	0.36	51.6
2	T1	All MCs	134	2.0	134	2.0	0.210	3.6	LOS A	1.3	9.0	0.36	0.54	0.36	52.6
3	R2	All MCs	445	2.0	445	2.0	0.234	3.1	LOS A	0.0	0.0	0.00	0.40	0.00	56.1
Approach			764	2.0	764	2.0	0.234	4.8	LOS A	1.3	9.0	0.15	0.46	0.15	54.3
East: Campeau															
4	L2	All MCs	315	2.0	315	2.0	0.157	10.5	LOS B	0.9	6.7	0.48	0.62	0.48	50.1
5	T1	All MCs	65	2.0	65	2.0	0.157	4.6	LOS A	0.9	6.7	0.47	0.59	0.47	51.8
6	R2	All MCs	14	2.0	14	2.0	0.157	4.6	LOS A	0.9	6.7	0.47	0.59	0.47	51.5
Approach			394	2.0	394	2.0	0.157	9.3	LOS A	0.9	6.7	0.48	0.61	0.48	50.4
North: Palladium															
7	L2	All MCs	37	2.0	37	2.0	0.129	11.0	LOS B	0.5	3.8	0.50	0.61	0.50	51.6
8	T1	All MCs	222	2.0	222	2.0	0.129	5.4	LOS A	0.6	3.9	0.49	0.55	0.49	53.0
9	R2	All MCs	2	2.0	2	2.0	0.129	5.3	LOS A	0.6	3.9	0.48	0.52	0.48	52.9
Approach			261	2.0	261	2.0	0.129	6.2	LOS A	0.6	3.9	0.49	0.56	0.49	52.8
West: Campeau															
10	L2	All MCs	2	2.0	2	2.0	0.127	10.6	LOS B	0.5	3.6	0.46	0.49	0.46	52.8
11	T1	All MCs	138	2.0	138	2.0	0.127	4.8	LOS A	0.5	3.6	0.46	0.49	0.46	53.7
12	R2	All MCs	56	2.0	56	2.0	0.030	3.8	LOS A	0.0	0.0	0.00	0.42	0.00	55.9
Approach			196	2.0	196	2.0	0.127	4.6	LOS A	0.5	3.6	0.33	0.47	0.33	54.3
All Vehicles			1615	2.0	1615	2.0	0.234	6.1	LOS A	1.3	9.0	0.31	0.51	0.31	53.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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QUEUE ANALYSIS

Site: 101 [Palladium at Campeau BG 2032 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Lane Queues (Distance)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (m)	Back of Queue (m)		Queue at Start of Gap (m)		Cycle-Average Queue (m)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.210	1.000	0.0	3.6	9.0	3.0	7.4	0.4	0.7	0.01	0.02	0.0	NA	NA
Lane 2	Y	0.234	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.234			3.6	9.0	3.0	7.4	0.4	0.7	0.01	0.02			
East: Campeau															
Lane 1		0.157	1.000	0.0	2.5	6.3	2.3	5.6	0.5	1.0	0.01	0.01	0.0	NA	NA
Lane 2		0.157	1.000	0.0	2.7	6.7	2.4	5.9	0.5	0.9	0.01	0.01	0.0	NA	NA
Approach		0.157			2.7	6.7	2.4	5.9	0.5	1.0	0.01	0.01			
North: Palladium															
Lane 1		0.129	1.000	0.0	1.5	3.8	1.4	3.5	0.4	0.8	0.00	0.01	0.0	NA	NA
Lane 2		0.129	1.000	0.0	1.6	3.9	1.4	3.6	0.4	0.8	0.08	0.20	NA	0.0	1
Approach		0.129			1.6	3.9	1.4	3.6	0.4	0.8	0.00	0.01			
West: Campeau															
Lane 1		0.127	1.000	0.0	1.4	3.6	1.3	3.3	0.4	0.7	0.00	0.01	0.0	NA	NA
Lane 2	Y	0.030	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.127			1.4	3.6	1.3	3.3	0.4	0.7	0.00	0.01			
Intersection		0.234			3.6	9.0	3.0	7.4	0.5	1.0	0.01	0.02			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Lane Queues (Vehicles)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (veh)	Back of Queue (veh)		Queue at Start of Gap (veh)		Cycle-Average Queue (veh)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.210	1.000	0.0	0.5	1.3	0.4	1.0	0.1	0.1	0.01	0.02	0.0	NA	NA
Lane 2	Y	0.234	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.234			0.5	1.3	0.4	1.0	0.1	0.1	0.01	0.02			
East: Campeau															
Lane 1		0.157	1.000	0.0	0.4	0.9	0.3	0.8	0.1	0.1	0.01	0.01	0.0	NA	NA
Lane 2		0.157	1.000	0.0	0.4	0.9	0.3	0.8	0.1	0.1	0.01	0.01	0.0	NA	NA
Approach		0.157			0.4	0.9	0.3	0.8	0.1	0.1	0.01	0.01			
North: Palladium															
Lane 1		0.129	1.000	0.0	0.2	0.5	0.2	0.5	0.1	0.1	0.00	0.01	0.0	NA	NA
Lane 2		0.129	1.000	0.0	0.2	0.6	0.2	0.5	0.1	0.1	0.08	0.20	NA	0.0	1

Approach		0.129			0.2	0.6	0.2	0.5	0.1	0.1	0.00	0.01			
West: Campeau															
Lane 1		0.127	1.000	0.0	0.2	0.5	0.2	0.5	0.1	0.1	0.00	0.01	0.0	NA	NA
Lane 2	Y	0.030	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.127			0.2	0.5	0.2	0.5	0.1	0.1	0.00	0.01			
Intersection		0.234			0.5	1.3	0.4	1.0	0.1	0.1	0.01	0.02			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Continuous Lane Performance

Lane Number	Deg. Satn	Unint. Speed	Unint. Travel Delay	Hdwy Spacing		Aver. Vehicle Length	Occup. Time	Space Time	Space Occup. Ratio	Time Occup. Ratio	Density		LOS (Density Method)
	v/c	km/h	sec	sec	m	m	sec	sec	%	%	veh/km	pc/km	
South: Palladium													
Lane 2	0.234	59.9	0.1	8.09	134.5	4.6	0.40	7.69	3.4	4.9	7.4	7.6	LOS B
West: Campeau													
Lane 2	0.030	60.0	0.0	64.29	1071.2	4.6	0.40	63.89	0.4	0.6	0.9	0.9	LOS A

Midblock Effective Detection Zone Length = 2 m

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INTERSECTION SUMMARY

Site: 101 [Palladium at Campeau BG 2032 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	53.0	53.0 km/h
Travel Distance (Total)	veh-km/h	1686.3	2023.6 pers-km/h
Travel Time (Total)	veh-h/h	31.8	38.2 pers-h/h
Desired Speed	km/h	60.0	
Speed Efficiency		0.88	
Travel Time Index		8.71	
Congestion Coefficient		1.13	
Demand Flows (Total)	veh/h	1615	1938 pers/h
Arrival Flows (Total)	veh/h	1615	
Percent Heavy Vehicles (Demand)	%	2.0	
Percent Heavy Vehicles (Arrivals)	%	2.0	
Degree of Saturation		0.234	
Practical Spare Capacity	%	304.8	
Effective Intersection Capacity	veh/h	6887	
Control Delay (Total)	veh-h/h	2.73	3.28 pers-h/h
Control Delay (Average)	sec	6.1	6.1 sec
Control Delay (Worst Lane by MC)	sec	10.6	
Control Delay (Worst Movement by MC)	sec	13.1	13.1 sec
Geometric Delay (Average)	sec	5.2	
Stop-Line Delay (Average)	sec	0.9	
Idling Time (Average)	sec	0.0	
Intersection Level of Service (LOS)		LOS A	
95% Back of Queue - Veh (Worst Lane)	veh	1.3	
95% Back of Queue - Dist (Worst Lane)	m	9.0	
Ave. Que Storage Ratio (Worst Lane)		0.01	
Effective Stops (Total)	veh/h	828	993 pers/h
Effective Stop Rate		0.51	0.51
Proportion Queued		0.31	0.31
Performance Index		41.8	41.8
Cost (Total)	$/h	1378.52	1378.52 $/h
Fuel Consumption (Total)	L/h	144.6	
Carbon Dioxide (Total)	kg/h	341.7	
Hydrocarbons (Total)	kg/h	0.028	
Carbon Monoxide (Total)	kg/h	0.39	
NOx (Total)	kg/h	0.380	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 1.4 %
Number of Iterations: 5 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.1% 1.3% 0.7%

Intersection Performance - Annual Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Demand Flows (Total)	veh/y	775,200	930,240 pers/y
Delay (Total)	veh-h/y	1,312	1,574 pers-h/y

Effective Stops (Total)	veh/y	397,339	476,807	pers/y
Travel Distance (Total)	veh-km/y	809,427	971,312	pers-km/y
Travel Time (Total)	veh-h/y	15,263	18,315	pers-h/y
Cost (Total)	$/y	661,689	661,689	$/y
Fuel Consumption (Total)	L/y	69,418		
Carbon Dioxide (Total)	kg/y	164,025		
Hydrocarbons (Total)	kg/y	13		
Carbon Monoxide (Total)	kg/y	185		
NOx (Total)	kg/y	182		

1 Hours per Year: 480 (Site)

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ROUNDABOUT ANALYSIS

Site: 101 [Palladium at Campeau BG 2032 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Roundabout Basic Parameters

Location	Name	Central Island Diam m	Circ Width m	Insc Diam m	Entry Radius m	Entry Angle °	Circ Lanes	Entry Lanes	Av.Entry Lane Width m	App. Dist m	Prop Queued Upstr Signal	Extra Bunching %
South	Palladium	30.00	6.00	45.5	20.0	30.0	1	2[18]	4.00	500.0	NA[5]	0.0
East	Campeau	30.00	6.00	45.5	20.0	30.0	1	2	4.00	500.0	NA[5]	0.0
North	Palladium	30.00	9.50	45.5	20.0	30.0	2	2	4.00	500.0	NA[5]	0.0
West	Campeau	30.00	9.50	45.5	20.0	30.0	2	2[18]	4.00	500.0	NA[5]	0.0

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

5 Not Applicable (single Site analysis or unconnected Site in Network analysis).
18 Exclusive slip/bypass lane is included in Entry Lanes count.

Roundabout Entry and Circulating / Exiting Stream Parameters

To Approach	Turn	Lane No	Lane Type	Opng Flow veh/h	Opng Flow pcu/h	In-Bunch Hdwy sec	Prop. Bunched	Cap Const Effect	Priority Sharing	OD Factor	Gap Acc Factor	Follow-up Hdwy (tf) sec	Critical Gap (tc) [Hdwy sec	Dist] m	Ratio tf / tc
South: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
West	L2	1	Dominant	177	179	2.00	0.195	No	Yes[10]	0.983	1.01	2.01	3.82	38.2	0.53
North	T1	1	Dominant	177	179	2.00	0.195	No	Yes[10]	0.983	1.01	2.01	3.82	38.2	0.53
East	R2	2	Continuous												
East: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
South	L2	1	Subdom.	321	324	2.00	0.326	No	Yes[10]	0.971	1.01	2.33	4.31	38.4	0.54
South	L2	2	Dominant	321	324	2.00	0.326	No	Yes[10]	0.971	1.01	1.97	3.64	32.5	0.54
West	T1	2	Dominant	321	324	2.00	0.326	No	Yes[10]	0.971	1.01	1.97	3.64	32.5	0.54
North	R2	2	Dominant	321	324	2.00	0.326	No	Yes[10]	0.971	1.01	1.97	3.64	32.5	0.54
North: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
East	L2	1	Subdom.	565	571	1.27	0.357	No	Yes[10]	0.955	1.01	2.47	3.70	27.5	0.67
South	T1	1	Subdom.	565	571	1.27	0.357	No	Yes[10]	0.955	1.01	2.47	3.70	27.5	0.67
South	T1	2	Dominant	565	571	1.27	0.357	No	Yes[10]	0.955	1.01	2.23	3.34	24.9	0.67
West	R2	2	Dominant	565	571	1.27	0.357	No	Yes[10]	0.955	1.01	2.23	3.34	24.9	0.67
West: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
North	L2	1	Dominant	574	580	1.03	0.305	No	No	0.966	1.01	2.23	3.33	27.6	0.67
East	T1	1	Dominant	574	580	1.03	0.305	No	No	0.966	1.01	2.23	3.33	27.6	0.67
South	R2	2	Continuous												

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

10 Priority sharing means Follow-up Headway plus Intra-bunch Headway is larger than the Critical Gap.

Circulating Lane Flow Rates			
Circ. Lane No	Circulating Flow Rate		
	veh/h	pcu/h	Percent
South: Palladium			
Lane 1	177	179	100.0
Approach	177	179	
East: Campeau			
Lane 1	321	324	100.0
Approach	321	324	
North: Palladium			
Lane 1	177	179	31.3
Lane 2	388	392	68.7
Approach	565	571	
West: Campeau			
Lane 1	299	302	52.1
Lane 2	275	278	47.9
Approach	574	580	

Roundabout Capacity Model: The SIDRA Standard Roundabout Capacity Model option is in use. This model takes into account the total circulating flow as well as the effect of flow distribution in circulating lanes on the entry capacity results.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Lanes)					
Opposed Lane	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium					
1	27.61	4.06	23.54	0.853	0.4
East: Campeau					
1	20.12	5.45	14.67	0.729	1.1
2	19.16	4.67	14.49	0.756	0.8
North: Palladium					
1	14.00	4.93	9.07	0.648	1.4
2	13.37	4.43	8.95	0.669	1.2
West: Campeau					
1	12.59	4.03	8.56	0.680	1.1

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Movements)							
To Approach	Turn	Opsd Lane No	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium							
West	L2	1	27.61	4.06	23.54	0.853	0.4
North	T1	1	27.61	4.06	23.54	0.853	0.4
East: Campeau							
South	L2	1	20.12	5.45	14.67	0.729	1.1
South	L2	2	19.16	4.67	14.49	0.756	0.8
West	T1	2	19.16	4.67	14.49	0.756	0.8
North	R2	2	19.16	4.67	14.49	0.756	0.8
North: Palladium							
East	L2	1	14.00	4.93	9.07	0.648	1.4
South	T1	1	14.00	4.93	9.07	0.648	1.4

South	T1	2	13.37	4.43	8.95	0.669	1.2
West	R2	2	13.37	4.43	8.95	0.669	1.2
West: Campeau							
North	L2	1	12.59	4.03	8.56	0.680	1.1
East	T1	1	12.59	4.03	8.56	0.680	1.1

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

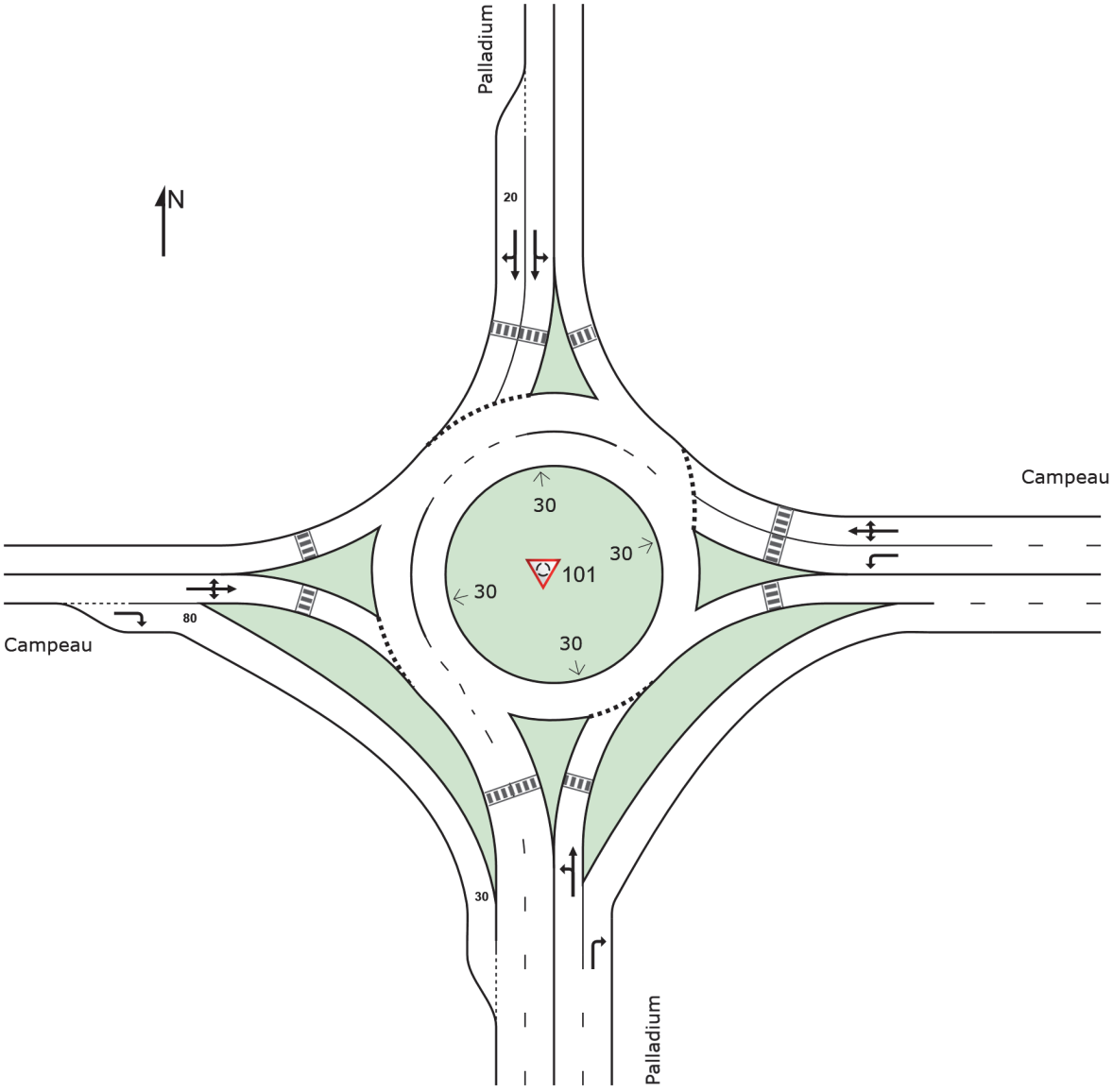
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SITE LAYOUT

Site: 101 [Palladium at Campeau BG 2032 SAT (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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



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MOVEMENT SUMMARY

Site: 101 [Palladium at Campeau BG 2032 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Palladium															
1	L2	All MCs	410	2.0	410	2.0	0.291	10.1	LOS B	1.9	13.7	0.44	0.60	0.44	49.8
2	T1	All MCs	16	2.0	16	2.0	0.291	3.9	LOS A	1.9	13.7	0.44	0.60	0.44	50.7
3	R2	All MCs	357	2.0	357	2.0	0.188	3.0	LOS A	0.0	0.0	0.00	0.40	0.00	56.2
Approach			783	2.0	783	2.0	0.291	6.8	LOS A	1.9	13.7	0.24	0.51	0.24	52.5
East: Campeau															
4	L2	All MCs	331	2.0	331	2.0	0.186	11.1	LOS B	1.2	8.5	0.57	0.64	0.57	49.8
5	T1	All MCs	90	2.0	90	2.0	0.186	5.1	LOS A	1.2	8.5	0.56	0.61	0.56	51.6
6	R2	All MCs	5	2.0	5	2.0	0.186	5.1	LOS A	1.2	8.5	0.56	0.61	0.56	51.3
Approach			426	2.0	426	2.0	0.186	9.7	LOS A	1.2	8.5	0.57	0.64	0.57	50.2
North: Palladium															
7	L2	All MCs	7	2.0	7	2.0	0.011	11.7	LOS B	0.0	0.3	0.57	0.67	0.57	49.8
8	T1	All MCs	11	2.0	11	2.0	0.011	5.9	LOS A	0.0	0.3	0.56	0.56	0.56	52.6
9	R2	All MCs	1	2.0	1	2.0	0.011	5.9	LOS A	0.0	0.3	0.56	0.55	0.56	52.6
Approach			19	2.0	19	2.0	0.011	8.0	LOS A	0.0	0.3	0.56	0.60	0.56	51.6
West: Campeau															
10	L2	All MCs	1	2.0	1	2.0	0.189	10.2	LOS B	0.9	6.2	0.43	0.45	0.43	52.9
11	T1	All MCs	221	2.0	221	2.0	0.189	4.4	LOS A	0.9	6.2	0.43	0.45	0.43	53.9
12	R2	All MCs	26	2.0	26	2.0	0.014	3.5	LOS A	0.0	0.0	0.00	0.42	0.00	55.9
Approach			248	2.0	248	2.0	0.189	4.4	LOS A	0.9	6.2	0.38	0.45	0.38	54.1
All Vehicles			1476	2.0	1476	2.0	0.291	7.2	LOS A	1.9	13.7	0.36	0.54	0.36	52.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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QUEUE ANALYSIS

Site: 101 [Palladium at Campeau BG 2032 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Lane Queues (Distance)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (m)	Back of Queue (m)		Queue at Start of Gap (m)		Cycle-Average Queue (m)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.291	1.000	0.0	5.5	13.7	4.2	10.4	0.8	1.4	0.01	0.03	0.0	NA	NA
Lane 2	Y	0.188	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.291			5.5	13.7	4.2	10.4	0.8	1.4	0.01	0.03			
East: Campeau															
Lane 1		0.186	1.000	0.0	3.2	7.9	2.8	6.9	0.8	1.5	0.01	0.02	0.0	NA	NA
Lane 2		0.186	1.000	0.0	3.4	8.5	3.0	7.4	0.8	1.4	0.01	0.02	0.0	NA	NA
Approach		0.186			3.4	8.5	3.0	7.4	0.8	1.5	0.01	0.02			
North: Palladium															
Lane 1		0.011	1.000	0.0	0.1	0.3	0.1	0.3	0.0	0.1	0.00	0.00	0.0	NA	NA
Lane 2		0.011	1.000	0.0	0.1	0.3	0.1	0.3	0.0	0.1	0.01	0.02	NA	0.0	1
Approach		0.011			0.1	0.3	0.1	0.3	0.0	0.1	0.00	0.00			
West: Campeau															
Lane 1		0.189	1.000	0.0	2.5	6.2	2.1	5.3	0.4	0.8	0.00	0.01	0.0	NA	NA
Lane 2	Y	0.014	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.189			2.5	6.2	2.1	5.3	0.4	0.8	0.00	0.01			
Intersection		0.291			5.5	13.7	4.2	10.4	0.8	1.5	0.01	0.03			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Lane Queues (Vehicles)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (veh)	Back of Queue (veh)		Queue at Start of Gap (veh)		Cycle-Average Queue (veh)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.291	1.000	0.0	0.8	1.9	0.6	1.5	0.1	0.2	0.01	0.03	0.0	NA	NA
Lane 2	Y	0.188	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.291			0.8	1.9	0.6	1.5	0.1	0.2	0.01	0.03			
East: Campeau															
Lane 1		0.186	1.000	0.0	0.4	1.1	0.4	1.0	0.1	0.2	0.01	0.02	0.0	NA	NA
Lane 2		0.186	1.000	0.0	0.5	1.2	0.4	1.0	0.1	0.2	0.01	0.02	0.0	NA	NA
Approach		0.186			0.5	1.2	0.4	1.0	0.1	0.2	0.01	0.02			
North: Palladium															
Lane 1		0.011	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Lane 2		0.011	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.02	NA	0.0	1

Approach		0.011			0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00			
West: Campeau															
Lane 1		0.189	1.000	0.0	0.3	0.9	0.3	0.7	0.1	0.1	0.00	0.01	0.0	NA	NA
Lane 2	Y	0.014	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.189			0.3	0.9	0.3	0.7	0.1	0.1	0.00	0.01			
Intersection		0.291			0.8	1.9	0.6	1.5	0.1	0.2	0.01	0.03			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Continuous Lane Performance

Lane Number	Deg. Satn	Unint. Speed	Unint. Travel Delay	Hdwy Spacing		Aver. Vehicle Length	Occup. Time	Space Time	Space Occup. Ratio	Time Occup. Ratio	Density		LOS (Density Method)
	v/c	km/h	sec	sec	m	m	sec	sec	%	%	veh/km	pc/km	
South: Palladium													
Lane 2	0.188	59.9	0.0	10.08	167.8	4.6	0.40	9.69	2.7	3.9	6.0	6.1	LOS A
West: Campeau													
Lane 2	0.014	60.0	0.0	138.46	2307.5	4.6	0.40	138.06	0.2	0.3	0.4	0.4	LOS A

Midblock Effective Detection Zone Length = 2 m

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INTERSECTION SUMMARY

Site: 101 [Palladium at Campeau BG 2032 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Travel Speed (Average)	km/h	52.0	52.0	km/h
Travel Distance (Total)	veh-km/h	1550.8	1861.0	pers-km/h
Travel Time (Total)	veh-h/h	29.8	35.8	pers-h/h
Desired Speed	km/h	60.0		
Speed Efficiency		0.87		
Travel Time Index		8.52		
Congestion Coefficient		1.15		
Demand Flows (Total)	veh/h	1476	1771	pers/h
Arrival Flows (Total)	veh/h	1476		
Percent Heavy Vehicles (Demand)	%	2.0		
Percent Heavy Vehicles (Arrivals)	%	2.0		
Degree of Saturation		0.291		
Practical Spare Capacity	%	191.8		
Effective Intersection Capacity	veh/h	5068		
Control Delay (Total)	veh-h/h	2.96	3.56	pers-h/h
Control Delay (Average)	sec	7.2	7.2	sec
Control Delay (Worst Lane by MC)	sec	11.3		
Control Delay (Worst Movement by MC)	sec	14.4	14.4	sec
Geometric Delay (Average)	sec	6.2		
Stop-Line Delay (Average)	sec	1.0		
Idling Time (Average)	sec	0.0		
Intersection Level of Service (LOS)		LOS A		
95% Back of Queue - Veh (Worst Lane)	veh	1.9		
95% Back of Queue - Dist (Worst Lane)	m	13.7		
Ave. Que Storage Ratio (Worst Lane)		0.01		
Effective Stops (Total)	veh/h	792	950	pers/h
Effective Stop Rate		0.54	0.54	
Proportion Queued		0.36	0.36	
Performance Index		40.6	40.6	
Cost (Total)	$/h	1297.19	1297.19	$/h
Fuel Consumption (Total)	L/h	137.8		
Carbon Dioxide (Total)	kg/h	325.4		
Hydrocarbons (Total)	kg/h	0.027		
Carbon Monoxide (Total)	kg/h	0.36		
NOx (Total)	kg/h	0.363		

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 1.8 %
Number of Iterations: 6 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.1% 1.1% 0.6%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total)	veh/y	708,480	850,176	pers/y
Delay (Total)	veh-h/y	1,422	1,707	pers-h/y

Effective Stops (Total)	veh/y	379,928	455,913	pers/y
Travel Distance (Total)	veh-km/y	744,381	893,258	pers-km/y
Travel Time (Total)	veh-h/y	14,308	17,170	pers-h/y
Cost (Total)	$/y	622,651	622,651	$/y
Fuel Consumption (Total)	L/y	66,121		
Carbon Dioxide (Total)	kg/y	156,215		
Hydrocarbons (Total)	kg/y	13		
Carbon Monoxide (Total)	kg/y	174		
NOx (Total)	kg/y	174		

1 Hours per Year: 480 (Site)

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ROUNDABOUT ANALYSIS

Site: 101 [Palladium at Campeau BG 2032 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Roundabout Basic Parameters

Location	Name	Central Island Diam m	Circ Width m	Insc Diam m	Entry Radius m	Entry Angle °	Circ Lanes	Entry Lanes	Av.Entry Lane Width m	App. Dist m	Prop Queued Upstr Signal	Extra Bunching %
South	Palladium	30.00	6.00	45.5	20.0	30.0	1	2[18]	4.00	500.0	NA[5]	0.0
East	Campeau	30.00	6.00	45.5	20.0	30.0	1	2	4.00	500.0	NA[5]	0.0
North	Palladium	30.00	9.50	45.5	20.0	30.0	2	2	4.00	500.0	NA[5]	0.0
West	Campeau	30.00	9.50	45.5	20.0	30.0	2	2[18]	4.00	500.0	NA[5]	0.0

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

5 Not Applicable (single Site analysis or unconnected Site in Network analysis).
18 Exclusive slip/bypass lane is included in Entry Lanes count.

Roundabout Entry and Circulating / Exiting Stream Parameters

To Approach	Turn	Lane No	Lane Type	Opng Flow veh/h	Opng Flow pcu/h	In-Bunch Hdwy sec	Prop. Bunched	Cap Const Effect	Priority Sharing	OD Factor	Gap Acc Factor	Follow-up Hdwy (tf) sec	Critical Gap (tc) [Hdwy sec	Dist] m	Ratio tf / tc
South: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
West	L2	1	Dominant	229	231	2.00	0.245	No	Yes[10]	0.975	1.01	2.00	3.75	40.2	0.53
North	T1	1	Dominant	229	231	2.00	0.245	No	Yes[10]	0.975	1.01	2.00	3.75	40.2	0.53
East	R2	2	Continuous												
East: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
South	L2	1	Subdom.	427	431	2.00	0.409	No	Yes[10]	0.950	1.01	2.31	4.19	30.3	0.55
South	L2	2	Dominant	427	431	2.00	0.409	No	Yes[10]	0.950	1.01	1.93	3.51	25.4	0.55
West	T1	2	Dominant	427	431	2.00	0.409	No	Yes[10]	0.950	1.01	1.93	3.51	25.4	0.55
North	R2	2	Dominant	427	431	2.00	0.409	No	Yes[10]	0.950	1.01	1.93	3.51	25.4	0.55
North: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
East	L2	1	Subdom.	831	839	1.39	0.512	No	Yes[10]	0.927	1.01	2.42	3.47	25.8	0.70
South	T1	1	Subdom.	831	839	1.39	0.512	No	Yes[10]	0.927	1.01	2.42	3.47	25.8	0.70
South	T1	2	Dominant	831	839	1.39	0.512	No	Yes[10]	0.927	1.01	2.13	3.05	22.7	0.70
West	R2	2	Dominant	831	839	1.39	0.512	No	Yes[10]	0.927	1.01	2.13	3.05	22.7	0.70
West: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
North	L2	1	Dominant	349	352	1.10	0.210	No	No	0.956	1.01	2.32	3.61	25.5	0.64
East	T1	1	Dominant	349	352	1.10	0.210	No	No	0.956	1.01	2.32	3.61	25.5	0.64
South	R2	2	Continuous												

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

10 Priority sharing means Follow-up Headway plus Intra-bunch Headway is larger than the Critical Gap.

Circulating Lane Flow Rates			
Circ. Lane No	Circulating Flow Rate		
	veh/h	pcu/h	Percent
South: Palladium			
Lane 1	229	231	100.0
Approach	229	231	
East: Campeau			
Lane 1	427	431	100.0
Approach	427	431	
North: Palladium			
Lane 1	189	191	22.8
Lane 2	642	648	77.2
Approach	831	839	
West: Campeau			
Lane 1	198	200	56.7
Lane 2	151	153	43.3
Approach	349	352	

Roundabout Capacity Model: The SIDRA Standard Roundabout Capacity Model option is in use. This model takes into account the total circulating flow as well as the effect of flow distribution in circulating lanes on the entry capacity results.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Lanes)					
Opposed Lane	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium					
1	23.29	4.33	18.96	0.814	0.6
East: Campeau					
1	18.23	6.33	11.90	0.653	1.6
2	17.11	5.40	11.71	0.685	1.2
North: Palladium					
1	13.47	6.30	7.17	0.532	2.3
2	12.55	5.53	7.02	0.559	1.9
West: Campeau					
1	16.80	4.11	12.69	0.755	0.7

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Movements)							
To Approach	Turn	Opsd Lane No	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium							
West	L2	1	23.29	4.33	18.96	0.814	0.6
North	T1	1	23.29	4.33	18.96	0.814	0.6
East: Campeau							
South	L2	1	18.23	6.33	11.90	0.653	1.6
South	L2	2	17.11	5.40	11.71	0.685	1.2
West	T1	2	17.11	5.40	11.71	0.685	1.2
North	R2	2	17.11	5.40	11.71	0.685	1.2
North: Palladium							
East	L2	1	13.47	6.30	7.17	0.532	2.3
South	T1	1	13.47	6.30	7.17	0.532	2.3

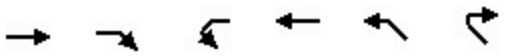
South	T1	2	12.55	5.53	7.02	0.559	1.9
West	R2	2	12.55	5.53	7.02	0.559	1.9
West: Campeau							
North	L2	1	16.80	4.11	12.69	0.755	0.7
East	T1	1	16.80	4.11	12.69	0.755	0.7

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

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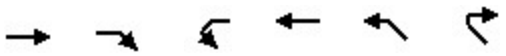
Appendix K

Synchro and Sidra Reports (Total 2027)



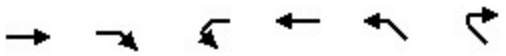
Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	95	1	97	64	2	225
Future Volume (vph)	95	1	97	64	2	225
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.866	
Flt Protected			0.950			
Satd. Flow (prot)	1743	0	1658	1745	1511	0
Flt Permitted			0.950			
Satd. Flow (perm)	1743	0	1658	1745	1511	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	106	1	108	71	2	250
Shared Lane Traffic (%)						
Lane Group Flow (vph)	107	0	108	71	252	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.8%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	0.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			15.0		15.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.999				0.866	
Flt Protected			0.950			
Satd. Flow (prot)	1743	0	1658	1745	1511	0
Flt Permitted			0.950			
Satd. Flow (perm)	1743	0	1658	1745	1511	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	

Intersection Summary	
Area Type:	Other



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	95	1	97	64	2	225
Future Volume (Veh/h)	95	1	97	64	2	225
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	106	1	108	71	2	250
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			107		394	107
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			107		394	107
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		100	74
cM capacity (veh/h)			1484		567	948

Direction, Lane #	EB 1	WB 1	WB 2	NW 1
Volume Total	107	108	71	252
Volume Left	0	108	0	2
Volume Right	1	0	0	250
cSH	1700	1484	1700	943
Volume to Capacity	0.06	0.07	0.04	0.27
Queue Length 95th (m)	0.0	1.8	0.0	8.2
Control Delay (s/veh)	0.0	7.6	0.0	10.2
Lane LOS		A		B
Approach Delay (s/veh)	0.0	4.6		10.2
Approach LOS				B

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

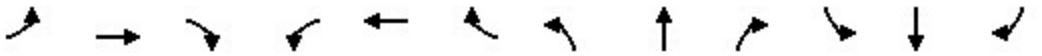
Intersection	
Int Delay, s/veh	6.3

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	95	1	97	64	2	225
Future Vol, veh/h	95	1	97	64	2	225
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	106	1	108	71	2	250

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	107	0	394	107
Stage 1	-	-	-	-	107	-
Stage 2	-	-	-	-	287	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1484	-	611	947
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	762	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1484	-	566	947
Mov Cap-2 Maneuver	-	-	-	-	566	-
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	706	-

Approach	EB	WB	NW
HCM Control Delay, s/v	0	4.6	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	941	-	-	1484	-
HCM Lane V/C Ratio	0.268	-	-	0.073	-
HCM Control Delay (s/veh)	10.2	-	-	7.6	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.1	-	-	0.2	-

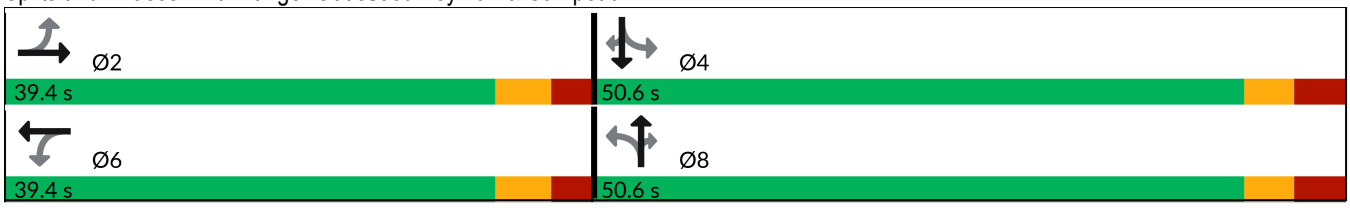


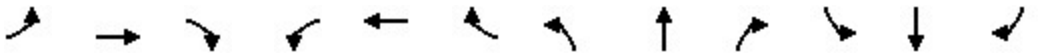
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	619	18	100	385	13	41	0	98	30	0	17
Future Volume (vph)	21	619	18	100	385	13	41	0	98	30	0	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.996			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3302	0	1658	3268	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.453			0.247			0.757			0.757		
Satd. Flow (perm)	791	3302	0	431	3268	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			4				90			238
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	
Confl. Peds. (#/hr)							5					5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	23	688	20	111	428	14	46	0	109	33	0	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	708	0	111	442	0	46	0	109	33	0	19
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm		Perm	Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		6	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	39.4	39.4		39.4	39.4		39.8	39.8	39.8	39.8	39.8	39.8
Total Split (s)	39.4	39.4		39.4	39.4		50.6	50.6	50.6	50.6	50.6	50.6
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.2%	56.2%	56.2%	56.2%	56.2%	56.2%
Maximum Green (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7		2.7	2.7		3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		26.0	26.0	26.0	26.0	26.0	26.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	5	5	5
Act Effct Green (s)	24.1	24.1		24.1	24.1		44.1		44.1	44.1		44.1
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.54		0.54	0.54		0.54
v/c Ratio	0.09	0.72		0.87	0.45		0.06		0.12	0.04		0.02
Control Delay (s/veh)	20.6	29.7		80.9	24.1		11.3		4.2	11.3		0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Total Delay (s/veh)	20.6	29.7		80.9	24.1		11.3		4.2	11.3		0.0
LOS	C	C		F	C		B		A	B		A
Approach Delay (s/veh)		29.5			35.6			6.4			7.2	
Approach LOS		C			D			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 81.5			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay (s/veh): 28.6		Intersection LOS: C	
Intersection Capacity Utilization 70.8%		ICU Level of Service C	
Analysis Period (min) 15			

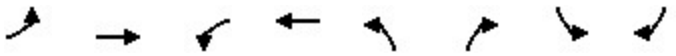
Splits and Phases: 3: Tanger Outlet/Journeyman & Campeau





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.996			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3302	0	1658	3268	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.453			0.247			0.757			0.757		
Satd. Flow (perm)	791	3302	0	431	3268	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			4				90			238
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	

Intersection Summary	
Area Type:	Other



Lane Group	EBL	EBT	WBL	WBT	NBL	NBR	SBL	SBR
Lane Group Flow (vph)	23	708	111	442	46	109	33	19
v/c Ratio	0.09	0.72	0.87	0.45	0.06	0.12	0.04	0.02
Control Delay (s/veh)	20.6	29.7	80.9	24.1	11.3	4.2	11.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.6	29.7	80.9	24.1	11.3	4.2	11.3	0.0
Queue Length 50th (m)	2.6	50.7	16.1	28.6	3.1	1.3	2.2	0.0
Queue Length 95th (m)	7.8	68.4	#43.6	40.9	9.7	9.7	7.6	0.0
Internal Link Dist (m)		316.8		140.3				
Turn Bay Length (m)	45.0		50.0		24.5		50.0	
Base Capacity (vph)	322	1347	175	1334	704	843	714	898
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.53	0.63	0.33	0.07	0.13	0.05	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	619	18	100	385	13	41	0	98	30	0	17
Future Volume (vph)	21	619	18	100	385	13	41	0	98	30	0	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.4	6.4		6.4	6.4		6.8		6.8	6.8		6.8
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00		1.00	1.00		0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99		1.00	1.00		1.00
Frt	1.00	0.99		1.00	0.99		1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)	1658	3302		1658	3269		1636		1483	1658		1460
Flt Permitted	0.45	1.00		0.24	1.00		0.75		1.00	0.75		1.00
Satd. Flow (perm)	790	3302		430	3269		1304		1483	1321		1460
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	688	20	111	428	14	46	0	109	33	0	19
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	41	0	0	9
Lane Group Flow (vph)	23	705	0	111	439	0	46	0	68	33	0	10
Confl. Peds. (#/hr)							5					5
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm		Perm	Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	24.1	24.1		24.1	24.1		44.1		44.1	44.1		44.1
Effective Green, g (s)	24.1	24.1		24.1	24.1		44.1		44.1	44.1		44.1
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.54		0.54	0.54		0.54
Clearance Time (s)	6.4	6.4		6.4	6.4		6.8		6.8	6.8		6.8
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	233	977		127	967		706		803	715		790
v/s Ratio Prot		0.21			0.13							
v/s Ratio Perm	0.03			c0.26			0.04		c0.05	0.02		0.01
v/c Ratio	0.09	0.72		0.87	0.45		0.06		0.08	0.04		0.01
Uniform Delay, d1	20.7	25.6		27.2	23.3		8.8		8.9	8.7		8.6
Progression Factor	1.00	1.00		1.00	1.00		1.00		1.00	1.00		1.00
Incremental Delay, d2	0.1	2.6		43.8	0.3		0.1		0.2	0.1		0.0
Delay (s)	20.9	28.3		71.1	23.6		9.0		9.1	8.8		8.6
Level of Service	C	C		E	C		A		A	A		A
Approach Delay (s/veh)		28.0			33.1			9.1			8.7	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	27.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	81.4	Sum of lost time (s)	13.2
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	152	33	8	0	71	224	6	51	3	207	246	56
Future Volume (vph)	152	33	8	0	71	224	6	51	3	207	246	56
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.994			0.898			0.994			0.985	
Flt Protected		0.962						0.995			0.980	
Satd. Flow (prot)	0	1693	0	0	1586	0	0	1760	0	0	1671	0
Flt Permitted		0.962						0.995			0.980	
Satd. Flow (perm)	0	1693	0	0	1586	0	0	1760	0	0	1671	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	
Confl. Peds. (#/hr)							4					4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	3%	0%	0%	0%	1%	0%	0%	0%	1%	5%	0%
Adj. Flow (vph)	169	37	9	0	79	249	7	57	3	230	273	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	215	0	0	328	0	0	67	0	0	565	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 75.8%		ICU Level of Service D	
Analysis Period (min) 15			

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.994			0.898			0.994			0.985	
Flt Protected		0.962						0.995			0.980	
Satd. Flow (prot)	0	1693	0	0	1586	0	0	1760	0	0	1671	0
Flt Permitted		0.962						0.995			0.980	
Satd. Flow (perm)	0	1693	0	0	1586	0	0	1760	0	0	1671	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	

Intersection Summary	
Area Type:	Other

Intersection has too many legs for HCM analysis.

Intersection	
Intersection Delay, s/veh	27.5
Intersection LOS	D

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	152	33	8	0	71	224	6	51	3	207	246	56
Future Vol, veh/h	152	33	8	0	71	224	6	51	3	207	246	56
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	3	0	0	0	1	0	0	0	1	5	0
Mvmt Flow	169	37	9	0	79	249	7	57	3	230	273	62
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	SE	NW	NE	SW
Opposing Approach	NW	SE	SW	NE
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SW	NE	SE	NW
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NE	SW	NW	SE
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14.1	15.6	10.9	41.5
HCM LOS	B	C	B	E

Lane	NELn1	NWLn1	SELn1	SWLn1
Vol Left, %	10%	0%	79%	41%
Vol Thru, %	85%	24%	17%	48%
Vol Right, %	5%	76%	4%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	295	193	509
LT Vol	6	0	152	207
Through Vol	51	71	33	246
RT Vol	3	224	8	56
Lane Flow Rate	67	328	214	566
Geometry Grp	1	1	1	1
Degree of Util (X)	0.126	0.536	0.398	0.911
Departure Headway (Hd)	6.818	5.886	6.676	5.798
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	523	610	538	628
Service Time	4.889	3.942	4.737	3.798
HCM Lane V/C Ratio	0.128	0.538	0.398	0.901
HCM Control Delay, s/veh	10.9	15.6	14.1	41.5
HCM Lane LOS	B	C	B	E
HCM 95th-tile Q	0.4	3.2	1.9	11.5



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	356	678	513	179	0	448
Future Volume (vph)	356	678	513	179	0	448
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.961			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3186	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3186	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	396	753	570	199	0	498
Shared Lane Traffic (%)						
Lane Group Flow (vph)	396	753	769	0	0	498
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.0%		ICU Level of Service B	
Analysis Period (min) 15			



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.961			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3186	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3186	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	

Intersection Summary	
Area Type:	Other



Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	356	678	513	179	0	448
Future Volume (Veh/h)	356	678	513	179	0	448
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	396	753	570	199	0	498
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		214				
pX, platoon unblocked						
vC, conflicting volume	769				1838	385
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	769				1838	385
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	53				100	19
cM capacity (veh/h)	841				35	614

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	NE 1
Volume Total	396	377	377	380	389	498
Volume Left	396	0	0	0	0	0
Volume Right	0	0	0	0	199	498
cSH	841	1700	1700	1700	1700	614
Volume to Capacity	0.47	0.22	0.22	0.22	0.23	0.81
Queue Length 95th (m)	19.4	0.0	0.0	0.0	0.0	62.5
Control Delay (s/veh)	13.0	0.0	0.0	0.0	0.0	31.2
Lane LOS	B					D
Approach Delay (s/veh)	4.5			0.0		31.2
Approach LOS						D

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	8.6

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	356	678	513	179	0	448
Future Vol, veh/h	356	678	513	179	0	448
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	396	753	570	199	0	498

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	769	0	-	0	-	385
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	-	3.32
Pot Cap-1 Maneuver	841	-	-	-	0	613
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	841	-	-	-	-	613
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	NB	SB	NE
HCM Control Delay, s/v	4.5	0	31.3
HCM LOS			D

Minor Lane/Major Mvmt	NELn1	NBL	NBT	SBT	SBR
Capacity (veh/h)	613	841	-	-	-
HCM Lane V/C Ratio	0.812	0.47	-	-	-
HCM Control Delay (s/veh)	31.3	13	-	-	-
HCM Lane LOS	D	B	-	-	-
HCM 95th %tile Q(veh)	8.2	2.5	-	-	-

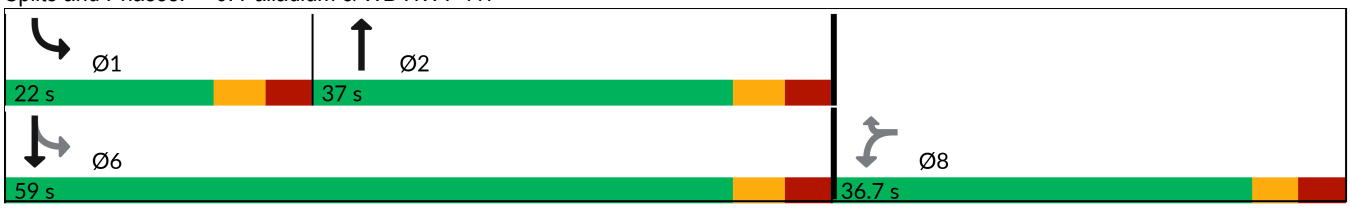


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	519	530	508	0	411	554
Future Volume (vph)	519	530	508	0	411	554
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.251	
Satd. Flow (perm)	3185	1483	3191	0	438	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		431				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Adj. Flow (vph)	577	589	564	0	457	616
Shared Lane Traffic (%)						
Lane Group Flow (vph)	577	589	564	0	457	616
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	15.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases	8	8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		5.0	10.0
Minimum Split (s)	33.0	33.0	39.0		12.1	17.0
Total Split (s)	36.7	36.7	37.0		22.0	59.0
Total Split (%)	38.3%	38.3%	38.7%		23.0%	61.7%
Maximum Green (s)	30.0	30.0	30.0		15.0	52.0
Yellow Time (s)	3.3	3.3	3.7		3.7	3.7
All-Red Time (s)	3.4	3.4	3.3		3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	7.0		7.0	7.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		None	None
Walk Time (s)	7.0	7.0	7.0			
Flash Dont Walk (s)	19.0	19.0	25.0			
Pedestrian Calls (#/hr)	0	0	0			
Act Effct Green (s)	20.7	20.7	18.9		41.4	41.4
Actuated g/C Ratio	0.27	0.27	0.25		0.54	0.54
v/c Ratio	0.66	0.82	0.71		0.94	0.34
Control Delay (s/veh)	28.9	18.1	32.0		46.7	11.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	28.9	18.1	32.0		46.7	11.0
LOS	C	B	C		D	B
Approach Delay (s/veh)	23.5		32.0			26.2
Approach LOS	C		C			C

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 76.1			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay (s/veh): 26.3		Intersection LOS: C	
Intersection Capacity Utilization 71.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Palladium & WB HWY 417





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%		0%			0%
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.251	
Satd. Flow (perm)	3185	1483	3191	0	438	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		431				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8

Intersection Summary	
Area Type:	Other



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	577	589	564	457	616
v/c Ratio	0.66	0.82	0.71	0.94	0.34
Control Delay (s/veh)	28.9	18.1	32.0	46.7	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.9	18.1	32.0	46.7	11.0
Queue Length 50th (m)	36.9	18.0	38.1	38.7	23.5
Queue Length 95th (m)	60.0	67.9	62.3	#117.8	43.1
Internal Link Dist (m)	143.3		396.7		189.7
Turn Bay Length (m)		125.0		115.0	
Base Capacity (vph)	1283	854	1285	484	2292
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.45	0.69	0.44	0.94	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	519	530	508	0	411	554
Future Volume (vph)	519	530	508	0	411	554
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.7	6.7	7.0		7.0	7.0
Lane Util. Factor	0.97	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3185	1483	3191		1658	3283
Flt Permitted	0.95	1.00	1.00		0.25	1.00
Satd. Flow (perm)	3185	1483	3191		439	3283
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	577	589	564	0	457	616
RTOR Reduction (vph)	0	313	0	0	0	0
Lane Group Flow (vph)	577	276	564	0	457	616
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	20.7	20.7	19.1		41.4	41.4
Effective Green, g (s)	20.7	20.7	19.1		41.4	41.4
Actuated g/C Ratio	0.27	0.27	0.25		0.55	0.55
Clearance Time (s)	6.7	6.7	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	869	404	804		485	1793
v/s Ratio Prot			0.18		c0.19	0.19
v/s Ratio Perm	0.18	c0.19			c0.32	
v/c Ratio	0.66	0.68	0.70		0.94	0.34
Uniform Delay, d1	24.4	24.6	25.7		13.4	9.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.9	4.7	2.7		26.9	0.1
Delay (s)	26.3	29.3	28.5		40.3	9.7
Level of Service	C	C	C		D	A
Approach Delay (s/veh)	27.8		28.5			22.7
Approach LOS	C		C			C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	75.8	Sum of lost time (s)	20.7
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



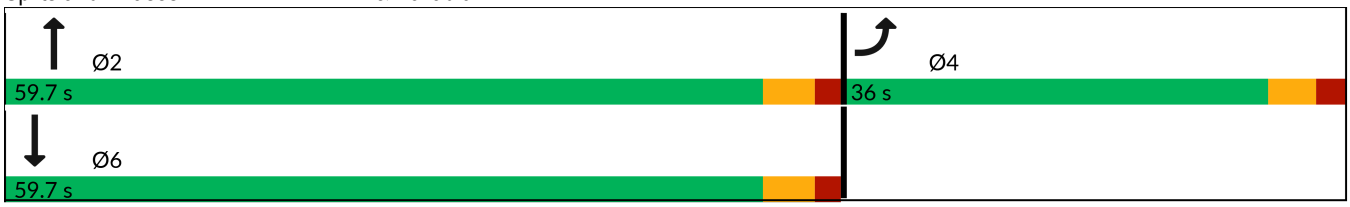
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	210	185	0	702	857	0
Future Volume (vph)	210	185	0	702	857	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	0.937					
Flt Protected	0.974					
Satd. Flow (prot)	1576	0	0	3316	3252	0
Flt Permitted	0.974					
Satd. Flow (perm)	1576	0	0	3316	3252	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	49					
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	2%	2%	2%	4%	3%
Adj. Flow (vph)	233	206	0	780	952	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	439	0	0	780	952	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1			2	2	
Detector Template	Left			Thru	Thru	
Leading Detector (m)	2.0			10.0	10.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	2.0			0.6	0.6	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot			NA	NA	
Protected Phases	4			2	6	
Permitted Phases						
Detector Phase	4			2	6	
Switch Phase						



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	10.0			10.0	10.0	
Minimum Split (s)	29.5			23.6	25.0	
Total Split (s)	36.0			59.7	59.7	
Total Split (%)	37.6%			62.4%	62.4%	
Maximum Green (s)	30.5			54.1	54.1	
Yellow Time (s)	3.3			3.7	3.7	
All-Red Time (s)	2.2			1.9	1.9	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.5			5.6	5.6	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	None			None	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	20.4			23.9	23.9	
Actuated g/C Ratio	0.36			0.43	0.43	
v/c Ratio	0.72			0.55	0.68	
Control Delay (s/veh)	22.2			14.3	16.6	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	22.2			14.3	16.6	
LOS	C			B	B	
Approach Delay (s/veh)	22.3			14.3	16.6	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 56			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay (s/veh): 17.0		Intersection LOS: B	
Intersection Capacity Utilization 58.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: EB HWY 417 & Palladium





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)	0.0	0.0	0.0			0.0
Storage Lanes	1	0	0			0
Taper Length (m)	15.0		15.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt	0.937					
Flt Protected	0.974					
Satd. Flow (prot)	1576	0	0	3316	3252	0
Flt Permitted	0.974					
Satd. Flow (perm)	1576	0	0	3316	3252	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	49					
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	

Intersection Summary	
Area Type:	Other



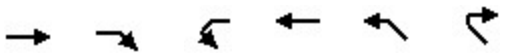
Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	439	780	952
v/c Ratio	0.72	0.55	0.68
Control Delay (s/veh)	22.2	14.3	16.6
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	22.2	14.3	16.6
Queue Length 50th (m)	33.0	28.4	37.5
Queue Length 95th (m)	72.9	55.7	72.7
Internal Link Dist (m)	231.1	165.0	396.7
Turn Bay Length (m)			
Base Capacity (vph)	928	3007	2949
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.47	0.26	0.32

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	210	185	0	702	857	0
Future Volume (vph)	210	185	0	702	857	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.5			5.6	5.6	
Lane Util. Factor	1.00			0.95	0.95	
Frt	0.93			1.00	1.00	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1576			3316	3252	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1576			3316	3252	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	233	206	0	780	952	0
RTOR Reduction (vph)	31	0	0	0	0	0
Lane Group Flow (vph)	408	0	0	780	952	0
Heavy Vehicles (%)	4%	2%	2%	2%	4%	3%
Turn Type	Prot			NA	NA	
Protected Phases	4			2	6	
Permitted Phases						
Actuated Green, G (s)	20.4			23.9	23.9	
Effective Green, g (s)	20.4			23.9	23.9	
Actuated g/C Ratio	0.37			0.43	0.43	
Clearance Time (s)	5.5			5.6	5.6	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	580			1430	1402	
v/s Ratio Prot	c0.26			0.24	c0.29	
v/s Ratio Perm						
v/c Ratio	0.70			0.54	0.67	
Uniform Delay, d1	14.9			11.7	12.6	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	3.8			0.4	1.3	
Delay (s)	18.7			12.1	13.9	
Level of Service	B			B	B	
Approach Delay (s/veh)	18.7			12.1	13.9	
Approach LOS	B			B	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	55.4	Sum of lost time (s)	11.1
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

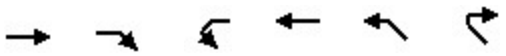


Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	39	1	184	20	4	501
Future Volume (vph)	39	1	184	20	4	501
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.866	
Flt Protected			0.950			
Satd. Flow (prot)	1740	0	1658	1745	1511	0
Flt Permitted			0.950			
Satd. Flow (perm)	1740	0	1658	1745	1511	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	1	204	22	4	557
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	0	204	22	561	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.1%		ICU Level of Service B	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	0.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			15.0		15.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.997				0.866	
Flt Protected			0.950			
Satd. Flow (prot)	1740	0	1658	1745	1511	0
Flt Permitted			0.950			
Satd. Flow (perm)	1740	0	1658	1745	1511	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	

Intersection Summary	
Area Type:	Other



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	39	1	184	20	4	501
Future Volume (Veh/h)	39	1	184	20	4	501
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	43	1	204	22	4	557
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			44		474	44
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			44		474	44
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			87		99	46
cM capacity (veh/h)			1564		478	1027

Direction, Lane #	EB 1	WB 1	WB 2	NW 1
Volume Total	44	204	22	561
Volume Left	0	204	0	4
Volume Right	1	0	0	557
cSH	1700	1564	1700	1018
Volume to Capacity	0.03	0.13	0.01	0.55
Queue Length 95th (m)	0.0	3.4	0.0	26.4
Control Delay (s/veh)	0.0	7.6	0.0	12.8
Lane LOS		A		B
Approach Delay (s/veh)	0.0	6.9		12.8
Approach LOS				B

Intersection Summary			
Average Delay	10.5		
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

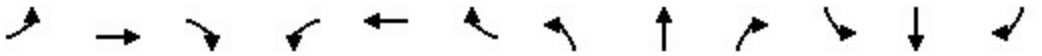
Intersection	
Int Delay, s/veh	10.5

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	39	1	184	20	4	501
Future Vol, veh/h	39	1	184	20	4	501
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	1	204	22	4	557

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	44	0	474	44
Stage 1	-	-	-	-	44	-
Stage 2	-	-	-	-	430	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1564	-	549	1026
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	656	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1564	-	478	1026
Mov Cap-2 Maneuver	-	-	-	-	478	-
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	571	-

Approach	EB	WB	NW
HCM Control Delay, s/v	0	6.9	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1017	-	-	1564	-
HCM Lane V/C Ratio	0.552	-	-	0.131	-
HCM Control Delay (s/veh)	12.8	-	-	7.6	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	3.5	-	-	0.5	-

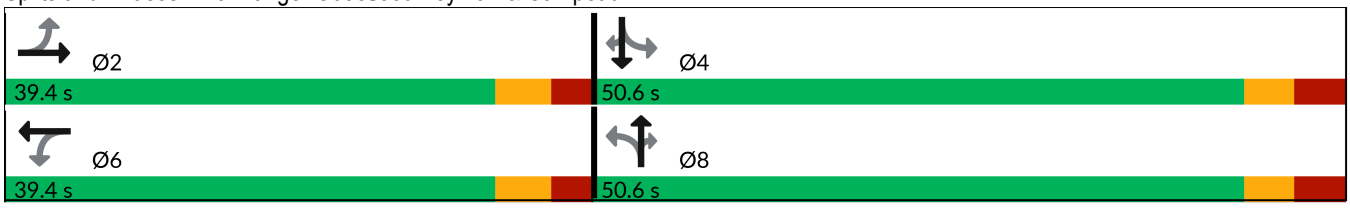


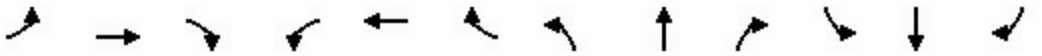
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	411	183	220	318	3	156	1	236	3	2	10
Future Volume (vph)	26	411	183	220	318	3	156	1	236	3	2	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.954			0.999				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3163	0	1658	3280	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.535			0.313			0.757			0.757		
Satd. Flow (perm)	934	3163	0	546	3280	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		89			1				214			41
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	
Confl. Peds. (#/hr)							5					5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	29	457	203	244	353	3	173	1	262	3	2	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	660	0	244	356	0	173	1	262	3	2	11
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		6	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	39.4	39.4		39.4	39.4		39.8	39.8	39.8	39.8	39.8	39.8
Total Split (s)	39.4	39.4		39.4	39.4		50.6	50.6	50.6	50.6	50.6	50.6
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.2%	56.2%	56.2%	56.2%	56.2%	56.2%
Maximum Green (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7		2.7	2.7		3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		26.0	26.0	26.0	26.0	26.0	26.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	5	5	5
Act Effct Green (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.49	0.49	0.49	0.49	0.49	0.49
v/c Ratio	0.08	0.54		1.22	0.29		0.27	0.00	0.31	0.00	0.00	0.01
Control Delay (s/veh)	19.6	21.2		164.8	21.0		15.1	12.0	4.3	12.0	12.0	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.6	21.2		164.8	21.0		15.1	12.0	4.3	12.0	12.0	0.0
LOS	B	C		F	C		B	B	A	B	B	A
Approach Delay (s/veh)		21.2			79.5			8.6			3.8	
Approach LOS		C			E			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.22			
Intersection Signal Delay (s/veh): 38.0		Intersection LOS: D	
Intersection Capacity Utilization 74.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Tanger Outlet/Journeyman & Campeau





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.954			0.999				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3163	0	1658	3280	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.535			0.313			0.757			0.757		
Satd. Flow (perm)	934	3163	0	546	3280	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		89			1				214			41
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	

Intersection Summary	
Area Type:	Other

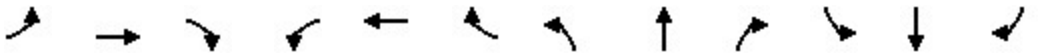


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	29	660	244	356	173	1	262	3	2	11
v/c Ratio	0.08	0.54	1.22	0.29	0.27	0.00	0.31	0.00	0.00	0.01
Control Delay (s/veh)	19.6	21.2	164.8	21.0	15.1	12.0	4.3	12.0	12.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.6	21.2	164.8	21.0	15.1	12.0	4.3	12.0	12.0	0.0
Queue Length 50th (m)	3.2	40.1	~52.3	22.5	16.9	0.1	4.2	0.3	0.2	0.0
Queue Length 95th (m)	9.1	56.5	#96.6	33.1	30.1	0.9	16.7	1.6	1.3	0.0
Internal Link Dist (m)		316.8		140.3		49.2			97.1	
Turn Bay Length (m)	45.0		50.0		24.5			50.0		
Base Capacity (vph)	342	1216	200	1203	634	849	831	642	849	731
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.54	1.22	0.30	0.27	0.00	0.32	0.00	0.00	0.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	411	183	220	318	3	156	1	236	3	2	10
Future Volume (vph)	26	411	183	220	318	3	156	1	236	3	2	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1658	3163		1658	3280		1635	1745	1483	1658	1745	1460
Flt Permitted	0.53	1.00		0.31	1.00		0.75	1.00	1.00	0.75	1.00	1.00
Satd. Flow (perm)	934	3163		546	3280		1302	1745	1483	1321	1745	1460
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	457	203	244	353	3	173	1	262	3	2	11
RTOR Reduction (vph)	0	56	0	0	1	0	0	0	110	0	0	6
Lane Group Flow (vph)	29	604	0	244	355	0	173	1	152	3	2	5
Confl. Peds. (#/hr)							5					5
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Effective Green, g (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.49	0.49	0.49	0.49	0.49	0.49
Clearance Time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	342	1159		200	1202		633	849	721	642	849	710
v/s Ratio Prot		0.19			0.11			0.00			0.00	
v/s Ratio Perm	0.03			c0.45			c0.13		0.10	0.00		0.00
v/c Ratio	0.08	0.52		1.22	0.29		0.27	0.00	0.21	0.00	0.00	0.00
Uniform Delay, d1	18.6	22.3		28.5	20.2		13.6	11.8	13.2	11.8	11.8	11.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.4		135.4	0.1		1.0	0.0	0.6	0.0	0.0	0.0
Delay (s)	18.7	22.7		163.9	20.3		14.7	11.8	13.8	11.8	11.8	11.9
Level of Service	B	C		F	C		B	B	B	B	B	B
Approach Delay (s/veh)		22.5			78.7			14.2			11.9	
Approach LOS		C			E			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	39.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	6	34	4	1	48	124	2	17	2	174	193	48
Future Volume (vph)	6	34	4	1	48	124	2	17	2	174	193	48
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.989			0.903			0.988			0.984	
Flt Protected		0.993						0.996			0.979	
Satd. Flow (prot)	0	1708	0	0	1596	0	0	1752	0	0	1669	0
Flt Permitted		0.993						0.996			0.979	
Satd. Flow (perm)	0	1708	0	0	1596	0	0	1752	0	0	1669	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	
Confl. Peds. (#/hr)							4					4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	3%	0%	0%	0%	1%	0%	0%	0%	1%	5%	0%
Adj. Flow (vph)	7	38	4	1	53	138	2	19	2	193	214	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	49	0	0	192	0	0	23	0	0	460	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.989			0.903			0.988			0.984	
Flt Protected		0.993						0.996			0.979	
Satd. Flow (prot)	0	1708	0	0	1596	0	0	1752	0	0	1669	0
Flt Permitted		0.993						0.996			0.979	
Satd. Flow (perm)	0	1708	0	0	1596	0	0	1752	0	0	1669	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	

Intersection Summary	
Area Type:	Other

Intersection has too many legs for HCM analysis.

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	6	34	4	1	48	124	2	17	2	174	193	48
Future Vol, veh/h	6	34	4	1	48	124	2	17	2	174	193	48
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	3	0	0	0	1	0	0	0	1	5	0
Mvmt Flow	7	38	4	1	53	138	2	19	2	193	214	53
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	SE	NW	NE	SW
Opposing Approach	NW	SE	SW	NE
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SW	NE	SE	NW
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NE	SW	NW	SE
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.8	9.3	8.2	13.7
HCM LOS	A	A	A	B

Lane	NELn1	NWLn1	SELn1	SWLn1
Vol Left, %	10%	1%	14%	42%
Vol Thru, %	81%	28%	77%	47%
Vol Right, %	10%	72%	9%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	21	173	44	415
LT Vol	2	1	6	174
Through Vol	17	48	34	193
RT Vol	2	124	4	48
Lane Flow Rate	23	192	49	461
Geometry Grp	1	1	1	1
Degree of Util (X)	0.032	0.25	0.072	0.581
Departure Headway (Hd)	4.981	4.682	5.272	4.534
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	712	763	675	793
Service Time	3.056	2.735	3.341	2.582
HCM Lane V/C Ratio	0.032	0.252	0.073	0.581
HCM Control Delay, s/veh	8.2	9.3	8.8	13.7
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.1	1	0.2	3.8



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	535	695	689	186	0	421
Future Volume (vph)	535	695	689	186	0	421
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.968			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3210	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3210	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	594	772	766	207	0	468
Shared Lane Traffic (%)						
Lane Group Flow (vph)	594	772	973	0	0	468
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.3%		ICU Level of Service C	
Analysis Period (min) 15			



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.968			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3210	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3210	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	

Intersection Summary	
Area Type:	Other



Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	535	695	689	186	0	421
Future Volume (Veh/h)	535	695	689	186	0	421
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	594	772	766	207	0	468
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		214				
pX, platoon unblocked						
vC, conflicting volume	973				2444	487
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	973				2444	487
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	16				100	11
cM capacity (veh/h)	704				4	527

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	NE 1
Volume Total	594	386	386	511	462	468
Volume Left	594	0	0	0	0	0
Volume Right	0	0	0	0	207	468
cSH	704	1700	1700	1700	1700	527
Volume to Capacity	0.84	0.23	0.23	0.30	0.27	0.89
Queue Length 95th (m)	72.5	0.0	0.0	0.0	0.0	76.6
Control Delay (s/veh)	31.3	0.0	0.0	0.0	0.0	44.7
Lane LOS	D					E
Approach Delay (s/veh)	13.6			0.0		44.7
Approach LOS						E

Intersection Summary			
Average Delay	14.1		
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	14.2

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	535	695	689	186	0	421
Future Vol, veh/h	535	695	689	186	0	421
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	594	772	766	207	0	468

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	973	0	-	0	-	487
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	-	3.32
Pot Cap-1 Maneuver	704	-	-	-	0	526
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	704	-	-	-	-	526
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	NB	SB	NE
HCM Control Delay, s/v	13.7	0	44.9
HCM LOS			E

Minor Lane/Major Mvmt	NELn1	NBL	NBT	SBT	SBR
Capacity (veh/h)	526	704	-	-	-
HCM Lane V/C Ratio	0.889	0.844	-	-	-
HCM Control Delay (s/veh)	44.9	31.4	-	-	-
HCM Lane LOS	E	D	-	-	-
HCM 95th %tile Q(veh)	10.1	9.6	-	-	-

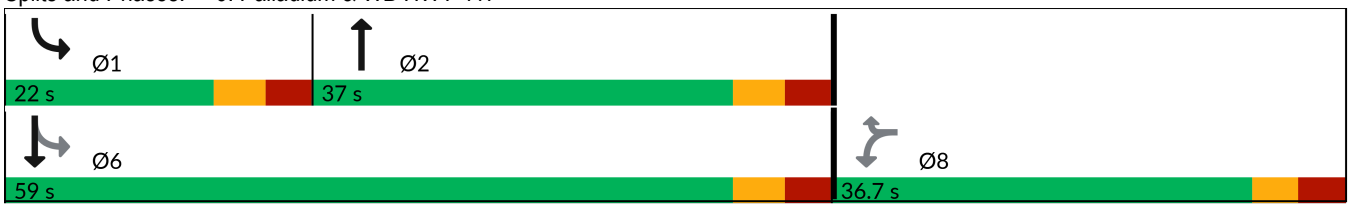


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	506	763	473	0	296	813
Future Volume (vph)	506	763	473	0	296	813
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.248	
Satd. Flow (perm)	3185	1483	3191	0	433	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		443				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Adj. Flow (vph)	562	848	526	0	329	903
Shared Lane Traffic (%)						
Lane Group Flow (vph)	562	848	526	0	329	903
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	15.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases	8	8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		5.0	10.0
Minimum Split (s)	33.0	33.0	39.0		12.1	17.0
Total Split (s)	36.7	36.7	37.0		22.0	59.0
Total Split (%)	38.3%	38.3%	38.7%		23.0%	61.7%
Maximum Green (s)	30.0	30.0	30.0		15.0	52.0
Yellow Time (s)	3.3	3.3	3.7		3.7	3.7
All-Red Time (s)	3.4	3.4	3.3		3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	7.0		7.0	7.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		None	None
Walk Time (s)	7.0	7.0	7.0			
Flash Dont Walk (s)	19.0	19.0	25.0			
Pedestrian Calls (#/hr)	0	0	0			
Act Effct Green (s)	30.1	30.1	18.8		39.8	39.8
Actuated g/C Ratio	0.36	0.36	0.22		0.48	0.48
v/c Ratio	0.49	1.03	0.73		0.80	0.57
Control Delay (s/veh)	23.5	57.3	36.8		30.8	17.3
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	23.5	57.3	36.8		30.8	17.3
LOS	C	E	D		C	B
Approach Delay (s/veh)	43.9		36.8			21.0
Approach LOS	D		D			C

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 83.7			
Natural Cycle: 95			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay (s/veh): 33.8		Intersection LOS: C	
Intersection Capacity Utilization 75.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 6: Palladium & WB HWY 417





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%		0%			0%
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.248	
Satd. Flow (perm)	3185	1483	3191	0	433	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		443				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8

Intersection Summary	
Area Type:	Other



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	562	848	526	329	903
v/c Ratio	0.49	1.03	0.73	0.80	0.57
Control Delay (s/veh)	23.5	57.3	36.8	30.8	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	23.5	57.3	36.8	30.8	17.3
Queue Length 50th (m)	36.0	~99.8	41.7	32.7	52.2
Queue Length 95th (m)	55.8	#179.8	58.2	#63.2	68.7
Internal Link Dist (m)	143.3		396.7		189.7
Turn Bay Length (m)		125.0		115.0	
Base Capacity (vph)	1146	817	1148	426	2048
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	1.04	0.46	0.77	0.44

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	506	763	473	0	296	813
Future Volume (vph)	506	763	473	0	296	813
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.7	6.7	7.0		7.0	7.0
Lane Util. Factor	0.97	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3185	1483	3191		1658	3283
Flt Permitted	0.95	1.00	1.00		0.24	1.00
Satd. Flow (perm)	3185	1483	3191		433	3283
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	562	848	526	0	329	903
RTOR Reduction (vph)	0	283	0	0	0	0
Lane Group Flow (vph)	562	565	526	0	329	903
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	30.1	30.1	18.8		39.8	39.8
Effective Green, g (s)	30.1	30.1	18.8		39.8	39.8
Actuated g/C Ratio	0.36	0.36	0.22		0.48	0.48
Clearance Time (s)	6.7	6.7	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	1146	533	717		411	1562
v/s Ratio Prot			0.16		c0.13	0.28
v/s Ratio Perm	0.18	c0.38			c0.25	
v/c Ratio	0.49	1.05	0.73		0.80	0.57
Uniform Delay, d1	20.7	26.7	30.0		15.7	15.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	55.5	3.8		10.6	0.5
Delay (s)	21.1	82.3	33.9		26.4	16.3
Level of Service	C	F	C		C	B
Approach Delay (s/veh)	57.9		33.9			19.0
Approach LOS	E		C			B

Intersection Summary			
HCM 2000 Control Delay (s/veh)	38.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	83.6	Sum of lost time (s)	20.7
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

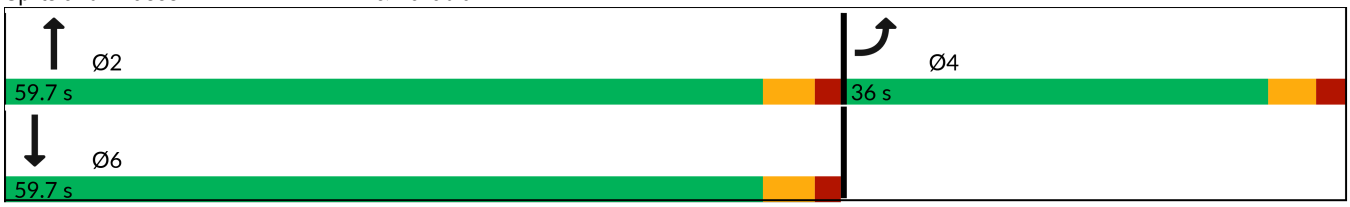


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	256	221	0	408	693	0
Future Volume (vph)	256	221	0	408	693	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	0.937					
Flt Protected	0.974					
Satd. Flow (prot)	1576	0	0	3316	3252	0
Flt Permitted	0.974					
Satd. Flow (perm)	1576	0	0	3316	3252	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	48					
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	2%	2%	2%	4%	3%
Adj. Flow (vph)	284	246	0	453	770	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	530	0	0	453	770	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1			2	2	
Detector Template	Left			Thru	Thru	
Leading Detector (m)	2.0			10.0	10.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	2.0			0.6	0.6	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot			NA	NA	
Protected Phases	4			2	6	
Permitted Phases						
Detector Phase	4			2	6	
Switch Phase						

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	10.0			10.0	10.0	
Minimum Split (s)	29.5			23.6	25.0	
Total Split (s)	36.0			59.7	59.7	
Total Split (%)	37.6%			62.4%	62.4%	
Maximum Green (s)	30.5			54.1	54.1	
Yellow Time (s)	3.3			3.7	3.7	
All-Red Time (s)	2.2			1.9	1.9	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.5			5.6	5.6	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	None			None	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	28.4			19.9	19.9	
Actuated g/C Ratio	0.48			0.33	0.33	
v/c Ratio	0.68			0.40	0.70	
Control Delay (s/veh)	17.4			16.4	21.3	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	17.4			16.4	21.3	
LOS	B			B	C	
Approach Delay (s/veh)	17.5			16.5	21.3	
Approach LOS	B			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 59.5			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay (s/veh): 18.9		Intersection LOS: B	
Intersection Capacity Utilization 58.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: EB HWY 417 & Palladium





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)	0.0	0.0	0.0			0.0
Storage Lanes	1	0	0			0
Taper Length (m)	15.0		15.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt	0.937					
Flt Protected	0.974					
Satd. Flow (prot)	1576	0	0	3316	3252	0
Flt Permitted	0.974					
Satd. Flow (perm)	1576	0	0	3316	3252	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	48					
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	

Intersection Summary	
Area Type:	Other



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	530	453	770
v/c Ratio	0.68	0.40	0.70
Control Delay (s/veh)	17.4	16.4	21.3
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	17.4	16.4	21.3
Queue Length 50th (m)	37.7	19.6	37.6
Queue Length 95th (m)	83.0	31.1	56.4
Internal Link Dist (m)	231.1	165.0	396.7
Turn Bay Length (m)			
Base Capacity (vph)	839	3065	3005
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.63	0.15	0.26

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	256	221	0	408	693	0
Future Volume (vph)	256	221	0	408	693	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.5			5.6	5.6	
Lane Util. Factor	1.00			0.95	0.95	
Frt	0.93			1.00	1.00	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1577			3316	3252	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1577			3316	3252	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	284	246	0	453	770	0
RTOR Reduction (vph)	25	0	0	0	0	0
Lane Group Flow (vph)	505	0	0	453	770	0
Heavy Vehicles (%)	4%	2%	2%	2%	4%	3%
Turn Type	Prot			NA	NA	
Protected Phases	4			2	6	
Permitted Phases						
Actuated Green, G (s)	28.4			19.9	19.9	
Effective Green, g (s)	28.4			19.9	19.9	
Actuated g/C Ratio	0.48			0.34	0.34	
Clearance Time (s)	5.5			5.6	5.6	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	753			1110	1089	
v/s Ratio Prot	c0.32			0.14	c0.24	
v/s Ratio Perm						
v/c Ratio	0.67			0.40	0.70	
Uniform Delay, d1	11.9			15.2	17.2	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	2.3			0.2	2.1	
Delay (s)	14.2			15.4	19.3	
Level of Service	B			B	B	
Approach Delay (s/veh)	14.2			15.4	19.3	
Approach LOS	B			B	B	

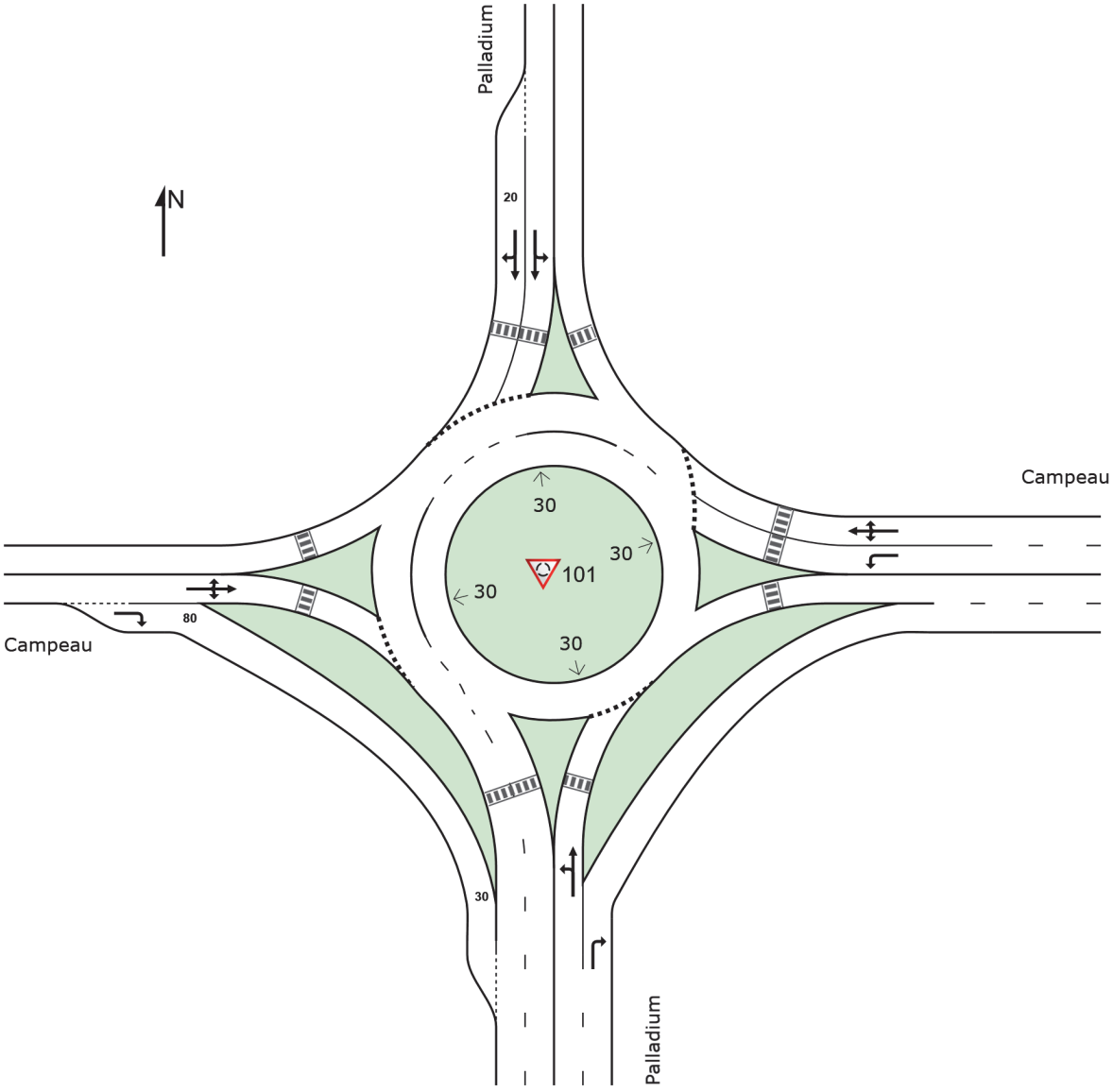
Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	59.4	Sum of lost time (s)	11.1
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

SITE LAYOUT

Site: 101 [Palladium at Campeau FT 2027 PM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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



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MOVEMENT SUMMARY

Site: 101 [Palladium at Campeau FT 2027 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Palladium															
1	L2	All MCs	185	2.0	185	2.0	0.224	10.3	LOS B	1.4	10.1	0.48	0.57	0.48	51.2
2	T1	All MCs	128	2.0	128	2.0	0.224	4.1	LOS A	1.4	10.1	0.48	0.57	0.48	52.2
3	R2	All MCs	365	2.0	365	2.0	0.192	3.0	LOS A	0.0	0.0	0.00	0.40	0.00	56.2
Approach			678	2.0	678	2.0	0.224	5.2	LOS A	1.4	10.1	0.22	0.48	0.22	53.9
East: Campeau															
4	L2	All MCs	315	2.0	315	2.0	0.174	10.5	LOS B	1.1	7.6	0.49	0.61	0.49	50.1
5	T1	All MCs	104	2.0	104	2.0	0.174	4.6	LOS A	1.1	7.6	0.48	0.57	0.48	52.2
6	R2	All MCs	14	2.0	14	2.0	0.174	4.6	LOS A	1.1	7.6	0.48	0.57	0.48	51.8
Approach			433	2.0	433	2.0	0.174	8.9	LOS A	1.1	7.6	0.49	0.60	0.49	50.7
North: Palladium															
7	L2	All MCs	37	2.0	37	2.0	0.126	11.1	LOS B	0.5	3.8	0.51	0.62	0.51	51.4
8	T1	All MCs	211	2.0	211	2.0	0.126	5.5	LOS A	0.5	3.9	0.50	0.56	0.50	52.9
9	R2	All MCs	2	2.0	2	2.0	0.126	5.4	LOS A	0.5	3.9	0.50	0.53	0.50	52.8
Approach			250	2.0	250	2.0	0.126	6.3	LOS A	0.5	3.9	0.51	0.57	0.51	52.7
West: Campeau															
10	L2	All MCs	2	2.0	2	2.0	0.234	10.7	LOS B	1.0	7.2	0.50	0.50	0.50	52.6
11	T1	All MCs	255	2.0	255	2.0	0.234	5.0	LOS A	1.0	7.2	0.50	0.50	0.50	53.6
12	R2	All MCs	56	2.0	56	2.0	0.030	3.7	LOS A	0.0	0.0	0.00	0.42	0.00	55.9
Approach			313	2.0	313	2.0	0.234	4.8	LOS A	1.0	7.2	0.41	0.49	0.41	54.0
All Vehicles			1674	2.0	1674	2.0	0.234	6.3	LOS A	1.4	10.1	0.37	0.52	0.37	52.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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QUEUE ANALYSIS

Site: 101 [Palladium at Campeau FT 2027 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Lane Queues (Distance)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (m)	Back of Queue (m)		Queue at Start of Gap (m)		Cycle-Average Queue (m)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.224	1.000	0.0	4.1	10.1	3.4	8.4	0.7	1.3	0.01	0.02	0.0	NA	NA
Lane 2	Y	0.192	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.224			4.1	10.1	3.4	8.4	0.7	1.3	0.01	0.02			
East: Campeau															
Lane 1		0.174	1.000	0.0	2.9	7.2	2.5	6.3	0.6	1.0	0.01	0.01	0.0	NA	NA
Lane 2		0.174	1.000	0.0	3.1	7.6	2.7	6.6	0.5	1.0	0.01	0.02	0.0	NA	NA
Approach		0.174			3.1	7.6	2.7	6.6	0.6	1.0	0.01	0.02			
North: Palladium															
Lane 1		0.126	1.000	0.0	1.5	3.8	1.4	3.5	0.4	0.8	0.00	0.01	0.0	NA	NA
Lane 2		0.126	1.000	0.0	1.6	3.9	1.4	3.6	0.4	0.8	0.08	0.19	NA	0.0	1
Approach		0.126			1.6	3.9	1.4	3.6	0.4	0.8	0.00	0.01			
West: Campeau															
Lane 1		0.234	1.000	0.0	2.9	7.2	2.4	6.0	0.8	1.4	0.01	0.01	0.0	NA	NA
Lane 2	Y	0.030	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.234			2.9	7.2	2.4	6.0	0.8	1.4	0.01	0.01			
Intersection		0.234			4.1	10.1	3.4	8.4	0.8	1.4	0.01	0.02			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Lane Queues (Vehicles)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (veh)	Back of Queue (veh)		Queue at Start of Gap (veh)		Cycle-Average Queue (veh)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.224	1.000	0.0	0.6	1.4	0.5	1.2	0.1	0.2	0.01	0.02	0.0	NA	NA
Lane 2	Y	0.192	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.224			0.6	1.4	0.5	1.2	0.1	0.2	0.01	0.02			
East: Campeau															
Lane 1		0.174	1.000	0.0	0.4	1.0	0.4	0.9	0.1	0.1	0.01	0.01	0.0	NA	NA
Lane 2		0.174	1.000	0.0	0.4	1.1	0.4	0.9	0.1	0.1	0.01	0.02	0.0	NA	NA
Approach		0.174			0.4	1.1	0.4	0.9	0.1	0.1	0.01	0.02			
North: Palladium															
Lane 1		0.126	1.000	0.0	0.2	0.5	0.2	0.5	0.1	0.1	0.00	0.01	0.0	NA	NA
Lane 2		0.126	1.000	0.0	0.2	0.5	0.2	0.5	0.1	0.1	0.08	0.19	NA	0.0	1

Approach		0.126			0.2	0.5	0.2	0.5	0.1	0.1	0.00	0.01			
West: Campeau															
Lane 1		0.234	1.000	0.0	0.4	1.0	0.3	0.8	0.1	0.2	0.01	0.01	0.0	NA	NA
Lane 2	Y	0.030	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.234			0.4	1.0	0.3	0.8	0.1	0.2	0.01	0.01			
Intersection		0.234			0.6	1.4	0.5	1.2	0.1	0.2	0.01	0.02			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Continuous Lane Performance

Lane Number	Deg. Satn	Unint. Speed	Unint. Travel Delay	Hdwy Spacing		Aver. Vehicle Length	Occup. Time	Space Time	Space Occup. Ratio	Time Occup. Ratio	Density		LOS (Density Method)
	v/c	km/h	sec	sec	m	m	sec	sec	%	%	veh/km	pc/km	
South: Palladium													
Lane 2	0.192	59.9	0.1	9.86	164.1	4.6	0.40	9.47	2.8	4.0	6.1	6.2	LOS A
West: Campeau													
Lane 2	0.030	60.0	0.0	64.29	1071.2	4.6	0.40	63.89	0.4	0.6	0.9	0.9	LOS A

Midblock Effective Detection Zone Length = 2 m

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INTERSECTION SUMMARY

Site: 101 [Palladium at Campeau FT 2027 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Travel Speed (Average)	km/h	52.8	52.8	km/h
Travel Distance (Total)	veh-km/h	1749.9	2099.9	pers-km/h
Travel Time (Total)	veh-h/h	33.1	39.7	pers-h/h
Desired Speed	km/h	60.0		
Speed Efficiency		0.88		
Travel Time Index		8.67		
Congestion Coefficient		1.14		
Demand Flows (Total)	veh/h	1674	2009	pers/h
Arrival Flows (Total)	veh/h	1674		
Percent Heavy Vehicles (Demand)	%	2.0		
Percent Heavy Vehicles (Arrivals)	%	2.0		
Degree of Saturation		0.234		
Practical Spare Capacity	%	263.7		
Effective Intersection Capacity	veh/h	7162		
Control Delay (Total)	veh-h/h	2.91	3.49	pers-h/h
Control Delay (Average)	sec	6.3	6.3	sec
Control Delay (Worst Lane by MC)	sec	10.6		
Control Delay (Worst Movement by MC)	sec	13.3	13.3	sec
Geometric Delay (Average)	sec	5.2		
Stop-Line Delay (Average)	sec	1.1		
Idling Time (Average)	sec	0.0		
Intersection Level of Service (LOS)		LOS A		
95% Back of Queue - Veh (Worst Lane)	veh	1.4		
95% Back of Queue - Dist (Worst Lane)	m	10.1		
Ave. Que Storage Ratio (Worst Lane)		0.01		
Effective Stops (Total)	veh/h	879	1054	pers/h
Effective Stop Rate		0.52	0.52	
Proportion Queued		0.37	0.37	
Performance Index		44.7	44.7	
Cost (Total)	$/h	1436.65	1436.65	$/h
Fuel Consumption (Total)	L/h	151.0		
Carbon Dioxide (Total)	kg/h	356.8		
Hydrocarbons (Total)	kg/h	0.029		
Carbon Monoxide (Total)	kg/h	0.40		
NOx (Total)	kg/h	0.398		

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 1.5 %
Number of Iterations: 5 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.4% 1.5% 0.8%

Intersection Performance - Annual Values				
Performance Measure	**Vehicles:**	**All MCs**	**Persons**	
Demand Flows (Total)	veh/y	803,520	964,224	pers/y
Delay (Total)	veh-h/y	1,395	1,675	pers-h/y

Effective Stops (Total)	veh/y	421,739	506,087	pers/y
Travel Distance (Total)	veh-km/y	839,965	1,007,958	pers-km/y
Travel Time (Total)	veh-h/y	15,897	19,076	pers-h/y
Cost (Total)	$/y	689,593	689,593	$/y
Fuel Consumption (Total)	L/y	72,484		
Carbon Dioxide (Total)	kg/y	171,264		
Hydrocarbons (Total)	kg/y	14		
Carbon Monoxide (Total)	kg/y	193		
NOx (Total)	kg/y	191		

1 Hours per Year: 480 (Site)

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ROUNDABOUT ANALYSIS

Site: 101 [Palladium at Campeau FT 2027 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Roundabout Basic Parameters

Location	Name	Central Island Diam m	Circ Width m	Insc Diam m	Entry Radius m	Entry Angle °	Circ Lanes	Entry Lanes	Av.Entry Lane Width m	App. Dist m	Prop Queued Upstr Signal	Extra Bunching %
South	Palladium	30.00	6.00	45.5	20.0	30.0	1	2[18]	4.00	500.0	NA[5]	0.0
East	Campeau	30.00	6.00	45.5	20.0	30.0	1	2	4.00	500.0	NA[5]	0.0
North	Palladium	30.00	9.50	45.5	20.0	30.0	2	2	4.00	500.0	NA[5]	0.0
West	Campeau	30.00	9.50	45.5	20.0	30.0	2	2[18]	4.00	500.0	NA[5]	0.0

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

5 Not Applicable (single Site analysis or unconnected Site in Network analysis).
18 Exclusive slip/bypass lane is included in Entry Lanes count.

Roundabout Entry and Circulating / Exiting Stream Parameters

To Approach	Turn	Lane No	Lane Type	Opng Flow veh/h	Opng Flow pcu/h	In-Bunch Hdwy sec	Prop. Bunched	Cap Const Effect	Priority Sharing	OD Factor	Gap Acc Factor	Follow-up Hdwy (tf) sec	Critical Gap (tc) [Hdwy sec	Dist] m	Ratio tf / tc
South: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
West	L2	1	Dominant	294	297	2.00	0.303	No	Yes[10]	0.968	1.01	1.98	3.68	38.1	0.54
North	T1	1	Dominant	294	297	2.00	0.303	No	Yes[10]	0.968	1.01	1.98	3.68	38.1	0.54
East	R2	2	Continuous												
East: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
South	L2	1	Subdom.	315	318	2.00	0.321	No	Yes[10]	0.962	1.01	2.33	4.31	38.2	0.54
South	L2	2	Dominant	315	318	2.00	0.321	No	Yes[10]	0.962	1.01	1.97	3.65	32.4	0.54
West	T1	2	Dominant	315	318	2.00	0.321	No	Yes[10]	0.962	1.01	1.97	3.65	32.4	0.54
North	R2	2	Dominant	315	318	2.00	0.321	No	Yes[10]	0.962	1.01	1.97	3.65	32.4	0.54
North: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
East	L2	1	Subdom.	604	610	1.26	0.373	No	Yes[10]	0.948	1.01	2.47	3.66	28.1	0.67
South	T1	1	Subdom.	604	610	1.26	0.373	No	Yes[10]	0.948	1.01	2.47	3.66	28.1	0.67
South	T1	2	Dominant	604	610	1.26	0.373	No	Yes[10]	0.948	1.01	2.22	3.29	25.3	0.67
West	R2	2	Dominant	604	610	1.26	0.373	No	Yes[10]	0.948	1.01	2.22	3.29	25.3	0.67
West: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
North	L2	1	Dominant	563	569	1.08	0.312	No	No	0.965	1.01	2.23	3.34	27.6	0.67
East	T1	1	Dominant	563	569	1.08	0.312	No	No	0.965	1.01	2.23	3.34	27.6	0.67
South	R2	2	Continuous												

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

10 Priority sharing means Follow-up Headway plus Intra-bunch Headway is larger than the Critical Gap.

Circulating Lane Flow Rates			
Circ. Lane No	Circulating Flow Rate		
	veh/h	pcu/h	Percent
South: Palladium			
Lane 1	294	297	100.0
Approach	294	297	
East: Campeau			
Lane 1	315	318	100.0
Approach	315	318	
North: Palladium			
Lane 1	195	197	32.2
Lane 2	409	413	67.8
Approach	604	610	
West: Campeau			
Lane 1	311	314	55.2
Lane 2	252	255	44.8
Approach	563	569	

Roundabout Capacity Model: The SIDRA Standard Roundabout Capacity Model option is in use. This model takes into account the total circulating flow as well as the effect of flow distribution in circulating lanes on the entry capacity results.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Lanes)					
Opposed Lane	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium					
1	20.17	4.66	15.51	0.769	0.8
East: Campeau					
1	20.49	5.61	14.88	0.726	1.1
2	19.53	4.83	14.70	0.753	0.8
North: Palladium					
1	13.74	5.09	8.64	0.629	1.5
2	13.07	4.55	8.52	0.652	1.2
West: Campeau					
1	12.82	4.08	8.74	0.682	1.1

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Movements)							
To Approach	Turn	Opsd Lane No	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium							
West	L2	1	20.17	4.66	15.51	0.769	0.8
North	T1	1	20.17	4.66	15.51	0.769	0.8
East: Campeau							
South	L2	1	20.49	5.61	14.88	0.726	1.1
South	L2	2	19.53	4.83	14.70	0.753	0.8
West	T1	2	19.53	4.83	14.70	0.753	0.8
North	R2	2	19.53	4.83	14.70	0.753	0.8
North: Palladium							
East	L2	1	13.74	5.09	8.64	0.629	1.5
South	T1	1	13.74	5.09	8.64	0.629	1.5

South	T1	2	13.07	4.55	8.52	0.652	1.2
West	R2	2	13.07	4.55	8.52	0.652	1.2
West: Campeau							
North	L2	1	12.82	4.08	8.74	0.682	1.1
East	T1	1	12.82	4.08	8.74	0.682	1.1

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

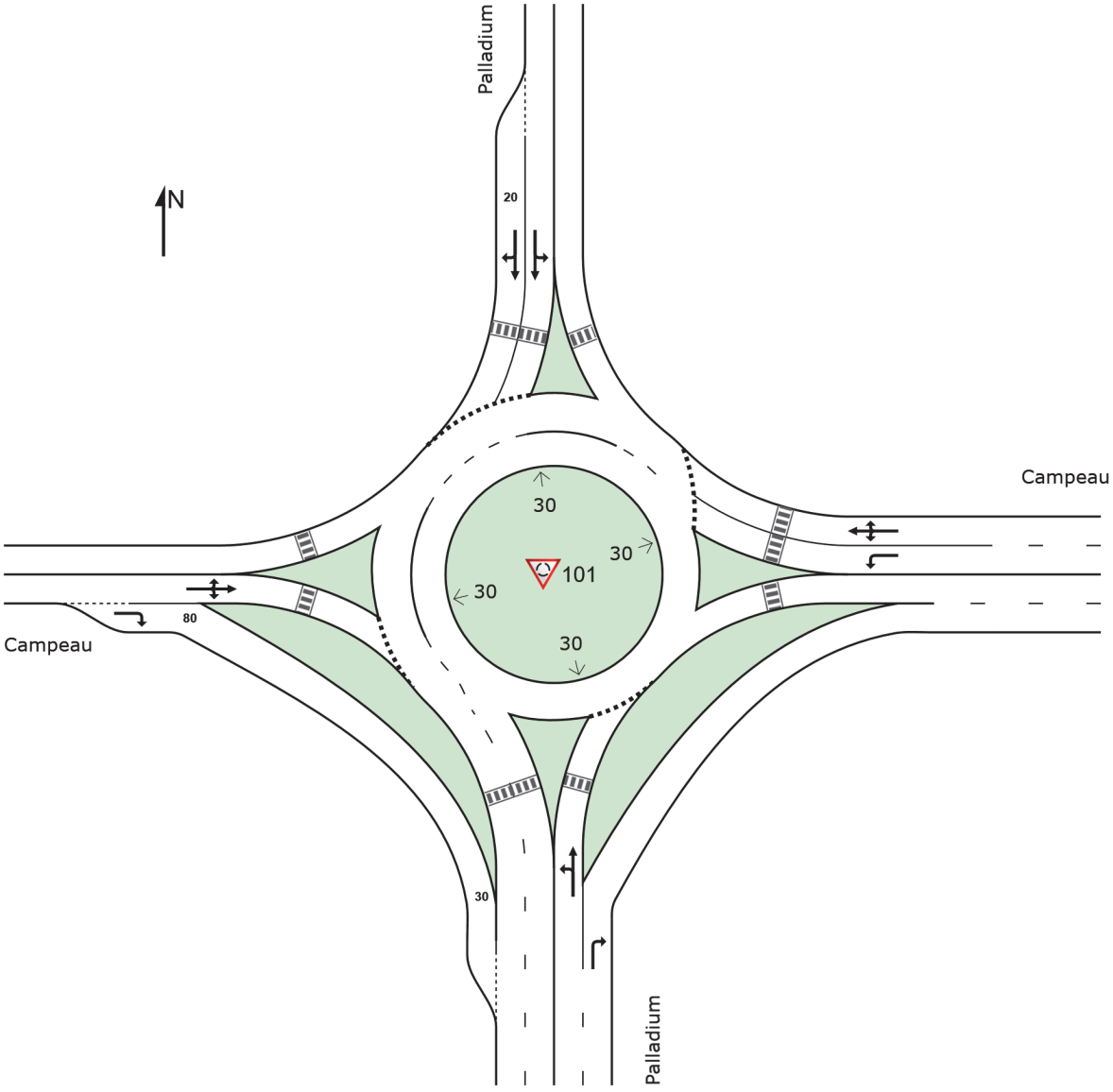
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SITE LAYOUT

Site: 101 [Palladium at Campeau FT 2027 SAT (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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



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MOVEMENT SUMMARY

Site: 101 [Palladium at Campeau FT 2027 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Palladium															
1	L2	All MCs	410	2.0	410	2.0	0.316	10.6	LOS B	2.2	15.5	0.56	0.63	0.56	49.4
2	T1	All MCs	15	2.0	15	2.0	0.316	4.5	LOS A	2.2	15.5	0.56	0.63	0.56	50.4
3	R2	All MCs	289	2.0	289	2.0	0.152	3.0	LOS A	0.0	0.0	0.00	0.40	0.00	56.2
Approach			714	2.0	714	2.0	0.316	7.4	LOS A	2.2	15.5	0.33	0.54	0.33	51.9
East: Campeau															
4	L2	All MCs	304	2.0	304	2.0	0.214	11.2	LOS B	1.4	10.2	0.60	0.64	0.60	49.8
5	T1	All MCs	175	2.0	175	2.0	0.214	5.1	LOS A	1.4	10.2	0.59	0.57	0.59	52.3
6	R2	All MCs	5	2.0	5	2.0	0.214	5.1	LOS A	1.4	10.2	0.59	0.57	0.59	52.0
Approach			484	2.0	484	2.0	0.214	8.9	LOS A	1.4	10.2	0.60	0.62	0.60	50.7
North: Palladium															
7	L2	All MCs	6	2.0	6	2.0	0.010	11.9	LOS B	0.0	0.3	0.59	0.67	0.59	49.8
8	T1	All MCs	10	2.0	10	2.0	0.010	6.1	LOS A	0.0	0.3	0.58	0.58	0.58	52.5
9	R2	All MCs	1	2.0	1	2.0	0.010	6.0	LOS A	0.0	0.3	0.58	0.56	0.58	52.5
Approach			17	2.0	17	2.0	0.010	8.1	LOS A	0.0	0.3	0.58	0.61	0.58	51.5
West: Campeau															
10	L2	All MCs	1	2.0	1	2.0	0.325	10.3	LOS B	1.7	12.2	0.47	0.47	0.47	52.8
11	T1	All MCs	338	2.0	338	2.0	0.325	4.5	LOS A	1.7	12.2	0.47	0.47	0.47	53.8
12	R2	All MCs	203	2.0	203	2.0	0.325	3.8	LOS A	1.7	12.2	0.11	0.43	0.11	55.3
Approach			542	2.0	542	2.0	0.325	4.3	LOS A	1.7	12.2	0.34	0.45	0.34	54.3
All Vehicles			1757	2.0	1757	2.0	0.325	6.9	LOS A	2.2	15.5	0.41	0.53	0.41	52.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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QUEUE ANALYSIS

Site: 101 [Palladium at Campeau FT 2027 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Lane Queues (Distance)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (m)	Back of Queue (m)		Queue at Start of Gap (m)		Cycle-Average Queue (m)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.316	1.000	0.0	6.2	15.5	4.8	11.9	1.2	2.2	0.01	0.03	0.0	NA	NA
Lane 2	Y	0.152	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.316			6.2	15.5	4.8	11.9	1.2	2.2	0.01	0.03			
East: Campeau															
Lane 1		0.214	1.000	0.0	3.8	9.5	3.3	8.2	0.9	1.7	0.01	0.02	0.0	NA	NA
Lane 2		0.214	1.000	0.0	4.1	10.2	3.5	8.7	0.9	1.6	0.01	0.02	0.0	NA	NA
Approach		0.214			4.1	10.2	3.5	8.7	0.9	1.7	0.01	0.02			
North: Palladium															
Lane 1		0.010	1.000	0.0	0.1	0.3	0.1	0.3	0.0	0.1	0.00	0.00	0.0	NA	NA
Lane 2		0.010	1.000	0.0	0.1	0.3	0.1	0.3	0.0	0.1	0.01	0.02	NA	0.0	1
Approach		0.010			0.1	0.3	0.1	0.3	0.0	0.1	0.00	0.00			
West: Campeau															
Lane 1		0.325	1.000	0.0	4.9	12.2	3.7	9.2	0.9	1.6	0.01	0.02	0.0	NA	NA
Lane 2	Y	0.082	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.325			4.9	12.2	3.7	9.2	0.9	1.6	0.01	0.02			
Intersection		0.325			6.2	15.5	4.8	11.9	1.2	2.2	0.01	0.03			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Lane Queues (Vehicles)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (veh)	Back of Queue (veh)		Queue at Start of Gap (veh)		Cycle-Average Queue (veh)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.316	1.000	0.0	0.9	2.2	0.7	1.7	0.2	0.3	0.01	0.03	0.0	NA	NA
Lane 2	Y	0.152	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.316			0.9	2.2	0.7	1.7	0.2	0.3	0.01	0.03			
East: Campeau															
Lane 1		0.214	1.000	0.0	0.5	1.3	0.5	1.1	0.1	0.2	0.01	0.02	0.0	NA	NA
Lane 2		0.214	1.000	0.0	0.6	1.4	0.5	1.2	0.1	0.2	0.01	0.02	0.0	NA	NA
Approach		0.214			0.6	1.4	0.5	1.2	0.1	0.2	0.01	0.02			
North: Palladium															
Lane 1		0.010	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Lane 2		0.010	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.02	NA	0.0	1

Approach		0.010			0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00			
West: Campeau															
Lane 1		0.325	1.000	0.0	0.7	1.7	0.5	1.3	0.1	0.2	0.01	0.02	0.0	NA	NA
Lane 2	Y	0.082	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.325			0.7	1.7	0.5	1.3	0.1	0.2	0.01	0.02			
Intersection		0.325			0.9	2.2	0.7	1.7	0.2	0.3	0.01	0.03			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Continuous Lane Performance

Lane Number	Deg. Satn	Unint. Speed	Unint. Travel Delay	Hdwy Spacing		Aver. Vehicle Length	Occup. Time	Space Time	Space Occup. Ratio	Time Occup. Ratio	Density		LOS (Density Method)
	v/c	km/h	sec	sec	m	m	sec	sec	%	%	veh/km	pc/km	
South: Palladium													
Lane 2	0.152	59.9	0.0	12.46	207.4	4.6	0.40	12.06	2.2	3.2	4.8	4.9	LOS A
West: Campeau													
Lane 2	0.082	60.0	0.0	23.10	384.8	4.6	0.40	22.71	1.2	1.7	2.6	2.6	LOS A

Midblock Effective Detection Zone Length = 2 m

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INTERSECTION SUMMARY

Site: 101 [Palladium at Campeau FT 2027 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	52.3	52.3 km/h
Travel Distance (Total)	veh-km/h	1840.4	2208.5 pers-km/h
Travel Time (Total)	veh-h/h	35.2	42.3 pers-h/h
Desired Speed	km/h	60.0	
Speed Efficiency		0.87	
Travel Time Index		8.57	
Congestion Coefficient		1.15	
Demand Flows (Total)	veh/h	1757	2108 pers/h
Arrival Flows (Total)	veh/h	1757	
Percent Heavy Vehicles (Demand)	%	2.0	
Percent Heavy Vehicles (Arrivals)	%	2.0	
Degree of Saturation		0.325	
Practical Spare Capacity	%	161.3	
Effective Intersection Capacity	veh/h	5401	
Control Delay (Total)	veh-h/h	3.35	4.02 pers-h/h
Control Delay (Average)	sec	6.9	6.9 sec
Control Delay (Worst Lane by MC)	sec	11.3	
Control Delay (Worst Movement by MC)	sec	14.7	14.7 sec
Geometric Delay (Average)	sec	5.7	
Stop-Line Delay (Average)	sec	1.2	
Idling Time (Average)	sec	0.0	
Intersection Level of Service (LOS)		LOS A	
95% Back of Queue - Veh (Worst Lane)	veh	2.2	
95% Back of Queue - Dist (Worst Lane)	m	15.5	
Ave. Que Storage Ratio (Worst Lane)		0.01	
Effective Stops (Total)	veh/h	938	1126 pers/h
Effective Stop Rate		0.53	0.53
Proportion Queued		0.41	0.41
Performance Index		49.3	49.3
Cost (Total)	$/h	1532.77	1532.77 $/h
Fuel Consumption (Total)	L/h	162.8	
Carbon Dioxide (Total)	kg/h	384.7	
Hydrocarbons (Total)	kg/h	0.032	
Carbon Monoxide (Total)	kg/h	0.43	
NOx (Total)	kg/h	0.430	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 2.1 %
Number of Iterations: 6 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.5% 1.4% 0.7%

Intersection Performance - Annual Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Demand Flows (Total)	veh/y	843,360	1,012,032 pers/y
Delay (Total)	veh-h/y	1,609	1,931 pers-h/y

Effective Stops (Total)	veh/y	450,216	540,260	pers/y
Travel Distance (Total)	veh-km/y	883,402	1,060,082	pers-km/y
Travel Time (Total)	veh-h/y	16,905	20,286	pers-h/y
Cost (Total)	$/y	735,731	735,731	$/y
Fuel Consumption (Total)	L/y	78,148		
Carbon Dioxide (Total)	kg/y	184,633		
Hydrocarbons (Total)	kg/y	15		
Carbon Monoxide (Total)	kg/y	207		
NOx (Total)	kg/y	206		

1 Hours per Year: 480 (Site)

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ROUNDABOUT ANALYSIS

Site: 101 [Palladium at Campeau FT 2027 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Roundabout Basic Parameters

Location	Name	Central Island Diam	Circ Width	Insc Diam	Entry Radius	Entry Angle	Circ Lanes	Entry Lanes	Av.Entry Lane Width	App. Dist	Prop Queued Upstr Signal	Extra Bunching
		m	m	m	m	°			m	m		%
South	Palladium	30.00	6.00	45.5	20.0	30.0	1	2[18]	4.00	500.0	NA[5]	0.0
East	Campeau	30.00	6.00	45.5	20.0	30.0	1	2	4.00	500.0	NA[5]	0.0
North	Palladium	30.00	9.50	45.5	20.0	30.0	2	2	4.00	500.0	NA[5]	0.0
West	Campeau	30.00	9.50	45.5	20.0	30.0	2	2[18]	4.00	500.0	NA[5]	0.0

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

5 Not Applicable (single Site analysis or unconnected Site in Network analysis).
18 Exclusive slip/bypass lane is included in Entry Lanes count.

Roundabout Entry and Circulating / Exiting Stream Parameters

To Approach	Turn	Lane No	Lane Type	Opng Flow	Opng Flow	In-Bunch Hdwy	Prop. Bunched	Cap Const Effect	Priority Sharing	OD Factor	Gap Acc Factor	Follow-up Hdwy (tf)	Critical Gap (tc) [Hdwy	Dist]	Ratio tf / tc
				veh/h	pcu/h	sec						sec	sec	m	
South: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
West	L2	1	Dominant	345	348	2.00	0.346	No	Yes[10]	0.960	1.01	1.96	3.61	38.9	0.54
North	T1	1	Dominant	345	348	2.00	0.346	No	Yes[10]	0.960	1.01	1.96	3.61	38.9	0.54
East	R2	2	Continuous												
East: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
South	L2	1	Subdom.	426	430	2.00	0.409	No	Yes[10]	0.938	1.01	2.31	4.19	30.3	0.55
South	L2	2	Dominant	426	430	2.00	0.409	No	Yes[10]	0.938	1.01	1.93	3.51	25.3	0.55
West	T1	2	Dominant	426	430	2.00	0.409	No	Yes[10]	0.938	1.01	1.93	3.51	25.3	0.55
North	R2	2	Dominant	426	430	2.00	0.409	No	Yes[10]	0.938	1.01	1.93	3.51	25.3	0.55
North: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
East	L2	1	Subdom.	889	898	1.37	0.532	No	Yes[10]	0.912	1.01	2.41	3.42	26.7	0.70
South	T1	1	Subdom.	889	898	1.37	0.532	No	Yes[10]	0.912	1.01	2.41	3.42	26.7	0.70
South	T1	2	Dominant	889	898	1.37	0.532	No	Yes[10]	0.912	1.01	2.11	2.99	23.3	0.70
West	R2	2	Dominant	889	898	1.37	0.532	No	Yes[10]	0.912	1.01	2.11	2.99	23.3	0.70
West: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
North	L2	1	Dominant	320	323	1.28	0.222	No	No	0.957	1.01	2.32	3.64	25.8	0.64
East	T1	1	Dominant	320	323	1.28	0.222	No	No	0.957	1.01	2.32	3.64	25.8	0.64
South	R2	1	Dominant	320	323	1.28	0.222	No	No	0.957	1.01	2.32	3.64	25.8	0.64
South	R2	2	Continuous												

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

10 Priority sharing means Follow-up Headway plus Intra-bunch Headway is larger than the Critical Gap.

Circulating Lane Flow Rates			
Circ. Lane No	Circulating Flow Rate		
	veh/h	pcu/h	Percent
South: Palladium			
Lane 1	345	348	100.0
Approach	345	348	
East: Campeau			
Lane 1	426	430	100.0
Approach	426	430	
North: Palladium			
Lane 1	215	217	24.2
Lane 2	674	681	75.8
Approach	889	898	
West: Campeau			
Lane 1	223	225	69.5
Lane 2	97	98	30.5
Approach	320	323	

Roundabout Capacity Model: The SIDRA Standard Roundabout Capacity Model option is in use. This model takes into account the total circulating flow as well as the effect of flow distribution in circulating lanes on the entry capacity results.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Lanes)					
Opposed Lane	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium					
1	18.67	4.96	13.71	0.734	0.9
East: Campeau					
1	18.49	6.57	11.92	0.645	1.6
2	17.35	5.62	11.73	0.676	1.2
North: Palladium					
1	13.53	6.67	6.86	0.507	2.5
2	12.53	5.83	6.70	0.535	2.0
West: Campeau					
1	18.02	4.19	13.84	0.768	0.7

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Movements)							
To Approach	Turn	Opsd Lane No	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium							
West	L2	1	18.67	4.96	13.71	0.734	0.9
North	T1	1	18.67	4.96	13.71	0.734	0.9
East: Campeau							
South	L2	1	18.49	6.57	11.92	0.645	1.6
South	L2	2	17.35	5.62	11.73	0.676	1.2
West	T1	2	17.35	5.62	11.73	0.676	1.2
North	R2	2	17.35	5.62	11.73	0.676	1.2
North: Palladium							
East	L2	1	13.53	6.67	6.86	0.507	2.5
South	T1	1	13.53	6.67	6.86	0.507	2.5

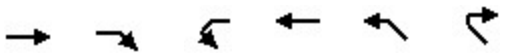
South	T1	2	12.53	5.83	6.70	0.535	2.0
West	R2	2	12.53	5.83	6.70	0.535	2.0
West: Campeau							
North	L2	1	18.02	4.19	13.84	0.768	0.7
East	T1	1	18.02	4.19	13.84	0.768	0.7
South	R2	1	18.02	4.19	13.84	0.768	0.7

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

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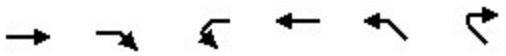
Appendix L

Synchro and Sidra Reports (Total 2032)



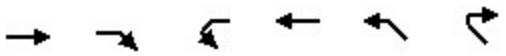
Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	95	1	97	64	2	225
Future Volume (vph)	95	1	97	64	2	225
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.866	
Flt Protected			0.950			
Satd. Flow (prot)	1743	0	1658	1745	1511	0
Flt Permitted			0.950			
Satd. Flow (perm)	1743	0	1658	1745	1511	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	106	1	108	71	2	250
Shared Lane Traffic (%)						
Lane Group Flow (vph)	107	0	108	71	252	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.8%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	0.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			15.0		15.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.999				0.866	
Flt Protected			0.950			
Satd. Flow (prot)	1743	0	1658	1745	1511	0
Flt Permitted			0.950			
Satd. Flow (perm)	1743	0	1658	1745	1511	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	

Intersection Summary	
Area Type:	Other



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	95	1	97	64	2	225
Future Volume (Veh/h)	95	1	97	64	2	225
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	106	1	108	71	2	250
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			107		394	107
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			107		394	107
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		100	74
cM capacity (veh/h)			1484		567	948

Direction, Lane #	EB 1	WB 1	WB 2	NW 1
Volume Total	107	108	71	252
Volume Left	0	108	0	2
Volume Right	1	0	0	250
cSH	1700	1484	1700	943
Volume to Capacity	0.06	0.07	0.04	0.27
Queue Length 95th (m)	0.0	1.8	0.0	8.2
Control Delay (s/veh)	0.0	7.6	0.0	10.2
Lane LOS		A		B
Approach Delay (s/veh)	0.0	4.6		10.2
Approach LOS				B

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

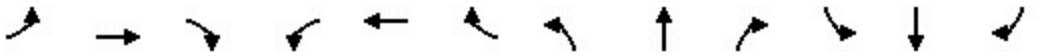
Intersection	
Int Delay, s/veh	6.3

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	95	1	97	64	2	225
Future Vol, veh/h	95	1	97	64	2	225
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	106	1	108	71	2	250

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	107	0	394	107
Stage 1	-	-	-	-	107	-
Stage 2	-	-	-	-	287	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1484	-	611	947
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	762	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1484	-	566	947
Mov Cap-2 Maneuver	-	-	-	-	566	-
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	706	-

Approach	EB	WB	NW
HCM Control Delay, s/v	0	4.6	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	941	-	-	1484	-
HCM Lane V/C Ratio	0.268	-	-	0.073	-
HCM Control Delay (s/veh)	10.2	-	-	7.6	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.1	-	-	0.2	-

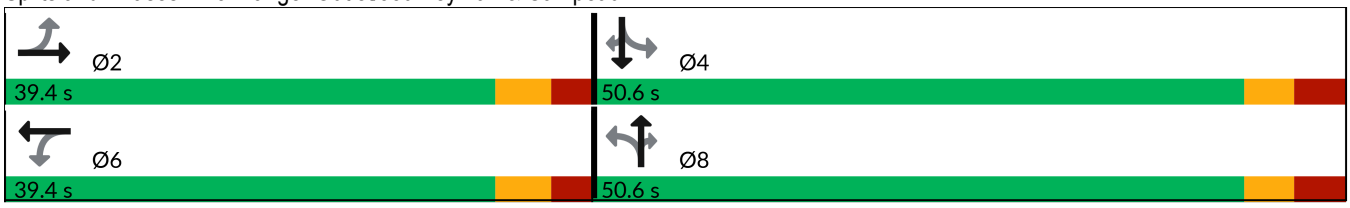


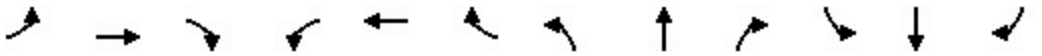
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	648	18	100	402	13	41	0	98	30	0	17
Future Volume (vph)	21	648	18	100	402	13	41	0	98	30	0	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.996			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3302	0	1658	3268	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.438			0.233			0.757			0.757		
Satd. Flow (perm)	764	3302	0	407	3268	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			4				80			222
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	
Confl. Peds. (#/hr)							5					5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	23	720	20	111	447	14	46	0	109	33	0	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	740	0	111	461	0	46	0	109	33	0	19
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm		Perm	Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		6	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	39.4	39.4		39.4	39.4		39.8	39.8	39.8	39.8	39.8	39.8
Total Split (s)	39.4	39.4		39.4	39.4		50.6	50.6	50.6	50.6	50.6	50.6
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.2%	56.2%	56.2%	56.2%	56.2%	56.2%
Maximum Green (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7		2.7	2.7		3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		26.0	26.0	26.0	26.0	26.0	26.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	5	5	5
Act Effct Green (s)	25.3	25.3		25.3	25.3		44.1		44.1	44.1		44.1
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.53		0.53	0.53		0.53
v/c Ratio	0.09	0.73		0.89	0.46		0.06		0.13	0.04		0.02
Control Delay (s/veh)	20.4	29.8		86.7	24.0		11.7		5.0	11.7		0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Total Delay (s/veh)	20.4	29.8		86.7	24.0		11.7		5.0	11.7		0.0
LOS	C	C		F	C		B		A	B		A
Approach Delay (s/veh)		29.6			36.2			7.1			7.4	
Approach LOS		C			D			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 82.7			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay (s/veh): 29.0		Intersection LOS: C	
Intersection Capacity Utilization 71.7%		ICU Level of Service C	
Analysis Period (min) 15			

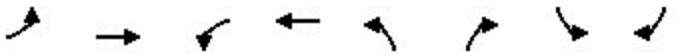
Splits and Phases: 3: Tanger Outlet/Journeyman & Campeau





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.996			0.995				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3302	0	1658	3268	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.438			0.233			0.757			0.757		
Satd. Flow (perm)	764	3302	0	407	3268	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			4				80			222
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	

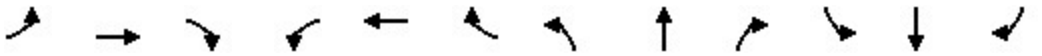
Intersection Summary	
Area Type:	Other



Lane Group	EBL	EBT	WBL	WBT	NBL	NBR	SBL	SBR
Lane Group Flow (vph)	23	740	111	461	46	109	33	19
v/c Ratio	0.09	0.73	0.89	0.46	0.06	0.13	0.04	0.02
Control Delay (s/veh)	20.4	29.8	86.7	24.0	11.7	5.0	11.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.4	29.8	86.7	24.0	11.7	5.0	11.7	0.0
Queue Length 50th (m)	2.6	53.7	16.4	30.1	3.3	2.1	2.4	0.0
Queue Length 95th (m)	7.8	72.1	#45.2	42.6	9.7	10.7	7.6	0.0
Internal Link Dist (m)		316.8		140.3				
Turn Bay Length (m)	45.0		50.0		24.5		50.0	
Base Capacity (vph)	307	1328	163	1315	695	828	704	882
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.56	0.68	0.35	0.07	0.13	0.05	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	648	18	100	402	13	41	0	98	30	0	17
Future Volume (vph)	21	648	18	100	402	13	41	0	98	30	0	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.4	6.4		6.4	6.4		6.8		6.8	6.8		6.8
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00		1.00	1.00		1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00		1.00	1.00		0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99		1.00	1.00		1.00
Frt	1.00	0.99		1.00	0.99		1.00		0.85	1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95		1.00	0.95		1.00
Satd. Flow (prot)	1658	3302		1658	3270		1636		1483	1658		1460
Flt Permitted	0.43	1.00		0.23	1.00		0.75		1.00	0.75		1.00
Satd. Flow (perm)	765	3302		406	3270		1304		1483	1321		1460
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	720	20	111	447	14	46	0	109	33	0	19
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	37	0	0	9
Lane Group Flow (vph)	23	738	0	111	458	0	46	0	72	33	0	10
Confl. Peds. (#/hr)							5					5
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm		Perm	Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	25.3	25.3		25.3	25.3		44.1		44.1	44.1		44.1
Effective Green, g (s)	25.3	25.3		25.3	25.3		44.1		44.1	44.1		44.1
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.53		0.53	0.53		0.53
Clearance Time (s)	6.4	6.4		6.4	6.4		6.8		6.8	6.8		6.8
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	234	1011		124	1001		696		791	705		779
v/s Ratio Prot		0.22			0.14							
v/s Ratio Perm	0.03			c0.27			0.04		c0.05	0.02		0.01
v/c Ratio	0.09	0.72		0.89	0.45		0.06		0.09	0.04		0.01
Uniform Delay, d1	20.4	25.5		27.3	23.1		9.3		9.4	9.2		9.0
Progression Factor	1.00	1.00		1.00	1.00		1.00		1.00	1.00		1.00
Incremental Delay, d2	0.1	2.6		49.7	0.3		0.1		0.2	0.1		0.0
Delay (s)	20.6	28.2		77.1	23.4		9.4		9.6	9.3		9.0
Level of Service	C	C		E	C		A		A	A		A
Approach Delay (s/veh)		28.0			33.8			9.6			9.2	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	27.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	82.6	Sum of lost time (s)	13.2
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	152	33	8	0	71	224	6	51	3	207	246	56
Future Volume (vph)	152	33	8	0	71	224	6	51	3	207	246	56
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.994			0.898			0.994			0.985	
Flt Protected		0.962						0.995			0.980	
Satd. Flow (prot)	0	1693	0	0	1586	0	0	1760	0	0	1671	0
Flt Permitted		0.962						0.995			0.980	
Satd. Flow (perm)	0	1693	0	0	1586	0	0	1760	0	0	1671	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	
Confl. Peds. (#/hr)							4					4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	3%	0%	0%	0%	1%	0%	0%	0%	1%	5%	0%
Adj. Flow (vph)	169	37	9	0	79	249	7	57	3	230	273	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	215	0	0	328	0	0	67	0	0	565	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 75.8%		ICU Level of Service D	
Analysis Period (min) 15			

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.994			0.898			0.994			0.985	
Flt Protected		0.962						0.995			0.980	
Satd. Flow (prot)	0	1693	0	0	1586	0	0	1760	0	0	1671	0
Flt Permitted		0.962						0.995			0.980	
Satd. Flow (perm)	0	1693	0	0	1586	0	0	1760	0	0	1671	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	

Intersection Summary	
Area Type:	Other

Intersection has too many legs for HCM analysis.

Intersection	
Intersection Delay, s/veh	27.5
Intersection LOS	D

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	152	33	8	0	71	224	6	51	3	207	246	56
Future Vol, veh/h	152	33	8	0	71	224	6	51	3	207	246	56
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	3	0	0	0	1	0	0	0	1	5	0
Mvmt Flow	169	37	9	0	79	249	7	57	3	230	273	62
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	SE	NW	NE	SW
Opposing Approach	NW	SE	SW	NE
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SW	NE	SE	NW
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NE	SW	NW	SE
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	14.1	15.6	10.9	41.5
HCM LOS	B	C	B	E

Lane	NELn1	NWLn1	SELn1	SWLn1
Vol Left, %	10%	0%	79%	41%
Vol Thru, %	85%	24%	17%	48%
Vol Right, %	5%	76%	4%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	295	193	509
LT Vol	6	0	152	207
Through Vol	51	71	33	246
RT Vol	3	224	8	56
Lane Flow Rate	67	328	214	566
Geometry Grp	1	1	1	1
Degree of Util (X)	0.126	0.536	0.398	0.911
Departure Headway (Hd)	6.818	5.886	6.676	5.798
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	523	610	538	628
Service Time	4.889	3.942	4.737	3.798
HCM Lane V/C Ratio	0.128	0.538	0.398	0.901
HCM Control Delay, s/veh	10.9	15.6	14.1	41.5
HCM Lane LOS	B	C	B	E
HCM 95th-tile Q	0.4	3.2	1.9	11.5



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	356	717	543	179	0	448
Future Volume (vph)	356	717	543	179	0	448
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.963			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3193	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3193	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	396	797	603	199	0	498
Shared Lane Traffic (%)						
Lane Group Flow (vph)	396	797	802	0	0	498
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.8%		ICU Level of Service B	
Analysis Period (min) 15			



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.963			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3193	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3193	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	

Intersection Summary	
Area Type:	Other



Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	356	717	543	179	0	448
Future Volume (Veh/h)	356	717	543	179	0	448
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	396	797	603	199	0	498
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		214				
pX, platoon unblocked					0.98	
vC, conflicting volume	802				1893	401
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	802				1865	401
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	52				100	17
cM capacity (veh/h)	817				32	599

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	NE 1
Volume Total	396	399	399	402	400	498
Volume Left	396	0	0	0	0	0
Volume Right	0	0	0	0	199	498
cSH	817	1700	1700	1700	1700	599
Volume to Capacity	0.48	0.23	0.23	0.24	0.24	0.83
Queue Length 95th (m)	20.4	0.0	0.0	0.0	0.0	66.5
Control Delay (s/veh)	13.5	0.0	0.0	0.0	0.0	33.8
Lane LOS	B					D
Approach Delay (s/veh)	4.5			0.0		33.8
Approach LOS						D

Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	8.9

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	356	717	543	179	0	448
Future Vol, veh/h	356	717	543	179	0	448
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	396	797	603	199	0	498

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	802	0	-	0	-	401
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	-	3.32
Pot Cap-1 Maneuver	817	-	-	-	0	599
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	817	-	-	-	-	599
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	NB	SB	NE
HCM Control Delay, s/v	4.5	0	33.8
HCM LOS			D

Minor Lane/Major Mvmt	NELn1	NBL	NBT	SBT	SBR
Capacity (veh/h)	599	817	-	-	-
HCM Lane V/C Ratio	0.831	0.484	-	-	-
HCM Control Delay (s/veh)	33.8	13.5	-	-	-
HCM Lane LOS	D	B	-	-	-
HCM 95th %tile Q(veh)	8.7	2.7	-	-	-

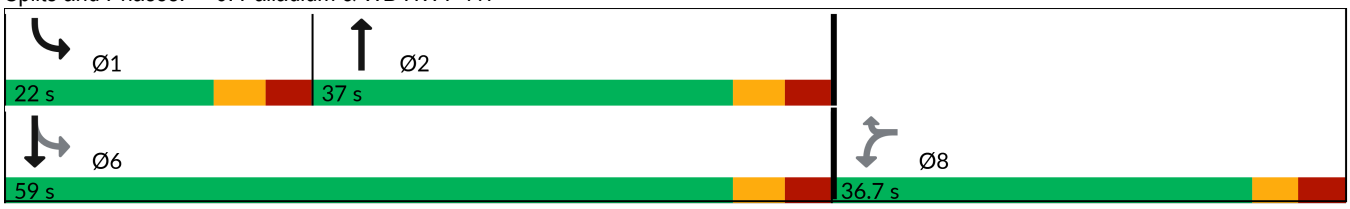


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	519	555	532	0	415	580
Future Volume (vph)	519	555	532	0	415	580
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.236	
Satd. Flow (perm)	3185	1483	3191	0	412	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		423				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Adj. Flow (vph)	577	617	591	0	461	644
Shared Lane Traffic (%)						
Lane Group Flow (vph)	577	617	591	0	461	644
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	15.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases	8	8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		5.0	10.0
Minimum Split (s)	33.0	33.0	39.0		12.1	17.0
Total Split (s)	36.7	36.7	37.0		22.0	59.0
Total Split (%)	38.3%	38.3%	38.7%		23.0%	61.7%
Maximum Green (s)	30.0	30.0	30.0		15.0	52.0
Yellow Time (s)	3.3	3.3	3.7		3.7	3.7
All-Red Time (s)	3.4	3.4	3.3		3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	7.0		7.0	7.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		None	None
Walk Time (s)	7.0	7.0	7.0			
Flash Dont Walk (s)	19.0	19.0	25.0			
Pedestrian Calls (#/hr)	0	0	0			
Act Effct Green (s)	22.1	22.1	19.9		42.4	42.4
Actuated g/C Ratio	0.28	0.28	0.25		0.54	0.54
v/c Ratio	0.64	0.85	0.73		0.99	0.36
Control Delay (s/veh)	28.5	21.7	33.2		58.6	11.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	28.5	21.7	33.2		58.6	11.7
LOS	C	C	C		E	B
Approach Delay (s/veh)	25.0		33.3			31.3
Approach LOS	C		C			C

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 78.6			
Natural Cycle: 95			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay (s/veh): 29.1		Intersection LOS: C	
Intersection Capacity Utilization 72.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Palladium & WB HWY 417





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%		0%			0%
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.236	
Satd. Flow (perm)	3185	1483	3191	0	412	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		423				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8

Intersection Summary	
Area Type:	Other



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	577	617	591	461	644
v/c Ratio	0.64	0.85	0.73	0.99	0.36
Control Delay (s/veh)	28.5	21.7	33.2	58.6	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.5	21.7	33.2	58.6	11.7
Queue Length 50th (m)	37.8	25.6	41.9	44.3	26.7
Queue Length 95th (m)	61.0	#96.1	65.5	#123.8	45.2
Internal Link Dist (m)	143.3		396.7		189.7
Turn Bay Length (m)		125.0		115.0	
Base Capacity (vph)	1243	837	1246	465	2222
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	0.74	0.47	0.99	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	519	555	532	0	415	580
Future Volume (vph)	519	555	532	0	415	580
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.7	6.7	7.0		7.0	7.0
Lane Util. Factor	0.97	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3185	1483	3191		1658	3283
Flt Permitted	0.95	1.00	1.00		0.23	1.00
Satd. Flow (perm)	3185	1483	3191		413	3283
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	577	617	591	0	461	644
RTOR Reduction (vph)	0	303	0	0	0	0
Lane Group Flow (vph)	577	314	591	0	461	644
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	22.2	22.2	20.1		42.4	42.4
Effective Green, g (s)	22.2	22.2	20.1		42.4	42.4
Actuated g/C Ratio	0.28	0.28	0.26		0.54	0.54
Clearance Time (s)	6.7	6.7	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	903	420	819		466	1777
v/s Ratio Prot			0.19		c0.19	0.20
v/s Ratio Perm	0.18	c0.21			c0.34	
v/c Ratio	0.63	0.74	0.72		0.98	0.36
Uniform Delay, d1	24.5	25.5	26.5		15.6	10.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.4	7.1	3.1		38.4	0.1
Delay (s)	26.0	32.6	29.7		54.0	10.3
Level of Service	C	C	C		D	B
Approach Delay (s/veh)	29.4		29.7			28.5
Approach LOS	C		C			C

Intersection Summary			
HCM 2000 Control Delay (s/veh)	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	20.7
Intersection Capacity Utilization	72.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

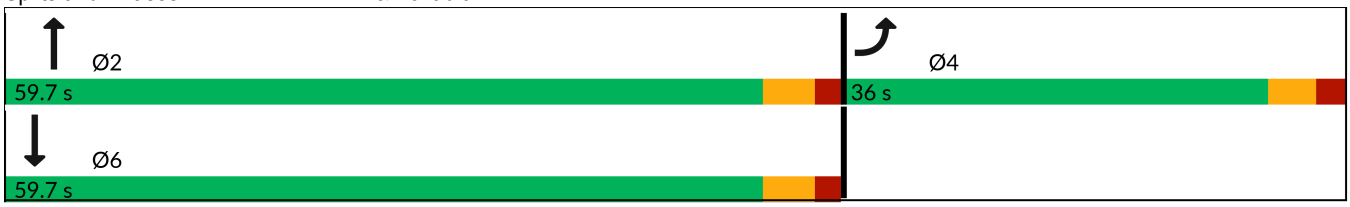


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	210	185	0	738	900	0
Future Volume (vph)	210	185	0	738	900	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	0.937					
Flt Protected	0.974					
Satd. Flow (prot)	1576	0	0	3316	3252	0
Flt Permitted	0.974					
Satd. Flow (perm)	1576	0	0	3316	3252	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	49					
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	2%	2%	2%	4%	3%
Adj. Flow (vph)	233	206	0	820	1000	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	439	0	0	820	1000	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1			2	2	
Detector Template	Left			Thru	Thru	
Leading Detector (m)	2.0			10.0	10.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	2.0			0.6	0.6	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot			NA	NA	
Protected Phases	4			2	6	
Permitted Phases						
Detector Phase	4			2	6	
Switch Phase						

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	10.0			10.0	10.0	
Minimum Split (s)	29.5			23.6	25.0	
Total Split (s)	36.0			59.7	59.7	
Total Split (%)	37.6%			62.4%	62.4%	
Maximum Green (s)	30.5			54.1	54.1	
Yellow Time (s)	3.3			3.7	3.7	
All-Red Time (s)	2.2			1.9	1.9	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.5			5.6	5.6	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	None			None	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	20.9			25.8	25.8	
Actuated g/C Ratio	0.36			0.44	0.44	
v/c Ratio	0.73			0.56	0.69	
Control Delay (s/veh)	23.8			14.3	16.7	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	23.8			14.3	16.7	
LOS	C			B	B	
Approach Delay (s/veh)	23.9			14.3	16.7	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 58.4			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay (s/veh): 17.2		Intersection LOS: B	
Intersection Capacity Utilization 59.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: EB HWY 417 & Palladium





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)	0.0	0.0	0.0			0.0
Storage Lanes	1	0	0			0
Taper Length (m)	15.0		15.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt	0.937					
Flt Protected	0.974					
Satd. Flow (prot)	1576	0	0	3316	3252	0
Flt Permitted	0.974					
Satd. Flow (perm)	1576	0	0	3316	3252	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	49					
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	

Intersection Summary	
Area Type:	Other



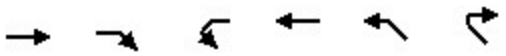
Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	439	820	1000
v/c Ratio	0.73	0.56	0.69
Control Delay (s/veh)	23.8	14.3	16.7
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	23.8	14.3	16.7
Queue Length 50th (m)	35.7	31.4	41.6
Queue Length 95th (m)	77.6	58.9	77.2
Internal Link Dist (m)	231.1	165.0	396.7
Turn Bay Length (m)			
Base Capacity (vph)	891	2935	2879
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.49	0.28	0.35

Intersection Summary



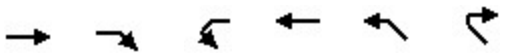
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	210	185	0	738	900	0
Future Volume (vph)	210	185	0	738	900	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.5			5.6	5.6	
Lane Util. Factor	1.00			0.95	0.95	
Frt	0.93			1.00	1.00	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1576			3316	3252	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1576			3316	3252	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	233	206	0	820	1000	0
RTOR Reduction (vph)	31	0	0	0	0	0
Lane Group Flow (vph)	408	0	0	820	1000	0
Heavy Vehicles (%)	4%	2%	2%	2%	4%	3%
Turn Type	Prot			NA	NA	
Protected Phases	4			2	6	
Permitted Phases						
Actuated Green, G (s)	20.9			25.8	25.8	
Effective Green, g (s)	20.9			25.8	25.8	
Actuated g/C Ratio	0.36			0.45	0.45	
Clearance Time (s)	5.5			5.6	5.6	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	569			1480	1451	
v/s Ratio Prot	c0.26			0.25	c0.31	
v/s Ratio Perm						
v/c Ratio	0.71			0.55	0.68	
Uniform Delay, d1	15.8			11.7	12.7	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	4.2			0.4	1.3	
Delay (s)	20.1			12.2	14.1	
Level of Service	C			B	B	
Approach Delay (s/veh)	20.1			12.2	14.1	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	57.8	Sum of lost time (s)	11.1
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



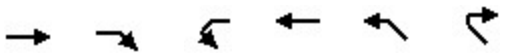
Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	39	1	184	20	4	501
Future Volume (vph)	39	1	184	20	4	501
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.866	
Flt Protected			0.950			
Satd. Flow (prot)	1740	0	1658	1745	1511	0
Flt Permitted			0.950			
Satd. Flow (perm)	1740	0	1658	1745	1511	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	1	204	22	4	557
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	0	204	22	561	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.1%		ICU Level of Service B	
Analysis Period (min) 15			



Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		0.0	0.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			15.0		15.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.997				0.866	
Flt Protected			0.950			
Satd. Flow (prot)	1740	0	1658	1745	1511	0
Flt Permitted			0.950			
Satd. Flow (perm)	1740	0	1658	1745	1511	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	265.4			178.7	159.6	
Travel Time (s)	15.9			10.7	11.5	

Intersection Summary	
Area Type:	Other



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (veh/h)	39	1	184	20	4	501
Future Volume (Veh/h)	39	1	184	20	4	501
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	43	1	204	22	4	557
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			44		474	44
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			44		474	44
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			87		99	46
cM capacity (veh/h)			1564		478	1027

Direction, Lane #	EB 1	WB 1	WB 2	NW 1
Volume Total	44	204	22	561
Volume Left	0	204	0	4
Volume Right	1	0	0	557
cSH	1700	1564	1700	1018
Volume to Capacity	0.03	0.13	0.01	0.55
Queue Length 95th (m)	0.0	3.4	0.0	26.4
Control Delay (s/veh)	0.0	7.6	0.0	12.8
Lane LOS		A		B
Approach Delay (s/veh)	0.0	6.9		12.8
Approach LOS				B

Intersection Summary			
Average Delay	10.5		
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

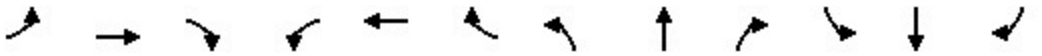
Intersection	
Int Delay, s/veh	10.5

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	39	1	184	20	4	501
Future Vol, veh/h	39	1	184	20	4	501
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	1	204	22	4	557

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	44	0	474	44
Stage 1	-	-	-	-	44	-
Stage 2	-	-	-	-	430	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1564	-	549	1026
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	656	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1564	-	478	1026
Mov Cap-2 Maneuver	-	-	-	-	478	-
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	571	-

Approach	EB	WB	NW
HCM Control Delay, s/v	0	6.9	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1017	-	-	1564	-
HCM Lane V/C Ratio	0.552	-	-	0.131	-
HCM Control Delay (s/veh)	12.8	-	-	7.6	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	3.5	-	-	0.5	-

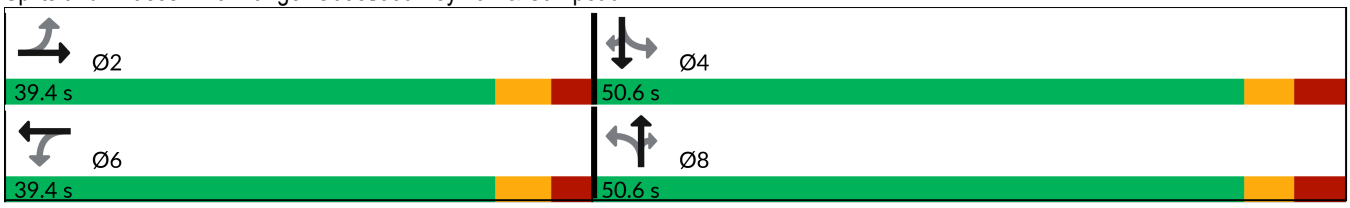


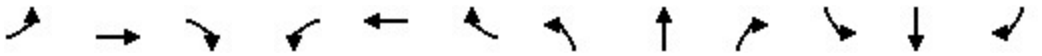
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	429	183	220	331	3	156	1	236	3	2	10
Future Volume (vph)	26	429	183	220	331	3	156	1	236	3	2	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.955			0.999				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3166	0	1658	3280	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.522			0.301			0.757			0.757		
Satd. Flow (perm)	911	3166	0	525	3280	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		83			1				198			41
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	
Confl. Peds. (#/hr)							5					5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	29	477	203	244	368	3	173	1	262	3	2	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	680	0	244	371	0	173	1	262	3	2	11
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Detector Phase	2	2		6	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	39.4	39.4		39.4	39.4		39.8	39.8	39.8	39.8	39.8	39.8
Total Split (s)	39.4	39.4		39.4	39.4		50.6	50.6	50.6	50.6	50.6	50.6
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.2%	56.2%	56.2%	56.2%	56.2%	56.2%
Maximum Green (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7		2.7	2.7		3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		26.0	26.0	26.0	26.0	26.0	26.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	5	5	5
Act Effct Green (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.49	0.49	0.49	0.49	0.49	0.49
v/c Ratio	0.08	0.56		1.27	0.30		0.27	0.00	0.31	0.00	0.00	0.01
Control Delay (s/veh)	19.6	21.8		185.0	21.1		15.1	12.0	4.9	12.0	12.0	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.6	21.8		185.0	21.1		15.1	12.0	4.9	12.0	12.0	0.0
LOS	B	C		F	C		B	B	A	B	B	A
Approach Delay (s/veh)		21.8			86.2			9.0			3.8	
Approach LOS		C			F			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.27			
Intersection Signal Delay (s/veh): 40.8		Intersection LOS: D	
Intersection Capacity Utilization 75.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: Tanger Outlet/Journeyman & Campeau





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	50.0		0.0	24.5		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					0.98
Frt		0.955			0.999				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1658	3166	0	1658	3280	0	1642	1745	1483	1658	1745	1483
Flt Permitted	0.522			0.301			0.757			0.757		
Satd. Flow (perm)	911	3166	0	525	3280	0	1303	1745	1483	1321	1745	1460
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		83			1				198			41
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		340.8			164.3			73.2			121.1	
Travel Time (s)		20.4			9.9			5.3			8.7	

Intersection Summary	
Area Type:	Other

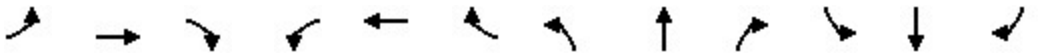


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	29	680	244	371	173	1	262	3	2	11
v/c Ratio	0.08	0.56	1.27	0.30	0.27	0.00	0.31	0.00	0.00	0.01
Control Delay (s/veh)	19.6	21.8	185.0	21.1	15.1	12.0	4.9	12.0	12.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.6	21.8	185.0	21.1	15.1	12.0	4.9	12.0	12.0	0.0
Queue Length 50th (m)	3.2	42.3	~53.7	23.6	16.9	0.1	5.7	0.3	0.2	0.0
Queue Length 95th (m)	9.1	59.2	#98.0	34.4	30.1	0.9	18.4	1.6	1.3	0.0
Internal Link Dist (m)		316.8		140.3		49.2			97.1	
Turn Bay Length (m)	45.0		50.0		24.5			50.0		
Base Capacity (vph)	334	1213	192	1203	634	849	823	642	849	731
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.56	1.27	0.31	0.27	0.00	0.32	0.00	0.00	0.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	429	183	220	331	3	156	1	236	3	2	10
Future Volume (vph)	26	429	183	220	331	3	156	1	236	3	2	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1658	3167		1658	3280		1635	1745	1483	1658	1745	1460
Flt Permitted	0.52	1.00		0.30	1.00		0.75	1.00	1.00	0.75	1.00	1.00
Satd. Flow (perm)	912	3167		525	3280		1302	1745	1483	1321	1745	1460
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	477	203	244	368	3	173	1	262	3	2	11
RTOR Reduction (vph)	0	53	0	0	1	0	0	0	102	0	0	6
Lane Group Flow (vph)	29	627	0	244	370	0	173	1	160	3	2	5
Confl. Peds. (#/hr)							5					5
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%	3%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Effective Green, g (s)	33.0	33.0		33.0	33.0		43.8	43.8	43.8	43.8	43.8	43.8
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.49	0.49	0.49	0.49	0.49	0.49
Clearance Time (s)	6.4	6.4		6.4	6.4		6.8	6.8	6.8	6.8	6.8	6.8
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	334	1161		192	1202		633	849	721	642	849	710
v/s Ratio Prot		0.20			0.11			0.00			0.00	
v/s Ratio Perm	0.03			c0.46			c0.13		0.11	0.00		0.00
v/c Ratio	0.08	0.54		1.27	0.30		0.27	0.00	0.22	0.00	0.00	0.00
Uniform Delay, d1	18.6	22.5		28.5	20.3		13.6	11.8	13.2	11.8	11.8	11.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.5		156.1	0.1		1.0	0.0	0.7	0.0	0.0	0.0
Delay (s)	18.7	23.0		184.6	20.4		14.7	11.8	14.0	11.8	11.8	11.9
Level of Service	B	C		F	C		B	B	B	B	B	B
Approach Delay (s/veh)		22.8			85.6			14.2			11.9	
Approach LOS		C			F			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	42.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	6	34	4	1	48	124	2	17	2	174	193	48
Future Volume (vph)	6	34	4	1	48	124	2	17	2	174	193	48
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.989			0.903			0.988			0.984	
Flt Protected		0.993						0.996			0.979	
Satd. Flow (prot)	0	1708	0	0	1596	0	0	1752	0	0	1669	0
Flt Permitted		0.993						0.996			0.979	
Satd. Flow (perm)	0	1708	0	0	1596	0	0	1752	0	0	1669	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	
Confl. Peds. (#/hr)							4					4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	3%	0%	0%	0%	1%	0%	0%	0%	1%	5%	0%
Adj. Flow (vph)	7	38	4	1	53	138	2	19	2	193	214	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	49	0	0	192	0	0	23	0	0	460	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.989			0.903			0.988			0.984	
Flt Protected		0.993						0.996			0.979	
Satd. Flow (prot)	0	1708	0	0	1596	0	0	1752	0	0	1669	0
Flt Permitted		0.993						0.996			0.979	
Satd. Flow (perm)	0	1708	0	0	1596	0	0	1752	0	0	1669	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		159.6			159.4			207.9			124.6	
Travel Time (s)		11.5			11.5			15.0			9.0	

Intersection Summary	
Area Type:	Other

Intersection has too many legs for HCM analysis.

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	6	34	4	1	48	124	2	17	2	174	193	48
Future Vol, veh/h	6	34	4	1	48	124	2	17	2	174	193	48
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	0	3	0	0	0	1	0	0	0	1	5	0
Mvmt Flow	7	38	4	1	53	138	2	19	2	193	214	53
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	SE	NW	NE	SW
Opposing Approach	NW	SE	SW	NE
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SW	NE	SE	NW
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NE	SW	NW	SE
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.8	9.3	8.2	13.7
HCM LOS	A	A	A	B

Lane	NELn1	NWLn1	SELn1	SWLn1
Vol Left, %	10%	1%	14%	42%
Vol Thru, %	81%	28%	77%	47%
Vol Right, %	10%	72%	9%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	21	173	44	415
LT Vol	2	1	6	174
Through Vol	17	48	34	193
RT Vol	2	124	4	48
Lane Flow Rate	23	192	49	461
Geometry Grp	1	1	1	1
Degree of Util (X)	0.032	0.25	0.072	0.581
Departure Headway (Hd)	4.981	4.682	5.272	4.534
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	712	763	675	793
Service Time	3.056	2.735	3.341	2.582
HCM Lane V/C Ratio	0.032	0.252	0.073	0.581
HCM Control Delay, s/veh	8.2	9.3	8.8	13.7
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.1	1	0.2	3.8



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	535	734	719	186	0	421
Future Volume (vph)	535	734	719	186	0	421
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.969			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3213	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3213	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	594	816	799	207	0	468
Shared Lane Traffic (%)						
Lane Group Flow (vph)	594	816	1006	0	0	468
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.2%		ICU Level of Service C	
Analysis Period (min) 15			



Lane Group	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.969			0.865
Flt Protected	0.950					
Satd. Flow (prot)	1658	3316	3213	0	0	1510
Flt Permitted	0.950					
Satd. Flow (perm)	1658	3316	3213	0	0	1510
Link Speed (k/h)		60	60		50	
Link Distance (m)		213.7	149.4		124.6	
Travel Time (s)		12.8	9.0		9.0	

Intersection Summary	
Area Type:	Other



Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	535	734	719	186	0	421
Future Volume (Veh/h)	535	734	719	186	0	421
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	594	816	799	207	0	468
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		214				
pX, platoon unblocked						
vC, conflicting volume	1006				2499	503
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1006				2499	503
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	13				100	9
cM capacity (veh/h)	684				3	514

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	NE 1
Volume Total	594	408	408	533	473	468
Volume Left	594	0	0	0	0	0
Volume Right	0	0	0	0	207	468
cSH	684	1700	1700	1700	1700	514
Volume to Capacity	0.87	0.24	0.24	0.31	0.28	0.91
Queue Length 95th (m)	78.4	0.0	0.0	0.0	0.0	81.2
Control Delay (s/veh)	34.7	0.0	0.0	0.0	0.0	49.1
Lane LOS	D					E
Approach Delay (s/veh)	14.6			0.0		49.1
Approach LOS						E

Intersection Summary			
Average Delay	15.1		
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	15.1

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	535	734	719	186	0	421
Future Vol, veh/h	535	734	719	186	0	421
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	594	816	799	207	0	468

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1006	0	-	0	-	503
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.14	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.22	-	-	-	-	3.32
Pot Cap-1 Maneuver	684	-	-	-	0	514
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	684	-	-	-	-	514
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	NB	SB	NE
HCM Control Delay, s/v	14.7	0	49
HCM LOS			E

Minor Lane/Major Mvmt	NELn1	NBL	NBT	SBT	SBR
Capacity (veh/h)	514	684	-	-	-
HCM Lane V/C Ratio	0.91	0.869	-	-	-
HCM Control Delay (s/veh)	49	34.9	-	-	-
HCM Lane LOS	E	D	-	-	-
HCM 95th %tile Q(veh)	10.7	10.3	-	-	-

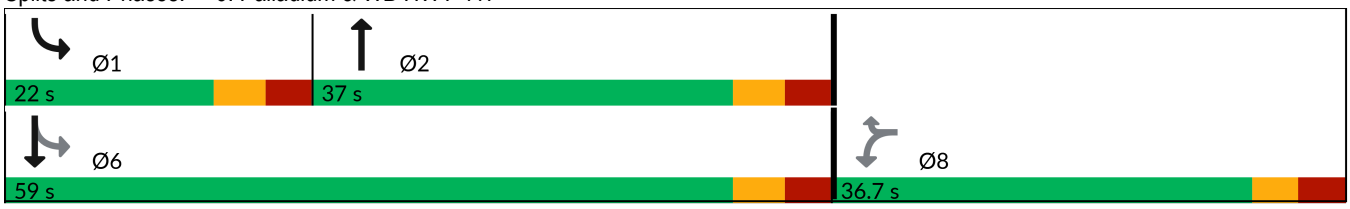


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	506	781	494	0	296	851
Future Volume (vph)	506	781	494	0	296	851
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.239	
Satd. Flow (perm)	3185	1483	3191	0	417	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		435				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Adj. Flow (vph)	562	868	549	0	329	946
Shared Lane Traffic (%)						
Lane Group Flow (vph)	562	868	549	0	329	946
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	15.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases	8	8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		5.0	10.0
Minimum Split (s)	33.0	33.0	39.0		12.1	17.0
Total Split (s)	36.7	36.7	37.0		22.0	59.0
Total Split (%)	38.3%	38.3%	38.7%		23.0%	61.7%
Maximum Green (s)	30.0	30.0	30.0		15.0	52.0
Yellow Time (s)	3.3	3.3	3.7		3.7	3.7
All-Red Time (s)	3.4	3.4	3.3		3.3	3.3
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.7	6.7	7.0		7.0	7.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	None		None	None
Walk Time (s)	7.0	7.0	7.0			
Flash Dont Walk (s)	19.0	19.0	25.0			
Pedestrian Calls (#/hr)	0	0	0			
Act Effct Green (s)	30.1	30.1	19.7		40.8	40.8
Actuated g/C Ratio	0.36	0.36	0.23		0.48	0.48
v/c Ratio	0.49	1.07	0.74		0.81	0.59
Control Delay (s/veh)	24.1	70.2	36.6		31.4	17.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay (s/veh)	24.1	70.2	36.6		31.4	17.5
LOS	C	E	D		C	B
Approach Delay (s/veh)	52.1		36.7			21.2
Approach LOS	D		D			C

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 84.7			
Natural Cycle: 115			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay (s/veh): 37.4		Intersection LOS: D	
Intersection Capacity Utilization 76.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 6: Palladium & WB HWY 417





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%		0%			0%
Storage Length (m)	0.0	125.0		0.0	115.0	
Storage Lanes	2	1		0	1	
Taper Length (m)	15.0				15.0	
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3185	1483	3191	0	1658	3283
Flt Permitted	0.950				0.239	
Satd. Flow (perm)	3185	1483	3191	0	417	3283
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		435				
Link Speed (k/h)	100		70			60
Link Distance (m)	167.3		420.7			213.7
Travel Time (s)	6.0		21.6			12.8

Intersection Summary	
Area Type:	Other



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	562	868	549	329	946
v/c Ratio	0.49	1.07	0.74	0.81	0.59
Control Delay (s/veh)	24.1	70.2	36.6	31.4	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.1	70.2	36.6	31.4	17.5
Queue Length 50th (m)	36.5	~109.9	44.0	32.7	55.6
Queue Length 95th (m)	57.7	#193.8	60.6	#65.3	72.8
Internal Link Dist (m)	143.3		396.7		189.7
Turn Bay Length (m)		125.0		115.0	
Base Capacity (vph)	1133	807	1135	421	2025
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.50	1.08	0.48	0.78	0.47

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	506	781	494	0	296	851
Future Volume (vph)	506	781	494	0	296	851
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.7	6.7	7.0		7.0	7.0
Lane Util. Factor	0.97	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3185	1483	3191		1658	3283
Flt Permitted	0.95	1.00	1.00		0.23	1.00
Satd. Flow (perm)	3185	1483	3191		417	3283
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	562	868	549	0	329	946
RTOR Reduction (vph)	0	280	0	0	0	0
Lane Group Flow (vph)	562	588	549	0	329	946
Heavy Vehicles (%)	3%	2%	6%	4%	2%	3%
Turn Type	Perm	Perm	NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8	8			6	
Actuated Green, G (s)	30.1	30.1	19.7		40.8	40.8
Effective Green, g (s)	30.1	30.1	19.7		40.8	40.8
Actuated g/C Ratio	0.36	0.36	0.23		0.48	0.48
Clearance Time (s)	6.7	6.7	7.0		7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	1133	527	743		407	1583
v/s Ratio Prot			0.17		c0.13	0.29
v/s Ratio Perm	0.18	c0.40			c0.25	
v/c Ratio	0.49	1.11	0.73		0.80	0.59
Uniform Delay, d1	21.3	27.2	30.0		15.7	15.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	74.8	3.8		11.2	0.6
Delay (s)	21.6	102.0	33.9		26.9	16.5
Level of Service	C	F	C		C	B
Approach Delay (s/veh)	70.4		33.9			19.2
Approach LOS	E		C			B

Intersection Summary			
HCM 2000 Control Delay (s/veh)	44.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	84.6	Sum of lost time (s)	20.7
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



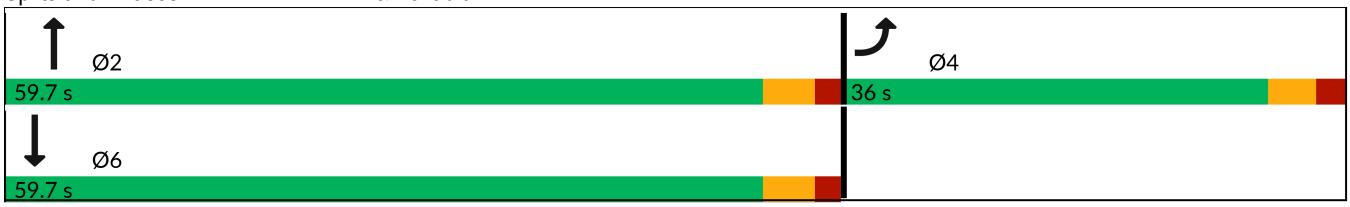
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	256	221	0	429	729	0
Future Volume (vph)	256	221	0	429	729	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	0.937					
Flt Protected	0.974					
Satd. Flow (prot)	1576	0	0	3316	3252	0
Flt Permitted	0.974					
Satd. Flow (perm)	1576	0	0	3316	3252	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	48					
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	2%	2%	2%	4%	3%
Adj. Flow (vph)	284	246	0	477	810	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	530	0	0	477	810	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1			2	2	
Detector Template	Left			Thru	Thru	
Leading Detector (m)	2.0			10.0	10.0	
Trailing Detector (m)	0.0			0.0	0.0	
Detector 1 Position(m)	0.0			0.0	0.0	
Detector 1 Size(m)	2.0			0.6	0.6	
Detector 1 Type	Cl+Ex			Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0			0.0	0.0	
Detector 1 Queue (s)	0.0			0.0	0.0	
Detector 1 Delay (s)	0.0			0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot			NA	NA	
Protected Phases	4			2	6	
Permitted Phases						
Detector Phase	4			2	6	
Switch Phase						



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	10.0			10.0	10.0	
Minimum Split (s)	29.5			23.6	25.0	
Total Split (s)	36.0			59.7	59.7	
Total Split (%)	37.6%			62.4%	62.4%	
Maximum Green (s)	30.5			54.1	54.1	
Yellow Time (s)	3.3			3.7	3.7	
All-Red Time (s)	2.2			1.9	1.9	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.5			5.6	5.6	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	
Recall Mode	None			None	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	28.7			21.1	21.1	
Actuated g/C Ratio	0.47			0.35	0.35	
v/c Ratio	0.69			0.41	0.72	
Control Delay (s/veh)	18.3			16.4	21.5	
Queue Delay	0.0			0.0	0.0	
Total Delay (s/veh)	18.3			16.4	21.5	
LOS	B			B	C	
Approach Delay (s/veh)	18.4			16.4	21.6	
Approach LOS	B			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95.7			
Actuated Cycle Length: 61			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay (s/veh): 19.3		Intersection LOS: B	
Intersection Capacity Utilization 59.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: EB HWY 417 & Palladium





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)	0.0	0.0	0.0			0.0
Storage Lanes	1	0	0			0
Taper Length (m)	15.0		15.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor						
Frt	0.937					
Flt Protected	0.974					
Satd. Flow (prot)	1576	0	0	3316	3252	0
Flt Permitted	0.974					
Satd. Flow (perm)	1576	0	0	3316	3252	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	48					
Link Speed (k/h)	100			120	70	
Link Distance (m)	255.1			189.0	420.7	
Travel Time (s)	9.2			5.7	21.6	

Intersection Summary	
Area Type:	Other



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	530	477	810
v/c Ratio	0.69	0.41	0.72
Control Delay (s/veh)	18.3	16.4	21.5
Queue Delay	0.0	0.0	0.0
Total Delay (s/veh)	18.3	16.4	21.5
Queue Length 50th (m)	39.3	21.1	40.8
Queue Length 95th (m)	#87.1	32.6	59.7
Internal Link Dist (m)	231.1	165.0	396.7
Turn Bay Length (m)			
Base Capacity (vph)	819	2938	2882
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.65	0.16	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	256	221	0	429	729	0
Future Volume (vph)	256	221	0	429	729	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	5.5			5.6	5.6	
Lane Util. Factor	1.00			0.95	0.95	
Frt	0.93			1.00	1.00	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1577			3316	3252	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1577			3316	3252	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	284	246	0	477	810	0
RTOR Reduction (vph)	25	0	0	0	0	0
Lane Group Flow (vph)	505	0	0	477	810	0
Heavy Vehicles (%)	4%	2%	2%	2%	4%	3%
Turn Type	Prot			NA	NA	
Protected Phases	4			2	6	
Permitted Phases						
Actuated Green, G (s)	28.7			21.1	21.1	
Effective Green, g (s)	28.7			21.1	21.1	
Actuated g/C Ratio	0.47			0.35	0.35	
Clearance Time (s)	5.5			5.6	5.6	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	743			1148	1126	
v/s Ratio Prot	c0.32			0.14	c0.25	
v/s Ratio Perm						
v/c Ratio	0.67			0.41	0.71	
Uniform Delay, d1	12.5			15.1	17.3	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	2.4			0.2	2.2	
Delay (s)	15.0			15.4	19.5	
Level of Service	B			B	B	
Approach Delay (s/veh)	15.0			15.4	19.5	
Approach LOS	B			B	B	

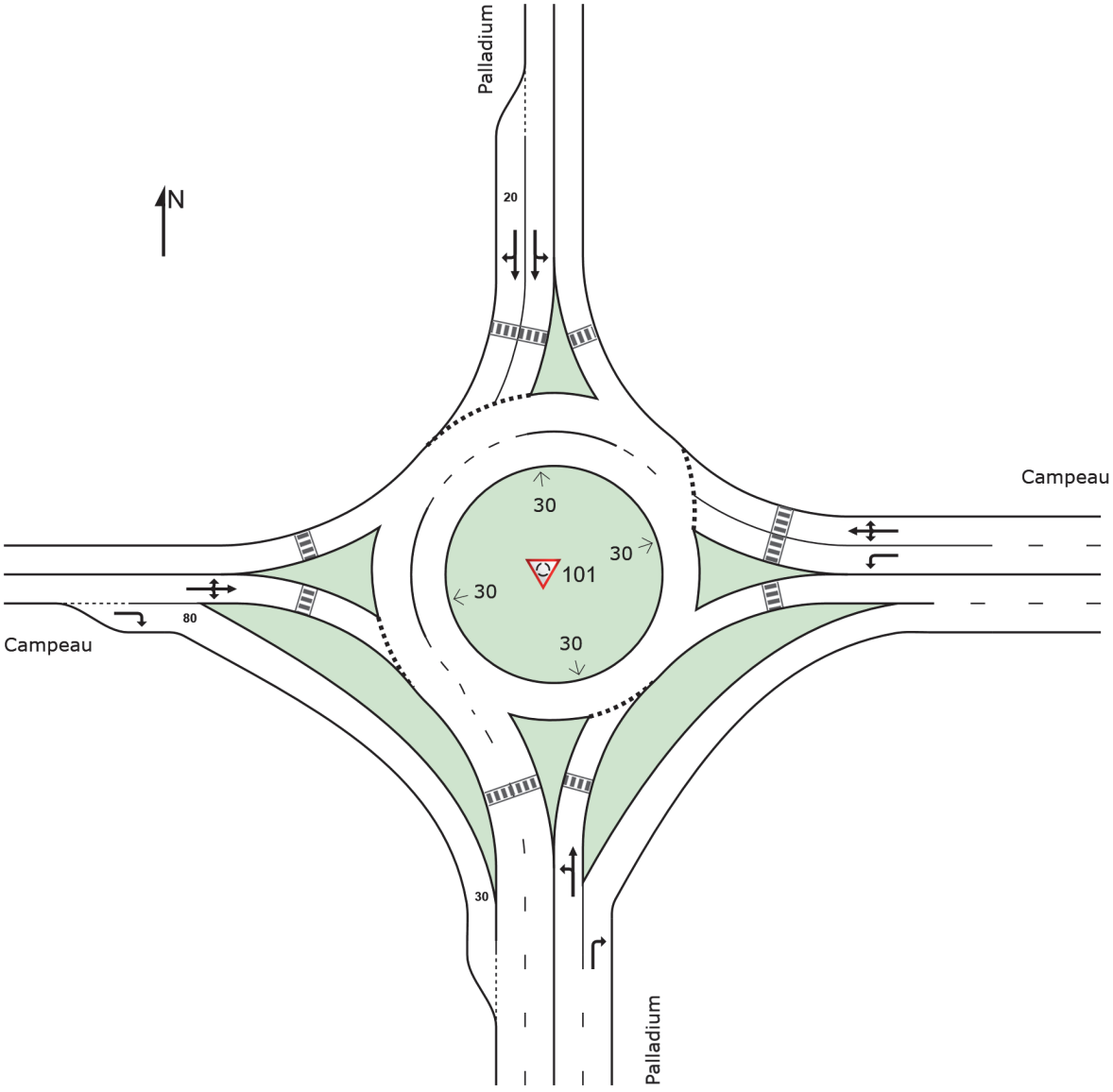
Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	60.9	Sum of lost time (s)	11.1
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

SITE LAYOUT

Site: 101 [Palladium at Campeau FT 2032 PM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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



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MOVEMENT SUMMARY

Site: 101 [Palladium at Campeau FT 2032 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Palladium															
1	L2	All MCs	185	2.0	185	2.0	0.230	10.3	LOS B	1.5	10.4	0.49	0.57	0.49	51.2
2	T1	All MCs	134	2.0	134	2.0	0.230	4.2	LOS A	1.5	10.4	0.49	0.57	0.49	52.2
3	R2	All MCs	365	2.0	365	2.0	0.192	3.0	LOS A	0.0	0.0	0.00	0.40	0.00	56.2
Approach			684	2.0	684	2.0	0.230	5.2	LOS A	1.5	10.4	0.23	0.48	0.23	53.9
East: Campeau															
4	L2	All MCs	315	2.0	315	2.0	0.176	10.5	LOS B	1.1	7.8	0.50	0.61	0.50	50.1
5	T1	All MCs	107	2.0	107	2.0	0.176	4.6	LOS A	1.1	7.8	0.49	0.57	0.49	52.2
6	R2	All MCs	14	2.0	14	2.0	0.176	4.6	LOS A	1.1	7.8	0.49	0.57	0.49	51.9
Approach			436	2.0	436	2.0	0.176	8.9	LOS A	1.1	7.8	0.50	0.60	0.50	50.7
North: Palladium															
7	L2	All MCs	37	2.0	37	2.0	0.132	11.1	LOS B	0.6	3.9	0.52	0.62	0.52	51.5
8	T1	All MCs	222	2.0	222	2.0	0.132	5.5	LOS A	0.6	4.1	0.51	0.56	0.51	52.9
9	R2	All MCs	2	2.0	2	2.0	0.132	5.4	LOS A	0.6	4.1	0.50	0.53	0.50	52.8
Approach			261	2.0	261	2.0	0.132	6.3	LOS A	0.6	4.1	0.51	0.57	0.51	52.7
West: Campeau															
10	L2	All MCs	2	2.0	2	2.0	0.241	10.8	LOS B	1.0	7.4	0.50	0.51	0.50	52.6
11	T1	All MCs	262	2.0	262	2.0	0.241	5.0	LOS A	1.0	7.4	0.50	0.51	0.50	53.5
12	R2	All MCs	56	2.0	56	2.0	0.030	3.7	LOS A	0.0	0.0	0.00	0.42	0.00	55.9
Approach			320	2.0	320	2.0	0.241	4.8	LOS A	1.0	7.4	0.41	0.49	0.41	53.9
All Vehicles			1701	2.0	1701	2.0	0.241	6.3	LOS A	1.5	10.4	0.37	0.53	0.37	52.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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QUEUE ANALYSIS

Site: 101 [Palladium at Campeau FT 2032 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Lane Queues (Distance)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (m)	Back of Queue (m)		Queue at Start of Gap (m)		Cycle-Average Queue (m)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.230	1.000	0.0	4.2	10.4	3.5	8.6	0.7	1.3	0.01	0.02	0.0	NA	NA
Lane 2	Y	0.192	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.230			4.2	10.4	3.5	8.6	0.7	1.3	0.01	0.02			
East: Campeau															
Lane 1		0.176	1.000	0.0	3.0	7.4	2.6	6.4	0.6	1.1	0.01	0.01	0.0	NA	NA
Lane 2		0.176	1.000	0.0	3.1	7.8	2.7	6.8	0.6	1.0	0.01	0.02	0.0	NA	NA
Approach		0.176			3.1	7.8	2.7	6.8	0.6	1.1	0.01	0.02			
North: Palladium															
Lane 1		0.132	1.000	0.0	1.6	3.9	1.5	3.6	0.5	0.8	0.00	0.01	0.0	NA	NA
Lane 2		0.132	1.000	0.0	1.6	4.1	1.5	3.7	0.4	0.8	0.08	0.20	NA	0.0	1
Approach		0.132			1.6	4.1	1.5	3.7	0.5	0.8	0.00	0.01			
West: Campeau															
Lane 1		0.241	1.000	0.0	3.0	7.4	2.5	6.2	0.8	1.5	0.01	0.01	0.0	NA	NA
Lane 2	Y	0.030	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.241			3.0	7.4	2.5	6.2	0.8	1.5	0.01	0.01			
Intersection		0.241			4.2	10.4	3.5	8.6	0.8	1.5	0.01	0.02			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Lane Queues (Vehicles)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (veh)	Back of Queue (veh)		Queue at Start of Gap (veh)		Cycle-Average Queue (veh)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.230	1.000	0.0	0.6	1.5	0.5	1.2	0.1	0.2	0.01	0.02	0.0	NA	NA
Lane 2	Y	0.192	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.230			0.6	1.5	0.5	1.2	0.1	0.2	0.01	0.02			
East: Campeau															
Lane 1		0.176	1.000	0.0	0.4	1.0	0.4	0.9	0.1	0.2	0.01	0.01	0.0	NA	NA
Lane 2		0.176	1.000	0.0	0.4	1.1	0.4	0.9	0.1	0.1	0.01	0.02	0.0	NA	NA
Approach		0.176			0.4	1.1	0.4	0.9	0.1	0.2	0.01	0.02			
North: Palladium															
Lane 1		0.132	1.000	0.0	0.2	0.6	0.2	0.5	0.1	0.1	0.00	0.01	0.0	NA	NA
Lane 2		0.132	1.000	0.0	0.2	0.6	0.2	0.5	0.1	0.1	0.08	0.20	NA	0.0	1

Approach		0.132			0.2	0.6	0.2	0.5	0.1	0.1	0.00	0.01			
West: Campeau															
Lane 1		0.241	1.000	0.0	0.4	1.0	0.4	0.9	0.1	0.2	0.01	0.01	0.0	NA	NA
Lane 2	Y	0.030	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.241			0.4	1.0	0.4	0.9	0.1	0.2	0.01	0.01			
Intersection		0.241			0.6	1.5	0.5	1.2	0.1	0.2	0.01	0.02			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Continuous Lane Performance

Lane Number	Deg. Satn	Unint. Speed	Unint. Travel Delay	Hdwy Spacing		Aver. Vehicle Length	Occup. Time	Space Time	Space Occup. Ratio	Time Occup. Ratio	Density		LOS (Density Method)
	v/c	km/h	sec	sec	m	m	sec	sec	%	%	veh/km	pc/km	
South: Palladium													
Lane 2	0.192	59.9	0.1	9.86	164.1	4.6	0.40	9.47	2.8	4.0	6.1	6.2	LOS A
West: Campeau													
Lane 2	0.030	60.0	0.0	64.29	1071.2	4.6	0.40	63.89	0.4	0.6	0.9	0.9	LOS A

Midblock Effective Detection Zone Length = 2 m

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INTERSECTION SUMMARY

Site: 101 [Palladium at Campeau FT 2032 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	52.8	52.8 km/h
Travel Distance (Total)	veh-km/h	1778.1	2133.7 pers-km/h
Travel Time (Total)	veh-h/h	33.7	40.4 pers-h/h
Desired Speed	km/h	60.0	
Speed Efficiency		0.88	
Travel Time Index		8.67	
Congestion Coefficient		1.14	
Demand Flows (Total)	veh/h	1701	2041 pers/h
Arrival Flows (Total)	veh/h	1701	
Percent Heavy Vehicles (Demand)	%	2.0	
Percent Heavy Vehicles (Arrivals)	%	2.0	
Degree of Saturation		0.241	
Practical Spare Capacity	%	252.7	
Effective Intersection Capacity	veh/h	7057	
Control Delay (Total)	veh-h/h	2.96	3.55 pers-h/h
Control Delay (Average)	sec	6.3	6.3 sec
Control Delay (Worst Lane by MC)	sec	10.7	
Control Delay (Worst Movement by MC)	sec	13.3	13.3 sec
Geometric Delay (Average)	sec	5.1	
Stop-Line Delay (Average)	sec	1.1	
Idling Time (Average)	sec	0.0	
Intersection Level of Service (LOS)		LOS A	
95% Back of Queue - Veh (Worst Lane)	veh	1.5	
95% Back of Queue - Dist (Worst Lane)	m	10.4	
Ave. Que Storage Ratio (Worst Lane)		0.01	
Effective Stops (Total)	veh/h	895	1074 pers/h
Effective Stop Rate		0.53	0.53
Proportion Queued		0.37	0.37
Performance Index		45.6	45.6
Cost (Total)	$/h	1459.93	1459.93 $/h
Fuel Consumption (Total)	L/h	153.5	
Carbon Dioxide (Total)	kg/h	362.6	
Hydrocarbons (Total)	kg/h	0.030	
Carbon Monoxide (Total)	kg/h	0.41	
NOx (Total)	kg/h	0.404	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 1.6 %
Number of Iterations: 5 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.4% 1.5% 0.8%

Intersection Performance - Annual Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Demand Flows (Total)	veh/y	816,480	979,776 pers/y
Delay (Total)	veh-h/y	1,419	1,702 pers-h/y

Effective Stops (Total)	veh/y	429,660	515,592	pers/y
Travel Distance (Total)	veh-km/y	853,485	1,024,182	pers-km/y
Travel Time (Total)	veh-h/y	16,154	19,385	pers-h/y
Cost (Total)	$/y	700,767	700,767	$/y
Fuel Consumption (Total)	L/y	73,661		
Carbon Dioxide (Total)	kg/y	174,047		
Hydrocarbons (Total)	kg/y	14		
Carbon Monoxide (Total)	kg/y	196		
NOx (Total)	kg/y	194		

1 Hours per Year: 480 (Site)

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ROUNDABOUT ANALYSIS

Site: 101 [Palladium at Campeau FT 2032 PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Roundabout Basic Parameters

Location	Name	Central Island Diam m	Circ Width m	Insc Diam m	Entry Radius m	Entry Angle °	Circ Lanes	Entry Lanes	Av.Entry Lane Width m	App. Dist m	Prop Queued Upstr Signal	Extra Bunching %
South	Palladium	30.00	6.00	45.5	20.0	30.0	1	2[18]	4.00	500.0	NA[5]	0.0
East	Campeau	30.00	6.00	45.5	20.0	30.0	1	2	4.00	500.0	NA[5]	0.0
North	Palladium	30.00	9.50	45.5	20.0	30.0	2	2	4.00	500.0	NA[5]	0.0
West	Campeau	30.00	9.50	45.5	20.0	30.0	2	2[18]	4.00	500.0	NA[5]	0.0

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

5 Not Applicable (single Site analysis or unconnected Site in Network analysis).
18 Exclusive slip/bypass lane is included in Entry Lanes count.

Roundabout Entry and Circulating / Exiting Stream Parameters

To Approach	Turn	Lane No	Lane Type	Opng Flow veh/h	Opng Flow pcu/h	In-Bunch Hdwy sec	Prop. Bunched	Cap Const Effect	Priority Sharing	OD Factor	Gap Acc Factor	Follow-up Hdwy (tf) sec	Critical Gap (tc) [Hdwy sec	Dist] m	Ratio tf / tc
South: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
West	L2	1	Dominant	301	304	2.00	0.309	No	Yes[10]	0.967	1.01	1.98	3.67	38.0	0.54
North	T1	1	Dominant	301	304	2.00	0.309	No	Yes[10]	0.967	1.01	1.98	3.67	38.0	0.54
East	R2	2	Continuous												
East: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
South	L2	1	Subdom.	321	324	2.00	0.326	No	Yes[10]	0.961	1.01	2.33	4.31	38.4	0.54
South	L2	2	Dominant	321	324	2.00	0.326	No	Yes[10]	0.961	1.01	1.97	3.64	32.5	0.54
West	T1	2	Dominant	321	324	2.00	0.326	No	Yes[10]	0.961	1.01	1.97	3.64	32.5	0.54
North	R2	2	Dominant	321	324	2.00	0.326	No	Yes[10]	0.961	1.01	1.97	3.64	32.5	0.54
North: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
East	L2	1	Subdom.	607	613	1.26	0.375	No	Yes[10]	0.947	1.01	2.47	3.66	28.1	0.67
South	T1	1	Subdom.	607	613	1.26	0.375	No	Yes[10]	0.947	1.01	2.47	3.66	28.1	0.67
South	T1	2	Dominant	607	613	1.26	0.375	No	Yes[10]	0.947	1.01	2.22	3.29	25.3	0.67
West	R2	2	Dominant	607	613	1.26	0.375	No	Yes[10]	0.947	1.01	2.22	3.29	25.3	0.67
West: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
North	L2	1	Dominant	574	580	1.08	0.317	No	No	0.964	1.01	2.23	3.33	27.6	0.67
East	T1	1	Dominant	574	580	1.08	0.317	No	No	0.964	1.01	2.23	3.33	27.6	0.67
South	R2	2	Continuous												

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

10 Priority sharing means Follow-up Headway plus Intra-bunch Headway is larger than the Critical Gap.

Circulating Lane Flow Rates			
Circ. Lane No	Circulating Flow Rate		
	veh/h	pcu/h	Percent
South: Palladium			
Lane 1	301	304	100.0
Approach	301	304	
East: Campeau			
Lane 1	321	324	100.0
Approach	321	324	
North: Palladium			
Lane 1	196	198	32.3
Lane 2	411	415	67.7
Approach	607	613	
West: Campeau			
Lane 1	317	320	55.3
Lane 2	257	259	44.7
Approach	574	580	

Roundabout Capacity Model: The SIDRA Standard Roundabout Capacity Model option is in use. This model takes into account the total circulating flow as well as the effect of flow distribution in circulating lanes on the entry capacity results.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Lanes)					
Opposed Lane	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium					
1	19.93	4.70	15.23	0.764	0.8
East: Campeau					
1	20.33	5.66	14.67	0.721	1.1
2	19.36	4.87	14.49	0.748	0.8
North: Palladium					
1	13.73	5.12	8.61	0.627	1.5
2	13.06	4.57	8.49	0.650	1.2
West: Campeau					
1	12.72	4.10	8.62	0.678	1.1

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Movements)							
To Approach	Turn	Opsd Lane No	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium							
West	L2	1	19.93	4.70	15.23	0.764	0.8
North	T1	1	19.93	4.70	15.23	0.764	0.8
East: Campeau							
South	L2	1	20.33	5.66	14.67	0.721	1.1
South	L2	2	19.36	4.87	14.49	0.748	0.8
West	T1	2	19.36	4.87	14.49	0.748	0.8
North	R2	2	19.36	4.87	14.49	0.748	0.8
North: Palladium							
East	L2	1	13.73	5.12	8.61	0.627	1.5
South	T1	1	13.73	5.12	8.61	0.627	1.5

South	T1	2	13.06	4.57	8.49	0.650	1.2
West	R2	2	13.06	4.57	8.49	0.650	1.2
West: Campeau							
North	L2	1	12.72	4.10	8.62	0.678	1.1
East	T1	1	12.72	4.10	8.62	0.678	1.1

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

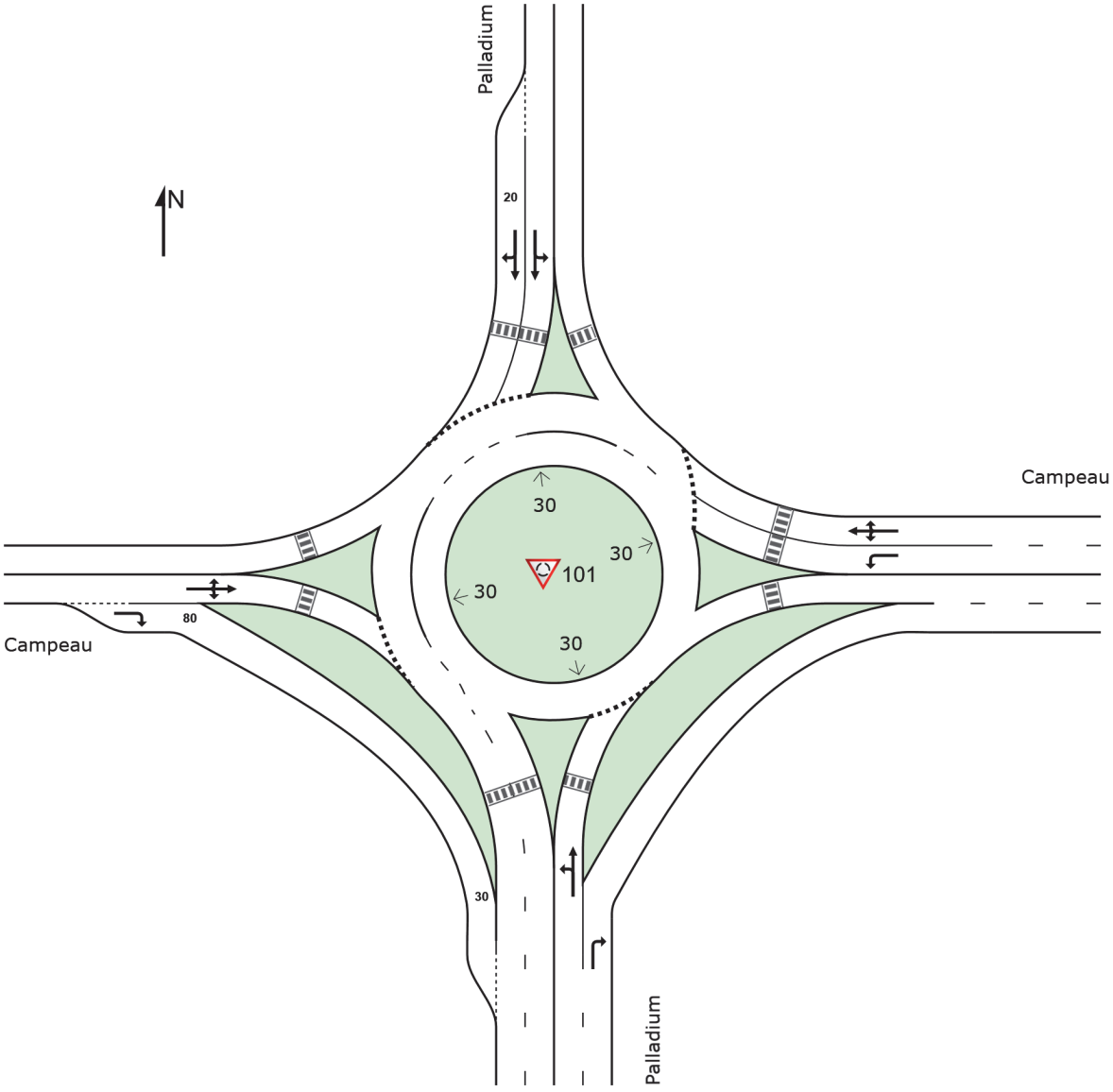
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SITE LAYOUT

Site: 101 [Palladium at Campeau FT 2032 SAT (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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



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MOVEMENT SUMMARY

Site: 101 [Palladium at Campeau FT 2032 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Palladium															
1	L2	All MCs	410	2.0	410	2.0	0.320	10.7	LOS B	2.2	15.8	0.57	0.63	0.57	49.4
2	T1	All MCs	16	2.0	16	2.0	0.320	4.5	LOS A	2.2	15.8	0.57	0.63	0.57	50.3
3	R2	All MCs	289	2.0	289	2.0	0.152	3.0	LOS A	0.0	0.0	0.00	0.40	0.00	56.2
Approach			715	2.0	715	2.0	0.320	7.5	LOS A	2.2	15.8	0.34	0.54	0.34	51.9
East: Campeau															
4	L2	All MCs	304	2.0	304	2.0	0.216	11.2	LOS B	1.5	10.4	0.60	0.64	0.60	49.7
5	T1	All MCs	180	2.0	180	2.0	0.216	5.1	LOS A	1.5	10.4	0.59	0.57	0.59	52.3
6	R2	All MCs	5	2.0	5	2.0	0.216	5.2	LOS A	1.5	10.4	0.59	0.57	0.59	52.0
Approach			489	2.0	489	2.0	0.216	8.9	LOS A	1.5	10.4	0.60	0.62	0.60	50.7
North: Palladium															
7	L2	All MCs	7	2.0	7	2.0	0.011	11.9	LOS B	0.0	0.3	0.59	0.68	0.59	49.7
8	T1	All MCs	11	2.0	11	2.0	0.011	6.1	LOS A	0.1	0.4	0.58	0.58	0.58	52.5
9	R2	All MCs	1	2.0	1	2.0	0.011	6.1	LOS A	0.1	0.4	0.58	0.56	0.58	52.5
Approach			19	2.0	19	2.0	0.011	8.2	LOS A	0.1	0.4	0.58	0.62	0.58	51.4
West: Campeau															
10	L2	All MCs	1	2.0	1	2.0	0.332	10.3	LOS B	1.8	12.6	0.47	0.47	0.47	52.8
11	T1	All MCs	349	2.0	349	2.0	0.332	4.6	LOS A	1.8	12.6	0.47	0.47	0.47	53.8
12	R2	All MCs	203	2.0	203	2.0	0.332	3.7	LOS A	1.8	12.6	0.10	0.43	0.10	55.3
Approach			553	2.0	553	2.0	0.332	4.3	LOS A	1.8	12.6	0.34	0.45	0.34	54.3
All Vehicles			1776	2.0	1776	2.0	0.332	6.9	LOS A	2.2	15.8	0.41	0.53	0.41	52.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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QUEUE ANALYSIS

Site: 101 [Palladium at Campeau FT 2032 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Lane Queues (Distance)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (m)	Back of Queue (m)		Queue at Start of Gap (m)		Cycle-Average Queue (m)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.320	1.000	0.0	6.4	15.8	4.9	12.1	1.3	2.3	0.01	0.03	0.0	NA	NA
Lane 2	Y	0.152	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.320			6.4	15.8	4.9	12.1	1.3	2.3	0.01	0.03			
East: Campeau															
Lane 1		0.216	1.000	0.0	3.9	9.6	3.3	8.3	0.9	1.7	0.01	0.02	0.0	NA	NA
Lane 2		0.216	1.000	0.0	4.2	10.4	3.6	8.8	0.9	1.6	0.01	0.02	0.0	NA	NA
Approach		0.216			4.2	10.4	3.6	8.8	0.9	1.7	0.01	0.02			
North: Palladium															
Lane 1		0.011	1.000	0.0	0.1	0.3	0.1	0.3	0.0	0.1	0.00	0.00	0.0	NA	NA
Lane 2		0.011	1.000	0.0	0.1	0.4	0.1	0.4	0.0	0.1	0.01	0.02	NA	0.0	1
Approach		0.011			0.1	0.4	0.1	0.4	0.0	0.1	0.00	0.00			
West: Campeau															
Lane 1		0.332	1.000	0.0	5.1	12.6	3.8	9.4	0.9	1.6	0.01	0.03	0.0	NA	NA
Lane 2	Y	0.084	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.332			5.1	12.6	3.8	9.4	0.9	1.6	0.01	0.03			
Intersection		0.332			6.4	15.8	4.9	12.1	1.3	2.3	0.01	0.03			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Lane Queues (Vehicles)

Lane Number	Contin. Lane	Deg. Satn	Prog. Factor (Queue)	Overflow Queue (veh)	Back of Queue (veh)		Queue at Start of Gap (veh)		Cycle-Average Queue (veh)		Queue Storage Ratio		Prob. Block.	Prob. SL Ov.	Ov. Lane No.
		v/c			Av.	95%	Av.	95%	Av.	95%	Av.	95%	%	%	
South: Palladium															
Lane 1		0.320	1.000	0.0	0.9	2.2	0.7	1.7	0.2	0.3	0.01	0.03	0.0	NA	NA
Lane 2	Y	0.152	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Approach		0.320			0.9	2.2	0.7	1.7	0.2	0.3	0.01	0.03			
East: Campeau															
Lane 1		0.216	1.000	0.0	0.5	1.4	0.5	1.2	0.1	0.2	0.01	0.02	0.0	NA	NA
Lane 2		0.216	1.000	0.0	0.6	1.5	0.5	1.2	0.1	0.2	0.01	0.02	0.0	NA	NA
Approach		0.216			0.6	1.5	0.5	1.2	0.1	0.2	0.01	0.02			
North: Palladium															
Lane 1		0.011	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.0	NA	NA
Lane 2		0.011	1.000	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.01	0.02	NA	0.0	1

Approach		0.011			0.0	0.1	0.0	0.1	0.0	0.0	0.00	0.00			
West: Campeau															
Lane 1		0.332	1.000	0.0	0.7	1.8	0.5	1.3	0.1	0.2	0.01	0.03	0.0	NA	NA
Lane 2	Y	0.084	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	NA	0.0	1
Approach		0.332			0.7	1.8	0.5	1.3	0.1	0.2	0.01	0.03			
Intersection		0.332			0.9	2.2	0.7	1.7	0.2	0.3	0.01	0.03			

Roundabout Capacity Model: SIDRA Standard.
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Short Lanes are not included in determining Queue Storage Ratios.

Continuous Lane Performance

Lane Number	Deg. Satn	Unint. Speed	Unint. Travel Delay	Hdwy Spacing		Aver. Vehicle Length	Occup. Time	Space Time	Space Occup. Ratio	Time Occup. Ratio	Density		LOS (Density Method)
	v/c	km/h	sec	sec	m	m	sec	sec	%	%	veh/km	pc/km	
South: Palladium													
Lane 2	0.152	59.9	0.0	12.46	207.4	4.6	0.40	12.06	2.2	3.2	4.8	4.9	LOS A
West: Campeau													
Lane 2	0.084	60.0	0.0	22.63	376.9	4.6	0.40	22.23	1.2	1.8	2.7	2.7	LOS A

Midblock Effective Detection Zone Length = 2 m

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INTERSECTION SUMMARY

Site: 101 [Palladium at Campeau FT 2032 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Intersection Performance - Hourly Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Travel Speed (Average)	km/h	52.3	52.3 km/h
Travel Distance (Total)	veh-km/h	1860.3	2232.3 pers-km/h
Travel Time (Total)	veh-h/h	35.6	42.7 pers-h/h
Desired Speed	km/h	60.0	
Speed Efficiency		0.87	
Travel Time Index		8.57	
Congestion Coefficient		1.15	
Demand Flows (Total)	veh/h	1776	2131 pers/h
Arrival Flows (Total)	veh/h	1776	
Percent Heavy Vehicles (Demand)	%	2.0	
Percent Heavy Vehicles (Arrivals)	%	2.0	
Degree of Saturation		0.332	
Practical Spare Capacity	%	156.0	
Effective Intersection Capacity	veh/h	5348	
Control Delay (Total)	veh-h/h	3.39	4.07 pers-h/h
Control Delay (Average)	sec	6.9	6.9 sec
Control Delay (Worst Lane by MC)	sec	11.3	
Control Delay (Worst Movement by MC)	sec	14.8	14.8 sec
Geometric Delay (Average)	sec	5.7	
Stop-Line Delay (Average)	sec	1.2	
Idling Time (Average)	sec	0.0	
Intersection Level of Service (LOS)		LOS A	
95% Back of Queue - Veh (Worst Lane)	veh	2.2	
95% Back of Queue - Dist (Worst Lane)	m	15.8	
Ave. Que Storage Ratio (Worst Lane)		0.01	
Effective Stops (Total)	veh/h	949	1139 pers/h
Effective Stop Rate		0.53	0.53
Proportion Queued		0.41	0.41
Performance Index		50.0	50.0
Cost (Total)	$/h	1549.47	1549.47 $/h
Fuel Consumption (Total)	L/h	164.6	
Carbon Dioxide (Total)	kg/h	388.9	
Hydrocarbons (Total)	kg/h	0.032	
Carbon Monoxide (Total)	kg/h	0.44	
NOx (Total)	kg/h	0.435	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Intersection LOS value for Vehicles is based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand effects.
In Network analysis, Arrival Flows will be reduced if Upstream Capacity Constraint exists.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
Site Model Variability Index (Average value of largest changes in Lane Degrees of Saturation from the third to the last Main (Timing-Capacity) Iterations): 2.2 %
Number of Iterations: 6 (Maximum: 10)
Largest change in Lane Degrees of Saturation for the last three Flow-Capacity Iterations: 2.6% 1.4% 0.7%

Intersection Performance - Annual Values			
Performance Measure	**Vehicles:**	**All MCs**	**Persons**
Demand Flows (Total)	veh/y	852,480	1,022,976 pers/y
Delay (Total)	veh-h/y	1,627	1,952 pers-h/y

Effective Stops (Total)	veh/y	455,674	546,809	pers/y
Travel Distance (Total)	veh-km/y	892,929	1,071,515	pers-km/y
Travel Time (Total)	veh-h/y	17,089	20,506	pers-h/y
Cost (Total)	$/y	743,743	743,743	$/y
Fuel Consumption (Total)	L/y	79,010		
Carbon Dioxide (Total)	kg/y	186,668		
Hydrocarbons (Total)	kg/y	15		
Carbon Monoxide (Total)	kg/y	209		
NOx (Total)	kg/y	209		

1 Hours per Year: 480 (Site)

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ROUNDABOUT ANALYSIS

Site: 101 [Palladium at Campeau FT 2032 SAT (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Roundabout Basic Parameters

Location	Name	Central Island Diam m	Circ Width m	Insc Diam m	Entry Radius m	Entry Angle °	Circ Lanes	Entry Lanes	Av.Entry Lane Width m	App. Dist m	Prop Queued Upstr Signal	Extra Bunching %
South	Palladium	30.00	6.00	45.5	20.0	30.0	1	2[18]	4.00	500.0	NA[5]	0.0
East	Campeau	30.00	6.00	45.5	20.0	30.0	1	2	4.00	500.0	NA[5]	0.0
North	Palladium	30.00	9.50	45.5	20.0	30.0	2	2	4.00	500.0	NA[5]	0.0
West	Campeau	30.00	9.50	45.5	20.0	30.0	2	2[18]	4.00	500.0	NA[5]	0.0

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

5 Not Applicable (single Site analysis or unconnected Site in Network analysis).
18 Exclusive slip/bypass lane is included in Entry Lanes count.

Roundabout Entry and Circulating / Exiting Stream Parameters

To Approach	Turn	Lane No	Lane Type	Opng Flow veh/h	Opng Flow pcu/h	In-Bunch Hdwy sec	Prop. Bunched	Cap Const Effect	Priority Sharing	OD Factor	Gap Acc Factor	Follow-up Hdwy (tf) sec	Critical Gap (tc) [Hdwy sec	Dist] m	Ratio tf / tc
South: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
West	L2	1	Dominant	357	361	2.00	0.355	No	Yes[10]	0.958	1.01	1.96	3.60	38.7	0.54
North	T1	1	Dominant	357	361	2.00	0.355	No	Yes[10]	0.958	1.01	1.96	3.60	38.7	0.54
East	R2	2	Continuous												
East: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
South	L2	1	Subdom.	427	431	2.00	0.409	No	Yes[10]	0.936	1.01	2.31	4.19	30.3	0.55
South	L2	2	Dominant	427	431	2.00	0.409	No	Yes[10]	0.936	1.01	1.93	3.51	25.4	0.55
West	T1	2	Dominant	427	431	2.00	0.409	No	Yes[10]	0.936	1.01	1.93	3.51	25.4	0.55
North	R2	2	Dominant	427	431	2.00	0.409	No	Yes[10]	0.936	1.01	1.93	3.51	25.4	0.55
North: Palladium Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
East	L2	1	Subdom.	894	903	1.37	0.534	No	Yes[10]	0.911	1.01	2.41	3.42	26.7	0.71
South	T1	1	Subdom.	894	903	1.37	0.534	No	Yes[10]	0.911	1.01	2.41	3.42	26.7	0.71
South	T1	2	Dominant	894	903	1.37	0.534	No	Yes[10]	0.911	1.01	2.11	2.99	23.3	0.71
West	R2	2	Dominant	894	903	1.37	0.534	No	Yes[10]	0.911	1.01	2.11	2.99	23.3	0.71
West: Campeau Environment Factor: 1.00 Entry/Circ Flow Adjustment: Medium															
North	L2	1	Dominant	322	325	1.29	0.225	No	No	0.957	1.01	2.32	3.64	25.8	0.64
East	T1	1	Dominant	322	325	1.29	0.225	No	No	0.957	1.01	2.32	3.64	25.8	0.64
South	R2	1	Dominant	322	325	1.29	0.225	No	No	0.957	1.01	2.32	3.64	25.8	0.64
South	R2	2	Continuous												

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

10 Priority sharing means Follow-up Headway plus Intra-bunch Headway is larger than the Critical Gap.

Circulating Lane Flow Rates			
Circ. Lane No	Circulating Flow Rate		
	veh/h	pcu/h	Percent
South: Palladium			
Lane 1	357	361	100.0
Approach	357	361	
East: Campeau			
Lane 1	427	431	100.0
Approach	427	431	
North: Palladium			
Lane 1	217	219	24.3
Lane 2	677	684	75.7
Approach	894	903	
West: Campeau			
Lane 1	226	228	70.1
Lane 2	96	97	29.9
Approach	322	325	

Roundabout Capacity Model: The SIDRA Standard Roundabout Capacity Model option is in use. This model takes into account the total circulating flow as well as the effect of flow distribution in circulating lanes on the entry capacity results.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Lanes)					
Opposed Lane	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium					
1	18.39	5.03	13.36	0.727	1.0
East: Campeau					
1	18.50	6.60	11.90	0.643	1.6
2	17.36	5.65	11.71	0.675	1.2
North: Palladium					
1	13.54	6.71	6.83	0.505	2.5
2	12.54	5.86	6.68	0.533	2.0
West: Campeau					
1	17.97	4.19	13.78	0.767	0.7

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

Gap Acceptance Cycle Parameters (Movements)							
To Approach	Turn	Opsd Lane No	Cycle Time sec	Blocked Time sec	Unblocked Time sec	Unblocked Time Ratio	Minimum Delay sec
South: Palladium							
West	L2	1	18.39	5.03	13.36	0.727	1.0
North	T1	1	18.39	5.03	13.36	0.727	1.0
East: Campeau							
South	L2	1	18.50	6.60	11.90	0.643	1.6
South	L2	2	17.36	5.65	11.71	0.675	1.2
West	T1	2	17.36	5.65	11.71	0.675	1.2
North	R2	2	17.36	5.65	11.71	0.675	1.2
North: Palladium							
East	L2	1	13.54	6.71	6.83	0.505	2.5
South	T1	1	13.54	6.71	6.83	0.505	2.5

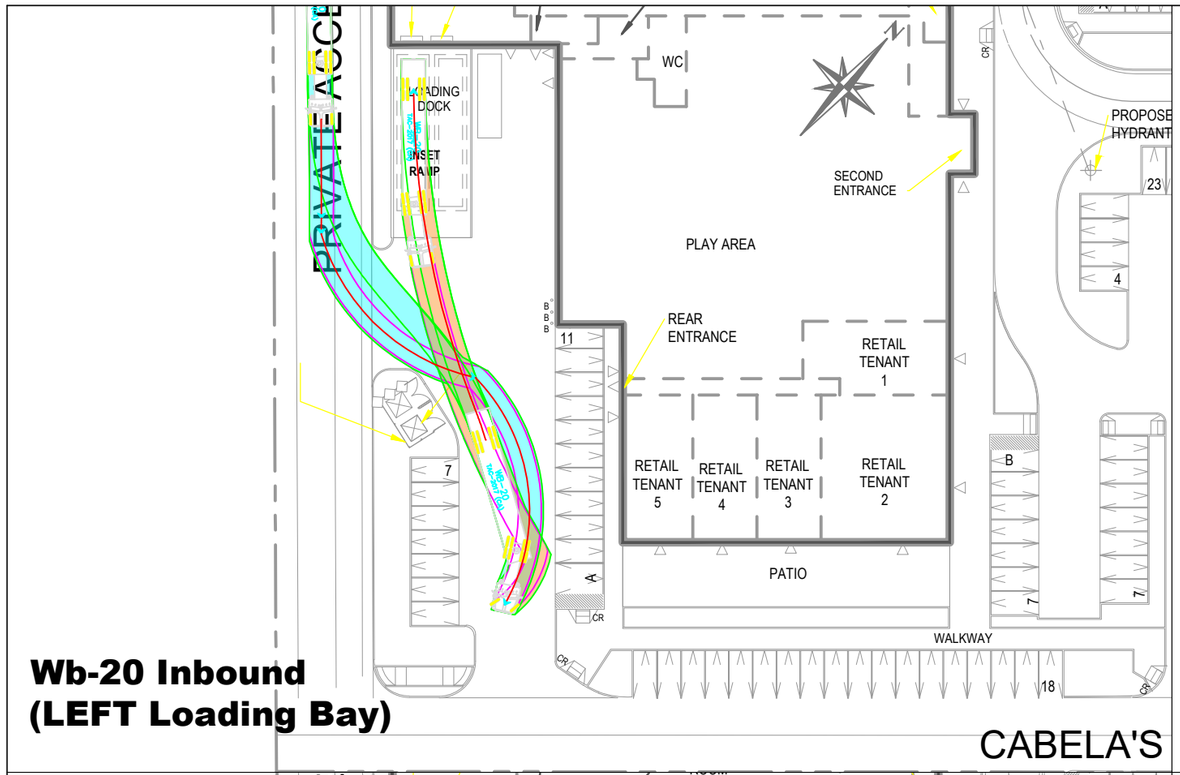
South	T1	2	12.54	5.86	6.68	0.533	2.0
West	R2	2	12.54	5.86	6.68	0.533	2.0
West: Campeau							
North	L2	1	17.97	4.19	13.78	0.767	0.7
East	T1	1	17.97	4.19	13.78	0.767	0.7
South	R2	1	17.97	4.19	13.78	0.767	0.7

Roundabout Capacity Model: SIDRA Standard
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

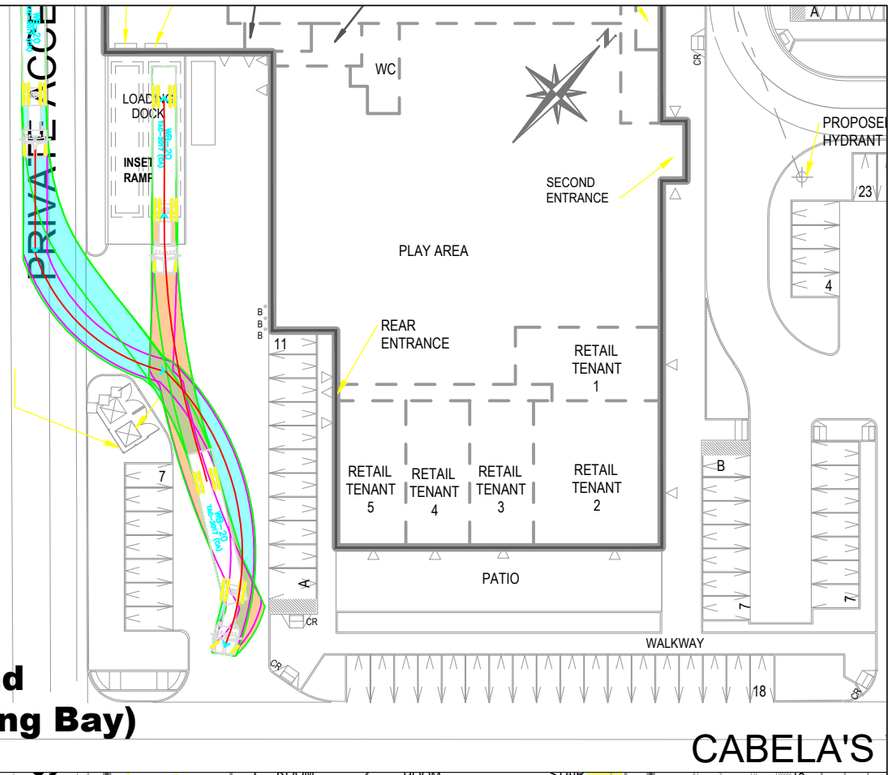
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Appendix M

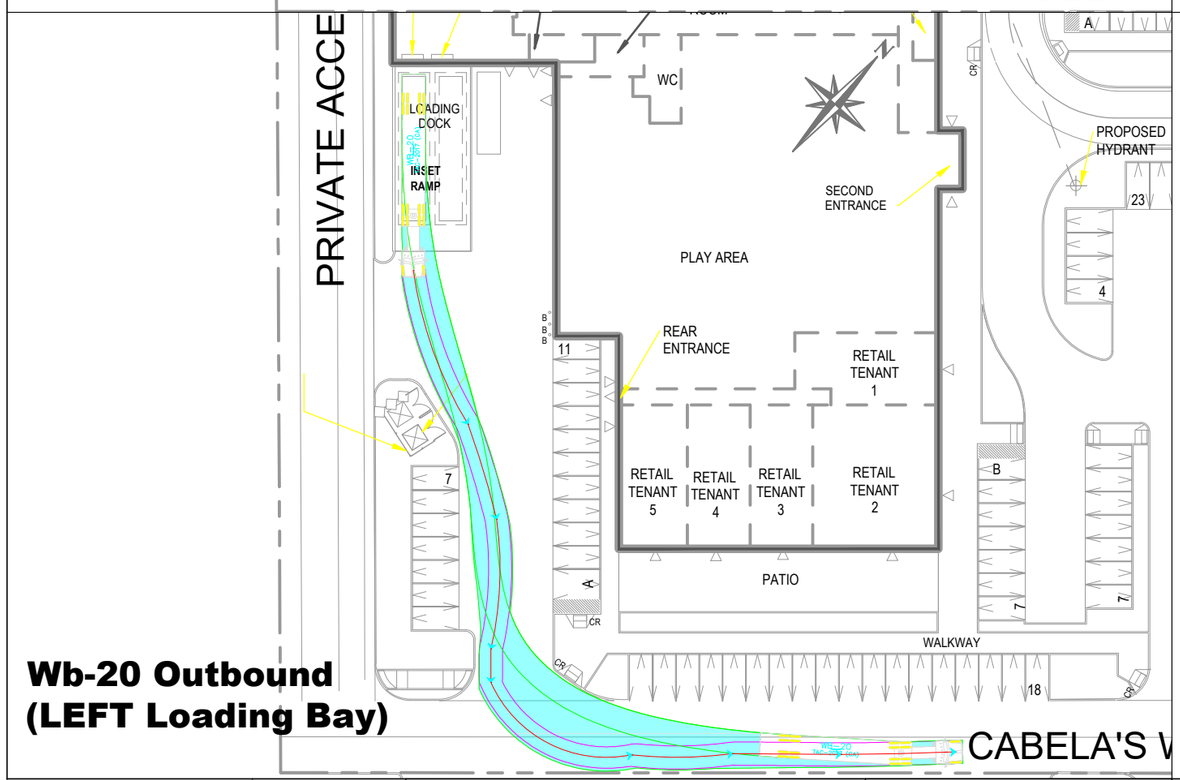
Circulation Plans



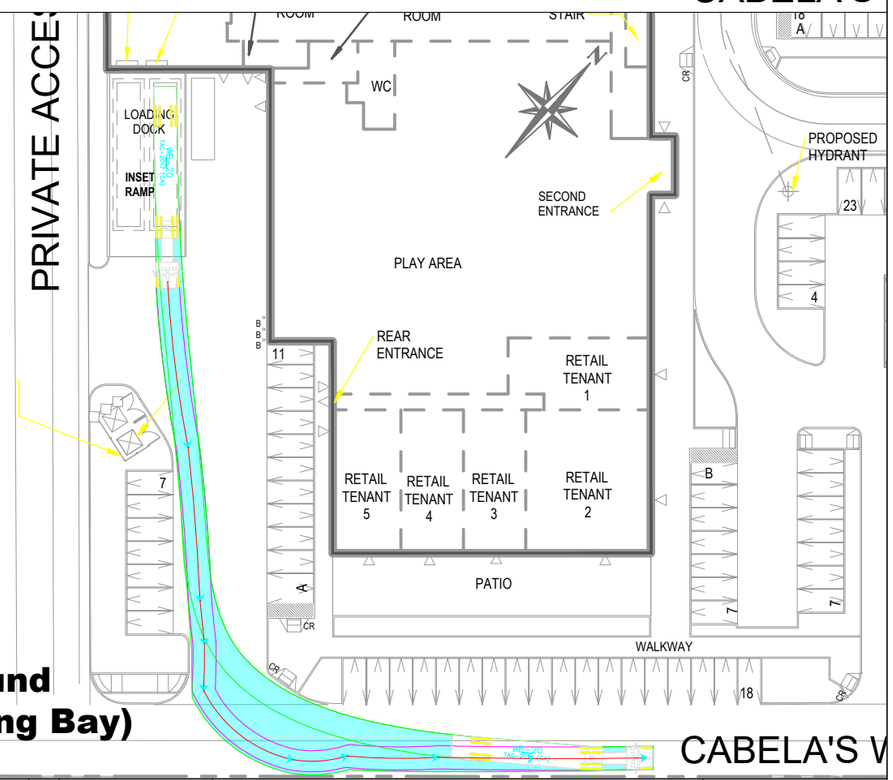
Wb-20 Inbound (LEFT Loading Bay)



Wb-20 Inbound (RIGHT Loading Bay)



Wb-20 Outbound (LEFT Loading Bay)

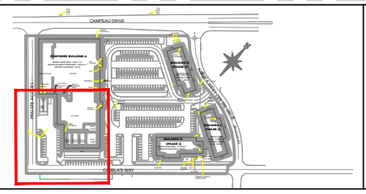


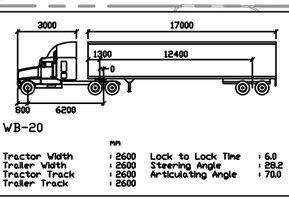
Wb-20 Outbound (RIGHT Loading Bay)

REVIEWED

CONSULTANT

LICENSED PROFESSIONAL ENGINEER Z. DU PROVINCE OF ONTARIO





NO.	REVISIONS	DATE	BY

SCALE: NTS

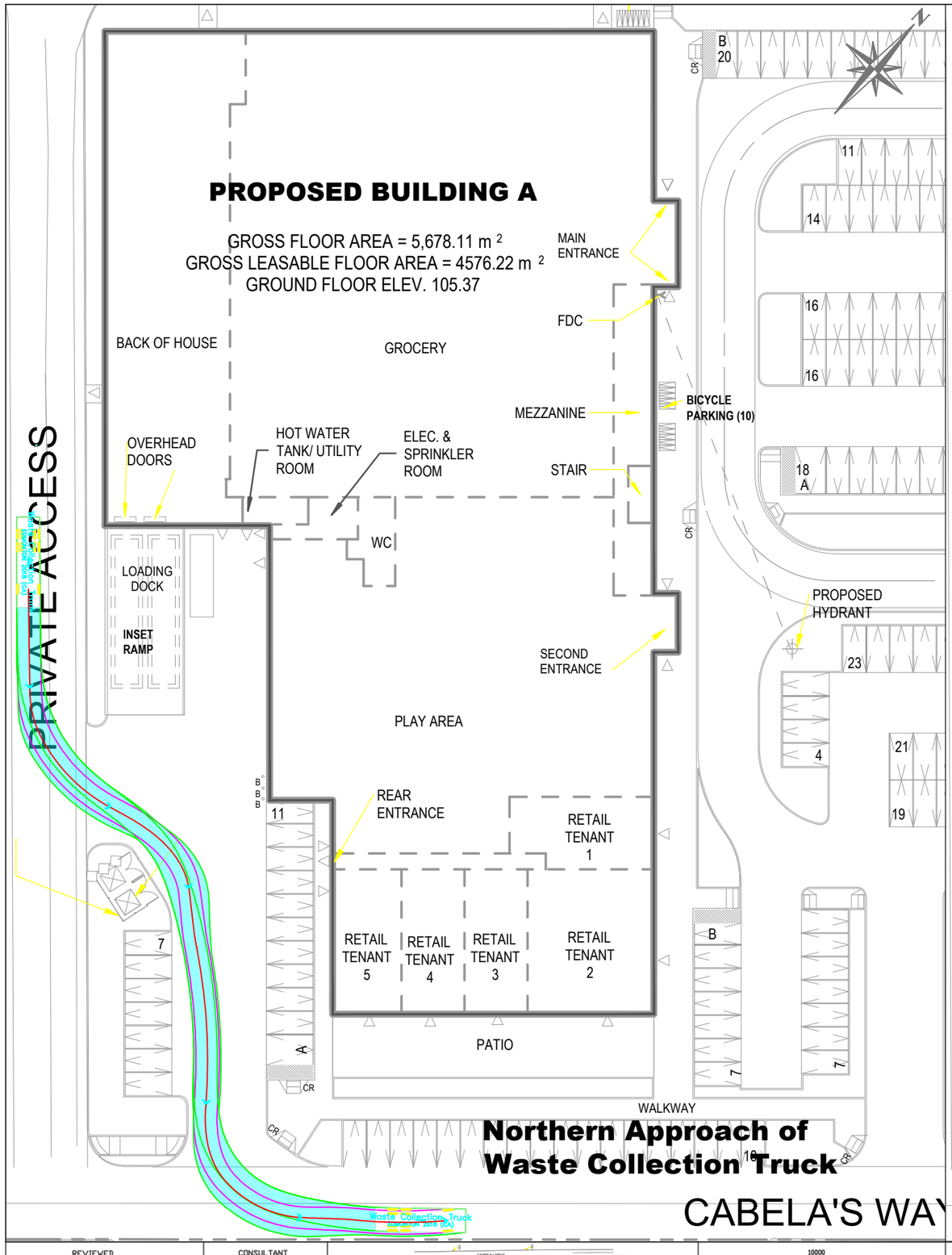
WPE ENGINEERING LTD.

3075 Palladium Drive

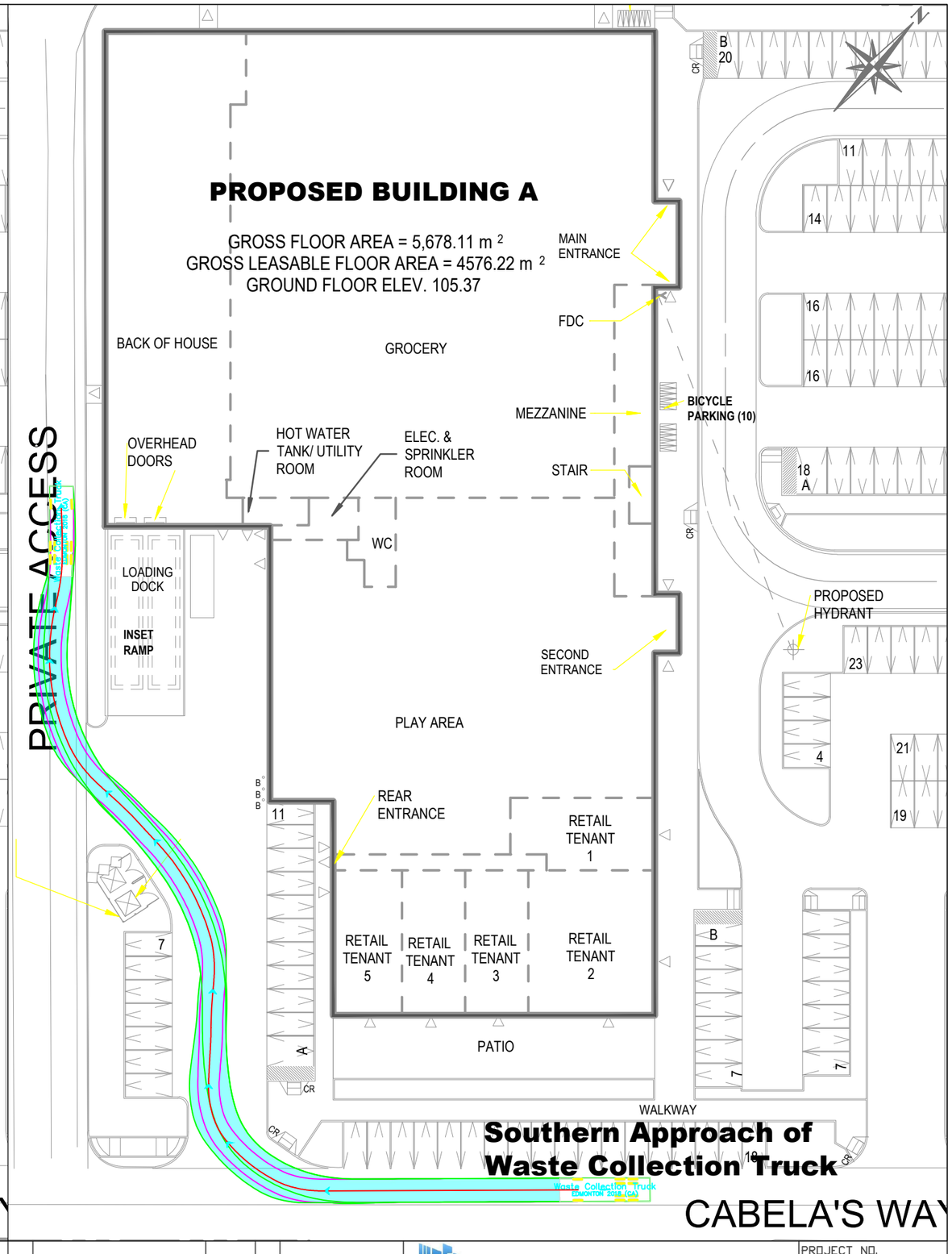
Site Circulation Plan for Wb-20

PROJECT NO. 2034

SHEET 1 OF 3



Northern Approach of Waste Collection Truck

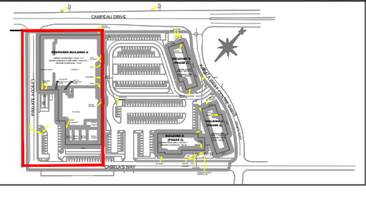


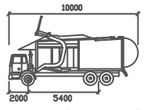
Southern Approach of Waste Collection Truck

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Z. DU
PROVINCE OF ONTARIO





Waste Collection Truck

	mm
Width	2600
Track	2600
Lock to Lock Time	6.0
Steering Angle	27.7

NO.	REVISIONS	DATE	BY

SCALE: NTS

WPE ENGINEERING LTD.

3075 Palladium Drive

Site Circulation Plan for Waste Collection Truck

PROJECT NO.
2034

SHEET
2 OF 3

EAU DRIVE

CLE
KING (6)

MH HYDRO
HTN

PATIO

WASTE
MANAGEMENT

BUILDING B
(PHASE 2)

GROSS FLOOR
AREA = 687.43 m²
GROUND FLOOR
ELEV. 105.30

KANATA WEST CENTRE DRIVE

BICYCLE
PARKING (10)

PROPOSED
HYDRANT

BICYCLE
PARKING (6)

FDC

WASTE
MGMNT

BUILDING C
(PHASE 2)

GROSS FLOOR
AREA = 729.10 m²
GROUND FLOOR
ELEV. 105.30

BUILDING D
(PHASE 2)
GROSS FLOOR AREA = 815.58 m²
GROUND FLOOR ELEV. 105.30

FIRE HYDRANT
TO FDC: 30.6M

MH HYDRO

EXISTING
HYDRANT

HTN

MH HYDRO

COMMUNITY MAILBOX
CONCRETE PAD

CABELA'S WAY

Inbound of Fire Truck

EAU DRIVE

CLE
KING (6)

MH HYDRO
HTN

PATIO

WASTE
MANAGEMENT

BUILDING B
(PHASE 2)

GROSS FLOOR
AREA = 687.43 m²
GROUND FLOOR
ELEV. 105.30

KANATA WEST CENTRE DRIVE

BICYCLE
PARKING (10)

PROPOSED
HYDRANT

BICYCLE
PARKING (6)

FDC

WASTE
MGMNT

BUILDING C
(PHASE 2)

GROSS FLOOR
AREA = 729.10 m²
GROUND FLOOR
ELEV. 105.30

BUILDING D
(PHASE 2)
GROSS FLOOR AREA = 815.58 m²
GROUND FLOOR ELEV. 105.30

FIRE HYDRANT
TO FDC: 30.6M

MH HYDRO

EXISTING
HYDRANT

HTN

MH HYDRO

COMMUNITY MAILBOX
CONCRETE PAD

CABELA'S WAY

Outbound of Fire Truck

REVIEWED

CONSULTANT

LICENSED PROFESSIONAL ENGINEER
Z. DU
PROVINCE OF ONTARIO

13106
2134 6706
Aerial Fire Truck

	mm
Width	2591
Track	2591
Lock to Lock Time	6.0
Steering Angle	33.3

NO.	REVISIONS	DATE	BY
	SCALE: NTS		

WPE ENGINEERING LTD.

3075 Palladium Drive

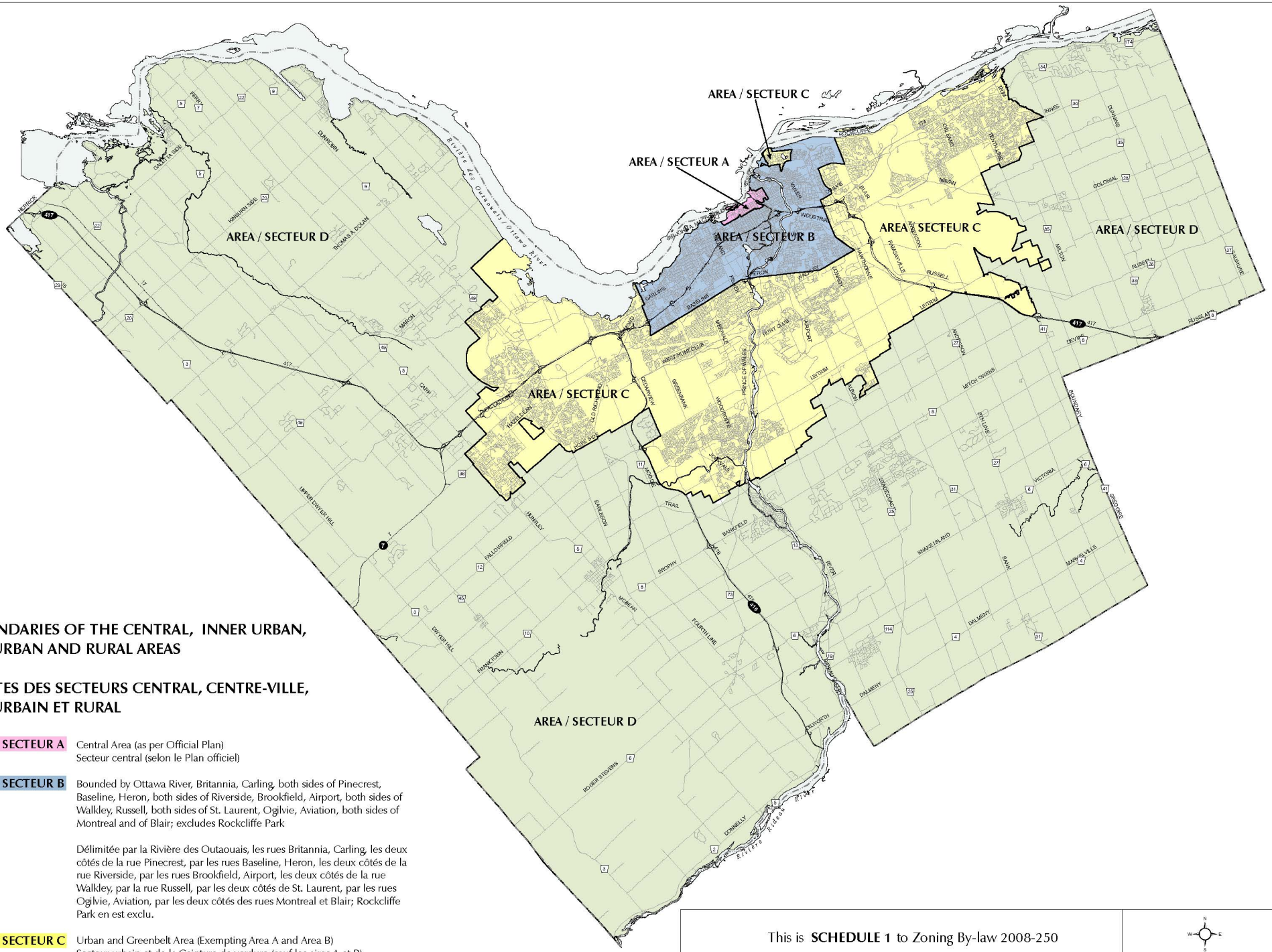
Site Circulation Plan for Fire Truck

PROJECT NO.
2034

SHEET
3 OF 3

Appendix N

City of Ottawa's Zoning By-law



BOUNDARIES OF THE CENTRAL, INNER URBAN, SUBURBAN AND RURAL AREAS

LIMITES DES SECTEURS CENTRAL, CENTRE-VILLE, SUBURBAIN ET RURAL

AREA / SECTEUR A Central Area (as per Official Plan)
Secteur central (selon le Plan officiel)

AREA / SECTEUR B Bounded by Ottawa River, Britannia, Carling, both sides of Pinecrest, Baseline, Heron, both sides of Riverside, Brookfield, Airport, both sides of Walkley, Russell, both sides of St. Laurent, Ogilvie, Aviation, both sides of Montreal and of Blair; excludes Rockcliffe Park

Délimitée par la Rivière des Outaouais, les rues Britannia, Carling, les deux côtés de la rue Pinecrest, par les rues Baseline, Heron, les deux côtés de la rue Riverside, par les rues Brookfield, Airport, les deux côtés de la rue Walkley, par la rue Russell, par les deux côtés de St. Laurent, par les rues Ogilvie, Aviation, par les deux côtés des rues Montreal et Blair; Rockcliffe Park en est exclu.

AREA / SECTEUR C Urban and Greenbelt Area (Exempting Area A and Area B)
Secteur urbain et de la Ceinture de verdure (sauf les aires A et B)

AREA / SECTEUR D Rural Area
Secteur rural

This is **SCHEDULE 1** to Zoning By-law 2008-250

ANNEXE 1 au Règlement de zonage no 2008-250

M:\Zoning_Bylaw\Schedules\Originals\schedule_001\Schedule_1_June_2018.mxd

NOT TO SCALE / NON À L'ÉCHELLE

Ottawa

TABLE 101 – MINIMUM PARKING SPACE RATES

	I	II	III	IV	V
Row	**Land Use**	**Area X and Y on Schedule 1A**	**Area B on Schedule 1A**	**Area C on Schedule 1A**	**Area D on Schedule 1A**
N83	Shopping Centre	1.7 per 100 m^2 of gross leasable floor area	3.4 per 100 m^2 of gross leasable floor area	3.6 per 100 m^2 of gross leasable floor area	3.6 per 100 m^2 of gross leasable floor area
N84	Personal brewing facility (By-law 2019-41)	0.5 per 100 m^2 of gross floor area	1 per 100 m^2 of gross floor area	2.5 per 100 m^2 of gross floor area	2.5 per 100 m^2 of gross floor area
N85	Snow Disposal Facility	None	None	None	None
N86	Solid Waste Disposal Facility	None	None	None	None
N87	Sports Arena	1 per 8 fixed seats	1 per 4 fixed seats	1 per 4 fixed seats	1 per 4 fixed seats
N88	Storage Yard	0.25 per 100 m^2 of gross floor area	0.5 per 100 m^2 of gross floor area	1 per 100 m^2 of gross floor area	1 per 100 m^2 of gross floor area
N89 (By-law 2020-300)	Technology Industry[1]	0.4 per 100 m^2 for the first 5000 m^2 of gross floor area	0.8 per 100 m^2 for the first 5000 m^2 of gross floor area	0.8 per 100 m^2 for the first 5000 m^2 of gross floor area	0.8 per 100 m^2 for the first 5000 m^2 of gross floor area
		0.4 per 100 m^2 above 5000 m^2 of gross floor area	0.4 per 100 m^2 above 5000 m^2 of gross floor area	0.4 per 100 m^2 above 5000 m^2 of gross floor area	0.4 per 100 m^2 above 5000 m^2 of gross floor area
N90	Theatre	1 per 16 fixed seats	1 per 8 fixed seats	1 per 4 fixed seats	1 per 4 fixed seats
N91	Train Station	0.25 per 100 m^2 of gross floor area	0.5 per 100 m^2 of gross floor area	0.5 per 100 m^2 of gross floor area	0.5 per 100 m^2 of gross floor area
N92	Training Centre	0.9 per 100 m^2 of gross floor area	1.8 per 100 m^2 of gross floor area	2.4 per 100 m^2 of gross floor area	2.4 per 100 m^2 of gross floor area
N93	Truck Transport Terminal	0.4 per 100 m^2 of gross floor area	0.8 per 100 m^2 of gross floor area	0.8 per 100 m^2 of gross floor area	0.8 per 100 m^2 of gross floor area
N94	Utility Installation	0.4 per 100 m^2 of gross floor area	0.8 per 100 m^2 of gross floor area	0.8 per 100 m^2 of gross floor area	0.8 per 100 m^2 of gross floor area
N95 (By-law 2020-300)	Warehouse[1]	0.4 per 100 m^2 for the first 5000 m^2 of gross floor area	0.8 per 100 m^2 for the first 5000 m^2 of gross floor area	0.8 per 100 m^2 for the first 5000 m^2 of gross floor area	0.8 per 100 m^2 for the first 5000 m^2 of gross floor area
		0.4 per 100 m^2 above 5000 m^2 of gross floor area	0.4 per 100 m^2 above 5000 m^2 of gross floor area	0.4 per 100 m^2 above 5000 m^2 of gross floor area	0.4 per 100 m^2 above 5000 m^2 of gross floor area
N96	Wayside Pit	None	None	None	None
N97	Wayside Quarry	None	None	None	None

Bicycle Parking Space Rates and Provisions (Section 111)

111. Minimum Parking Rates

(1) Bicycle parking must be provided for the land uses and at the rate set out in Table 111A for lands located in Areas A (Central Area), B (Inner City Area) and C (Suburban Area) on Schedule 1 and in the villages of Ashton, Burritt's Rapids, Carlsbad Springs, Carp, Constance Bay, Cumberland, Dunrobin, Fallowfield, Fitzroy Harbour, Galetta, Greely, Kars, Kenmore, Kinburn, Manotick, Marionville, Metcalfe, Munster, Navan, North Gower, Notre Dame des Champs, Osgoode, Richmond, Sarsfield, Vars and Vernon located in Area D on Schedule 1.

(2) Where a building contains more than one use, bicycle parking must be provided for that building in accordance with the proportion of the building occupied by each use and the rate set out in Table 111A for each use.

TABLE 111A - BICYCLE PARKING SPACE RATES

I LAND USE	II MINIMUM NUMBER OF SPACES REQUIRED
(a) retirement home; retirement home, converted; rooming house; rooming unit other than within a post secondary educational facility (By-law 2018-206)	0.25 per dwelling unit or rooming unit
(b) (i) apartment building, low rise; apartment dwelling, mid rise; apartment dwelling, high rise, dwelling unit in the same building as a non-residential use; stacked dwelling without a garage or carport for each dwelling unit (By-law 2014-292) (ii) stacked dwellings with a garage or carport for each dwelling unit (OMB File #PL080959 issued November 5, 2009)	0.50 per dwelling unit no bicycle parking required (OMB File #PL080959 issued November 9, 2009)
(c) rooming unit or dwelling unit within a post secondary educational facility	0.75 per dwelling unit or rooming unit
(d) school	1 per 100 m^2 of gross floor area
(e) bank; convenience store; day care; office; post office; post secondary educational institution; restaurant; retail food store; retail store	1 per 250 m^2 of gross floor area
(f) library; municipal service centre; personal service business; retail food store 8,000 m^2 of gross floor area or greater; retail store 8,000 m^2 of gross floor area or greater; service or repair shop; shopping centre	1 per 500 m^2 of gross floor area
(g) airport; bus station; hospital; hotel; light industrial use; medical facility; technology industry; train station	1 per 1000 m^2 of gross floor area
(h) animal hospital; storage yard; truck transport terminal; warehouse	1 per 2000 m^2 of gross floor area
(i) all other non-residential uses	1 per 1500 m^2 of gross floor area

Appendix O

TDM Measures Checklist

TDM-Supportive Development Design and Infrastructure Checklist:
Non-Residential Developments (office, institutional, retail or industrial)

Legend

REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	1.	**WALKING & CYCLING: ROUTES**	
	1.1	**Building location & access points**	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☐
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☐
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☐
	1.2	**Facilities for walking & cycling**	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☐
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☑

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians *(see Official Plan policy 4.3.11)*	☑
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☐
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☐
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	☐
	1.3	**Amenities for walking & cycling**	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☐
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	☐

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☑
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☑
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☑
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met), plus the expected peak number of customer/visitor cyclists	☐
BETTER	2.1.5	Provide bicycle parking spaces equivalent to the expected number of commuter and customer/visitor cyclists, plus an additional buffer (e.g. 25 percent extra) to encourage other cyclists and ensure adequate capacity in peak cycling season	☐
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single office building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☑
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met)	☐
	2.3	**Shower & change facilities**	
BASIC	2.3.1	Provide shower and change facilities for the use of active commuters	☐
BETTER	2.3.2	In addition to shower and change facilities, provide dedicated lockers, grooming stations, drying racks and laundry facilities for the use of active commuters	☐
	2.4	**Bicycle repair station**	
BETTER	2.4.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☐

	TDM-supportive design & infrastructure measures: *Non-residential developments*		Check if completed & add descriptions, explanations or plan/drawing references
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐
	4.2	**Carpool parking**	
BASIC	4.2.1	Provide signed parking spaces for carpools in a priority location close to a major building entrance, sufficient in number to accommodate the mode share target for carpools	☐
BETTER	4.2.2	At large developments, provide spaces for carpools in a separate, access-controlled parking area to simplify enforcement	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide carshare parking spaces in permitted non-residential zones, occupying either required or provided parking spaces *(see Zoning By-law Section 94)*	☐
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	6.	**PARKING**	
	6.1	**Number of parking spaces**	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☐
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☐
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☐
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐
	6.2	**Separate long-term & short-term parking areas**	
BETTER	6.2.1	Separate short-term and long-term parking areas using signage or physical barriers, to permit access controls and simplify enforcement (i.e. to discourage employees from parking in visitor spaces, and vice versa)	☐
	7.	**OTHER**	
	7.1	**On-site amenities to minimize off-site trips**	
BETTER	7.1.1	Provide on-site amenities to minimize mid-day or mid-commute errands	☐

TDM-Supportive Development Design and Infrastructure Checklist:
Residential Developments (multi-family or condominium)

Legend

REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	1.	**WALKING & CYCLING: ROUTES**	
	1.1	**Building location & access points**	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☐
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☐
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☐
	1.2	**Facilities for walking & cycling**	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☐
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☐

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks *(see Official Plan policy 4.3.10)*	☐
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps *(see Official Plan policy 4.3.10)*	☐
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians *(see Official Plan policy 4.3.11)*	☐
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☐
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☐
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	☐
	1.3	**Amenities for walking & cycling**	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☐
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	☐

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☐
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☐
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☐
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of resident-owned bicycles, plus the expected peak number of visitor cyclists	☐
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single residential building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☐
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments	☐
	2.3	**Bicycle repair station**	
BETTER	2.3.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☐
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐

	TDM-supportive design & infrastructure measures: *Residential developments*		Check if completed & add descriptions, explanations or plan/drawing references
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses *(see Zoning By-law Section 94)*	☐
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐
	6.	**PARKING**	
	6.1	**Number of parking spaces**	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☐
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☐
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☐
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐
	6.2	**Separate long-term & short-term parking areas**	
BETTER	6.2.1	Provide separate areas for short-term and long-term parking (using signage or physical barriers) to permit access controls and simplify enforcement (i.e. to discourage residents from parking in visitor spaces, and vice versa)	☐

			TDM measures: *Residential developments*	Check if proposed & add descriptions
		6.	**TDM MARKETING & COMMUNICATIONS**	
		6.1	**Multimodal travel information**	
BASIC	★	6.1.1	Provide a multimodal travel option information package to new residents	☑
		6.2	**Personalized trip planning**	
BETTER	★	6.2.1	Offer personalized trip planning to new residents	☐

Appendix P

Signal Warrant Sheets

Background 2027

Junction	Cabela's Way @ Palladium Drive								
Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance			Signal
						Sectional		Entire %	
		Free	Restricted	Free	Restricted	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	955	106%	54%	NO
	B. Vehicle volume, along minor streets (average hour)	120	255	120	255	137	54%		
2. Delay to Cross Traffic	A. Vehicle volume, major street (average hour)	480	720	600	900	818	91%	0%	NO
	B. Combined vehicle and pedestrian crossing from minor streets (average hour)	50	75	50	75	0	0%		

Notes:
1. Refer to OTM Book 12
2. Lower section percentage governs justification
3. AHV = PM PHV / 2
4. 50% increase to 1B threshold due to T-intersection

Junction	Kanata West Centre Drive @ Campeau Drive								
Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance			Signal
						Sectional		Entire %	
		Free	Restricted	Free	Restricted	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	156	17%	17%	NO
	B. Vehicle volume, along minor streets (average hour)	120	255	120	255	54	21%		
2. Delay to Cross Traffic	A. Vehicle volume, major street (average hour)	480	720	600	900	102	11%	0%	NO
	B. Combined vehicle and pedestrian crossing from minor streets (average hour)	50	75	50	75	0	0%		

Notes:
1. Refer to OTM Book 12
2. Lower section percentage governs justification
3. AHV = PM PHV / 2
4. 50% increase to 1B threshold due to T-intersection

Background 2032

Junction	Cabela's Way @ Palladium Drive								
Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance			Signal
						Sectional		Entire %	
		Free	Restricted	Free	Restricted	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	989	110%	54%	NO
	B. Vehicle volume, along minor streets (average hour)	120	255	120	255	137	54%		
2. Delay to Cross Traffic	A. Vehicle volume, major street (average hour)	480	720	600	900	852	95%	0%	NO
	B. Combined vehicle and pedestrian crossing from minor streets (average hour)	50	75	50	75	0	0%		

Notes:
1. Refer to OTM Book 12
2. Lower section percentage governs justification
3. AHV = PM PHV / 2
4. 50% increase to 1B threshold due to T-intersection

Junction	Kanata West Centre Drive @ Campeau Drive								
Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance			Signal
						Sectional		Entire %	
		Free	Restricted	Free	Restricted	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	159	18%	18%	NO
	B. Vehicle volume, along minor streets (average hour)	120	255	120	255	54	21%		
2. Delay to Cross Traffic	A. Vehicle volume, major street (average hour)	480	720	600	900	105	12%	0%	NO
	B. Combined vehicle and pedestrian crossing from minor streets (average hour)	50	75	50	75	0	0%		

Notes:
1. Refer to OTM Book 12
2. Lower section percentage governs justification
3. AHV = PM PHV / 2
4. 50% increase to 1B threshold due to T-intersection

Total 2027

Junction	Cabela's Way @ Palladium Drive								
Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance			Signal
						Sectional		Entire %	
		Free	Restricted	Free	Restricted	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1087	121%	88%	NO
	B. Vehicle volume, along minor streets (average hour)	120	255	120	255	224	88%		
2. Delay to Cross Traffic	A. Vehicle volume, major street (average hour)	480	720	600	900	863	96%	0%	NO
	B. Combined vehicle and pedestrian crossing from minor streets (average hour)	50	75	50	75	0	0%		

Notes:
1. Refer to OTM Book 12
2. Lower section percentage governs justification
3. AHV = PM PHV / 2
4. 50% increase to 1B threshold due to T-intersection

Junction	Kanata West Centre Drive @ Campeau Drive								
Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance			Signal
						Sectional		Entire %	
		Free	Restricted	Free	Restricted	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	243	27%	27%	NO
	B. Vehicle volume, along minor streets (average hour)	120	255	120	255	114	45%		
2. Delay to Cross Traffic	A. Vehicle volume, major street (average hour)	480	720	600	900	129	14%	0%	NO
	B. Combined vehicle and pedestrian crossing from minor streets (average hour)	50	75	50	75	0	0%		

Notes:
1. Refer to OTM Book 12
2. Lower section percentage governs justification
3. AHV = PM PHV / 2
4. 50% increase to 1B threshold due to T-intersection

Total 2032

Junction	Cabela's Way @ Palladium Drive								
Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance			Signal
						Sectional		Entire %	
		Free	Restricted	Free	Restricted	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1122	125%	88%	NO
	B. Vehicle volume, along minor streets (average hour)	120	255	120	255	224	88%		
2. Delay to Cross Traffic	A. Vehicle volume, major street (average hour)	480	720	600	900	898	100%	0%	NO
	B. Combined vehicle and pedestrian crossing from minor streets (average hour)	50	75	50	75	0	0%		

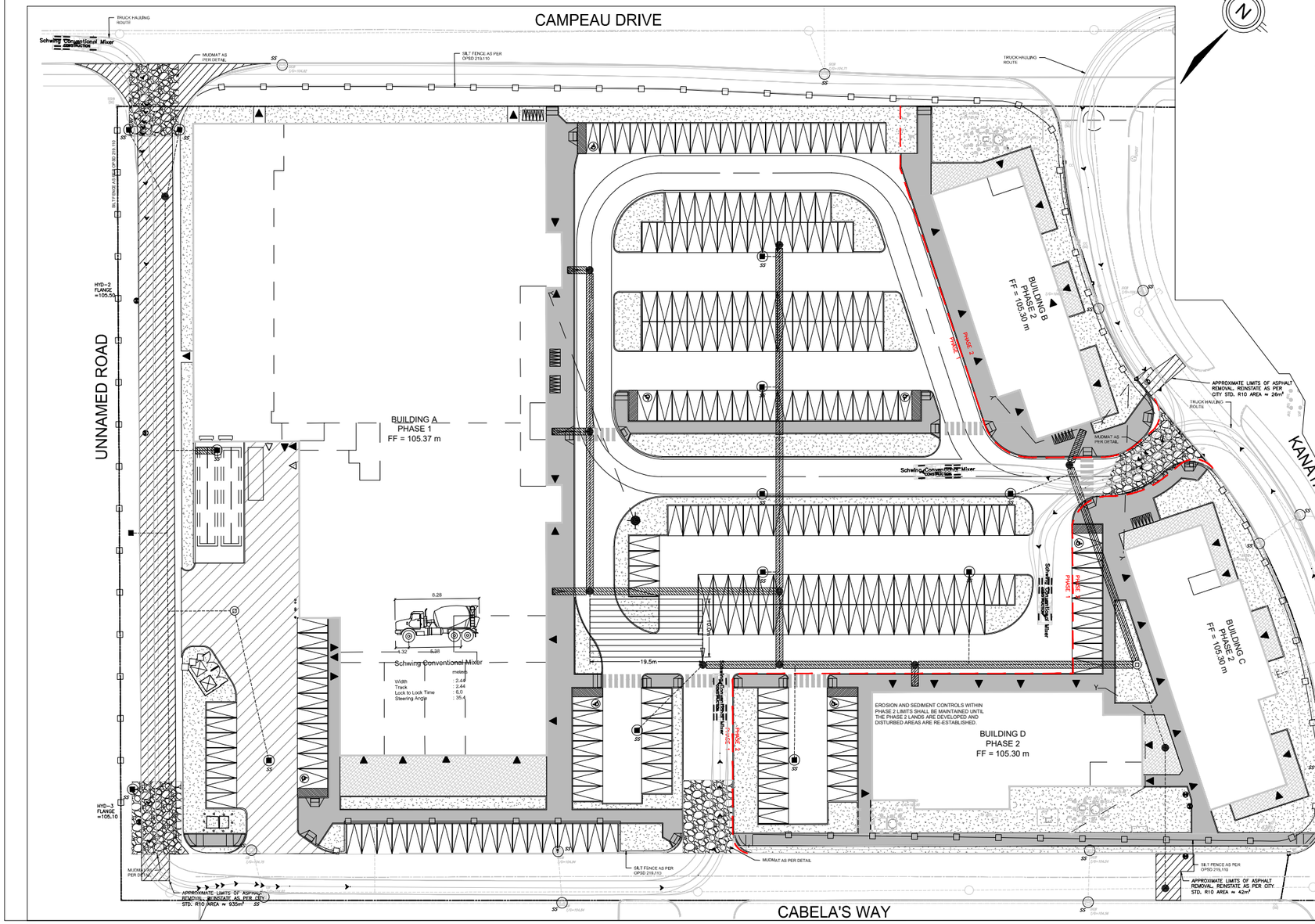
Notes:
1. Refer to OTM Book 12
2. Lower section percentage governs justification
3. AHV = PM PHV / 2
4. 50% increase to 1B threshold due to T-intersection

Junction	Kanata West Centre Drive @ Campeau Drive								
Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance			Signal
						Sectional		Entire %	
		Free	Restricted	Free	Restricted	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	243	27%	27%	NO
	B. Vehicle volume, along minor streets (average hour)	120	255	120	255	114	45%		
2. Delay to Cross Traffic	A. Vehicle volume, major street (average hour)	480	720	600	900	129	14%	0%	NO
	B. Combined vehicle and pedestrian crossing from minor streets (average hour)	50	75	50	75	0	0%		

Notes:
1. Refer to OTM Book 12
2. Lower section percentage governs justification
3. AHV = PM PHV / 2
4. 50% increase to 1B threshold due to T-intersection

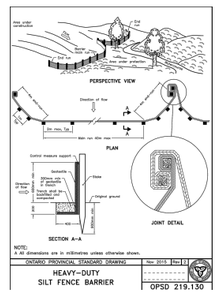
Appendix Q

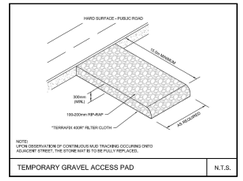
Traffic Control Plans



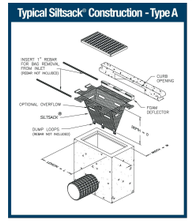
LEGEND

- PROPERTY LINE
- PHASING LIMIT
- EXISTING CATCHBASIN
- EXISTING STORM SEWER & MANHOLE
- SILT SACK (OR APPROVED EQUIVALENT). SEE DETAILS ON DWG. 23027-N1
- PROPOSED CATCH BASIN
- PROPOSED SILT FENCE
- PROPOSED STORM SEWER & MANHOLE
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED HYDRANT
- PROPOSED MUDMAT

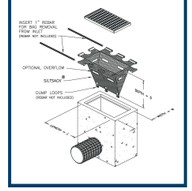




Typical Siltsack® Construction - Type A



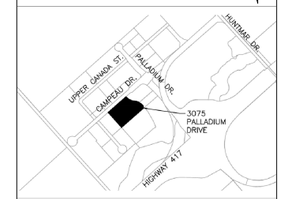
Typical Siltsack® Construction - Type B



NOTES:

1. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE ULTIMATE RECEIVING WATERCOURSE DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
2. LIMIT THE EXTENT OF EXPOSED SOILS AT ANY GIVEN TIME
3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL VEGETATION HAS BEEN RE-ESTABLISHED IN ALL DISTURBED AREAS. RE-VEGETATE DISTURBED AREAS AS SOON AS POSSIBLE.
4. STOCKPILE SOIL AWAY 15 METERS OR GREATER) FROM WATERCOURSES, DRAINAGE FEATURES AND TOP OF STEEP SLOPES.
5. SILT SACKS ARE TO BE PLACED UNDERNEATH THE FRAME AND COVER OF ALL PROPOSED AND EXISTING CATCH BASIN AND OPEN COVER
6. A SILT FENCE BARRIER SHALL BE INSTALLED AS PER OPSD 219.110 WHERE INDICATED AND MAINTAINED AS REQUIRED.
7. INSTALL MUD MATS AT ALL CONSTRUCTION ENTRANCES.
8. DURING ACTIVE CONSTRUCTION PERIODS, VISUAL INSPECTIONS SHALL BE UNDERTAKEN ON A WEEKLY BASIS AND AFTER MAJOR STORM EVENTS (>25mm RAIN IN 24 HOUR PERIOD) ON SEDIMENT CONTROL BARRIERS AND ANY DAMAGE REPAIRED IMMEDIATELY.
9. EROSION AND SEDIMENT CONTROL BARRIERS SHALL ALSO BE ASSESSED (AND REPAIRED AS REQUIRED) FOLLOWING SIGNIFICANT SNOW MELT EVENTS.
10. VISUAL INSPECTIONS SHALL ALSO BE UNDERTAKEN IN ANTICIPATION OF LARGE STORM EVENTS (OR A SERIES OF RAINFALL AND/OR SNOW MELT DAYS) THAT COULD POTENTIALLY YIELD SIGNIFICANT RUNOFF VOLUMES.
11. CARE SHALL BE TAKEN TO PREVENT DAMAGE TO EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION OPERATIONS
12. IN SOME CASES,BARRIERS MAY BE REMOVED TEMPORARILY TO ACCOMMODATE THE CONSTRUCTION OPERATIONS. THE AFFECTED BARRIERS SHALL BE REINSTATED IMMEDIATELY AFTER CONSTRUCTION OPERATIONS ARE COMPLETED.
13. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE ADJUSTED AS REQUIRED AS THE SITE BECOMES DEVELOPED.
14. SEDIMENT CONTROL DEVICES SHALL BE CLEANED OF ACCUMULATED SEDIMENTATION AS REQUIRED AND REPLACED AS NECESSARY.
15. DURING THE COURSE OF CONSTRUCTION, IF THE ENGINEER BELIEVES THAT ADDITIONAL PREVENTION METHODS ARE REQUIRED TO CONTROL EROSION AND SEDIMENTATION, THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL MEASURES, AS REQUIRED, TO THE SATISFACTION OF THE ENGINEER.
16. CONSTRUCTION AND MAINTENANCE REQUIREMENTS FOR EROSION AND SEDIMENT CONTROLS ARE TO COMPLY WITH OPSS. 805

KEY PLAN
N.T.S



No.	Issued	Date	By
1	ISSUED FOR SPA	2024-07-15	MD

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LICENSED PROFESSIONAL ENGINEER
Z. DU
2024-07-15
PROVINCE OF ONTARIO

WPE ENGINEERING LTD.
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VAUGHAN, ON. L4K 1Z8
T: 416 578 8682
MDU@WPEENGINEERING.COM

SCALE BAR
1:300 0 2 4 6 8 10 12m

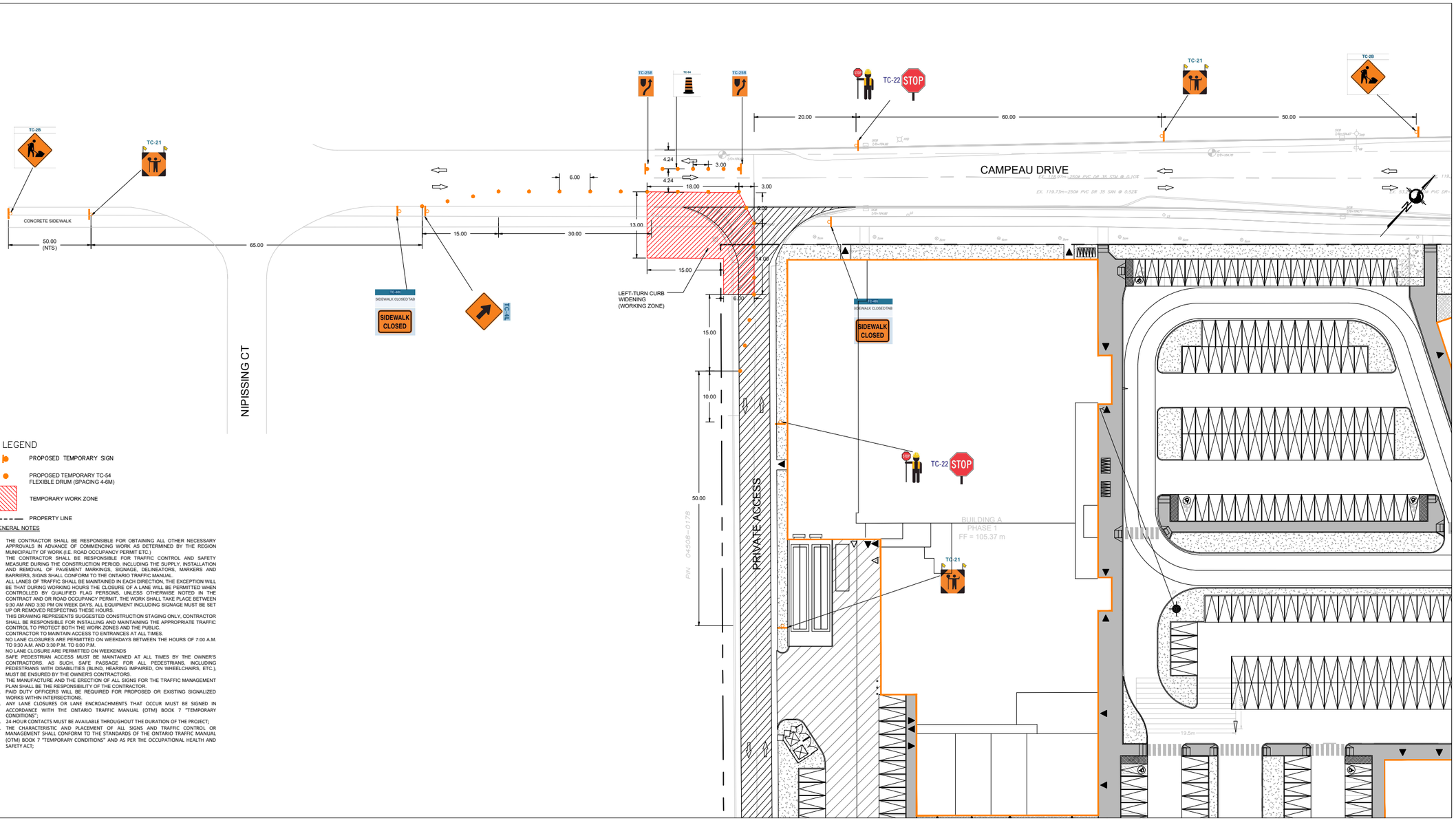
PROP. COMMERCIAL DEVELOPMENT

3075 PALLADIUM DRIVE
CITY OF OTTAWA

EROSION & SEDIMENT CONTROL PLAN

CITY FILE NO.PC2024-0078

Design	A.M.	Scale	1:300
Checked	M.D	Date	2024-06-24
Project No.	2034	Drawing No.	C-04



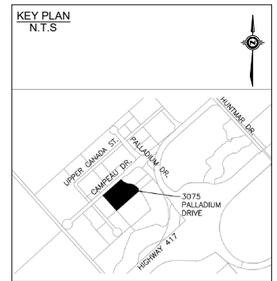
LEGEND

- PROPOSED TEMPORARY SIGN
- PROPOSED TEMPORARY TC-54 FLEXIBLE DRUM (SPACING 4-6M)
- TEMPORARY WORK ZONE
- PROPERTY LINE

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12. 24-HOUR CONTACTS MUST BE AVAILABLE THROUGHOUT THE DURATION OF THE PROJECT;
13. THE CHARACTERISTIC AND PLACEMENT OF ALL SIGNS AND TRAFFIC CONTROL OR MANAGEMENT SHALL CONFORM TO THE STANDARDS OF THE ONTARIO TRAFFIC MANUAL (OTM) BOOK 7 "TEMPORARY CONDITIONS" AND AS PER THE OCCUPATIONAL HEALTH AND SAFETY ACT;

KEY PLAN
N.T.S



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1	ISSUED FOR SPA	2024-07-15	MD

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SCALE BAR
1:300 0 2 4 6 8 10 12m

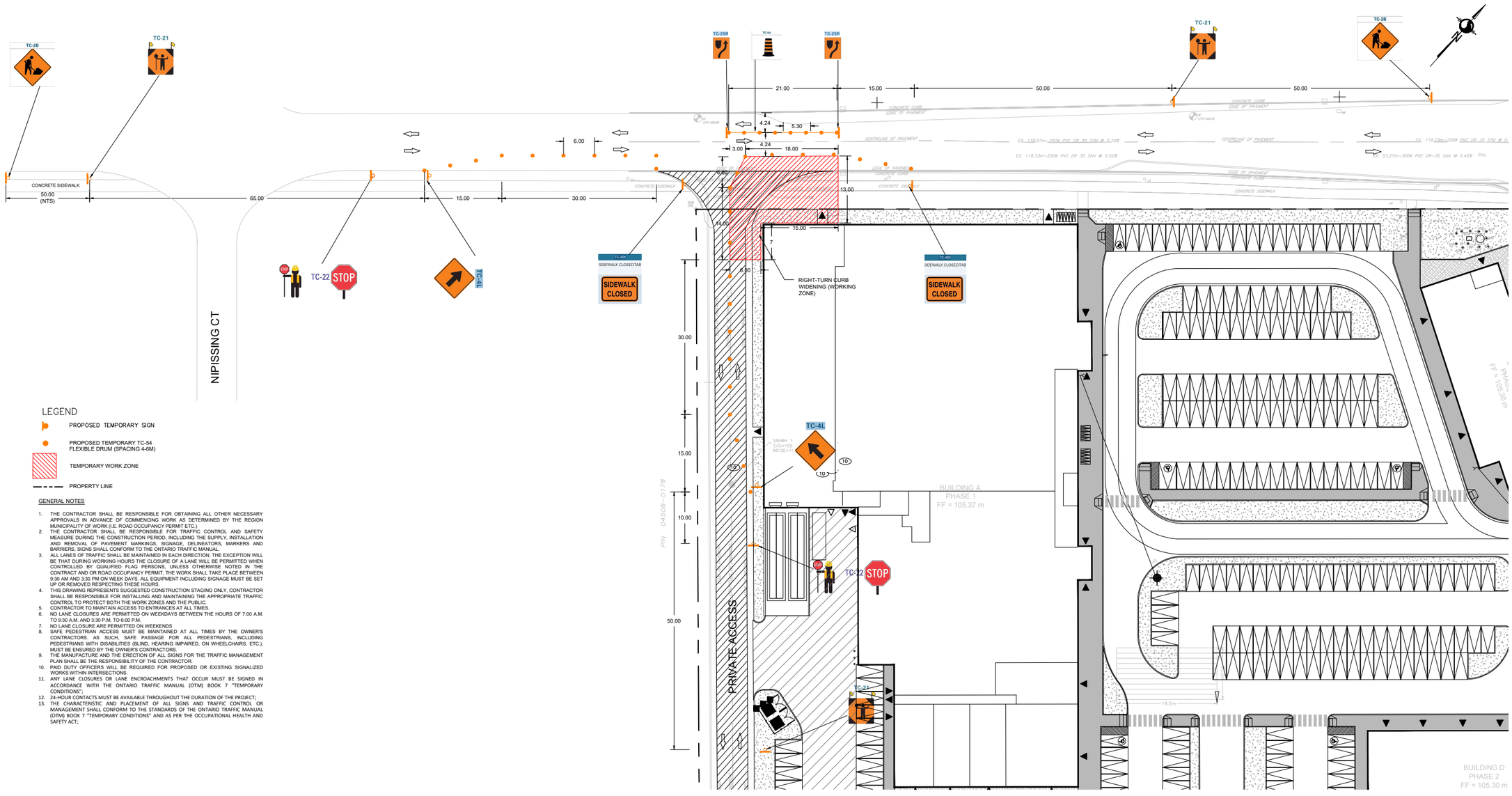
PROP. COMMERCIAL DEVELOPMENT

3075 PALLADIUM DRIVE
CITY OF OTTAWA

TRAFFIC MANAGEMENT PLAN - CAMPEAU DRIVE PHASE-1

CITY FILE NO.PC2024-0078

Design C.Y.	Scale 1:300
Checked M.D	Date 2024-06-24
Project No. 2034	Drawing No. C-08



NIPISSING CT

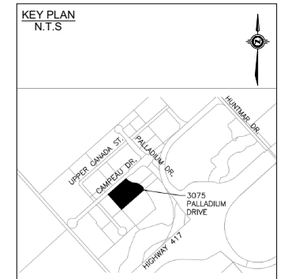
LEGEND

- PROPOSED TEMPORARY SIGN
- PROPOSED TEMPORARY TC-54 FLEXIBLE DRUM (SPACING 4-6M)
- TEMPORARY WORK ZONE
- PROPERTY LINE

GENERAL NOTES

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KEY PLAN
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SCALE BAR
1:300 0 2 4 6 8 10 12m

PROP. COMMERCIAL DEVELOPMENT

3075 PALLADIUM DRIVE
CITY OF OTTAWA

TRAFFIC MANAGEMENT PLAN - CAMPEAU DRIVE PHASE-2

CITY FILE NO.PC2024-0078

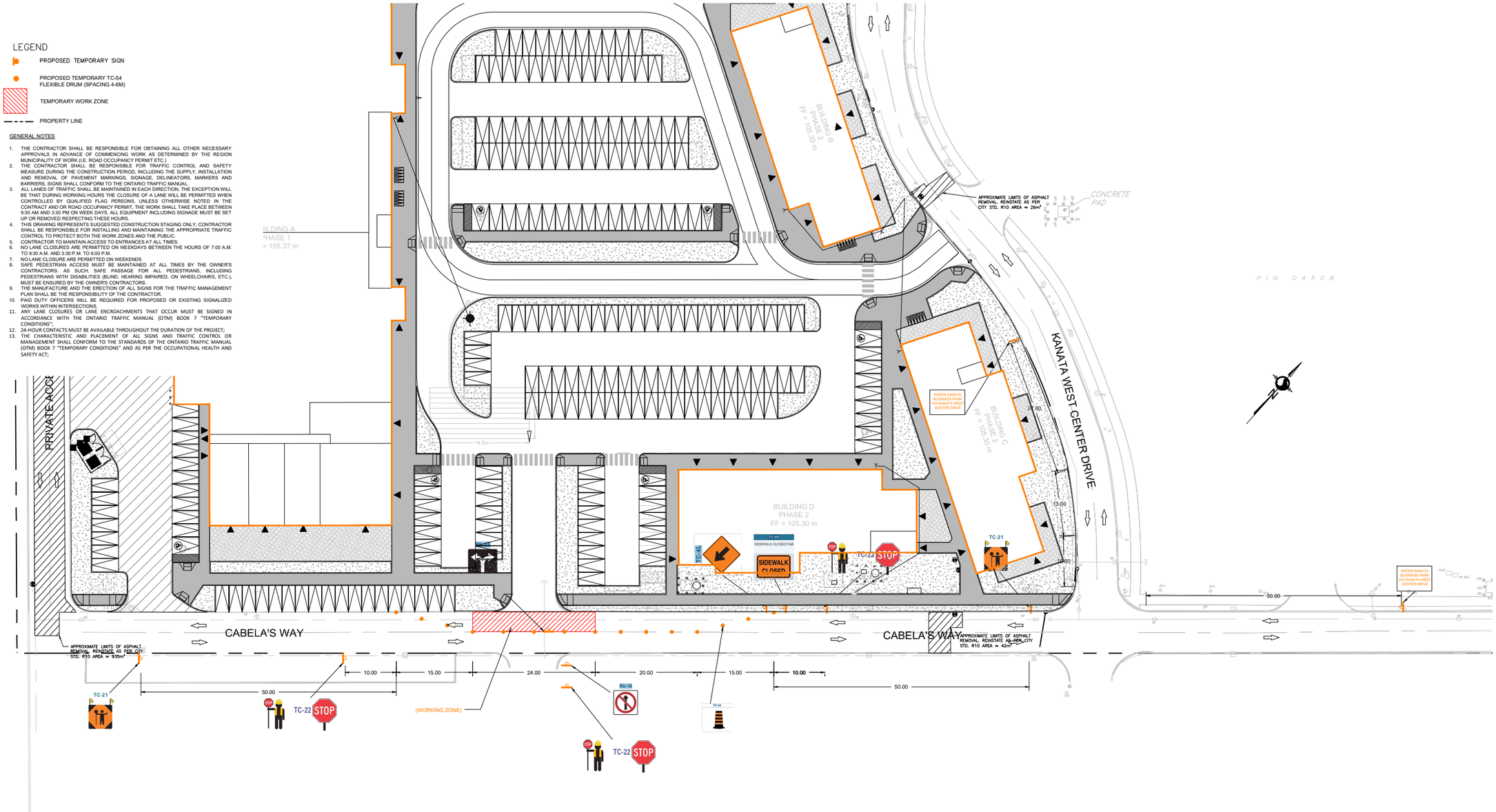
Design C.Y.	Scale 1:300
Checked M.D	Date 2024-06-24
Project No. 2034	Drawing No. C-09

LEGEND

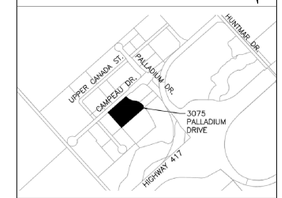
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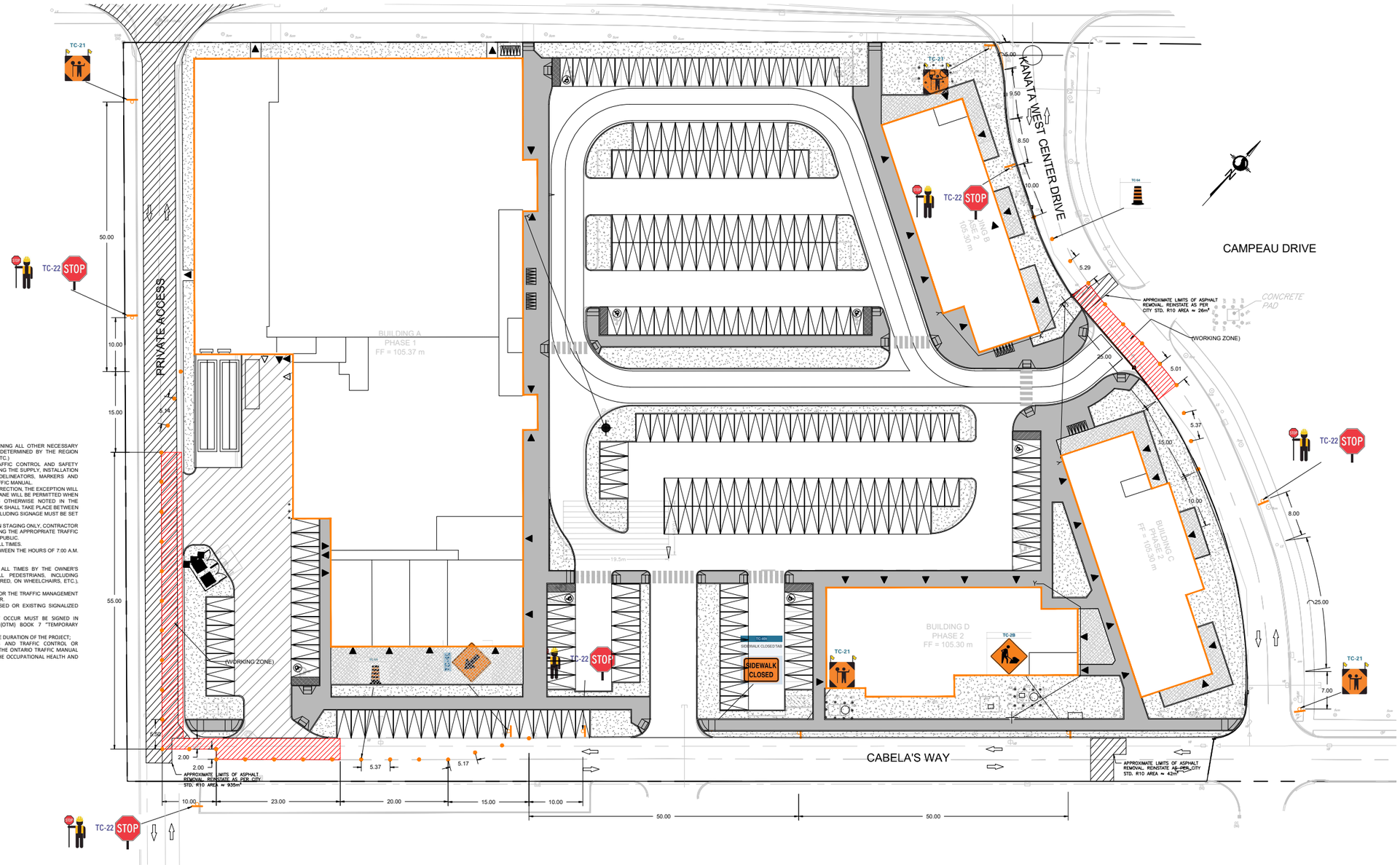
PROP. COMMERCIAL DEVELOPMENT

3075 PALLADIUM DRIVE
CITY OF OTTAWA

TRAFFIC MANAGEMENT PLAN - CABELA'S WAY

CITY FILE NO.PC2024-0078

Design C.Y.	Scale 1:300
Checked M.D	Date 2024-06-24
Project No. 2034	Drawing No. C-10



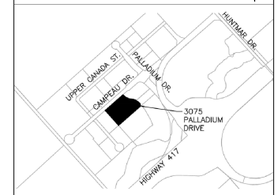
LEGEND

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SCALE BAR
1:300 0 2 4 6 8 10 12m

PROP. COMMERCIAL DEVELOPMENT

3075 PALLADIUM DRIVE
CITY OF OTTAWA

TRAFFIC MANAGEMENT
PLAN - PRIVATE ACCESS, CABELA'S WAY AND KANATA WEST CENTER DRIVE

CITY FILE NO.PC2024-0078

Design C.Y.	Scale 1:300
Checked M.D	Date 2024-06-24
Project No. 2034	Drawing No. C-11