

TRAFFIC IMPACT STUDY

Proposed Gas Station Development with A&W
Drive-Thru Restaurant
815 King Street East, Gananoque, ON

January 2024

Prepared For

Mr. Mudassar Khan

c/o

Mr. Joshua Salama-Frakes
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January 3, 2024

Mr. Mudassar Khan
c/o Mr. Joshua Salama-Frakes
14 Cardido Drive
Whitchurch Stouffville, ON L4A 2G5

Re: Proposed Gas Station Development with A&W Drive-Thru Restaurant, 815 King Street East, Gananoque, ON, Traffic Impact Study

Dear Mr. Khan,

TRANS-PLAN is pleased to submit this Traffic Impact Study for the proposed gas station with a convenience store and an A&W drive-thru restaurant at 815 King Street East located on the southwest corner of Highway 2 / King Street and Days Road in the Town of Gananoque, Ontario. The layout of the site plan includes a right-in right-out access off Highway 2 / King Street East and an access off Days Road. The proposed parking supply is 26 total parking spaces including two accessible spaces.

Our Traffic Impact Study findings indicate that the proposed development including the proposed right-in right-out would have minimal impact on the existing road network due to similarities in traffic operations between future background and total conditions. As a result, there would be no additional roadway improvements required to accommodate the proposed developments aside from the construction of the site accesses.

Sincerely,



Anil Seegobin, P.Eng.
Partner and Engineer

Trans-Plan Transportation Inc.
Transportation Consultants



Shuja Zaidi
Traffic Analyst

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Transmittal Letter

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1. INTRODUCTION

Trans-Plan has been retained by blueprint2build to complete a Traffic Impact Study (TIS) for the proposed gas station, convenience store, and drive-thru restaurant located at the corner of Highway 2 / King Street and Days Road in the Town of Gananoque, Ontario.

This Traffic Impact Study includes the following components:

- Review and assessment of the existing road network
- Assessment of future background conditions based on anticipated traffic growth, area developments and planned transportation improvements in the study area
- Assessment of the impact of site-generated traffic on the adjacent roadway network under future total traffic conditions at five years (2030) and ten years (2035) after an assumed two-year build-out
- Determination of roadway and intersection improvements, as required, to accommodate the proposed development

Prior to commencing this study, staff at the Ministry of Transportation of Ontario (MTO) were contacted to discuss the scope and methodology and were provided with a study Terms of Reference in February 2021.

2. SITE LOCATION

The currently unoccupied site, shown in Figure 1, is located on the southwest corner of Highway 2 / King Street East and Days Road. Surrounding land uses in the study area are predominantly commercial along Highway 2 / King Street East with residential neighbourhoods connecting off the road in both north and south directions.

3. PROPOSED DEVELOPMENT

The proposed development consists of a gas station with 8 gas pumping positions and a convenience store building and an A&W restaurant to share a building with a GFA of 324 square metres. The proposed restaurant includes a drive-thru facility. The total parking supply for the site is 26 spaces which include 2 accessible parking spaces and one loading space is provided. The site is proposed to be accessible via an existing access connecting to Highway 2 / King Street East and a second existing access off Days Road. A right-in right-out access is proposed for the existing site access on the main road of Highway 2 / King Street East. The proposed site plan, prepared by blueprint2build, is shown in Figure 2.

4. EXISTING CONDITIONS

4.1 Road Network

The study area roadway characteristics are shown in Figure 3. The boundary roadways located in the study area are described as follows:

Thousand Islands Parkway is a provincial roadway under the jurisdiction of the MTO which links the site and its environs with other communities along the north shore of the St. Lawrence River. The roadway extends easterly via an interchange with Highway 401 in Gananoque and continues eastward towards the

City of Brockville. It generally consists of two travel lanes; one in each direction. The posted speed limit on the roadway is 80 km/h.

Highway 2 is a roadway under the jurisdiction of the MTO that generally runs in an east-west direction, providing a route between westbound Thousand Islands Parkway and eastbound Highway 401. While the roadway continues westward as County Road 2 under the jurisdiction of the United Counties of Leeds and Grenville, the subject site lies within an MTO-controlled area. The posted speed limit on Highway 2 is 70 km/h, while the posted speed limit on County Road 2 just west of the subject site is 50 km/h.

King Street East is a major arterial under the jurisdiction of the Town of Gananoque that generally runs in an east-west direction and connects with Highway 2. The posted speed limit on King Street East is 50 km/h and has one lane of travel in each direction.

Days Road is a local road whose western endpoint forms an intersection with Highway 2/King Street East and runs in an east-west direction near the subject site before curving towards the St. Lawrence River at its eastern endpoint. The roadway connects several residential communities to Highway 2.

4.2 Site Visit and Traffic Counts

To determine existing operating conditions in the study area, the MTO was contacted for recent turning movement data for the study area intersections. The counts MTO provided were prior to the COVID-19 pandemic, and those counts would not be reflective of actual operating conditions. However, Trans-Plan conducted turning movement counts (TMCs) on Tuesday December 5, 2023 at nearby intersections. Figure 4 shows the existing traffic volumes for the weekday AM and PM peak hours in the study area.

Table 1 provides a summary of the count time along with the morning and evening peak hours for each intersection. Source information along with intersection TMC diagrams are provided in Appendix A.

Table 1 – Intersection Turning Movement Count Details

Intersection	Count Date / Time	Count Hours	Peak Hours
Highway 2 at Thousand Islands Parkway Westbound On/Off Ramps	December 5, 2023 (Tuesday)	7:00am - 9:30am 4:00pm - 6:30pm	7:00am - 8:00am 4:00pm - 5:00pm
Highway 2 at Thousand Islands Parkway Eastbound On/Off Ramps	December 5, 2023 (Tuesday)	7:00am - 9:30am 4:00pm - 6:30pm	7:30am - 8:30am 4:00pm - 5:00pm
Highway 2/King Street East at Days Road	December 5, 2023 (Tuesday)	7:00am - 9:30am 4:00pm - 6:30pm	7:30am - 8:30am 4:00pm - 5:00pm

5. FUTURE BACKGROUND CONDITIONS

Future background traffic volumes were determined based on a review of planned developments and future traffic volume growth in the study area. Planned roadway improvements are also discussed in this section.

5.1 Horizon Years

The study horizon years are detailed as follows:

- Existing conditions, year 2023/2024
- Assumed two-year build-out of development, year 2025
- 5-year horizon period, year 2030: five years after build-out of development
- 10-year horizon period, year 2035: ten years after build-out of development

5.2 Background Growth Rate

To determine the predicted growth in roadway traffic volumes within the study area, an analysis of historical Annual Average Daily Traffic (AADT) volume data was completed for both eastbound and westbound movements of Highway 2/King Street East and Highway 401. The analysis of the historical traffic data can be found in Appendix B. An annual growth rate of 1.0 percent was applied to Highway 2 and King Street East for each study horizon year, while an annual growth rate of 2.8 percent was applied to the Highway 401 interchanges for each study horizon year.

5.3 Planned Background and Roadway Developments

Based on correspondence with the MTO and the Township of Leeds and the Thousand Islands, there are no notable background developments or roadway improvements planned in the study area. There are no notable background developments shown on the Town's and County's websites. Future background traffic volumes for horizon years 2025, 2030, and 2035 for weekday AM and PM peak hours are shown in Figure 5, Figure 6, and Figure 7 respectively.

6. SITE TRAFFIC

6.1 Trip Generation

Trips for the proposed development were generated using the Institute of Transportation Engineers (ITE) Trip Generation manual, 11th edition. The ITE Land Use Code 945 for Gasoline/Service Station with Convenience Market and ITE Land Use Code 934 for Fast-Food Restaurant with Drive-Through Window were used to determine suitable trip rates as the fast-food partner has been confirmed as an A&W drive-through restaurant. The site trip generation is shown in Table 2. Note that ITE Land Use Code 945 is applied in this scenario as the proposed number of vehicle fueling positions is eight (8).

Pass-by trips are a subset of trip generation and are classified as trips from the existing roadway volumes in the network that access the proposed development as an intermediate stop before continuing to another destination along the same travel route. Pass-by trip rates for the relevant land use types were obtained from the ITE Trip Generation Handbook. An additional reduction of 10 percent was applied to account for the internal interaction of uses between the gas station, the convenience store, and the restaurant. Table 2 shows the site trips generated by the proposed land uses.

Table 2 – Site Trip Generation

Land Use	Size (sq.ft. GFA)		Weekday AM Peak Hour			Weekday PM Peak Hour		
			In	Out	Total	In	Out	Total
Gasoline/ Service Station with Convenience Market (ITE Code 945)	1.7 /1000 sq.ft (2-8 vhp)	Distribution	50%	50%	100%	50%	50%	100%
		Equation	Average Rate: 40.59			Average Rate: 48.48		
		Rate	20.30	20.30	40.59	24.24	24.24	48.48
		Trips	35	34	69	41	41	82
		Pass-by (62% AM, 56% PM)	21	21	42	23	23	46
		New Trips	14	13	27	18	18	36
Fast Food Restaurant with Drive- Through Window (ITE Code 934)	1.8 sq. ft.	Distribution	51%	49%	100%	52%	48%	100%
		Average Rate	Average Rate: 44.61			Average Rate: 33.03		
		Rate	22.75	21.86	44.61	17.18	15.85	33.03
		Trips	41	39	80	31	28	59
		Pass-by (49% AM, 50% PM)	20	20	40	15	15	30
		New Trips	21	19	40	16	13	29
Internal Trip Reduction (10%)			2	2	4	2	1	3
Total Pass-by Trips			41	41	82	38	38	76
Total New Site Trips			33	30	63	32	30	62

The subject site is expected to generate approximately 63 and 62 new two-way trips in the weekday AM and PM peak hours, respectively.

6.2 Trip Distribution and Assignment

Site trips and pass-by trips were distributed to the surrounding road network based on existing travel patterns. Eastbound vehicles making site trips are assumed to enter the site from the Highway 2 site access, while westbound vehicles were distributed evenly between the two site accesses. Vehicles exiting the site were also distributed evenly between the two site accesses. Site trips were assigned to and from surrounding travel routes. The site traffic assignment for the weekday AM and PM peak hours are shown in Figure 8, with pass-by trips shown in Figure 9.

7. FUTURE TOTAL TRAFFIC CONDITIONS

Site traffic volumes and pass-by trips were added to the 2025, 2030, and 2035 future background traffic volumes to obtain the future total traffic volumes for the weekday AM and PM peak hours for the study year horizon. The total traffic volumes for the mentioned horizon years are shown in Figure 10, Figure 11, and Figure 12 respectively.

7.1 Capacity Analysis

A capacity analysis was performed for the study area intersection and site driveways using Synchro analysis software, version 11.0. The capacity analysis results for the 2025, 2030, and 2035 horizon years for the weekday AM and PM peak hours are shown in Table 3, Table 4, and Table 5, respectively. Capacity Analysis Sheets and Level of Service (LOS) definitions are provided in Appendix C and Appendix D, respectively.

According to the General Guidelines for the Preparation of Traffic Impact Studies outlined by the Ministry of Transportation (MTO), a volume-to-capacity (v/c) ratio of 0.85 or less is considered acceptable for the overall intersection. The results of the capacity analysis and queuing analysis are summarized in this section for each intersection:

Site Access (west) and King Street East

Under existing conditions in the weekday AM and PM peak hours, the intersection operates at a good LOS of A with minimal delays.

Horizon Years 2025, 2030, and 2035

Under future background and total conditions, the movements at the unsignalized intersection are expected to operate at an acceptable LOS of B or better, with delays at the northbound right movement of up to 11 seconds.

In summary, the intersection is expected to satisfy future traffic demands during weekday AM and PM peak hours.

Site Access (east) and Days Road

Under existing conditions, the intersection operates at a good LOS of A with minimal delays during the peak hours included in the analysis.

Horizon Years 2025, 2030, and 2035

Under future background and total conditions, the movements at the intersection are expected to continue operating at a good LOS of A with minimal delays.

In summary, the intersection is expected to operate with minimal delays during future weekday AM and PM peak hours.

County Road 2/King Street East and Days Road

Under existing conditions in the weekday AM and PM peak hours, the intersection operates at a good LOS of B or better with delays of up to 12 seconds at the northbound left/right movement.

Horizon Years 2025, 2030, and 2035

Under future background and total conditions, the intersection is expected to operate at a good LOS of B or better, with delays at the northbound left/right movement of up to 14 seconds.

In summary, the intersection is expected to operate with minimal delays under future conditions.

County Road 2 and Thousand Islands Parkway / Highway 401 Eastbound On-Ramp

Under existing conditions in the weekday AM and PM peak hours, the intersection operates at an overall v/c ratio of 0.38 in the weekday AM peak hour and a good LOS of A. Delays of up to 12 seconds are expected at the southbound movements.

Horizon Years 2025, 2030, and 2035

Under future background and total conditions, the intersection is expected to operate at a v/c ratio of 0.44 in the weekday AM peak hour and a good LOS of A, with the individual movements all operating at a LOS of B or better. In summary, the intersection is expected to operate with minimal delays within the study's horizon years.

County Road 2 and Thousand Islands Parkway / Highway 401 Westbound Off-Ramp

Under existing conditions in the weekday AM and PM peak hours, the intersection operates at an overall v/c ratio of 0.36 in the weekday PM peak hour and a good LOS of A. Delays of up to 13 seconds are expected at the northbound movement.

Horizon Years 2025, 2030, and 2035

Under future background and total conditions, the intersection is expected to operate at a v/c ratio of 0.44 in the weekday PM peak hour and a good LOS of A in the weekday PM peak hour. All individual movements are expected to operate at a good LOS of B or better with minimal delays. In summary, the intersection is expected to operate acceptably under future conditions.

Table 3 - Capacity Analysis Results, Existing 2023/2024 vs 2025 Conditions

Intersection		Existing 2023/2024 Traffic Conditions						Background 2025 Traffic Conditions						Total 2025 Traffic					
Movement		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Site Access (west) & King Street East	Eastbound Through / Right		0	A		0	A		0	A		0	A		0	A		0	A
	Westbound Through		0	A		0	A		0	A		0	A		0	A		0	A
	Northbound Right		0	A		0	A		0	A		0	A		10	A		11	B
Days Road & Site Access (east)	Eastbound Left / Right		0	A		0	A		0	A		0	A		9	A		9	A
	Northbound Through / Left		0	A		0	A		0	A		0	A		0	A		0	A
	Southbound Through / Right		0	A		0	A		0	A		0	A		0	A		0	A
Days Road & King Street East/County Road 2	Eastbound Through / Right		0	A		0	A		0	A		0	A		0	A		0	A
	Westbound Through / Left		0	A		0	A		0	A		0	A		2	A		1	A
	Northbound Left / Right		12	B		12	B		12	B		12	B		13	B		13	B
TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2	Eastbound Through	0.38	6	A	0.31	6	A	0.39	6	A	0.32	6	A	0.42	7	A	0.33	6	A
	Eastbound Right	0.31	6	A	0.35	6	A	0.32	6	A	0.35	6	A	0.34	6	A	0.37	6	A
	Westbound Left	0.04	5	A	0.07	0	A	0.04	5	A	0.07	0	A	0.04	5	A	0.08	0	A
	Westbound Through	0.00	5	A	0.02	5	A	0.00	5	A	0.02	5	A	0.00	5	A	0.02	5	A
	Southbound Through / Left	0.45	6	A	0.34	6	A	0.45	6	A	0.34	6	A	0.49	7	A	0.36	6	A
	Southbound Right	0.14	11	B	0.21	12	B	0.15	11	B	0.22	13	B	0.15	11	B	0.22	13	B
		0.03	10	B	0.03	12	B	0.03	10	B	0.04	12	B	0.03	10	B	0.04	12	B
TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2	Eastbound Left	0.32	6	A	0.36	7	A	0.32	7	A	0.36	8	A	0.34	7	A	0.38	8	A
	Eastbound Through	0.16	6	A	0.09	5	A	0.18	7	A	0.11	6	A	0.19	7	A	0.11	6	A
	Westbound Through	0.29	6	A	0.39	6	A	0.33	7	A	0.44	8	A	0.35	7	A	0.46	8	A
	Westbound Right	0.36	6	A	0.26	6	A	0.41	7	A	0.29	7	A	0.45	8	A	0.30	7	A
	Northbound Through / Left / Right	0.05	5	A	0.02	5	A	0.05	6	A	0.02	6	A	0.05	6	A	0.02	6	A
		0.15	11	B	0.26	13	B	0.12	10	A	0.21	12	B	0.13	10	A	0.22	12	B

Table 4 - Capacity Analysis Results, Existing 2023/2024 vs 2030 Conditions

Intersection		Existing 2023/2024 Traffic Conditions						Background 2030 Traffic Conditions						Total 2030 Traffic Conditions					
Movement		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Site Access (west) & King Street East	Eastbound Through / Right		0	A		0	A		0	A		0	A		0	A		0	A
	Westbound Through		0	A		0	A		0	A		0	A		0	A		0	A
	Northbound Right		0	A		0	A		0	A		0	A		10	A		11	B
Days Road & Site Access (east)	Eastbound Left / Right		0	A		0	A		0	A		0	A		9	A		9	A
	Northbound Through / Left		0	A		0	A		0	A		0	A		0	A		0	A
	Southbound Through / Right		0	A		0	A		0	A		0	A		0	A		0	A
Days Road & King Street East/County Road 2	Eastbound Through / Right		0	A		0	A		0	A		0	A		0	A		0	A
	Westbound Through / Left		0	A		0	A		0	A		0	A		2	A		1	A
	Northbound Left / Right		12	B		12	B		12	B		13	B		13	B		14	B
TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2	Eastbound Through	0.38	6	A	0.31	6	A	0.40	8	A	0.33	7	A	0.42	8	A	0.34	7	A
	Eastbound Right	0.31	6	A	0.35	6	A	0.38	7	A	0.41	7	A	0.40	7	A	0.43	8	A
	Westbound Left	0.04	5	A	0.07	0	A	0.04	6	A	0.08	0	A	0.05	6	A	0.08	0	A
	Westbound Through	0.00	5	A	0.02	5	A	0.01	6	A	0.02	6	A	0.01	6	A	0.02	6	A
	Southbound Through / Left	0.45	6	A	0.34	6	A	0.54	8	A	0.40	7	A	0.57	8	A	0.42	8	A
	Southbound Right	0.14	11	B	0.21	12	B	0.11	9	A	0.18	11	B	0.11	9	A	0.18	11	B
		0.03	10	B	0.03	12	B	0.04	9	A	0.04	11	B	0.04	9	A	0.04	11	B
TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2	Eastbound Left	0.32	6	A	0.36	7	A	0.34	7	A	0.39	8	A	0.31	7	A	0.41	8	A
	Eastbound Through	0.16	6	A	0.09	5	A	0.19	7	A	0.11	6	A	0.15	6	A	0.12	7	A
	Westbound Through	0.29	6	A	0.39	6	A	0.35	7	A	0.46	8	A	0.27	6	A	0.48	8	A
	Westbound Right	0.36	6	A	0.26	6	A	0.44	7	A	0.31	7	A	0.34	6	A	0.32	7	A
	Northbound Through / Left / Right	0.05	5	A	0.02	5	A	0.05	6	A	0.02	6	A	0.05	5	A	0.02	6	A
		0.15	11	B	0.26	13	B	0.16	10	A	0.26	12	B	0.19	13	B	0.27	12	B

Table 5 - Capacity Analysis Results, Existing 2023/2024 vs 2035 Conditions

Intersection		Existing 2023/2024 Traffic Conditions						Background 2035 Traffic Conditions						Total 2035 Traffic Conditions						
Movement		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	
Site Access (west) & King Street East	Eastbound Through / Right		0	A		0	A		0	A		0	A		0	A		0	A	
	Westbound Through		0	A		0	A		0	A		0	A		0	A		0	A	
	Northbound Right		0	A		0	A		0	A		0	A		10	A		11	B	
Days Road & Site Access (east)	Eastbound Left / Right		0	A		0	A		0	A		0	A		9	A		9	A	
	Northbound Through / Left		0	A		0	A		0	A		0	A		0	A		0	A	
	Southbound Through / Right		0	A		0	A		0	A		0	A		0	A		0	A	
Days Road & King Street East/County Road 2	Eastbound Through / Right		0	A		0	A		0	A		0	A		0	A		0	A	
	Westbound Through / Left		0	A		0	A		0	A		0	A		2	A		1	A	
	Northbound Left / Right		12	B		12	B		12	B		13	B		13	B		14	B	
TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2	Eastbound Through	0.38	6	A		0.31	6	A		0.42	8	A		0.36	7	A		0.44	8	A
	Eastbound Right	0.31	6	A		0.35	6	A		0.40	7	A		0.43	8	A		0.42	7	A
	Westbound Left	0.04	5	A		0.07	0	A		0.04	6	A		0.08	0	A		0.05	6	A
	Westbound Through	0.00	5	A		0.02	5	A		0.01	6	A		0.02	6	A		0.01	6	A
	Southbound Through / Left	0.45	6	A		0.34	6	A		0.56	8	A		0.42	8	A		0.61	9	A
	Southbound Right	0.14	11	B		0.21	12	B		0.12	9	A		0.21	11	B		0.12	9	A
		0.03	10	B		0.03	12	B		0.04	9	A		0.05	11	B		0.04	9	A
TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2	Eastbound Left	0.32	6	A		0.36	7	A		0.31	7	A		0.43	8	A		0.33	7	A
	Eastbound Through	0.16	6	A		0.09	5	A		0.15	6	A		0.12	7	A		0.16	6	A
	Westbound Through	0.29	6	A		0.39	6	A		0.27	6	A		0.49	8	A		0.28	6	A
	Westbound Right	0.36	6	A		0.26	6	A		0.34	6	A		0.32	7	A		0.36	6	A
	Northbound Through / Left / Right	0.05	5	A		0.02	5	A		0.05	5	A		0.02	6	A		0.05	5	A
		0.15	11	B		0.26	13	B		0.22	13	B		0.30	12	B		0.24	13	B

8. CONCLUSION

Our conclusions of this Traffic Impact Study, for the proposed development located at the southwest corner of Highway 2 / King Street East and Days Road in the Town of Gananoque, are summarized as follows:

Traffic Impact Study

- The subject site is currently unoccupied, and the proposed development consists of a gas station with 8 gas pumping positions, a convenience store building, and an A&W restaurant (with drive-thru) to share a building with a GFA of 324 square metres. The total parking supply for the site is 26 spaces (including 2 accessible spaces) and a loading zone is provided. The site is proposed to be accessible via an existing access connecting to Highway 2 / King Street East which is proposed to be a right-in right-out access and a second existing access off Days Road.
- Trans-Plan was provided historical counts by MTO which were prior to the COVID-19 pandemic and those counts would not be reflective of actual operating conditions. However, Trans-Plan conducted turning movement counts (TMCs) on Tuesday December 5, 2023, at nearby intersections.
- Based on correspondence with the MTO and the Township of Leeds and the Thousand Islands, there are no notable background developments or roadway improvements planned in the study area. There are no notable background developments shown on the Town's and County's websites.
- Based on the ITE Trip Generation Manual, 11th Edition, the subject site is expected to generate approximately 63 and 62 new two-way trips in the weekday AM and PM hours, respectively.
- Our capacity analysis results have shown that the intersections near the subject site currently operate at an excellent LOS of A and are expected to operate similarly under future conditions for the weekday AM and PM Peak Hour.
- The proposed right-in right-out access onto Highway 2 / King Street East is expected to operate at a good LOS of B with minimal delays while the site access onto Days Road is expected to operate at an excellent LOS of A with minimal delays under future conditions.
- The proposed right-in right-out access allows traffic flow to be prioritized on Highway 2 / King Street East. The frequency and severity of conflict movements will be less and the proposed right-in right-out access allows for safe entry and exit for all vehicles accessing the site.

Overall, the proposed right-in right-out site access, as well as the subject site, is expected to have minimal impact on the traffic operations of the study area based on our review of operational conditions between future background and total volume scenarios.

Respectfully submitted,



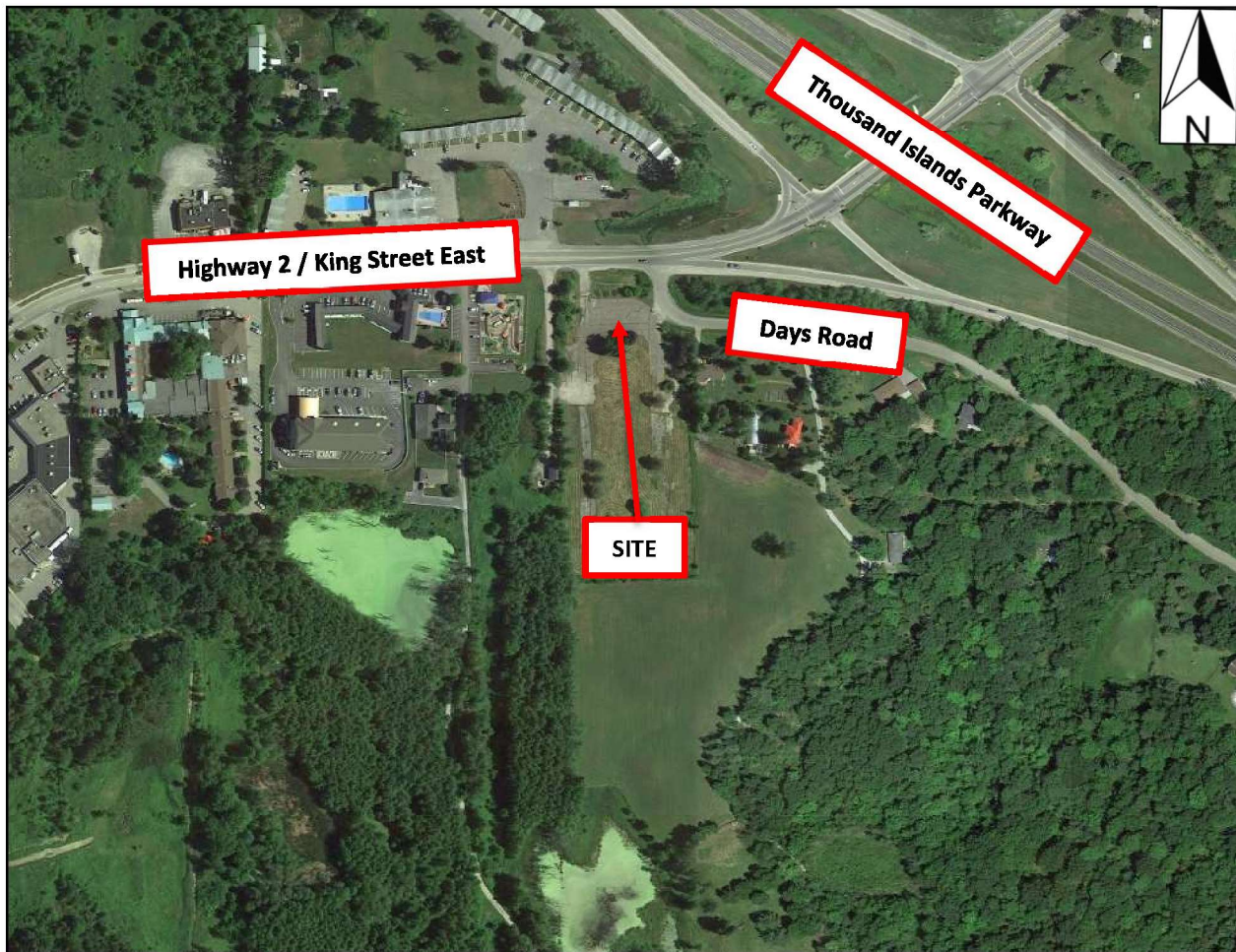
Anil Seegobin, P.Eng.
Partner and Engineer



Shuja Zaidi
Traffic Analyst

Trans-Plan Transportation Inc.
Transportation Consultants

Figure 1 – Site Location



Source : Google Earth

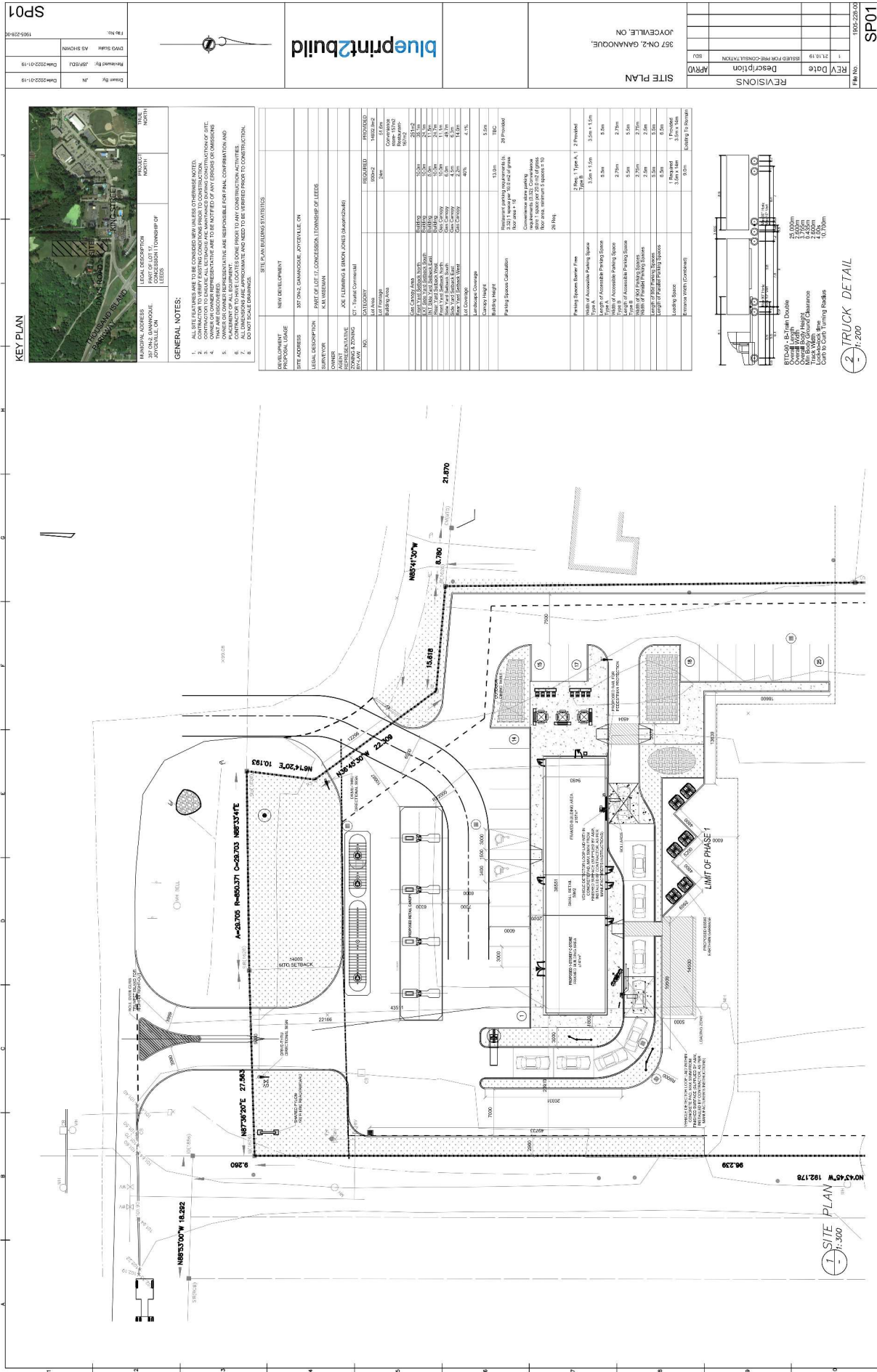
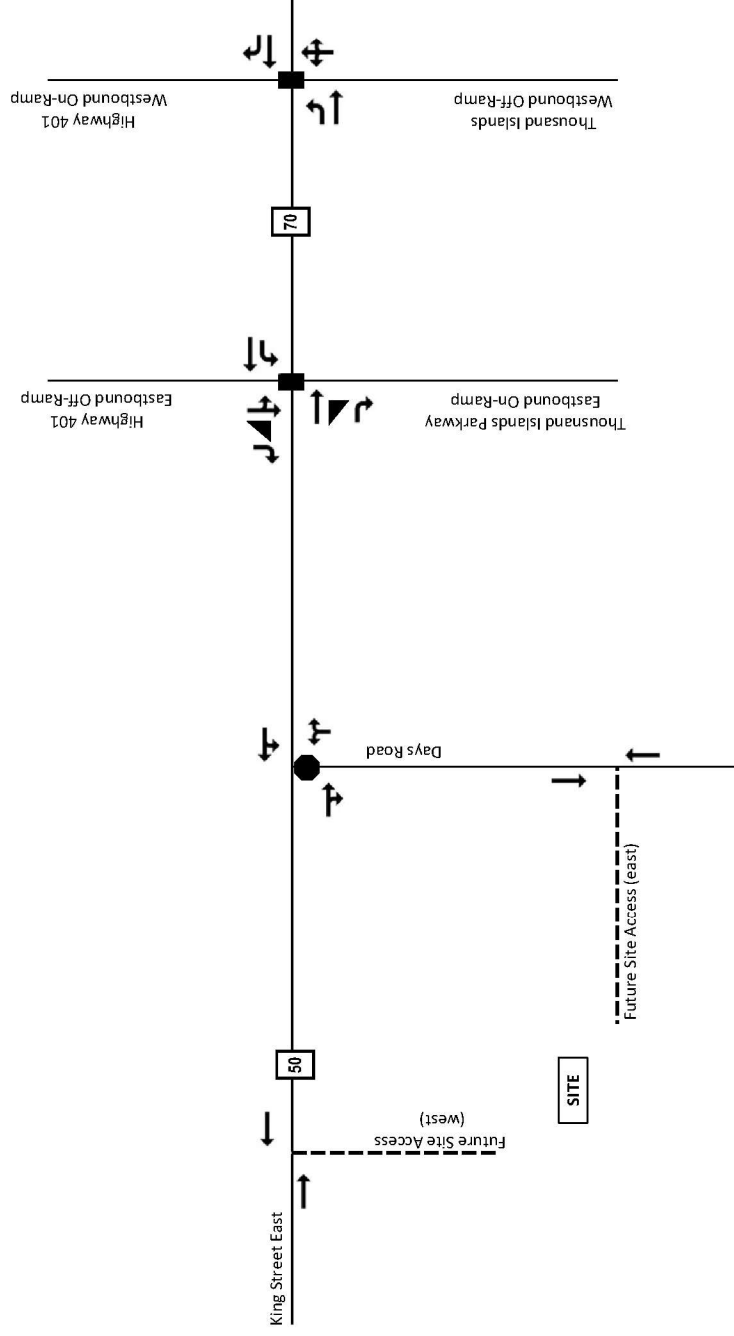
[illegible]



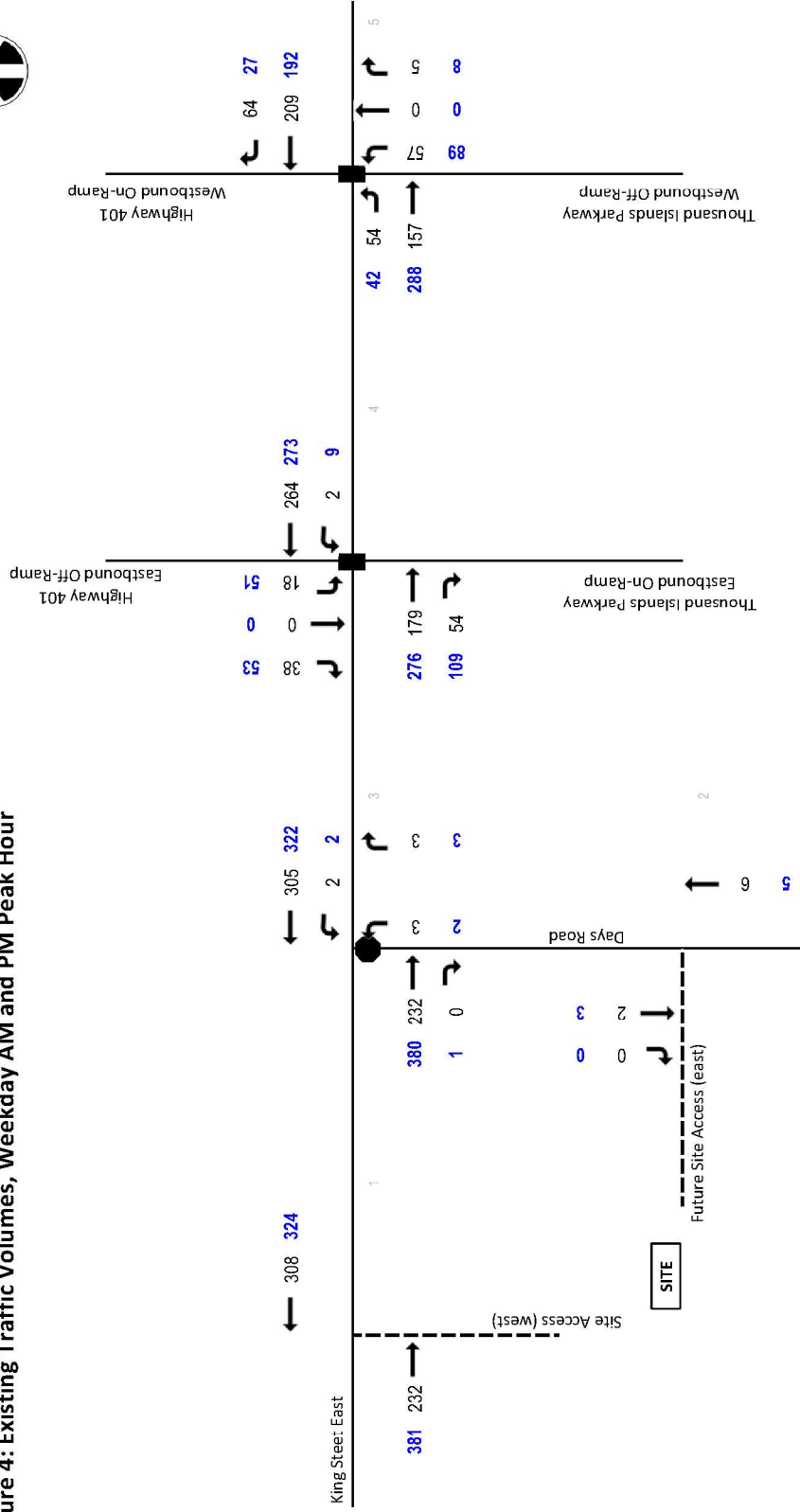
Figure 3: Existing Study Area Roadway Characteristics



LEGEND	
	Stop Sign
	Traffic Signal
	Channelized Right Turn
	Lane Configuration
	Posted Speed Limit
Schematic; Not To Scale	



Figure 4: Existing Traffic Volumes, Weekday AM and PM Peak Hour

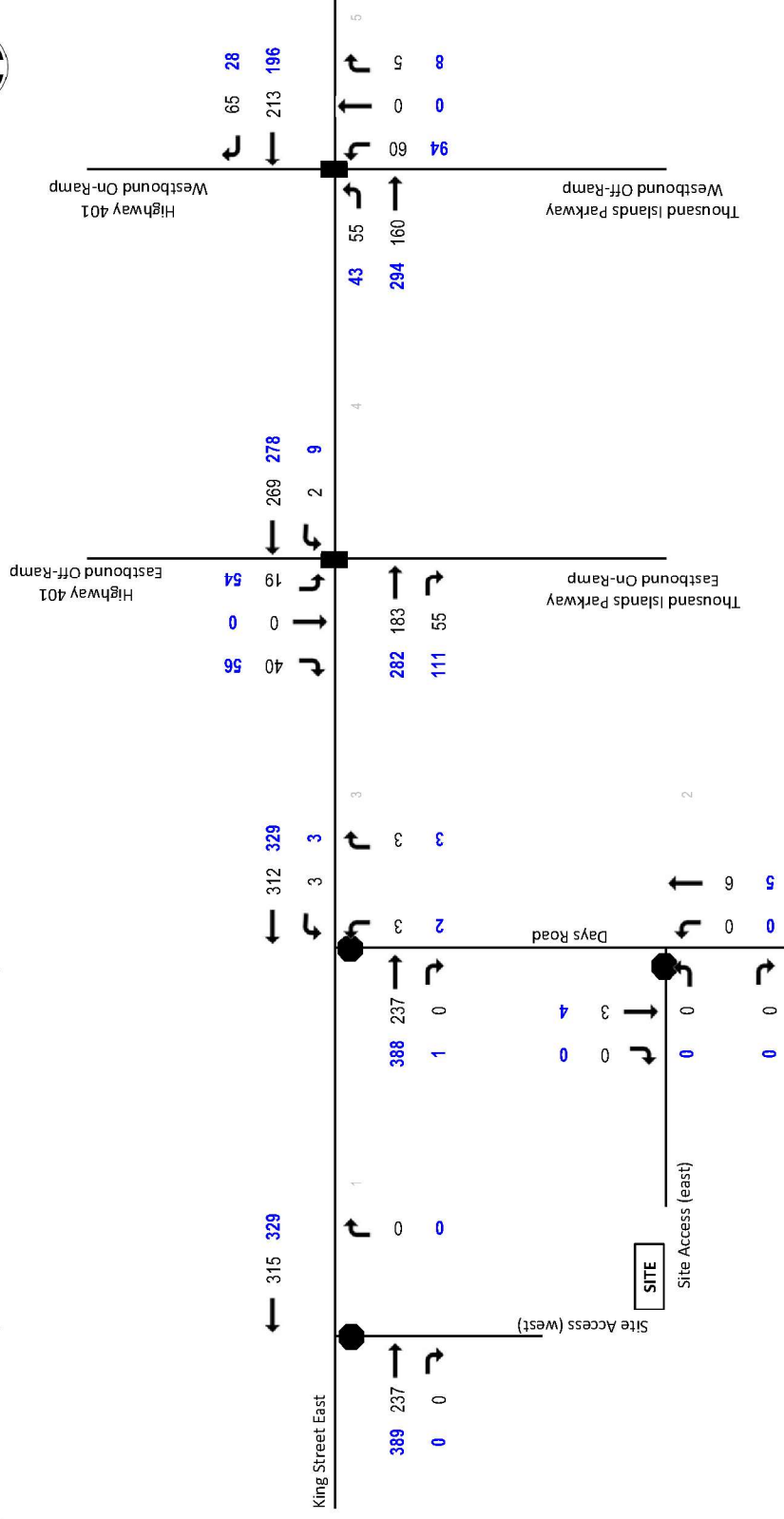


LEGEND

	Stop Sign
	Traffic Signal
	Lane Configuration
xx xx	AM / PM Peak Hour
Schematic, Not To Scale	



Figure 5: 2025 Background Traffic Volumes, Weekday AM and PM Peak Hour



LEGEND

- Stop Sign

Traffic Signal

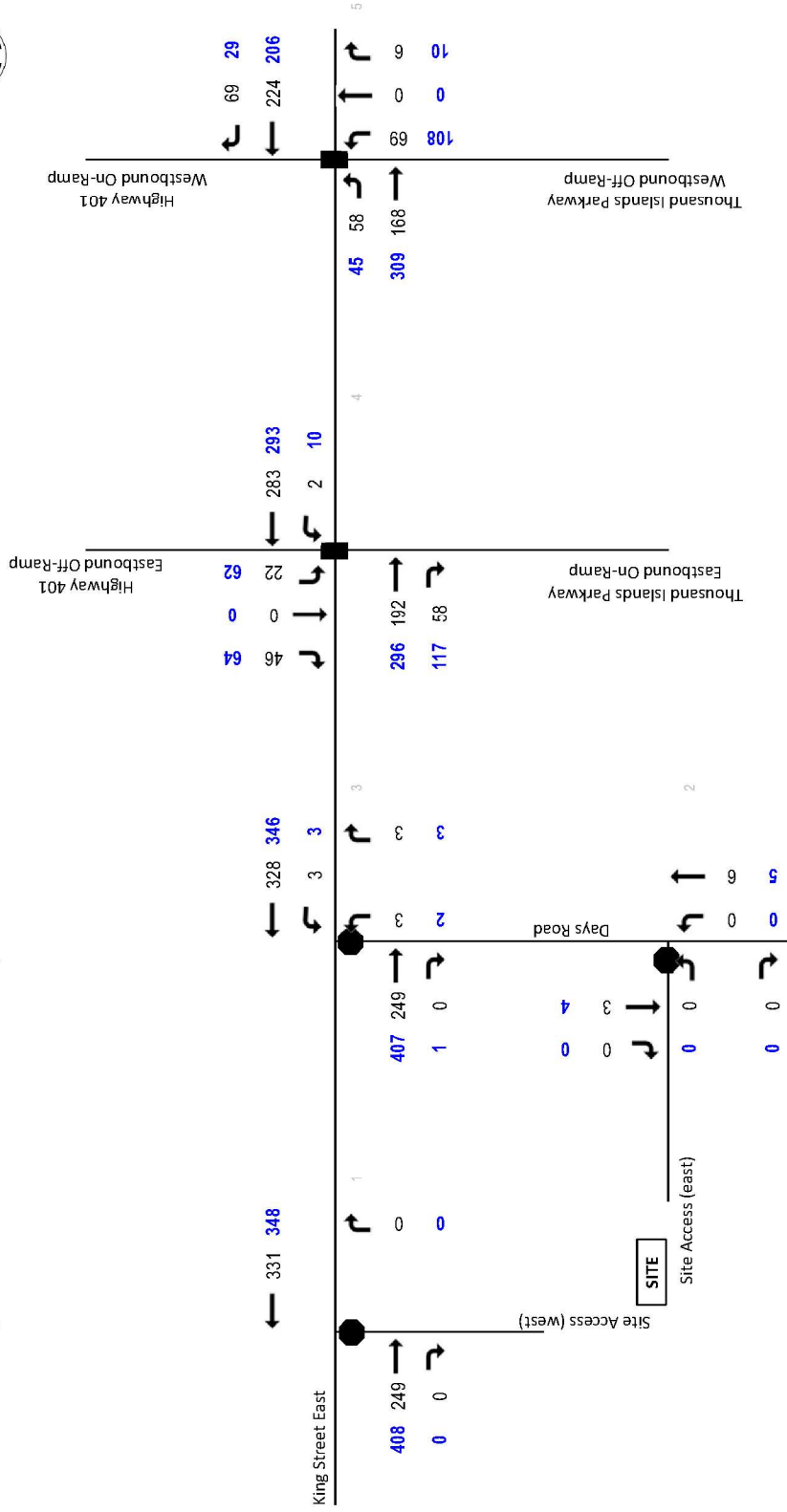
Lane Configuration

xx xx AM / PM Peak Hour

Schematic: Not To Scale



Figure 6: 2030 Background Traffic Volumes, Weekday AM and PM Peak Hour

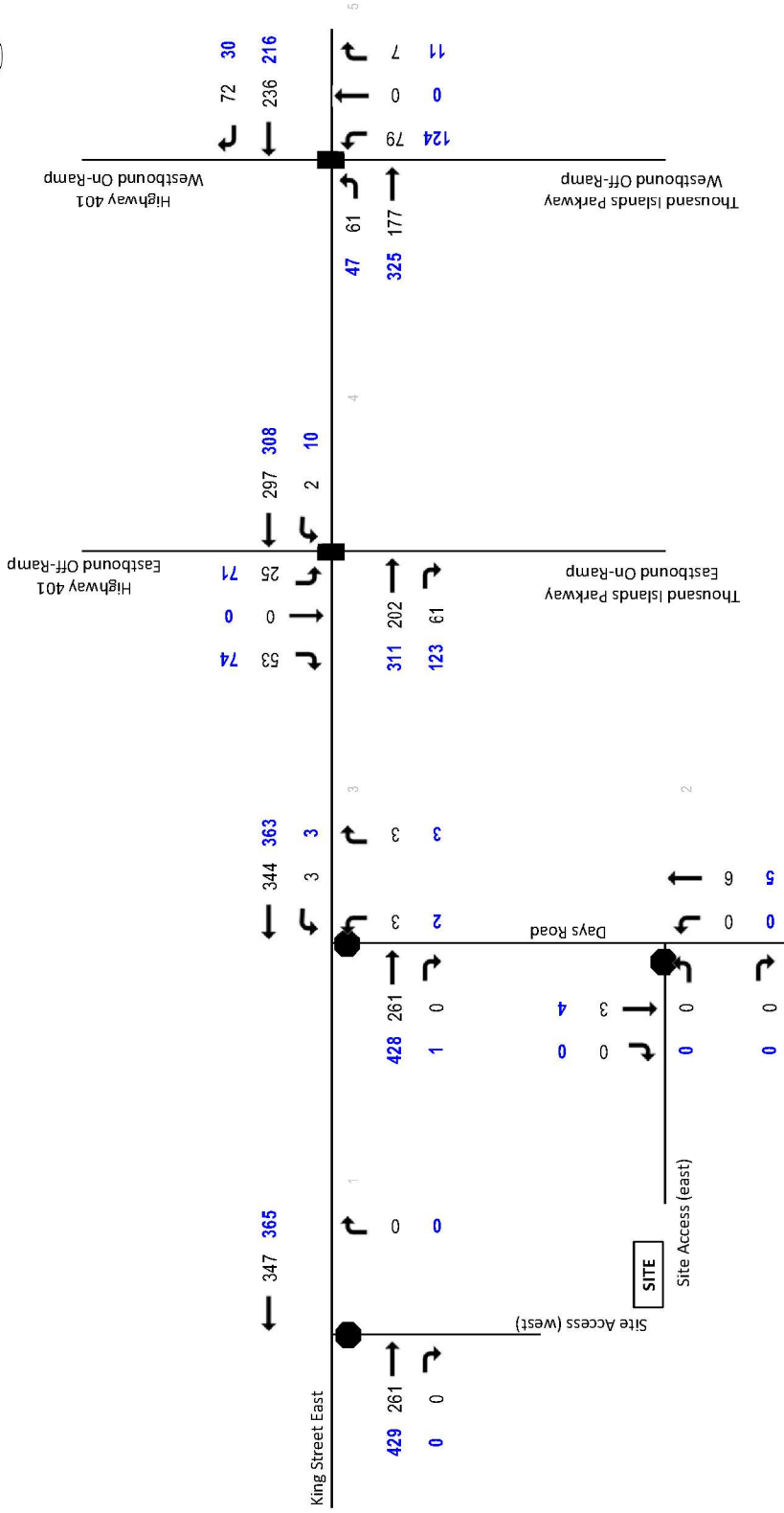


LEGEND

- Stop Sign
- Traffic Signal
- Lane Configuration
- xx xx AM / PM Peak Hour
- Schematic; Not To Scale



Figure 7: 2035 Background Traffic Volumes, Weekday AM and PM Peak Hour

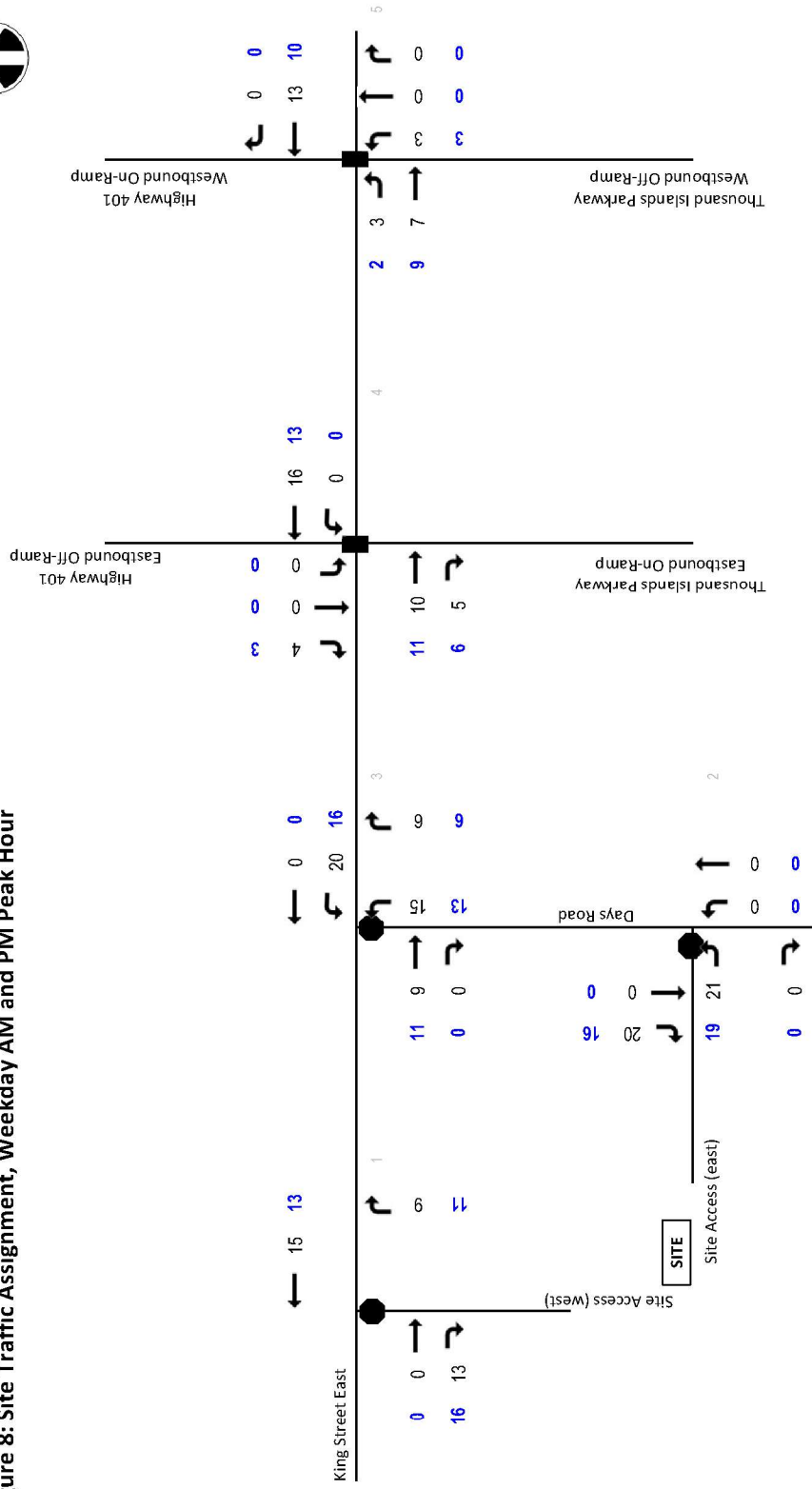


LEGEND

-  Stop Sign
-  Traffic Signal
-  Lane Configuration
- xx xx** AM / **PM** Peak Hour
- Schematic; Not To Scale



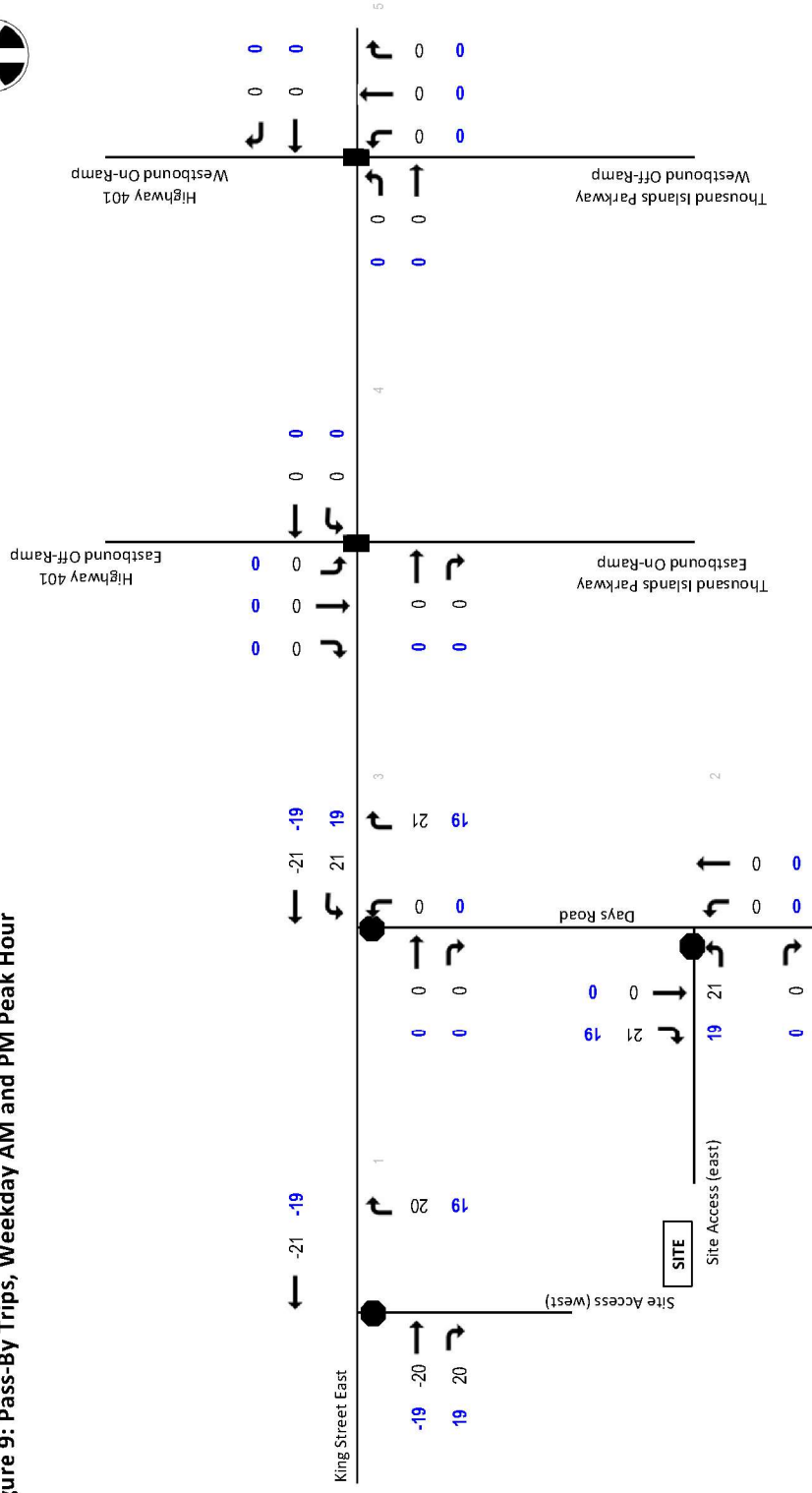
Figure 8: Site Traffic Assignment, Weekday AM and PM Peak Hour



LEGEND	
	Stop Sign
	Traffic Signal
	Lane Configuration
xx xx	AM / PM Peak Hour
Schematic; Not To Scale	



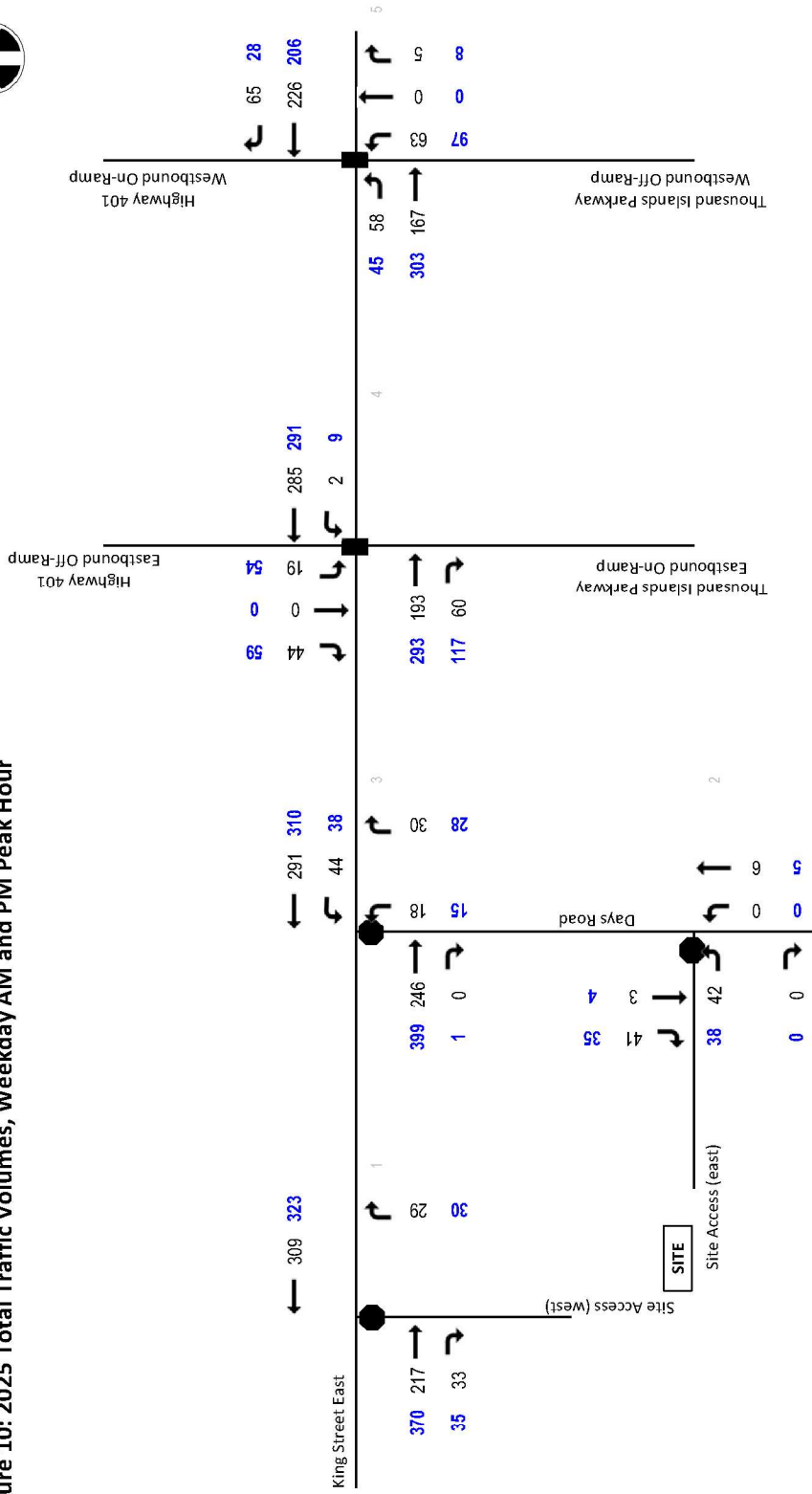
Figure 9: Pass-By Trips, Weekday AM and PM Peak Hour



LEGEND	
	Stop Sign
	Traffic Signal
	Lane Configuration
xx xx	AM / PM Peak Hour
Schematic; Not To Scale	



Figure 10: 2025 Total Traffic Volumes, Weekday AM and PM Peak Hour

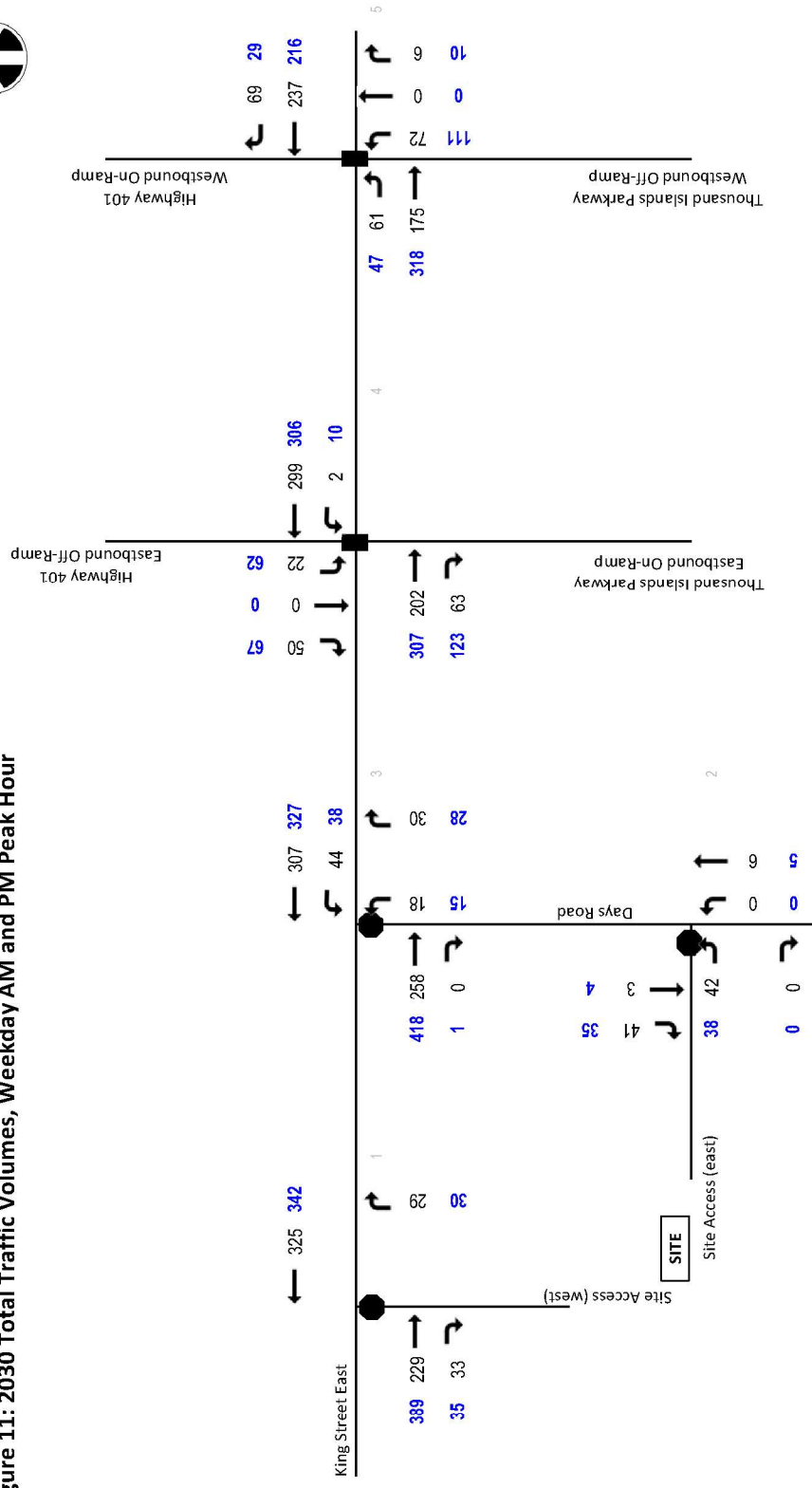


LEGEND

- Stop Sign
- Traffic Signal
- Lane Configuration
- xx **AM** / **PM** Peak Hour
- Schematic; Not To Scale



Figure 11: 2030 Total Traffic Volumes, Weekday AM and PM Peak Hour

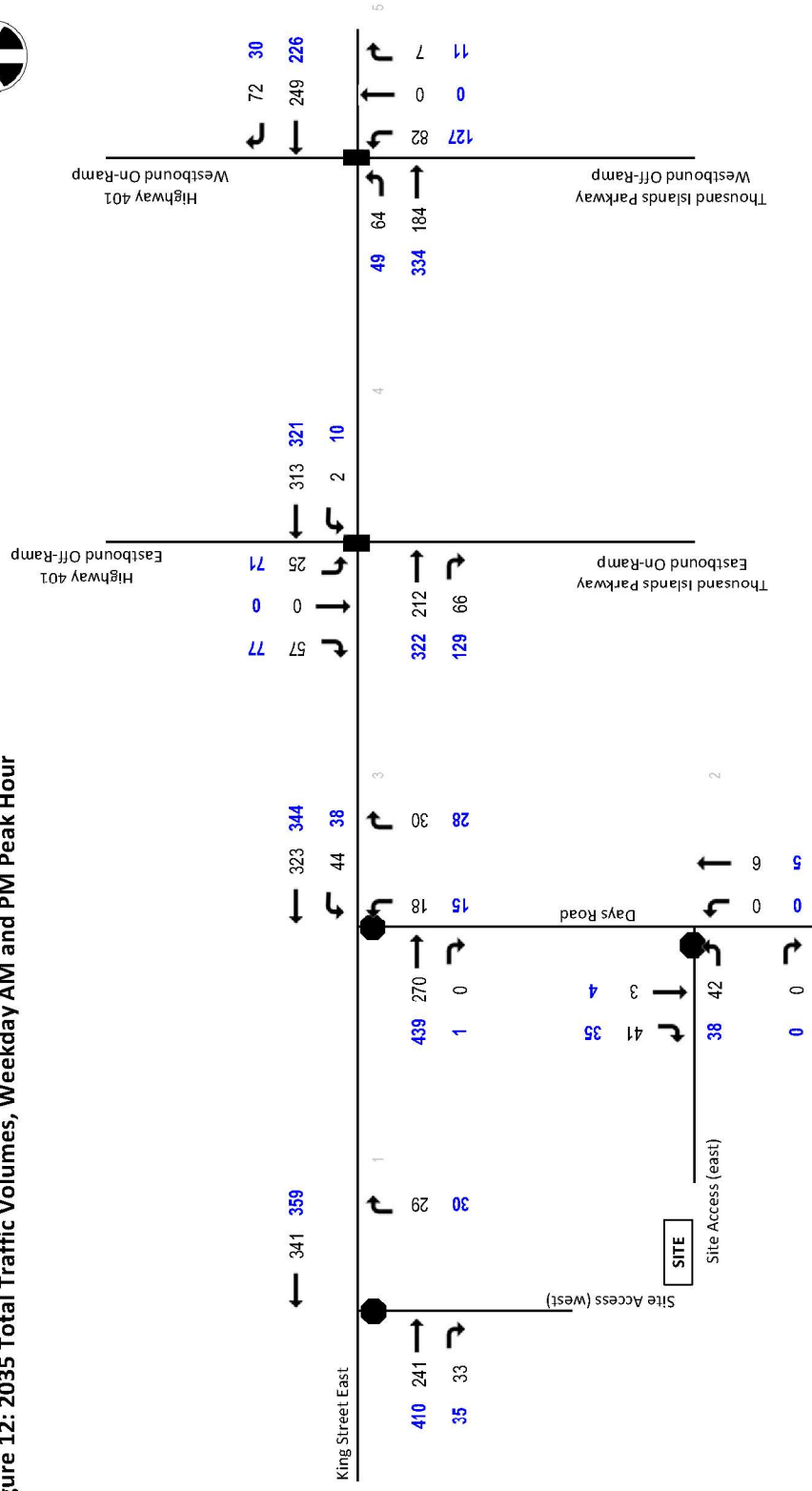


LEGEND	
	Stop Sign
	Traffic Signal
	Lane Configuration
xx xx	AM / PM Peak Hour

Schematic; Not To Scale



Figure 12: 2035 Total Traffic Volumes, Weekday AM and PM Peak Hour



LEGEND	
	Stop Sign
	Traffic Signal
	Lane Configuration
xx xx	AM / PM Peak Hour

Schematic; Not To Scale

APPENDICES

Appendix A – Turning Movement Counts

Appendix B – Background Traffic Information

Appendix C – Capacity Analysis Sheets

Appendix D – Level of Service Definitions



APPENDIX A

Turning Movement Counts



Turning Movement Count Diagram

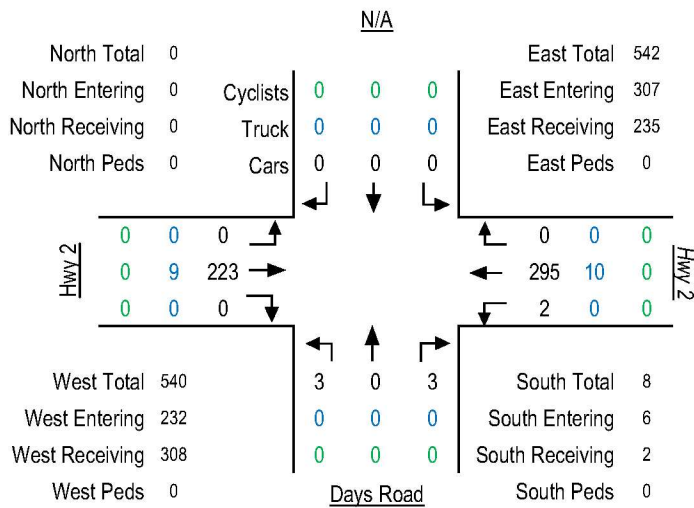
Intersection: Highway 2 and Days Road

Municipality: Gananoque, Ontario

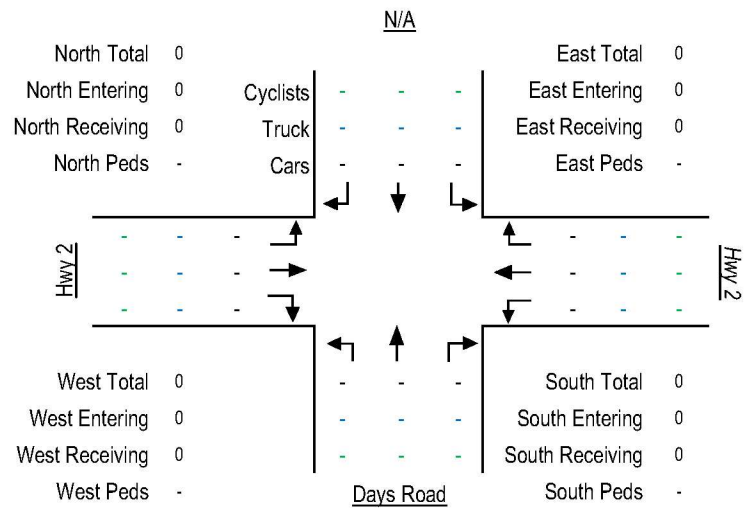
Intersection ID:

Date: Tuesday December 5, 2023

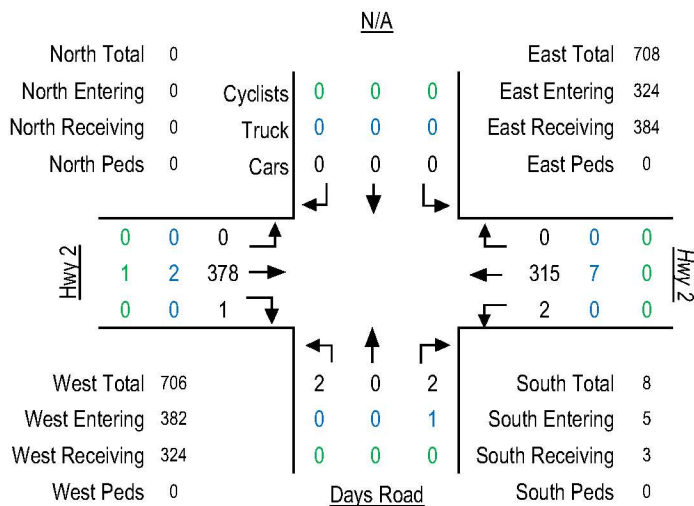
AM Peak Hour: 7:30 to 8:30



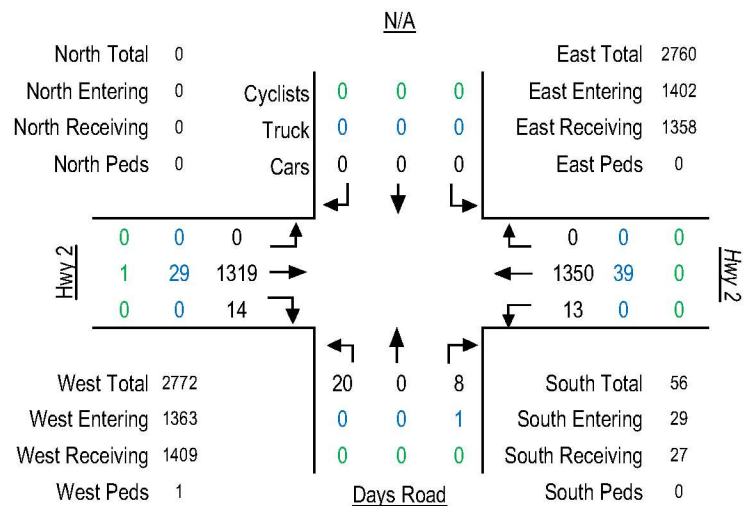
MD Peak Hour: - to -



PM Peak Hour: 16:00 to 17:00



Total 8-Hour Count





Turning Movement Count Diagram

Intersection: Highway 2 and 1000 Islands Parkway Eastbound Ramps

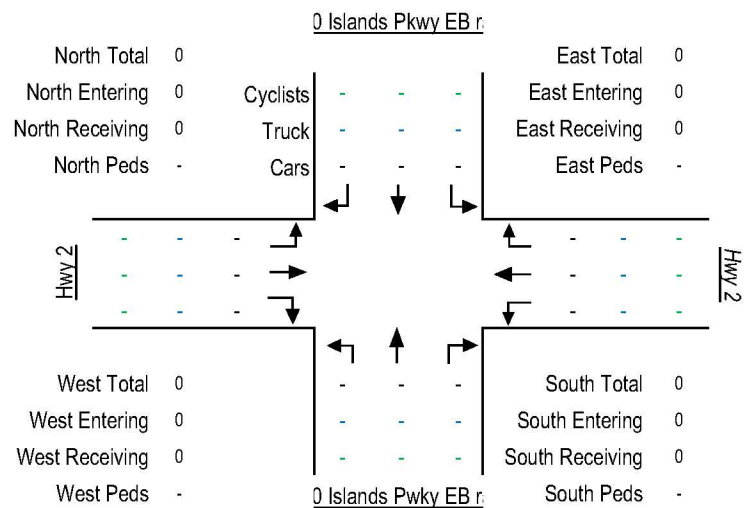
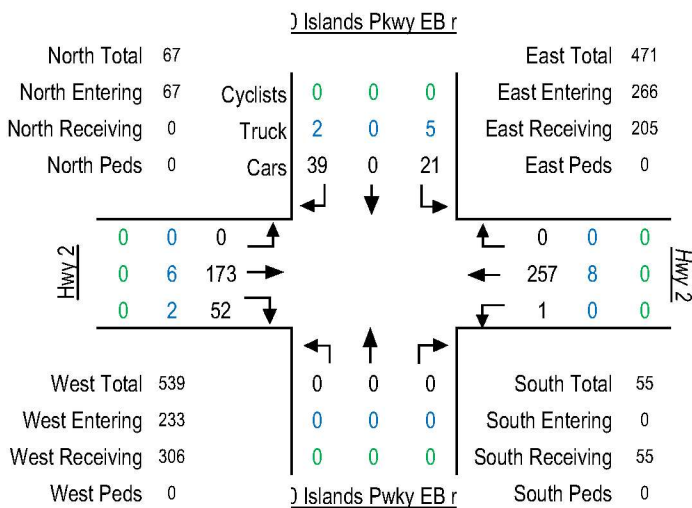
Municipality: Gananoque, Ontario

Intersection ID:

Date: Tuesday December 5, 2023

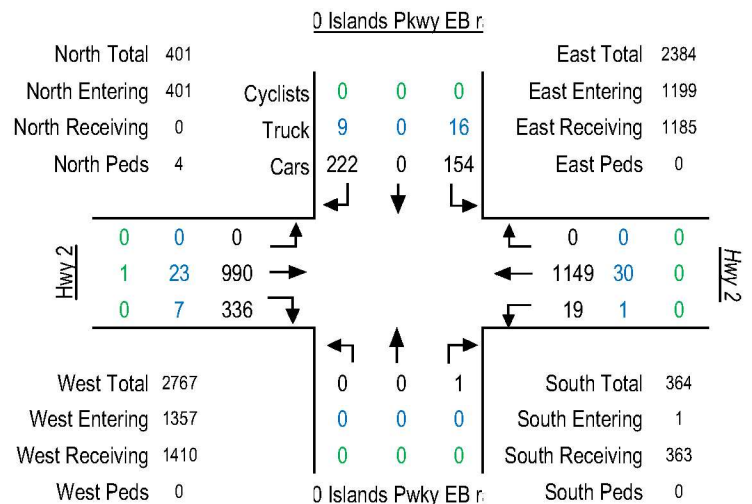
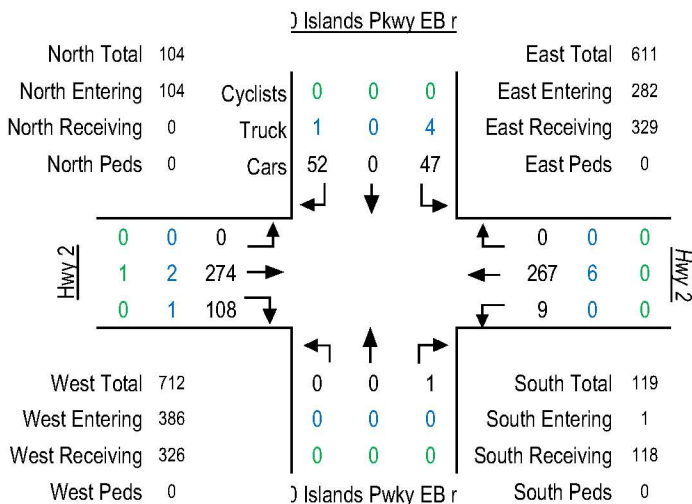
AM Peak Hour: 7:30 to 8:30

MD Peak Hour: - to -



PM Peak Hour: 16:00 to 17:00

Total 8-Hour Count





Turning Movement Count Diagram

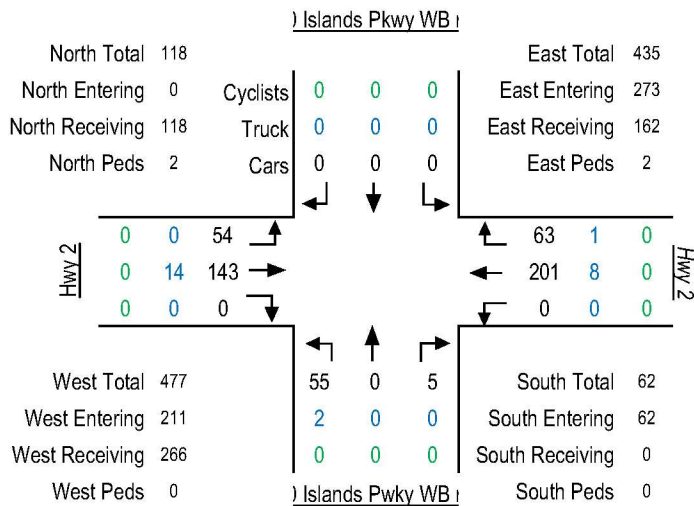
Intersection: Highway 2 and 1000 Islands Parkway Westbound Ramps

Municipality: Gananoque, Ontario

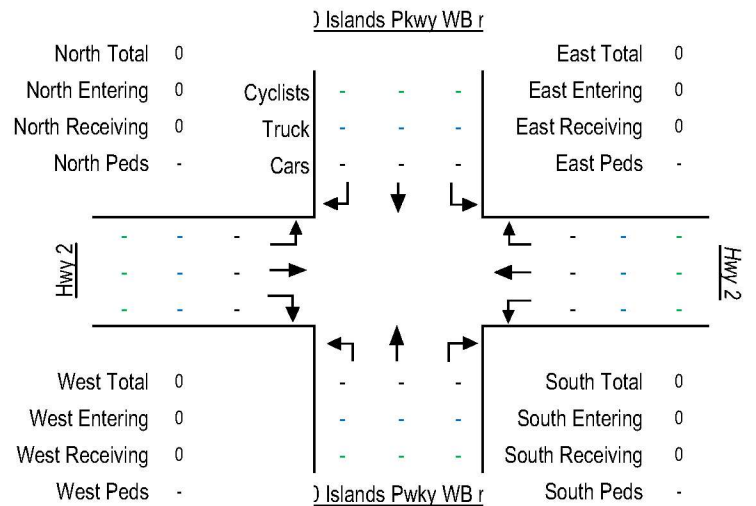
Intersection ID:

Date: Tuesday December 5, 2023

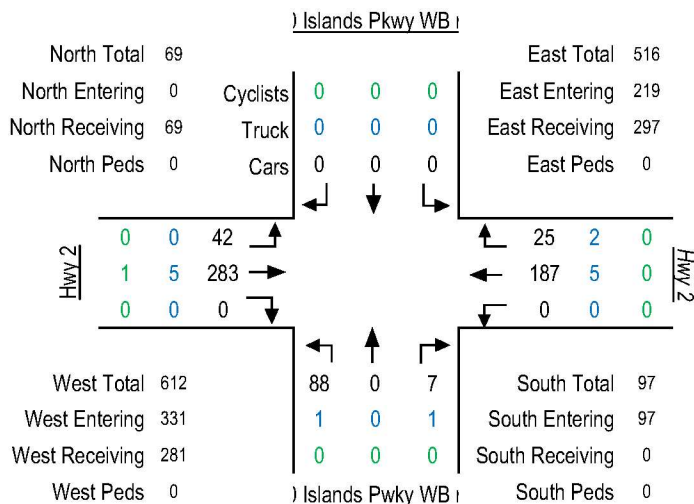
AM Peak Hour: 7:00 to 8:00



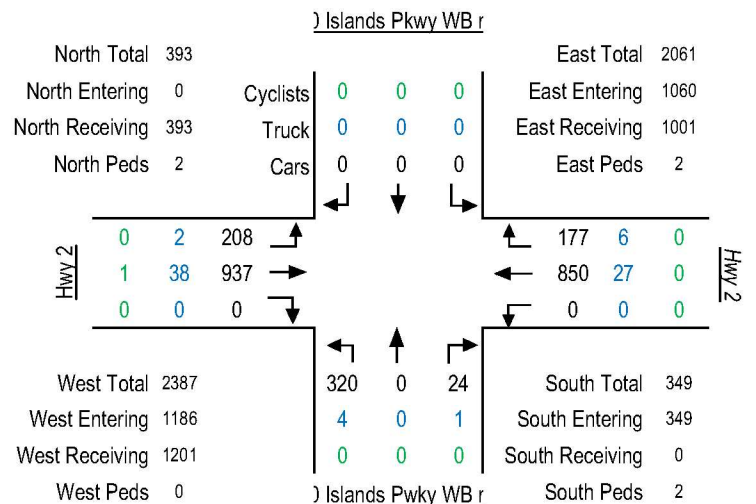
MD Peak Hour: - to -



PM Peak Hour: 16:00 to 17:00



Total 8-Hour Count





APPENDIX B

Background Traffic Information

The Town of Gananoque

30 King Street East
Gananoque, Ontario, K7G 1E9

Site Code: 00000016

Station ID:

KING ST EAST

EAST OF HOLIDAY INN ENTRANCE

Latitude: 0° 0.0000 Undefined

Start Time	02-Dec-13		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	EAST	WEST	EAST	WEST	EAST	WEST	EAST	WEST	EAST	WEST	EAST	WEST	EAST	WEST	EAST	WEST
12:00 AM	*	*	*	*	26	36	22	35	27	43	43	52	59	66	35	46
01:00	*	*	*	*	15	24	18	25	37	42	40	49	29	34	28	35
02:00	*	*	*	*	15	34	13	27	23	36	26	31	21	24	20	31
03:00	*	*	*	*	11	25	16	18	26	26	18	25	13	30	17	25
04:00	*	*	*	*	13	29	21	30	21	29	19	34	15	13	18	27
05:00	*	*	*	*	62	57	60	72	49	56	29	33	21	29	44	49
06:00	*	*	*	*	143	180	133	172	108	181	63	89	45	68	98	138
07:00	*	*	*	*	246	356	252	372	263	344	104	121	57	85	184	256
08:00	*	*	248	329	242	304	266	325	258	345	175	204	153	152	224	276
09:00	*	*	248	307	271	289	232	321	313	322	253	306	175	209	249	292
10:00	*	*	265	271	209	243	262	285	306	319	318	346	250	270	268	289
11:00	*	*	276	277	261	246	270	280	340	316	321	311	340	301	301	288
12:00 PM	*	*	326	302	288	277	332	267	323	342	359	314	342	331	328	306
01:00	*	*	287	278	293	295	337	325	361	365	370	338	350	348	333	325
02:00	*	*	303	290	285	258	329	321	437	384	353	316	413	329	353	316
03:00	*	*	399	299	415	295	425	325	476	348	402	308	354	321	412	316
04:00	*	*	421	330	397	333	465	385	470	388	334	289	297	283	397	335
05:00	*	*	387	276	346	274	377	285	390	310	267	222	246	232	336	266
06:00	*	*	234	218	272	206	285	268	278	218	218	235	171	194	243	223
07:00	*	*	184	160	192	166	183	155	220	183	167	162	161	184	184	168
08:00	*	*	146	90	139	124	160	147	157	146	125	125	110	131	140	127
09:00	*	*	125	90	123	93	120	77	124	132	129	89	170	81	132	94
10:00	*	*	65	83	81	81	69	80	145	110	98	104	62	85	87	90
11:00	*	*	58	29	67	34	77	53	105	81	84	60	46	32	73	48
Lane	0	0	3972	3629	4412	4259	4724	4650	5257	5066	4315	4166	3900	3832	4504	4366
Day	0	0	7601	8671	9374	10323	10323	10323	8481	8481	7732	7732	8870	8870	8870	8870
AM Peak	-	-	11:00	08:00	09:00	07:00	11:00	07:00	11:00	08:00	11:00	10:00	11:00	11:00	11:00	09:00
Vol.	-	-	276	329	271	356	270	372	340	345	321	346	340	301	301	292
PM Peak	-	-	16:00	16:00	15:00	16:00	16:00	16:00	15:00	16:00	15:00	13:00	14:00	13:00	15:00	16:00
Vol.	-	-	421	330	415	333	465	385	476	388	402	338	413	348	412	335

The Town of Gananoque

30 King Street East
Gananoque, Ontario, K7G 1E9

Site Code: 00000016
Station ID:
KING ST EAST
EAST OF HOLIDAY INN ENTRANCE
Latitude: 0' 0.0000 Undefined

Start Time	09-Dec-13		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	EAST	WEST	EAST	WEST	EAST	WEST	EAST	WEST	EAST	WEST	EAST	WEST	EAST	WEST	EAST	WEST
12:00 AM	14	20	21	38	*	*	*	*	*	*	*	*	*	*	18	29
01:00	6	19	17	22	*	*	*	*	*	*	*	*	*	*	12	20
02:00	16	18	14	23	*	*	*	*	*	*	*	*	*	*	15	20
03:00	15	20	12	20	*	*	*	*	*	*	*	*	*	*	14	20
04:00	12	28	15	34	*	*	*	*	*	*	*	*	*	*	14	31
05:00	42	42	47	66	*	*	*	*	*	*	*	*	*	*	44	54
06:00	108	158	112	187	*	*	*	*	*	*	*	*	*	*	110	172
07:00	210	330	222	416	*	*	*	*	*	*	*	*	*	*	216	373
08:00	217	341	*	*	*	*	*	*	*	*	*	*	*	*	217	341
09:00	190	252	*	*	*	*	*	*	*	*	*	*	*	*	190	252
10:00	211	258	*	*	*	*	*	*	*	*	*	*	*	*	211	258
11:00	252	235	*	*	*	*	*	*	*	*	*	*	*	*	252	235
12:00 PM	272	260	*	*	*	*	*	*	*	*	*	*	*	*	272	260
01:00	269	289	*	*	*	*	*	*	*	*	*	*	*	*	269	289
02:00	318	339	*	*	*	*	*	*	*	*	*	*	*	*	318	339
03:00	380	269	*	*	*	*	*	*	*	*	*	*	*	*	380	269
04:00	398	287	*	*	*	*	*	*	*	*	*	*	*	*	398	287
05:00	349	280	*	*	*	*	*	*	*	*	*	*	*	*	349	280
06:00	210	183	*	*	*	*	*	*	*	*	*	*	*	*	210	183
07:00	167	139	*	*	*	*	*	*	*	*	*	*	*	*	167	139
08:00	123	114	*	*	*	*	*	*	*	*	*	*	*	*	123	114
09:00	105	69	*	*	*	*	*	*	*	*	*	*	*	*	105	69
10:00	77	69	*	*	*	*	*	*	*	*	*	*	*	*	77	69
11:00	68	30	*	*	*	*	*	*	*	*	*	*	*	*	68	30
Lane	4029	4049	460	806	0	0	0	0	0	0	0	0	0	0	4049	4133
Day	8078		1266		0	0	0	0	0	0	0	0	0	0	8182	
AM Peak	11:00	08:00	07:00	07:00	-	-	-	-	-	-	-	-	-	-	11:00	07:00
Vol.	252	341	222	416	-	-	-	-	-	-	-	-	-	-	252	373
PM Peak	16:00	14:00	-	-	-	-	-	-	-	-	-	-	-	-	16:00	14:00
Vol.	398	339	-	-	-	-	-	-	-	-	-	-	-	-	398	339

Comb. Total	8078	8867	8671	9374	10323	8481	7732	17052
ADT	ADT 8,790	AADT 8,790						



APPENDIX C

Capacity Analysis Results

HCM Unsignalized Intersection Capacity Analysis 2: Days Road & Site Access (east)

<Existing> AM Peak Hour
12-13-2023

Movement	EBL	EBR	NBL	SBT	SBR	
Lane Configurations	W			W		
Traffic Volume (veh/h)	0	0	0	6	2	0
Future Volume (Veh/h)	0	0	0	6	2	0
Sign Control	Stop			Free		
Grade	D%			D%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	7	2	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percut Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
VC, conflicting volume	9	2	2			
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol	9	2	2			
IC, single (s)	6.4	6.2	4.1			
IC, 2 stage (s)						
IF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1011	1082	1620			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	7	2			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1620	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			A
Intersection Capacity Utilization			6.7%			
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 1: Site Access (west) & King Street East

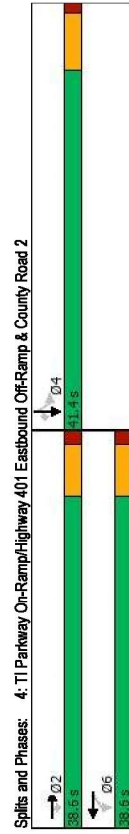
<Existing> AM Peak Hour
12-13-2023

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	W					W
Traffic Volume (veh/h)	232	0	0	308	0	0
Future Volume (Veh/h)	232	0	0	308	0	0
Sign Control	Free			Free		Stop
Grade	D%			D%		D%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	252	0	0	335	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percut Blockage						
Right turn flare (veh)						
Median type				None		
Median storage (veh)						
Upstream signal (m)				156		
pX, platoon unblocked						
VC, conflicting volume			252		587	252
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol			252		587	252
IC, single (s)			4.1		6.4	6.2
IC, 2 stage (s)						
IF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1313		472	787
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	252	335	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.15	0.20	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A		A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A		A			
Intersection Summary						
Average Delay			0.0			A
Intersection Capacity Utilization			19.5%			
Analysis Period (min)			15			

Timings 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

<Existing> AM Peak Hour
12-13-2023

Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	179	54	2	264	0	38
Future Volume (vph)	179	54	2	264	0	38
Turn Type	NA	Perm	Perm	NA	NA	Perm
Protected Phases	2			6	4	
Permitted Phases	2	2	6	6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	26.5	26.5	26.5	26.5	25.5	25.5
Total Split (s)	36.6	36.6	36.6	36.6	41.4	41.4
Total Split (%)	48.3%	48.3%	48.3%	48.3%	51.8%	51.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.4	5.4
All-Red Time (s)	1.5	1.5	1.5	1.5	1.1	1.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	21.3	21.3	21.3	21.3	14.2	14.2
Actuated g/C Ratio	0.79	0.79	0.79	0.79	0.52	0.52
v/c Ratio	0.15	0.05	0.00	0.21	0.03	0.06
Control Delay	5.0	2.5	6.0	5.2	12.1	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.0	2.5	6.0	5.2	12.1	5.4
LOS	A	A	A	A	B	A
Approach Delay	4.4			5.2	7.6	
Approach LOS	A			A	A	
Intersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 27.1						
Natural Cycle: 35						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.21						
Intersection Signal Delay: 5.1						
Intersection Capacity Utilization 59.4%						
Analysis Period (min) 15						



HCM Unsignalized Intersection Capacity Analysis 3: Days Road & King Street East/County Road 2

<Existing> AM Peak Hour
12-13-2023

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	232	0	2	305	3	3
Future Volume (veh/h)	232	0	2	305	3	3
Sign Control	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	276	0	2	363	4	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)	None					
Median type						
Median storage (veh)						
Upstream signal (m)						
pK, platoon unblocked						
vC, conflicting volume						
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
IC, single (s)						
IC, 2 stage (s)						
p0 queue free %						
p0 queue free (s)						
qM capacity (veh/h)						
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	276	365	8			
Volume Left	0	2	4			
Volume Right	0	0	4			
CSH	1700	1287	561			
Volume to Capacity	0.16	0.00	0.01			
Queue Length 95th (m)	0.0	0.0	0.3			
Control Delay (s)	0.0	0.1	11.5			
Lane LOS	A	A	B			
Approach Delay (s)	0.0	0.1	11.5			
Approach LOS		B				
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			27.6%			
Analysis Period (min)			15			
ICU Level of Service			A			

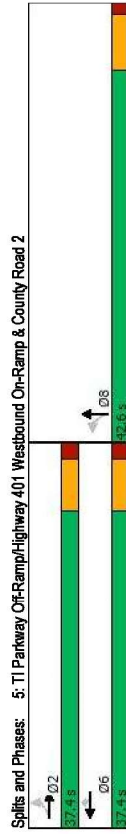
Timings

5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

<Existing> AM Peak Hour

12-13-2023

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Configurations	EBL	EBT	WBT	WBR	NBT
Traffic Volume (vph)	54	157	209	64	0
Future Volume (vph)	54	157	209	64	0
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases	2	2	6	6	8
Permitted Phases	2	2	6	6	8
Detector Phase	2	2	6	6	8
Switch Phase					
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0
Minimum Split (s)	30.7	30.7	30.7	30.7	32.6
Total Split (s)	37.4	37.4	37.4	37.4	42.6
Total Split (%)	46.8%	46.8%	46.8%	46.8%	53.3%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.4
All-Red Time (s)	1.7	1.7	1.7	1.7	1.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.6
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	None	None
Act Effect Green (s)	21.9	21.9	21.9	21.9	13.7
Actuated g/C Ratio	0.78	0.78	0.78	0.78	0.49
w/c Ratio	0.07	0.13	0.17	0.06	0.08
Control Delay	5.5	5.1	5.1	2.5	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.5	5.1	5.1	2.5	7.0
LOS	A	A	A	A	A
Approach Delay	5.2	4.5	7.0		
Approach LOS	A	A	A	A	A
Intersection Summary					
Cycle Length: 80					
Actuated Cycle Length: 27.9					
Natural Cycle: 65					
Control Type: Actuated-Uncoordinated					
Maximum w/c Ratio: 0.17					
Intersection Signal Delay: 5.1					
Intersection Capacity Utilization 59.4%					
Analysis Period (min) 15					



HCM Signalized Intersection Capacity Analysis

4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

<Existing> AM Peak Hour

12-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	179	54	2	264	0	0	0	0	18	0	38
Future Volume (vph)	0	179	54	2	264	0	0	0	0	18	0	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
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
Flt	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.85
Flt Protected	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1810	1615	1805	1863	1863	1863	1863	1863	1863	1444	1482	1482
Flt Permitted	1.00	1.00	0.63	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1810	1615	1192	1863	1863	1863	1863	1863	1863	1444	1482	1482
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	208	63	2	307	0	0	0	0	21	0	44
RTOR Reduction (vph)	0	0	40	0	0	0	0	0	0	0	0	40
Lane Group Flow (vph)	0	208	23	2	307	0	0	0	0	0	21	4
Heavy Vehicles (%)	0%	5%	0%	0%	2%	0%	0%	0%	0%	25%	0%	9%
Turn Type	NA	Perm	Perm	Perm	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm
Protected Phases	2	2	6	6	6	6	6	6	6	4	4	4
Permitted Phases	2	2	6	6	6	6	6	6	6	4	4	4
Actuated Green, G (s)	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	2.5	2.5	2.5
Effective Green, g (s)	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	2.5	2.5	2.5
Actuated g/C Ratio	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.10	0.10	0.10
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	669	597	440	689	689	689	689	689	689	146	150	150
w/c Ratio Prot	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.01	0.01	0.01
w/c Ratio Perm	0.31	0.04	0.00	0.45	0.45	0.45	0.45	0.45	0.45	0.14	0.03	0.03
Uniform Delay, d1	5.5	5.0	4.9	5.8	5.8	5.8	5.8	5.8	5.8	10.1	10.0	10.0
Progression 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
Incremental Delay, d2	0.3	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1
Delay (s)	5.8	5.0	4.9	6.3	6.3	6.3	6.3	6.3	6.3	10.5	10.0	10.0
Level of Service	A	A	A	A	A	A	A	A	A	B	B	B
Approach Delay (s)	5.6	5.6	6.3	6.3	6.3	6.3	6.3	6.3	6.3	10.2	10.2	10.2
Approach LOS	A	A	A	A	A	A	A	A	A	B	B	B
Intersection Summary												
HCM 2000 Control Delay	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	13.0	13.0	13.0
HCM 2000 Volume to Capacity ratio	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
Actuated Cycle Length (s)	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	13.0	13.0	13.0
Intersection Capacity Utilization	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	15	15	15
Analysis Period (min)	15	15	15	15	15	15	15	15	15	15	15	15
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 1: Site Access (west) & King Street East

<Existing> PM Peak Hour
12-13-2023

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	EB	EB	WB	WB	NB	NB
Traffic Volume (veh/h)	381	0	0	324	0	0
Future Volume (Veh/h)	381	0	0	324	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	414	0	0	352	0	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)				158		
pX, platoon unblocked					0.98	
VC, conflicting volume		414			766	414
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol		414			751	414
IC, single (s)		4.1			6.4	6.2
IC, 2 stage (s)		2.2			3.5	3.3
p0 queue free %		100			100	100
cM capacity (veh/h)		1145			371	638
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	414	352	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.24	0.21	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A	A	A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			23.4%			A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

<Existing> AM Peak Hour
12-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Traffic Volume (vph)	54	157	0	0	209	64	57	0	5	0	0	0
Future Volume (vph)	54	157	0	0	209	64	57	0	5	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7			6.7	6.7			6.6			
Lane Util. Factor	1.00	1.00			1.00	1.00			1.00			
Frpb, ped/bikes	1.00	1.00			1.00	0.98			1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00			1.00			
Frt	1.00	1.00			1.00	0.85			0.99			
Flt Protected	0.95	1.00			1.00	1.00			0.96			
Satd. Flow (prot)	1751	1759			1845	1550			1793			
Flt Permitted	0.61	1.00			1.00	1.00			0.98			
Satd. Flow (perm)	1117	1759			1845	1550			1793			
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	64	185	0	0	246	75	67	0	6	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	47	0	45	0	0	0	0
Lane Group Flow (vph)	64	185	0	0	246	28	0	28	0	0	0	0
Conf. Peds. (#/hr)	2				2			2				
Heavy Vehicles (%)	3%	8%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	NA	NA	Perm	Perm	NA	NA	NA	NA	NA	NA
Protected Phases		2			6			8				
Permitted Phases	2				6		8					
Actuated Green, G (s)	9.3	9.3			9.3	9.3	2.6					
Effective Green, g (s)	9.3	9.3			9.3	9.3	2.6					
Actuated g/C Ratio	0.37	0.37			0.37	0.37	0.10					
Clearance Time (s)	6.7	6.7			6.7	6.7	6.6					
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0					
Lane Grp Cap (vph)	412	649			680	572	184					
v/s Ratio Prot		0.11			0.13							
v/s Ratio Perm	0.06				0.02							
v/c Ratio	0.16	0.29			0.36	0.05	0.15					
Uniform Delay, d1	5.3	5.6			5.8	5.1	10.3					
Progression Factor	1.00	1.00			1.00	1.00	1.00					
Incremental Delay, d2	0.2	0.2			0.3	0.0	0.4					
Delay (s)	5.5	5.8			6.1	5.1	10.7					
Level of Service	A	A			A	A	B					
Approach Delay (s)		5.8			5.9		10.7					
Approach LOS		A			A		B					
Intersection Summary												
HCM 2000 Control Delay			6.4							A		
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			25.2							13.3		
Intersection Capacity Utilization			59.4%							B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 3: Days Road & King Street East/County Road 2

HCM Unsignalized Intersection Capacity Analysis 2: Days Road & Site Access (east)

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	W				W	
Traffic Volume (veh/h)	380	1	2	322	2	3
Future Volume (Veh/h)	380	1	2	322	2	3
Sign Control	Free				Stop	
Grade	D%				D%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	400	1	2	339	2	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None				None	
Median storage (veh)						
Upstream signal (m)				113		
pX, platoon unblocked					0.94	
VC, conflicting volume			401		744	400
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol			401		695	400
IC, single (s)			4.1		6.4	6.2
IC, 2 stage (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
qM capacity (veh/h)			1158		383	650
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	401	341	5			
Volume Left	0	2	2			
Volume Right	1	0	3			
cSH	1700	1158	508			
Volume to Capacity	0.24	0.00	0.01			
Queue Length 95th (m)	0.0	0.0	0.2			
Control Delay (s)	0.0	0.1	12.2			
Lane LOS	A	A	B			
Approach Delay (s)	0.0	0.1	12.2			
Approach LOS		B				
Intersection Summary						
Average Delay			0.1			A
Intersection Capacity Utilization			30.1%			
Analysis Period (min)			15			

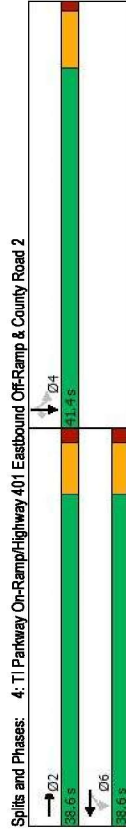
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W				W	
Traffic Volume (veh/h)	0	0	0	5	3	0
Future Volume (Veh/h)	0	0	0	5	3	0
Sign Control	Stop			Free	Free	
Grade	D%			D%	D%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	5	3	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)				None	None	
Median type						
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
VC, conflicting volume		8	3	3		
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol		8	3	3		
IC, single (s)		6.4	6.2	4.1		
IC, 2 stage (s)		3.5	3.3	2.2		
p0 queue free %		100	100	100		
qM capacity (veh/h)		1013	1081	1619		
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	5	3			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1619	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A	A				
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS		A				
Intersection Summary						
Average Delay			0.0			A
Intersection Capacity Utilization			6.7%			
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

Timings
4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	276	109	9	273	0	0	0	0	51	0	53
Traffic Volume (vph)	0	276	109	9	273	0	0	0	0	51	0	53
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	0	276	109	9	273	0	0	0	0	51	0	53
Total Lost time (s)	6.5	4.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
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
Frt	1.00	0.85	1.00	1.00	1.00	1.00	0.85	1.00	1.00	0.95	1.00	0.85
Flt Protected	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1863	1615	1805	1881	1881	1881	1736	1599	1736	1599	1863	1615
Flt Permitted	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1863	1615	1108	1881	1881	1881	1736	1599	1736	1599	1863	1615
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	288	114	9	284	0	0	0	0	53	0	55
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	47
Lane Group Flow (vph)	0	288	114	9	284	0	0	0	0	53	0	53
Heavy Vehicles (%)	0%	2%	0%	0%	1%	0%	0%	0%	0%	4%	0%	1%
Turn Type	NA	Free	Free	Perm	Perm	NA	Perm	NA	Perm	NA	Perm	Perm
Protected Phases	2	2	2	6	6	6	6	6	6	6	6	6
Permitted Phases	Free	Free	Free	6	6	6	6	6	6	6	6	6
Actuated Green, G (s)	14.3	32.0	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
Effective Green, g (s)	14.3	32.0	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
Actuated g/C Ratio	0.45	1.00	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	832	1615	495	840	840	840	254	234	234	254	234	234
v/s Ratio Prot	c0.15	0.07	0.01	0.15	0.15	0.15	0.03	0.01	0.03	0.01	0.03	0.01
v/s Ratio Perm	0.35	0.07	0.02	0.34	0.34	0.34	0.21	0.01	0.21	0.01	0.21	0.03
Uniform Delay, d1	5.8	0.0	4.9	5.8	5.8	5.8	12.0	11.7	12.0	11.7	12.0	11.7
Progression 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
Incremental Delay, d2	0.3	0.1	0.0	0.2	0.2	0.2	0.4	0.1	0.4	0.1	0.4	0.1
Delay (s)	6.0	0.1	5.0	6.0	6.0	6.0	12.4	11.8	12.4	11.8	12.4	11.8
Level of Service	A	A	A	A	A	A	B	B	B	B	B	B
Approach Delay (s)	4.4	6.0	6.0	6.0	6.0	6.0	12.1	12.1	12.1	12.1	12.1	12.1
Approach LOS	A	A	A	A	A	A	B	B	B	B	B	B
Intersection Summary	HCM 2000 Control Delay											
HCM 2000 Control Delay	6.0											
HCM 2000 Volume to Capacity ratio	0.31											
Actuated Cycle Length (s)	32.0											
Intersection Capacity Utilization	58.3%											
Analysis Period (min)	15											
c Critical Lane Group	15											

Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations	2	2	6	6	4	4
Traffic Volume (vph)	276	109	9	273	0	53
Future Volume (vph)	276	109	9	273	0	53
Turn Type	NA	Free	Perm	NA	NA	Perm
Protected Phases	2	2	6	6	4	4
Permitted Phases	2	2	6	6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase	2	2	6	6	4	4
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	26.5	26.5	26.5	26.5	25.5	25.5
Total Split (s)	36.6	36.6	36.6	36.6	41.4	41.4
Total Split (%)	48.3%	48.3%	48.3%	48.3%	51.8%	51.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.4	5.4
All-Red Time (s)	1.5	1.5	1.5	1.5	1.1	1.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead/Lag Optimize?	Lead/Lag Optimize?	Lead/Lag Optimize?	Lead/Lag Optimize?	Lead/Lag Optimize?	Lead/Lag Optimize?
Recall Mode	None	None	None	None	None	None
Act Effct Green (s)	22.7	33.4	22.7	22.7	13.1	13.1
Actuated g/C Ratio	0.68	1.00	0.68	0.68	0.39	0.39
v/c Ratio	0.23	0.07	0.01	0.22	0.08	0.08
Control Delay	6.7	0.1	6.3	6.7	13.2	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	0.1	6.3	6.7	13.2	5.8
LOS	A	A	A	A	B	A
Approach Delay	4.8	6.6	6.6	6.6	9.3	9.3
Approach LOS	A	A	A	A	A	A
Intersection Summary	Cycle Length: 80					
Cycle Length: 80	Actuated Cycle Length: 33.4					
Actuated Cycle Length: 33.4	Natural Cycle: 35					
Natural Cycle: 35	Control Type: Actuated-Uncoordinated					
Control Type: Actuated-Uncoordinated	Maximum v/c Ratio: 0.23					
Maximum v/c Ratio: 0.23	Intersection Signal Delay: 6.1					
Intersection Signal Delay: 6.1	Intersection LOS: A					
Intersection LOS: A	Intersection Capacity Utilization: 58.3%					
Intersection Capacity Utilization: 58.3%	Analysis Period (min): 15					
Analysis Period (min): 15	ICU Level of Service: B					
ICU Level of Service: B	Intersection LOS: A					

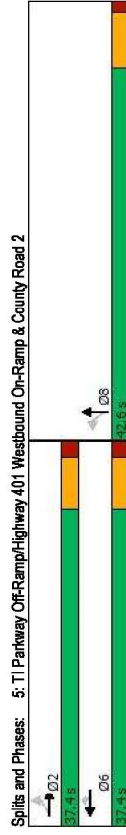


HCM Signalized Intersection Capacity Analysis 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

Timings
5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Traffic Volume (vph)	42	288	0	0	192	27	89	0	8	0	0
Future Volume (vph)	42	288	0	0	192	27	89	0	8	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
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
Frt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1736	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Flt Permitted	0.62	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1138	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	47	324	0	0	216	30	100	0	9	0	0
RTOR Reduction (vph)	0	0	0	0	0	17	0	43	0	0	0
Lane Group Flow (vph)	47	324	0	0	216	13	0	66	0	0	0
Heavy Vehicles (%)	4%	2%	0%	0%	1%	3%	0%	0%	20%	0%	0%
Turn Type	Perm	NA	NA	NA	Perm	Perm	NA	NA	NA	NA	NA
Protected Phases	2	2	2	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2	2	2	2
Actuated Green, G (s)	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
Effective Green, g (s)	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
Actuated g/C Ratio	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	503	824	824	824	824	824	824	824	824	824	824
v/s Ratio Prot	0.17	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
v/s Ratio Perm	0.04	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Uniform Delay, d1	5.2	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
Progression Factor	1.00	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	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Delay (s)	5.3	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Level of Service	A	A	A	A	A	A	A	A	A	A	A
Approach Delay (s)	6.2	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
Approach LOS	A	A	A	A	A	A	A	A	A	A	A
Intersection Summary	Intersection Summary										
HCM 2000 Control Delay	7.1										
HCM 2000 Volume to Capacity ratio	0.36										
Actuated Cycle Length (s)	32.3										
Intersection Capacity Utilization	58.3%										
Analysis Period (min)	15										
c Critical Lane Group	c Critical Lane Group										

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT
Traffic Volume (vph)	42	288	192	27	89	0	8	0
Future Volume (vph)	42	288	192	27	89	0	8	0
Turn Type	Perm	NA	NA	NA	Perm	NA	NA	NA
Protected Phases	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2
Detector Phase	2	2	2	2	2	2	2	2
Switch Phase	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Initial (s)	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7
Minimum Split (s)	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (%)	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%
Total Split (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Yellow Time (s)	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
v/c Ratio	0.06	0.26	0.17	0.03	0.03	0.03	0.03	0.03
Control Delay	6.7	7.0	6.5	1.9	1.9	9.2	6.7	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	7.0	6.5	1.9	1.9	9.2	6.7	6.7
LOS	A	A	A	A	A	A	A	A
Approach Delay	6.9	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Approach LOS	A	A	A	A	A	A	A	A
Intersection Summary	Intersection Summary							
Cycle Length: 80	Cycle Length: 80							
Actuated Cycle Length: 33.6	Actuated Cycle Length: 33.6							
Natural Cycle t5	Natural Cycle t5							
Control Type: Actuated-Uncoordinated	Control Type: Actuated-Uncoordinated							
Maximum v/c Ratio: 0.26	Maximum v/c Ratio: 0.26							
Intersection Signal Delay: 7.0	Intersection Signal Delay: 7.0							
Intersection Capacity Utilization 58.3%	Intersection Capacity Utilization 58.3%							
Analysis Period (min) 15	Analysis Period (min) 15							



HCM Unsignalized Intersection Capacity Analysis 2: Days Road & Site Access (east)

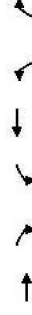
12-13-2023

HCM Unsignalized Intersection Capacity Analysis 1: Site Access (west) & King Street East

12-13-2023



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W					
Traffic Volume (veh/h)	0	0	0	6	3	0
Future Volume (Veh/h)	0	0	0	6	3	0
Sign Control	Stop			Free	Free	
Grade	D%			D%	D%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	7	3	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percut Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
VC, conflicting volume	10	3	3			
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol	10	3	3			
IC, single (s)	6.4	6.2	4.1			
IC, 2 stage (s)						
IF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1010	1081	1519			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	7	3			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1619	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			A
Intersection Capacity Utilization			6.7%			
Analysis Period (min)			15			

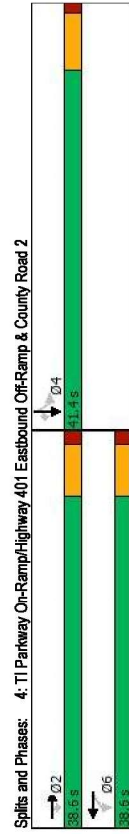


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	W					
Traffic Volume (veh/h)	237	0	0	315	0	0
Future Volume (Veh/h)	237	0	0	315	0	0
Sign Control	Free			Free	Stop	
Grade	D%			D%	D%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	258	0	0	342	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percut Blockage						
Right turn flare (veh)						
Median type				None		
Median storage (veh)						
Upstream signal (m)				156		
pX, platoon unblocked						
VC, conflicting volume		258		600	258	
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol		258		600	258	
IC, single (s)		4.1		6.4	6.2	
IC, 2 stage (s)						
IF (s)		2.2		3.5	3.3	
p0 queue free %		100		100	100	
cM capacity (veh/h)		1307		464	781	
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	258	342	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.15	0.20	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			A
Intersection Capacity Utilization			19.9%			
Analysis Period (min)			15			

Timings
4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

<Background 2025> AM Peak Hour
12-13-2023

Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	183	55	2	269	0	40
Future Volume (vph)	183	55	2	269	0	40
Turn Type	NA	Perm	Perm	NA	NA	Perm
Protected Phases	2			6	4	
Permitted Phases	2	2	6	6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	26.5	26.5	26.5	26.5	25.5	25.5
Total Split (s)	36.6	36.6	36.6	36.6	41.4	41.4
Total Split (%)	48.3%	48.3%	48.3%	48.3%	51.8%	51.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.4	5.4
All-Red Time (s)	1.5	1.5	1.5	1.5	1.1	1.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	21.2	21.2	21.2	21.2	14.3	14.3
Actuated g/C Ratio	0.79	0.79	0.79	0.79	0.53	0.53
v/c Ratio	0.15	0.05	0.00	0.21	0.03	0.06
Control Delay	5.0	2.5	6.0	5.2	12.1	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.0	2.5	6.0	5.2	12.1	5.7
LOS	A	A	A	A	B	A
Approach Delay	4.4			5.2	7.7	
Approach LOS	A			A	A	
Intersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 27						
Natural Cycle: 35						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.21						
Intersection Signal Delay: 5.1						
Intersection Capacity Utilization 59.4%						
Analysis Period (min) 15						



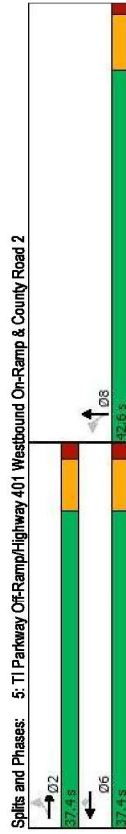
HCM Unsignalized Intersection Capacity Analysis
3: Days Road & King Street East/County Road 2

<Background 2025> AM Peak Hour
12-13-2023

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	237	0	3	312	3	3
Future Volume (Veh/h)	237	0	3	312	3	3
Sign Control	Free	Free	Free	Stop	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	282	0	4	371	4	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)	None					
Median type						
Median storage (veh)						
Upstream signal (m)				111		
pK, platoon unblocked					0.92	
VC, conflicting volume				282	661	282
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol				282	590	282
IC, single (s)				4.1	6.4	6.2
IC, 2 stage (s)				2.2	3.5	3.3
IF (s)				100	99	99
p0 queue free %				1280	432	757
CM capacity (veh/h)						
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	282	375	8			
Volume Left	0	4	4			
Volume Right	0	0	4			
CSH	1700	1280	550			
Volume to Capacity	0.17	0.00	0.01			
Queue Length 95th (m)	0.0	0.1	0.4			
Control Delay (s)	0.0	0.1	11.6			
Lane LOS	A	A	B			
Approach Delay (s)	0.0	0.1	11.6			
Approach LOS		B				
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			28.8%			
ICU Level of Service			A			
Analysis Period (min)			15			

Timings 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2 <Background 2025> AM Peak Hour 12-13-2023

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Configurations	EBL	EBT	WBT	WBR	NBT
Traffic Volume (vph)	55	160	213	65	0
Future Volume (vph)	55	160	213	65	0
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases	2	2	6	6	8
Permitted Phases	2	2	6	6	8
Detector Phase	2	2	6	6	8
Switch Phase	20.0	20.0	20.0	20.0	10.0
Minimum Initial (s)	30.7	30.7	30.7	30.7	32.6
Minimum Split (s)	37.4	37.4	37.4	37.4	42.6
Total Split (s)	46.8%	46.8%	46.8%	46.8%	53.3%
Total Split (%)	5.0	5.0	5.0	5.0	5.4
Yellow Time (s)	1.7	1.7	1.7	1.7	1.2
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	6.7	6.7	6.7	6.7	6.6
Total Lost Time (s)					
Lead/Lag					
Lead-Lag Optimize?	None	None	None	None	None
Recall Mode	21.1	21.1	21.1	21.1	14.5
Act Effect Green (s)	0.68	0.68	0.68	0.68	0.47
Actuated g/C Ratio	0.09	0.16	0.20	0.07	0.09
w/C Ratio	6.8	6.6	6.7	2.5	7.7
Control Delay	0.0	0.0	0.0	0.0	0.0
Queue Delay	6.8	6.6	6.7	2.5	7.7
Total Delay	A	A	A	A	A
LOS	A	A	A	A	A
Approach Delay	6.6	5.7	7.7		
Approach LOS	A	A	A	A	A
Intersection Summary					
Cycle Length: 80					
Actuated Cycle Length: 31.1					
Natural Cycle: 65					
Control Type: Actuated-Uncoordinated					
Maximum w/C Ratio: 0.20					
Intersection Signal Delay: 6.3					
Intersection LOS: A					
Intersection Capacity Utilization 59.4%					
Analysis Period (min) 15					



HCM Signalized Intersection Capacity Analysis 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2 <Background 2025> AM Peak Hour 12-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	183	55	2	269	0	0	0	0	19	0	40
Future Volume (vph)	0	183	55	2	269	0	0	0	0	19	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
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
Flt	1.00	0.85	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.85
Flt Protected	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1810	1615	1805	1863	1863	1863	1863	1863	1863	1863	1863	1863
Flt Permitted	1.00	1.00	0.62	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1810	1615	1187	1863	1863	1863	1863	1863	1863	1863	1863	1863
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	213	64	2	313	0	0	0	0	22	0	47
RTOR Reduction (vph)	0	0	40	0	0	0	0	0	0	0	0	42
Lane Group Flow (vph)	0	213	24	2	313	0	0	0	0	0	0	22
Heavy Vehicles (%)	0%	5%	0%	0%	2%	0%	0%	0%	0%	25%	0%	9%
Turn Type	NA	Perm	Perm	Perm	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm
Protected Phases	2	2	6	6	6	6	6	6	6	4	4	4
Permitted Phases	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	2.5	2.5	2.5
Actuated Green, G (s)	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	2.5	2.5	2.5
Effective Green, g (s)	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.10	0.10	0.10
Actuated g/C Ratio	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	669	597	439	689	689	689	689	689	689	146	150	150
Lane Grp Cap (vph)	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
w/C Ratio Prot	0.01	0.04	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.02	0.00	0.00
w/C Ratio Perm	5.5	5.0	4.9	5.9	5.9	5.9	5.9	5.9	5.9	10.1	10.0	10.0
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Progression Factor	0.3	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.5	0.1	0.1
Incremental Delay, d2	5.8	5.0	4.9	6.3	6.3	6.3	6.3	6.3	6.3	10.6	10.0	10.0
Delay (s)	A	A	A	A	A	A	A	A	A	B	B	B
Level of Service	A	A	A	A	A	A	A	A	A	B	B	B
Approach Delay (s)	5.6	5.6	6.3	6.3	6.3	6.3	6.3	6.3	6.3	10.2	10.2	10.2
Approach LOS	A	A	A	A	A	A	A	A	A	B	B	B
Intersection Summary												
HCM 2000 Control Delay	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	A	A	A
HCM 2000 Volume to Capacity ratio	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	13.0	13.0	13.0
Actuated Cycle Length (s)	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	24.6	B	B	B
Intersection Capacity Utilization	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	B	B	B
Analysis Period (min)	15	15	15	15	15	15	15	15	15	B	B	B
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 1: Site Access (west) & King Street East

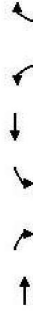
HCM Signalized Intersection Capacity Analysis 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	EB	EB	WB	WB	NB	NB
Traffic Volume (veh/h)	389	0	0	329	0	0
Future Volume (Veh/h)	389	0	0	329	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	423	0	0	358	0	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)					158	
pX, platoon unblocked					0.98	
VC, conflicting volume	423				781	423
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol	423				784	423
IC, single (s)	4.1				6.4	6.2
IC, 2 stage (s)						
p0 queue free %	2.2				3.5	3.3
qM capacity (veh/h)	1136				100	100
qM capacity (veh/h)					363	631
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	423	358	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.25	0.21	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A	A	A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Average Delay				0.0		
Intersection Capacity Utilization				23.8%		A
Analysis Period (min)				15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	NB
Traffic Volume (vph)	55	160	0	0	213	65	60	0	5	0	0	0
Future Volume (vph)	55	160	0	0	213	65	60	0	5	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7			6.7	6.7			6.6			
Lane Util. Factor	1.00	1.00			1.00	1.00			1.00			
Frbh, ped/bikes	1.00	1.00			1.00	0.98			1.00			
Frbh, ped/bikes	1.00	1.00			1.00	1.00			1.00			
Frt	1.00	1.00			1.00	0.85			0.99			
Flt Protected	0.95	1.00			1.00	1.00			0.96			
Satd. Flow (prot)	1751	1759			1845	1550			1794			
Flt Permitted	0.60	1.00			1.00	1.00			0.98			
Satd. Flow (perm)	1112	1759			1845	1550			1794			
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	65	188	0	0	251	76	71	0	6	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	51	0	42	0	0	0	0
Lane Group Flow (vph)	65	188	0	0	251	25	0	35	0	0	0	0
Conf. Peds. (#/hr)	2				2			2				
Heavy Vehicles (%)	3%	8%	0%	0%	3%	2%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	NA	NA	Perm	Perm	NA	NA	NA	NA	NA	NA
Protected Phases		2			6			8				
Permitted Phases	2				6			8				
Actuated Green, G (s)	8.6	8.6			8.6	8.6		4.3				
Effective Green, g (s)	8.6	8.6			8.6	8.6		4.3				
Actuated g/C Ratio	0.33	0.33			0.33	0.33		0.16				
Clearance Time (s)	6.7	6.7			6.7	6.7		6.6				
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)	365	577			605	508		294				
v/s Ratio Prot		0.11			0.14							
v/s Ratio Perm	0.06				0.02							
v/c Ratio	0.18	0.33			0.41	0.05		0.12				
Uniform Delay, d1	6.3	6.6			6.8	6.0		9.3				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	0.2	0.3			0.5	0.0		0.2				
Delay (s)	6.5	7.0			7.3	6.0		9.5				
Level of Service	A	A			A	A		A				
Approach Delay (s)		6.8			7.0			9.5				0.0
Approach LOS		A			A			A				A
Intersection Summary												
HCM 2000 Control Delay					7.2			HCM 2000 Level of Service				A
HCM 2000 Volume to Capacity ratio					0.32							
Actuated Cycle Length (s)					26.2			Sum of lost time (s)				13.3
Intersection Capacity Utilization					59.4%			ICU Level of Service				B
Analysis Period (min)					15							
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
3: Days Road & King Street East/County Road 2

HCM Unsignalized Intersection Capacity Analysis
2: Days Road & Site Access (east)



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	W				W	
Traffic Volume (veh/h)	388	1	3	329	2	3
Future Volume (Veh/h)	388	1	3	329	2	3
Sign Control	Free		Free	Stop	Stop	
Grade	0%		0%	0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	408	1	3	346	2	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percut Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)				113		
pX, platoon unblocked						
VC, conflicting volume			409		780	408
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol			409		710	408
IC, single (s)			4.1		6.4	6.2
IC, 2 stage (s)			2.2		3.5	3.3
IF (s)			100		99	100
p0 queue free %			1150		373	643
CM capacity (veh/h)						
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	409	349	5			
Volume Left	0	3	2			
Volume Right	1	0	3			
cSH	1700	1150	499			
Volume to Capacity	0.24	0.00	0.01			
Queue Length 95th (m)	0.0	0.1	0.2			
Control Delay (s)	0.0	0.1	12.3			
Lane LOS	A	A	B			
Approach Delay (s)	0.0	0.1	12.3			
Approach LOS		B				
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			30.5%			
Analysis Period (min)			15			
					ICU Level of Service	A



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W					
Traffic Volume (veh/h)	0	0	0	5	4	0
Future Volume (Veh/h)	0	0	0	5	4	0
Sign Control	Stop		Free	Free	Free	
Grade	0%		0%	0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	5	4	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percut Blockage						
Right turn flare (veh)				None	None	
Median type						
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
VC, conflicting volume	9	4	4			
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol	9	4	4			
IC, single (s)	6.4	6.2	4.1			
IC, 2 stage (s)	3.5	3.3	2.2			
IF (s)	100	100	100			
p0 queue free %	1011	1080	1618			
CM capacity (veh/h)						
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	5	4			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1618	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A	A				
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS		A				
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			6.7%			
Analysis Period (min)			15			
					ICU Level of Service	A

HCM Signalized Intersection Capacity Analysis 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

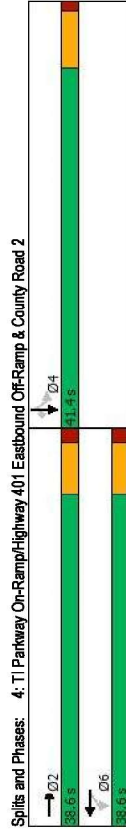
<Background 2025> PM Peak Hour
12-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	282	111	9	278	0	0	0	0	0	54	0
Traffic Volume (vph)	0	282	111	9	278	0	0	0	0	0	54	0
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	0	282	111	9	278	0	0	0	0	0	54	0
Total Lost time (s)	6.5	4.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
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
Frt	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.85	1.00
Flt Protected	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1863	1615	1805	1881	1881	1881	1881	1881	1881	1881	1736	1599
Flt Permitted	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	1.00
Satd. Flow (perm)	1863	1615	1102	1881	1881	1881	1881	1881	1881	1881	1736	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	294	116	9	290	0	0	0	0	0	56	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	294	116	9	290	0	0	0	0	0	56	0
Heavy Vehicles (%)	0%	2%	0%	0%	1%	0%	0%	0%	0%	0%	4%	0%
Turn Type	NA	Free	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	2	2	2	6	6	6	6	6	6	6	6	6
Permitted Phases	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
Actuated Green, G (s)	14.3	31.9	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
Effective Green, g (s)	14.3	31.9	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
Actuated g/C Ratio	0.45	1.00	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	835	1615	494	843	843	843	843	843	843	843	250	230
v/s Ratio Prot	c0.16	0.07	0.01	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.03	0.01
v/s Ratio Perm	0.35	0.07	0.02	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.22	0.04
Uniform Delay, d1	5.8	0.0	4.9	5.7	5.7	5.7	5.7	5.7	5.7	5.7	12.1	11.7
Progression 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
Incremental Delay, d2	0.3	0.1	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.1
Delay (s)	6.0	0.1	4.9	6.0	6.0	6.0	6.0	6.0	6.0	6.0	12.5	11.8
Level of Service	A	A	A	A	A	A	A	A	A	A	B	B
Approach Delay (s)	4.3	4.3	4.3	6.0	6.0	6.0	6.0	6.0	6.0	6.0	12.2	12.2
Approach LOS	A	A	A	A	A	A	A	A	A	A	B	B
Intersection Summary												
HCM 2000 Control Delay	6.0											
HCM 2000 Level of Service	A											
HCM 2000 Volume to Capacity ratio	0.32											
Actuated Cycle Length (s)	31.9											
Sum of lost time (s)	13.0											
Intersection Capacity Utilization	58.3%											
ICU Level of Service	B											
Analysis Period (min)	15											
c Critical Lane Group												

Timings 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

<Background 2025> PM Peak Hour
12-13-2023

Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations	2	2	6	6	4	4
Traffic Volume (vph)	282	111	9	278	0	56
Future Volume (vph)	282	111	9	278	0	56
Turn Type	NA	Free	Perm	NA	NA	Perm
Protected Phases	2	2	6	6	4	4
Permitted Phases	2	2	6	6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Initial (s)	26.5	26.5	26.5	26.5	25.5	25.5
Minimum Split (s)	36.6	36.6	36.6	36.6	41.4	41.4
Total Split (s)	48.3%	48.3%	48.3%	48.3%	51.8%	51.8%
Total Split (%)	48.3%	48.3%	48.3%	48.3%	51.8%	51.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.4	5.4
All-Red Time (s)	1.5	1.5	1.5	1.5	1.1	1.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	None	None	None	None	None	None
Lead-Lag Optimize?	None	None	None	None	None	None
Recall Mode	22.6	33.3	22.6	22.6	13.2	13.2
Act Effct Green (s)	0.68	1.00	0.68	0.68	0.40	0.40
Actuated g/C Ratio	0.23	0.07	0.01	0.23	0.08	0.09
v/c Ratio	6.7	0.1	6.3	6.7	13.2	5.5
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	6.7	0.1	6.3	6.7	13.2	5.5
Total Delay	6.7	0.1	6.3	6.7	13.2	5.5
LOS	A	A	A	A	B	A
Approach Delay	4.8	4.8	6.7	9.3		
Approach LOS	A	A	A	A		
Intersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 33.3						
Natural Cycle: 35						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.23						
Intersection Signal Delay: 6.1						
Intersection LOS: A						
Intersection Capacity Utilization: 58.3%						
ICU Level of Service: B						
Analysis Period (min): 15						



HCM Signalized Intersection Capacity Analysis 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

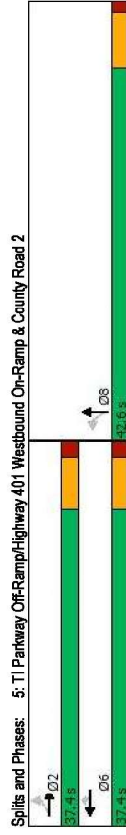
12-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Traffic Volume (vph)	43	294	0	0	196	28	94	0	8	0	0
Future Volume (vph)	43	294	0	0	196	28	94	0	8	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	0	6.7	6.7	6.7	6.6	6.6	0	0	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
Flt	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	1.00	1.00	1.00
Flt Protected	0.98	1.00	1.00	1.00	1.00	1.00	0.98	0.98	1.00	1.00	1.00
Satd. Flow (prot)	1736	1863	1863	1863	1863	1863	1769	1769	1863	1863	1863
Flt Permitted	0.62	1.00	1.00	1.00	1.00	1.00	0.96	0.96	1.00	1.00	1.00
Satd. Flow (perm)	1134	1863	1863	1863	1863	1863	1769	1769	1863	1863	1863
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	48	330	0	0	220	31	106	0	9	0	0
RTOR Reduction (vph)	0	0	0	0	0	18	0	40	0	0	0
Lane Group Flow (vph)	48	330	0	0	220	13	0	75	0	0	0
Heavy Vehicles (%)	4%	2%	0%	0%	1%	3%	0%	0%	20%	0%	0%
Turn Type	Perm	NA	NA	NA	Perm	Perm	NA	NA	Perm	NA	NA
Protected Phases	2	2	2	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2	2	2	2
Actuated Green, G (s)	13.6	13.6	13.6	13.6	13.6	13.6	6.8	6.8	13.6	13.6	13.6
Effective Green, g (s)	13.6	13.6	13.6	13.6	13.6	13.6	6.8	6.8	13.6	13.6	13.6
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.20	0.20	0.40	0.40	0.40
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.6	6.6	6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	457	751	751	751	751	751	356	356	751	751	751
v/s Ratio Prot	0.12	0.12	0.12	0.12	0.12	0.12	0.04	0.04	0.12	0.12	0.12
v/s Ratio Perm	0.04	0.11	0.44	0.29	0.02	0.21	0.21	0.21	0.04	0.11	0.44
Uniform Delay, d1	6.3	7.3	7.3	6.8	6.0	11.2	11.2	11.2	6.3	7.3	7.3
Progression Factor	1.00	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	0.4	0.2	0.0	0.3	0.3	0.3	0.1	0.4	0.4
Delay (s)	6.4	7.7	7.7	7.0	6.1	11.5	11.5	11.5	6.4	7.7	7.7
Level of Service	A	A	A	A	A	B	B	B	A	A	A
Approach Delay (s)	7.5	6.9	6.9	7.5	6.9	11.5	11.5	11.5	7.5	6.9	6.9
Approach LOS	A	A	A	A	A	B	B	B	A	A	A
Intersection Summary	Intersection Summary										
HCM 2000 Control Delay	7.9										
HCM 2000 Level of Service	A										
HCM 2000 Volume to Capacity ratio	0.36										
Actuated Cycle Length (s)	33.7										
Intersection Capacity Utilization	58.3%										
Analysis Period (min)	15										
Critical Lane Group	EBL										

Timings 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

12-13-2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT
Traffic Volume (vph)	43	294	196	28	0	0	0	0
Future Volume (vph)	43	294	196	28	0	0	0	0
Turn Type	Perm	NA	NA	Perm	NA	NA	Perm	NA
Protected Phases	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2
Detector Phase	2	2	2	2	2	2	2	2
Switch Phase	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Initial (s)	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7
Minimum Split (s)	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (%)	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%
Total Split (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Yellow Time (s)	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
v/c Ratio	0.07	0.31	0.21	0.03	0.03	0.17	0.03	0.17
Control Delay	7.0	8.3	7.6	2.0	2.0	9.7	2.0	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	8.3	7.6	2.0	2.0	9.7	2.0	9.7
LOS	A	A	A	A	A	A	A	A
Approach Delay	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
Approach LOS	A	A	A	A	A	A	A	A
Intersection Summary	Intersection Summary							
Cycle Length: 80	Cycle Length: 80							
Actuated Cycle Length: 36.8	Actuated Cycle Length: 36.8							
Natural Cycle t5	Natural Cycle t5							
Control Type: Actuated-Uncoordinated	Control Type: Actuated-Uncoordinated							
Maximum v/c Ratio: 0.31	Maximum v/c Ratio: 0.31							
Intersection Signal Delay: 8.0	Intersection Signal Delay: 8.0							
Intersection Capacity Utilization 58.3%	Intersection Capacity Utilization 58.3%							
Analysis Period (min) 15	Analysis Period (min) 15							
Intersection LOS: A	Intersection LOS: A							
ICU Level of Service B	ICU Level of Service B							



HCM Unsignalized Intersection Capacity Analysis 2: Days Road & Site Access (east)

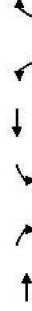
12-13-2023

HCM Unsignalized Intersection Capacity Analysis 1: Site Access (west) & King Street East

12-13-2023



Movement	EBL	EBR	NBL	SBT	SBR
Lane Configurations	W				
Traffic Volume (veh/h)	0	0	0	6	3
Future Volume (Veh/h)	0	0	0	6	3
Sign Control	Stop		Free	Free	
Grade	D%		D%	D%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	7	3
Pedestrians					
Lane Width (m)					
Walking Speed (m/s)					
Percut Blockage					
Right turn flare (veh)					
Median type			None	None	
Median storage (veh)					
Upstream signal (m)					
pX, platoon unblocked					
VC, conflicting volume	10	3	3		
VC1, stage 1 conf vol					
VC2, stage 2 conf vol					
VCu, unblocked vol	10	3	3		
IC, single (s)	6.4	6.2	4.1		
IC, 2 stage (s)					
IF (s)	3.5	3.3	2.2		
p0 queue free %	100	100	100		
cM capacity (veh/h)	1010	1081	1519		
Direction, Lane #	EB 1	NB 1	SB 1		
Volume Total	0	7	3		
Volume Left	0	0	0		
Volume Right	0	0	0		
cSH	1700	1619	1700		
Volume to Capacity	0.00	0.00	0.00		
Queue Length 95th (m)	0.0	0.0	0.0		
Control Delay (s)	0.0	0.0	0.0		
Lane LOS	A				
Approach Delay (s)	0.0	0.0	0.0		
Approach LOS	A				
Intersection Summary					
Average Delay			0.0		
Intersection Capacity Utilization			6.7%		A
Analysis Period (min)			15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	W					
Traffic Volume (veh/h)	249	0	0	331	0	0
Future Volume (Veh/h)	249	0	0	331	0	0
Sign Control	Free		Free	Free	Stop	
Grade	D%		D%	D%	D%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	271	0	0	360	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percut Blockage						
Right turn flare (veh)			None	None		
Median type						
Median storage (veh)						
Upstream signal (m)				156		
pX, platoon unblocked						
VC, conflicting volume			271		631	271
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol			271		606	271
IC, single (s)			4.1		6.4	6.2
IC, 2 stage (s)						
IF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1292		447	768
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	271	360	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.16	0.21	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A		A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A		A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			20.8%			A
Analysis Period (min)			15			

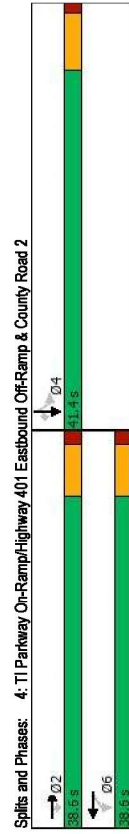
Timings
4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

3: Days Road & King Street East/County Road 2

<Background 2030> AM Peak Hour
12-13-2023

<Background 2030> AM Peak Hour
12-13-2023

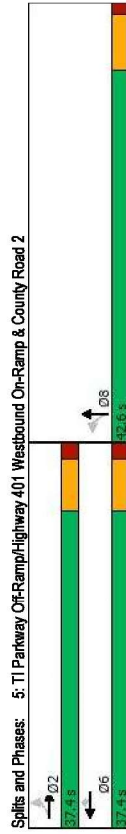
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	192	58	2	283	0	46
Future Volume (vph)	192	58	2	283	0	46
Turn Type	NA	Perm	Perm	NA	NA	Perm
Protected Phases	2			6	4	
Permitted Phases	2	2	6	6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	26.5	26.5	26.5	26.5	25.5	25.5
Total Split (s)	36.6	36.6	36.6	36.6	41.4	41.4
Total Split (%)	48.3%	48.3%	48.3%	48.3%	51.8%	51.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.4	5.4
All-Red Time (s)	1.5	1.5	1.5	1.5	1.1	1.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	20.4	20.4	20.4	20.4	15.4	15.4
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.51	0.51
v/c Ratio	0.18	0.06	0.00	0.26	0.04	0.07
Control Delay	6.5	2.5	6.0	6.9	13.2	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	2.5	6.0	6.9	13.2	5.6
LOS	A	A	A	A	B	A
Approach Delay	5.6			6.9	8.1	
Approach LOS	A			A	A	
Intersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 30.1						
Natural Cycle: 35						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.26						
Intersection Signal Delay: 6.5						
Intersection Capacity Utilization 59.4%						
Analysis Period (min) 15						



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	249	0	3	328	3	3
Future Volume (Veh/h)	249	0	3	328	3	3
Sign Control	Free	Free	Free	Stop	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	236	0	4	390	4	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)	None			None		
Median type						
Median storage (veh)						
Upstream signal (m)				111		
pK, platoon unblocked					0.89	
VC, conflicting volume				296	694	296
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol				296	595	296
IC, single (s)				4.1	6.4	6.2
IC, 2 stage (s)				2.2	3.5	3.3
IF (s)				100	99	99
p0 queue free %				1265	415	743
qM capacity (veh/h)						
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	296	394	8			
Volume Left	0	4	4			
Volume Right	0	0	4			
cSH	1700	1265	532			
Volume to Capacity	0.17	0.00	0.02			
Queue Length 95th (m)	0.0	0.1	0.4			
Control Delay (s)	0.0	0.1	11.9			
Lane LOS	A	A	B			
Approach Delay (s)	0.0	0.1	11.9			
Approach LOS	B	B	B			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			28.7%			
Analysis Period (min)			15			
ICU Level of Service			A			

Timings 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2 <Background 2030> AM Peak Hour 12-13-2023

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Configurations	EBL	EBT	WBT	WBR	NBT
Traffic Volume (vph)	58	168	224	69	0
Future Volume (vph)	58	168	224	69	0
Turn Type	Perm	NA	Perm	NA	NA
Protected Phases	2	2	6	6	8
Permitted Phases	2	2	6	6	8
Detector Phase	2	2	6	6	8
Switch Phase	20.0	20.0	20.0	20.0	10.0
Minimum Initial (s)	30.7	30.7	30.7	30.7	32.6
Minimum Split (s)	37.4	37.4	37.4	37.4	42.6
Total Split (s)	46.8%	46.8%	46.8%	46.8%	53.3%
Total Split (%)	5.0	5.0	5.0	5.0	5.4
Yellow Time (s)	1.7	1.7	1.7	1.7	1.2
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	6.7	6.7	6.7	6.7	6.6
Total Lost Time (s)					
Lead/Lag					
Lead-Lag Optimize?	None	None	None	None	None
Recall Mode	20.9	20.9	20.9	20.9	14.8
Act Effect Green (s)	0.68	0.68	0.68	0.68	0.48
Actuated g/C Ratio	0.09	0.17	0.21	0.08	0.10
w/C Ratio	6.8	6.6	6.8	2.4	8.2
Control Delay	0.0	0.0	0.0	0.0	0.0
Queue Delay	6.8	6.6	6.8	2.4	8.2
Total Delay	A	A	A	A	A
LOS	A	A	A	A	A
Approach Delay	6.7	5.7	8.2		
Approach LOS	A	A	A	A	A
Intersection Summary					
Cycle Length: 80					
Actuated Cycle Length: 30.8					
Natural Cycle: 65					
Control Type: Actuated-Uncoordinated					
Maximum w/C Ratio: 0.21					
Intersection Signal Delay: 6.4					
Intersection LOS: A					
Intersection Capacity Utilization 59.4%					
Analysis Period (min) 15					



HCM Signalized Intersection Capacity Analysis 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2 <Background 2030> AM Peak Hour 12-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	192	58	2	283	0	0	0	0	22	0	46
Future Volume (vph)	0	192	58	2	283	0	0	0	0	22	0	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
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
Flt	1.00	0.85	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.85
Flt Protected	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1810	1615	1805	1863	1863	1863	1863	1863	1863	1863	1863	1863
Flt Permitted	1.00	1.00	0.62	1.00	1.00	1.00	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1810	1615	1176	1863	1863	1863	1863	1444	1482	1444	1482	1482
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	223	67	2	329	0	0	0	0	26	0	53
RTOR Reduction (vph)	0	0	45	0	0	0	0	0	0	0	0	44
Lane Group Flow (vph)	0	223	22	2	329	0	0	0	0	0	0	26
Heavy Vehicles (%)	0%	5%	0%	0%	2%	0%	0%	0%	0%	25%	0%	9%
Turn Type	NA	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	NA	Perm
Protected Phases	2	2	6	6	6	6	6	6	6	6	4	4
Permitted Phases	2	2	6	6	6	6	6	6	6	6	4	4
Actuated Green, G (s)	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	4.2	4.2
Effective Green, g (s)	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	4.2	4.2
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.16	0.16
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	593	529	385	611	611	611	611	611	611	611	236	243
w/C Ratio Prot	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.02	0.01
w/C Ratio Perm	0.38	0.04	0.01	0.01	0.54	0.54	0.54	0.54	0.54	0.54	0.11	0.04
Uniform Delay, d1	6.6	5.9	5.8	7.0	7.0	7.0	7.0	7.0	7.0	7.0	9.1	9.0
Progression 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
Incremental Delay, d2	0.4	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.2	0.1
Delay (s)	7.0	5.9	5.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9	9.3	9.1
Level of Service	A	A	A	A	A	A	A	A	A	A	A	A
Approach Delay (s)	6.7	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	9.1	9.1
Approach LOS	A	A	A	A	A	A	A	A	A	A	A	A
Intersection Summary												
HCM 2000 Control Delay	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	9.1	9.1
HCM 2000 Level of Service	A	A	A	A	A	A	A	A	A	A	A	A
HCM 2000 Volume to Capacity ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Actuated Cycle Length (s)	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6
Intersection Capacity Utilization	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%
Analysis Period (min)	15	15	15	15	15	15	15	15	15	15	15	15
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 1: Site Access (west) & King Street East

HCM Signalized Intersection Capacity Analysis 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	EB	EB	WB	WB	NB	NB
Traffic Volume (veh/h)	408	0	0	348	0	0
Future Volume (veh/h)	408	0	0	348	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	443	0	0	378	0	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)				158		
pX, platoon unblocked					0.95	
VC, conflicting volume		443			821	443
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol		443			782	443
IC, single (s)		4.1			5.4	6.2
IC, 2 stage (s)						
p0 queue free %		2.2			3.5	3.3
qM capacity (veh/h)		1117			100	100
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	443	378	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.26	0.22	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A	A	A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Average Delay				0.0		
Intersection Capacity Utilization				24.8%		A
Analysis Period (min)				15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	NB
Traffic Volume (vph)	58	168	0	0	224	69	69	0	6	0	0	0
Future Volume (vph)	58	168	0	0	224	69	69	0	6	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7			6.7	6.7			6.6			
Lane Util. Factor	1.00	1.00			1.00	1.00			1.00			
Frbh, ped/bikes	1.00	1.00			1.00	0.98			1.00			
Frbh, ped/bikes	1.00	1.00			1.00	1.00			1.00			
Frt	1.00	1.00			1.00	0.85			0.99			
Flt Protected	0.95	1.00			1.00	1.00			0.96			
Satd. Flow (prot)	1751	1759			1845	1550			1794			
Flt Permitted	0.60	1.00			1.00	1.00			0.98			
Satd. Flow (perm)	1099	1759			1845	1550			1794			
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	68	198	0	0	264	81	81	0	7	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	55	0	42	0	0	0	0
Lane Group Flow (vph)	68	198	0	0	264	26	0	46	0	0	0	0
Conf. Peds. (#/hr)	2				2			2				
Heavy Vehicles (%)	3%	8%	0%	0%	3%	2%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	NA	NA	Perm	Perm	NA	NA	NA	NA	NA	NA
Protected Phases		2			6			8				
Permitted Phases	2				6	8						
Actuated Green, G (s)	8.5	8.5			8.5	8.5		4.3				
Effective Green, g (s)	8.5	8.5			8.5	8.5		4.3				
Actuated g/C Ratio	0.33	0.33			0.33	0.33		0.16				
Clearance Time (s)	6.7	6.7			6.7	6.7		6.6				
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)	357	572			600	504		295				
v/s Ratio Prot		0.11			0.14							
v/s Ratio Perm	0.06				0.02	0.03						
v/c Ratio	0.19	0.35			0.44	0.05		0.16				
Uniform Delay, d1	6.3	6.7			6.9	6.0		9.3				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	0.3	0.4			0.5	0.0		0.2				
Delay (s)	6.6	7.1			7.4	6.1		9.6				
Level of Service	A	A			A	A		A				
Approach Delay (s)		6.9			7.1			9.6				
Approach LOS		A			A			A				
Intersection Summary												
HCM 2000 Control Delay					7.4			HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio					0.34							
Actuated Cycle Length (s)					26.1			Sum of lost time (s)		13.3		
Intersection Capacity Utilization					59.4%			ICU Level of Service		B		
Analysis Period (min)					15							
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
3: Days Road & King Street East/County Road 2

HCM Unsignalized Intersection Capacity Analysis
2: Days Road & Site Access (east)

Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	W				W		
Traffic Volume (veh/h)	407	1	3	346	2	3	
Future Volume (Veh/h)	407	1	3	346	2	3	
Sign Control	Free				Stop		
Grade	0%				0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	428	1	3	364	2	3	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percut Blockage							
Right turn flare (veh)							
Median type	None				None		
Median storage (veh)							
Upstream signal (m)					113		
pX, platoon unblocked							0.91
VC, conflicting volume					429	798	428
VC1, stage 1 conf vol							
VC2, stage 2 conf vol							
VCu, unblocked vol					429	732	428
IC, single (s)					4.1	6.4	6.2
IC, 2 stage (s)					2.2	3.5	3.3
IF (s)					100	99	100
p0 queue free %					1130	354	626
CM capacity (veh/h)							
Direction, Lane #	EB 1	WB 1	NB 1				
Volume Total	429	367	5				
Volume Left	0	3	2				
Volume Right	1	0	3				
ESH	1700	1130	479				
Volume to Capacity	0.25	0.00	0.01				
Queue Length 95th (m)	0.0	0.1	0.3				
Control Delay (s)	0.0	0.1	12.6				
Lane LOS	A	A	B				
Approach Delay (s)	0.0	0.1	12.6				
Approach LOS		B					
Intersection Summary							
Average Delay			0.1				A
Intersection Capacity Utilization			31.5%				
Analysis Period (min)			15				
ICU Level of Service							

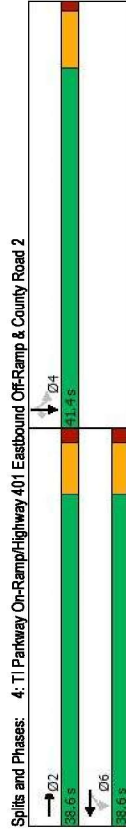
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W						
Traffic Volume (veh/h)	0	0	0	5	4	0	
Future Volume (Veh/h)	0	0	0	5	4	0	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	0	0	5	4	0	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percut Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage (veh)							
Upstream signal (m)							
pX, platoon unblocked							
VC, conflicting volume				9	4	4	
VC1, stage 1 conf vol							
VC2, stage 2 conf vol							
VCu, unblocked vol				9	4	4	
IC, single (s)				6.4	6.2	4.1	
IC, 2 stage (s)				3.5	3.3	2.2	
IF (s)				100	100	100	
p0 queue free %				1011	1080	1618	
CM capacity (veh/h)							
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total	0	5	4				
Volume Left	0	0	0				
Volume Right	0	0	0				
ESH	1700	1618	1700				
Volume to Capacity	0.00	0.00	0.00				
Queue Length 95th (m)	0.0	0.0	0.0				
Control Delay (s)	0.0	0.0	0.0				
Lane LOS	A	A					
Approach Delay (s)	0.0	0.0	0.0				
Approach LOS		A					
Intersection Summary							
Average Delay			0.0				A
Intersection Capacity Utilization			6.7%				
Analysis Period (min)			15				
ICU Level of Service							

HCM Signalized Intersection Capacity Analysis
4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

Timings
4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	296	117	10	293	0	0	0	0	62	0	64
Traffic Volume (vph)	0	296	117	10	293	0	0	0	0	62	0	64
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	0	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
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
Frt	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.85
Flt Protected	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1863	1615	1805	1881	1881	1881	1881	1881	1881	1736	1599	1881
Flt Permitted	1.00	1.00	0.57	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1863	1615	1088	1881	1881	1881	1881	1881	1881	1736	1599	1881
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	308	122	10	305	0	0	0	0	65	0	67
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	53
Lane Group Flow (vph)	0	308	122	10	305	0	0	0	0	0	0	65
Heavy Vehicles (%)	0%	2%	0%	0%	1%	0%	0%	0%	0%	4%	0%	1%
Turn Type	NA	Free	Free	Perm	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm
Protected Phases	2	2	2	6	6	6	6	6	6	4	4	4
Permitted Phases	Free	Free	Free	6	6	6	6	6	6	4	4	4
Actuated Green, G (s)	13.6	33.4	13.6	13.6	13.6	13.6	13.6	13.6	13.6	6.8	6.8	6.8
Effective Green, g (s)	13.6	33.4	13.6	13.6	13.6	13.6	13.6	13.6	13.6	6.8	6.8	6.8
Actuated g/C Ratio	0.41	1.00	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.20	0.20	0.20
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	758	1615	443	765	765	765	765	765	765	353	325	325
v/s Ratio Prot	c0.17	0.08	0.01	0.16	0.16	0.16	0.16	0.16	0.16	0.04	0.01	0.01
v/s Ratio Perm	0.41	0.08	0.02	0.40	0.40	0.40	0.40	0.40	0.40	0.18	0.04	0.04
Uniform Delay, d1	7.0	0.0	5.9	7.0	7.0	7.0	7.0	7.0	7.0	11.0	10.7	10.7
Progression 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
Incremental Delay, d2	0.4	0.1	0.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1
Delay (s)	7.4	0.1	5.9	7.3	7.3	7.3	7.3	7.3	7.3	11.3	10.7	10.7
Level of Service	A	A	A	A	A	A	A	A	A	B	B	B
Approach Delay (s)	5.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	11.0	11.0	11.0
Approach LOS	A	A	A	A	A	A	A	A	A	B	B	B
Intersection Summary												
HCM 2000 Control Delay	6.9											
HCM 2000 Level of Service	A											
HCM 2000 Volume to Capacity ratio	0.33											
Actuated Cycle Length (s)	33.4											
Sum of lost time (s)	13.0											
Intersection Capacity Utilization	58.3%											
ICU Level of Service	B											
Analysis Period (min)	15											
c Critical Lane Group												

Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	296	117	10	293	0	64
Future Volume (vph)	296	117	10	293	0	64
Turn Type	NA	Free	Perm	NA	NA	Perm
Protected Phases	2	2	6	6	4	4
Permitted Phases	2	2	6	6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Initial (s)	26.5	26.5	26.5	26.5	25.5	25.5
Minimum Split (s)	36.6	36.6	36.6	36.6	41.4	41.4
Total Split (s)	48.3%	48.3%	48.3%	48.3%	51.8%	51.8%
Total Split (%)	48.3%	48.3%	48.3%	48.3%	51.8%	51.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.4	5.4
All-Red Time (s)	1.5	1.5	1.5	1.5	1.1	1.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lead/Lag Optimize?	Lead/Lag Optimize?	Lead/Lag Optimize?	Lead/Lag Optimize?	Lead/Lag Optimize?	Lead/Lag Optimize?
Recall Mode	None	None	None	None	None	None
Act Effct Green (s)	20.9	36.5	20.9	20.9	13.8	13.8
Actuated g/C Ratio	0.57	1.00	0.57	0.57	0.38	0.38
v/c Ratio	0.29	0.08	0.02	0.28	0.10	0.10
Control Delay	8.0	0.1	6.4	8.0	13.9	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	0.1	6.4	8.0	13.9	5.3
LOS	A	A	A	A	B	A
Approach Delay	5.8	7.9	9.5	7.9	9.5	9.5
Approach LOS	A	A	A	A	A	A
Intersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 36.5						
Natural Cycle: 35						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.29						
Intersection Signal Delay: 7.1						
Intersection Capacity Utilization: 58.3%						
Analysis Period (min): 15						
ICU Level of Service: B						



HCM Signalized Intersection Capacity Analysis 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

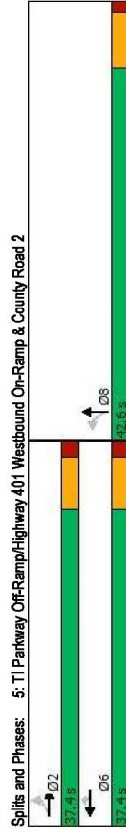
12-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	45	309	0	0	206	29	108	0	10	0	0	0
Future Volume (vph)	45	309	0	0	206	29	108	0	10	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
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
Frt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1736	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Flt Permitted	0.61	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1123	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	51	347	0	0	231	33	121	0	11	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	51	347	0	0	231	13	0	92	0	0	0	0
Heavy Vehicles (%)	4%	2%	0%	0%	1%	3%	0%	0%	20%	0%	0%	0%
Turn Type	Perm	NA	NA	NA	Perm	Perm	NA	NA	Perm	NA	NA	NA
Protected Phases	2	2	2	2	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2	2	2	2	2
Actuated Green, G (s)	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Effective Green, g (s)	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	451	748	748	748	748	748	748	748	748	748	748	748
v/s Ratio Prot	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
v/s Ratio Perm	0.05	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Uniform Delay, d1	6.3	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
Progression 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
Incremental Delay, d2	0.1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Delay (s)	6.4	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
Level of Service	A	A	A	A	A	A	A	A	A	A	A	A
Approach Delay (s)	7.7	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Approach LOS	A	A	A	A	A	A	A	A	A	A	A	A
Intersection Summary	Intersection Summary											
HCM 2000 Control Delay	8.1											
HCM 2000 Volume to Capacity ratio	0.39											
Actuated Cycle Length (s)	33.6											
Intersection Capacity Utilization	58.3%											
Analysis Period (min)	15											
c Critical Lane Group	c Critical Lane Group											

Timings 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

12-13-2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT
Traffic Volume (vph)	45	309	206	29	0	0	0	0
Future Volume (vph)	45	309	206	29	0	0	0	0
Turn Type	Perm	NA	NA	Perm	Perm	NA	NA	NA
Protected Phases	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2
Detector Phase	2	2	2	2	2	2	2	2
Switch Phase	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Initial (s)	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7
Minimum Split (s)	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (%)	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%
Total Split (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Yellow Time (s)	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead-Lag Optimize?	None	None	None	None	None	None	None
Recall Mode	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9
Act Effct Green (s)	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
Actuated g/C Ratio	0.08	0.33	0.22	0.04	0.19	0.19	0.19	0.19
v/c Ratio	7.2	8.5	7.7	2.1	10.4	10.4	10.4	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	8.5	7.7	2.1	10.4	10.4	10.4	10.4
LOS	A	A	A	A	A	A	A	A
Approach Delay	8.3	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Approach LOS	A	A	A	A	A	A	A	A
Intersection Summary	Intersection Summary							
Cycle Length: 80	Cycle Length: 80							
Actuated Cycle Length: 36.7	Actuated Cycle Length: 36.7							
Natural Cycle t5	Natural Cycle t5							
Control Type: Actuated-Uncoordinated	Control Type: Actuated-Uncoordinated							
Maximum v/c Ratio: 0.33	Maximum v/c Ratio: 0.33							
Intersection Signal Delay: 8.2	Intersection Signal Delay: 8.2							
Intersection Capacity Utilization 58.3%	Intersection Capacity Utilization 58.3%							
Analysis Period (min) 15	Analysis Period (min) 15							
Intersection LOS: A	Intersection LOS: A							
ICU Level of Service B	ICU Level of Service B							



HCM Unsignalized Intersection Capacity Analysis 2: Days Road & Site Access (east)

12-13-2023

HCM Unsignalized Intersection Capacity Analysis 1: Site Access (west) & King Street East

12-13-2023

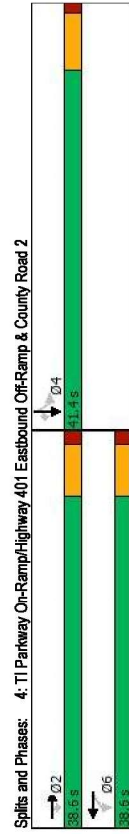
Movement	EBL	EBR	NBL	SBT	SBR	
Lane Configurations	W					
Traffic Volume (veh/h)	0	0	0	6	3	0
Future Volume (Veh/h)	0	0	0	6	3	0
Sign Control	Stop			Free		
Grade	D%			D%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	7	3	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percut Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
VC, conflicting volume	10	3	3			
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol	10	3	3			
IC, single (s)	6.4	6.2	4.1			
IC, 2 stage (s)						
IF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1010	1081	1519			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	7	3			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1619	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			6.7%			A
Analysis Period (min)			15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	261	0	0	347	0	0
Future Volume (Veh/h)	261	0	0	347	0	0
Sign Control	Free			Free	Stop	
Grade	D%			D%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	264	0	0	377	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percut Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
VC, conflicting volume			284		661	284
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol			284		624	284
IC, single (s)			4.1		6.4	6.2
IC, 2 stage (s)						
IF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1278		430	755
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	264	377	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.17	0.22	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A		A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A		A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			21.6%			A
Analysis Period (min)			15			

Timings
4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

<Background 2035> AM Peak Hour
12-13-2023

Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	202	61	2	297	0	53
Future Volume (vph)	202	61	2	297	0	53
Turn Type	NA	Perm	Perm	NA	NA	Perm
Protected Phases	2			6	4	
Permitted Phases	2	2	6	6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	26.5	26.5	26.5	25.5	25.5	25.5
Total Split (s)	36.6	36.6	36.6	41.4	41.4	41.4
Total Split (%)	48.3%	48.3%	48.3%	51.8%	51.8%	51.8%
Yellow Time (s)	5.0	5.0	5.0	5.4	5.4	5.4
All-Red Time (s)	1.5	1.5	1.5	1.1	1.1	1.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	20.4	20.4	20.4	15.6	15.6	15.6
Actuated g/C Ratio	0.68	0.68	0.68	0.52	0.52	0.52
v/c Ratio	0.19	0.06	0.00	0.27	0.04	0.08
Control Delay	6.6	2.5	6.0	7.0	13.2	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.6	2.5	6.0	7.0	13.2	5.3
LOS	A	A	A	B	B	A
Approach Delay	5.6			7.0	7.8	
Approach LOS	A			A	A	
Intersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 30						
Natural Cycle: 35						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.27						
Intersection Signal Delay: 6.5						
Intersection Capacity Utilization 59.4%						
Analysis Period (min) 15						



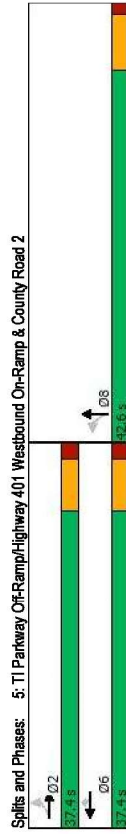
HCM Unsignalized Intersection Capacity Analysis
3: Days Road & King Street East/County Road 2

<Background 2035> AM Peak Hour
12-13-2023

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	261	0	3	344	3	3
Future Volume (Veh/h)	261	0	3	344	3	3
Sign Control	Free	Free	Free	Stop	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	311	0	4	410	4	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percut Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)				111		
pk, platoon unblocked					0.88	
vc, conflicting volume			311		729	311
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vcu, unblocked vol			311		821	311
ic, single (s)			4.1		6.4	6.2
ic, 2 stage (s)			2.2		3.5	3.3
pf queue free %			100		99	99
dm capacity (veh/h)			1249		394	729
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	311	414	8			
Volume Left	0	4	4			
Volume Right	0	0	4			
csh	1700	1249	512			
Volume to Capacity	0.18	0.00	0.02			
Queue Length 95th (m)	0.0	0.1	0.4			
Control Delay (s)	0.0	0.1	12.1			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.1	12.1			
Approach LOS		B				
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			30.5%			
Analysis Period (min)			15			
ICU Level of Service			A			

Timings 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2 <Background 2035> AM Peak Hour 12-13-2023

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Configurations	EBL	EBT	WBT	WBR	NBT
Traffic Volume (vph)	61	177	236	72	0
Future Volume (vph)	61	177	236	72	0
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases	2	2	6	6	8
Permitted Phases	2	2	6	6	8
Detector Phase	2	2	6	6	8
Switch Phase	20.0	20.0	20.0	20.0	10.0
Minimum Initial (s)	30.7	30.7	30.7	30.7	32.6
Minimum Split (s)	37.4	37.4	37.4	37.4	42.6
Total Split (s)	46.8%	46.8%	46.8%	46.8%	53.3%
Total Split (%)	5.0	5.0	5.0	5.0	5.4
Yellow Time (s)	1.7	1.7	1.7	1.7	1.2
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	6.7	6.7	6.7	6.7	6.6
Total Lost Time (s)					
Lead/Lag					
Lead-Lag Optimize?	None	None	None	None	None
Recall Mode	23.0	23.0	23.0	23.0	12.6
Act Effect Green (s)	0.68	0.68	0.68	0.68	0.37
Actuated g/C Ratio	0.10	0.17	0.22	0.08	0.15
w/C Ratio	6.9	6.7	6.8	2.4	8.9
Control Delay	0.0	0.0	0.0	0.0	0.0
Queue Delay	6.9	6.7	6.8	2.4	8.9
Total Delay	A	A	A	A	A
LOS	A	A	A	A	A
Approach Delay	6.7	5.8	8.9		
Approach LOS	A	A	A	A	A
Intersection Summary					
Cycle Length: 80					
Actuated Cycle Length: 33.9					
Natural Cycle: 65					
Control Type: Actuated-Uncoordinated					
Maximum w/C Ratio: 0.22					
Intersection Signal Delay: 6.6					
Intersection LOS: A					
Intersection Capacity Utilization 59.4%					
Analysis Period (min) 15					



HCM Signalized Intersection Capacity Analysis 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2 <Background 2035> AM Peak Hour 12-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	202	61	2	297	0	0	0	0	25	0	53
Future Volume (vph)	0	202	61	2	297	0	0	0	0	25	0	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5					6.5	6.5	
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
Flt	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Flt Protected	1.00	1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)	1810	1615	1805	1863						1444	1482	
Flt Permitted	1.00	1.00	0.61	1.00						0.95	1.00	
Satd. Flow (perm)	1810	1615	1163	1863						1444	1482	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	235	71	2	345	0	0	0	0	29	0	62
RTOR Reduction (vph)	0	0	48	0	0	0	0	0	0	0	0	52
Lane Group Flow (vph)	0	235	23	2	345	0	0	0	0	0	29	10
Heavy Vehicles (%)	0%	5%	0%	0%	2%	0%	0%	0%	0%	25%	0%	9%
Turn Type	NA	Perm	Perm	Perm	Perm	NA	Perm	NA	Perm	NA	Perm	Perm
Protected Phases	2	2	6	6						4		4
Permitted Phases	2	6	8.4	8.4	8.4					4.2	4.2	4.2
Actuated Green, G (s)	8.4	8.4	8.4	8.4	8.4					4.2	4.2	4.2
Effective Green, g (s)	8.4	8.4	8.4	8.4	8.4					4.2	4.2	4.2
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33					0.16	0.16	0.16
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5					6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)	593	529	381	611						236	243	
w/C Ratio Prot	0.13			c0.19								
w/C Ratio Perm	0.40	0.01	0.01	0.01	0.56					0.02	0.01	
Uniform Delay, d1	6.6	5.9	5.8	7.1						9.1	9.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00					1.00	1.00	
Incremental Delay, d2	0.4	0.0	0.0	1.2						0.2	0.1	
Delay (s)	7.1	5.9	5.8	8.3						9.4	9.1	
Level of Service	A	A	A	A	A					A	A	
Approach Delay (s)	6.8			8.3			0.0			9.2		
Approach LOS	A			A			A			A		
Intersection Summary												
HCM 2000 Control Delay			7.8				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			25.6				Sum of lost time (s)			13.0		
Intersection Capacity Utilization			59.4%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 1: Site Access (west) & King Street East

<Background 2035> PM Peak Hour
12-13-2023

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	EB	EB	WB	WB	NB	NB
Traffic Volume (veh/h)	429	0	0	365	0	0
Future Volume (Veh/h)	429	0	0	365	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	466	0	0	397	0	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)				158		
pK, platoon unblocked					0.94	
VC, conflicting volume		466			863	466
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol		466			821	466
IC, single (s)		4.1			6.4	6.2
IC, 2 stage (s)						
IF (s)		2.2			3.5	3.3
p0 queue free %		100			100	100
cM capacity (veh/h)		1095			323	597
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	466	397	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.27	0.23	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A	A	A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS	A	A	A			
Intersection Summary						
Average Delay		0.0				
Intersection Capacity Utilization		25.9%				
Analysis Period (min)		15				
ICU Level of Service		A				

HCM Signalized Intersection Capacity Analysis 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

<Background 2035> AM Peak Hour
12-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Traffic Volume (vph)	61	177	0	0	236	72	79	0	7	0	0	0
Future Volume (vph)	61	177	0	0	236	72	79	0	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7			6.7	6.7			6.6			
Lane Util. Factor	1.00	1.00			1.00	1.00			1.00			
Frpb, ped/bikes	1.00	1.00			1.00	0.98			1.00			
Flpb, ped/bikes	1.00	1.00			1.00	1.00			1.00			
Frt	1.00	1.00			1.00	0.85			0.99			
Flt Protected	0.95	1.00			1.00	1.00			0.96			
Satd. Flow (prot)	1751	1759			1845	1550			1794			
Flt Permitted	0.59	1.00			1.00	1.00			0.98			
Satd. Flow (perm)	1085	1739			1845	1550			1794			
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	72	208	0	0	278	85	93	0	8	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	47	0	43	0	0	0	0
Lane Group Flow (vph)	72	208	0	0	278	38	0	58	0	0	0	0
Conf. Peds. (#/hr)	2				2			2				
Heavy Vehicles (%)	3%	8%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	NA	NA	Perm	Perm	NA	NA	NA	NA	NA	NA
Protected Phases		2			6			8				
Permitted Phases	2				6			8				
Actuated Green, G (s)	14.5	14.5			14.5	14.5		4.7				
Effective Green, g (s)	14.5	14.5			14.5	14.5		4.7				
Actuated g/C Ratio	0.45	0.45			0.45	0.45		0.14				
Clearance Time (s)	6.7	6.7			6.7	6.7		6.6				
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)	484	784			823	691		269				
v/s Ratio Prot	0.12				0.15							
v/s Ratio Perm	0.07				0.02			0.03				
v/c Ratio	0.15	0.27			0.34	0.05		0.22				
Uniform Delay, d1	5.3	5.7			5.9	5.1		12.3				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	0.1	0.2			0.2	0.0		0.4				
Delay (s)	5.5	5.8			6.1	5.1		12.7				
Level of Service	A	A			A	A		B				
Approach Delay (s)	5.7				5.9			12.7				
Approach LOS	A				A			B				
Intersection Summary												
HCM 2000 Control Delay					6.8							
HCM 2000 Volume to Capacity ratio					0.31							
Actuated Cycle Length (s)					32.5							
Intersection Capacity Utilization					59.4%							
Analysis Period (min)					15							
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
3: Days Road & King Street East/County Road 2

HCM Unsignalized Intersection Capacity Analysis
2: Days Road & Site Access (east)



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	W				W	
Traffic Volume (veh/h)	428	1	3	363	2	3
Future Volume (Veh/h)	428	1	3	363	2	3
Sign Control	Free		Free	Stop	Stop	
Grade	0%		0%	0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	451	1	3	382	2	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)	None					
Median type	None			None		
Median storage (veh)				113		
Upstream signal (m)				0.91		
pX, platoon unblocked				452		
VC, conflicting volume				840		
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol				452		
IC, single (s)				4.1		
IC, 2 stage (s)				2.2		
IF (s)				3.5		
p0 queue free %				100		
qM capacity (veh/h)				1109		
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	452	385	5			
Volume Left	0	3	2			
Volume Right	1	0	3			
cSH	1700	1109	457			
Volume to Capacity	0.27	0.00	0.01			
Queue Length 95th (m)	0.0	0.1	0.3			
Control Delay (s)	0.0	0.1	13.0			
Lane LOS	A	A	B			
Approach Delay (s)	0.0	0.1	13.0			
Approach LOS		B				
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			32.6%			
Analysis Period (min)			15			
ICU Level of Service			A			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W					
Traffic Volume (veh/h)	0	0	0	5	4	0
Future Volume (Veh/h)	0	0	0	5	4	0
Sign Control	Stop		Free	Free	Free	
Grade	0%		0%	0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	5	4	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)				None	None	
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
VC, conflicting volume				9	4	
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol				9	4	
IC, single (s)				6.4	6.2	
IC, 2 stage (s)				3.5	3.3	
IF (s)				100	100	
p0 queue free %				1011	1080	
qM capacity (veh/h)				1011	1080	
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	0	5	4			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1618	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A	A				
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS		A				
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			6.7%			
Analysis Period (min)			15			
ICU Level of Service			A			

HCM Signalized Intersection Capacity Analysis 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

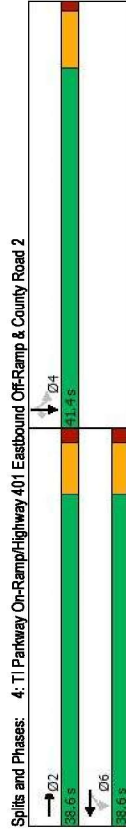
<Background 2035> PM Peak Hour
12-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	311	123	10	308	0	0	0	0	0	71	0
Traffic Volume (vph)	0	311	123	10	308	0	0	0	0	0	71	0
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	0	311	123	10	308	0	0	0	0	0	71	0
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
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
Frt	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.85	1.00
Flt Protected	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1863	1615	1805	1881	1881	1881	1881	1881	1881	1881	1736	1599
Flt Permitted	1.00	1.00	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	1.00
Satd. Flow (perm)	1863	1615	1073	1881	1881	1881	1881	1881	1881	1881	1736	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	324	128	10	321	0	0	0	0	0	74	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	324	128	10	321	0	0	0	0	0	74	16
Heavy Vehicles (%)	0%	2%	0%	0%	0%	1%	0%	0%	0%	0%	4%	0%
Turn Type	NA	Free	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	2	2	6	6	6	6	6	6	6	6	6	6
Permitted Phases	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
Actuated Green, G (s)	13.5	33.3	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Effective Green, g (s)	13.5	33.3	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Actuated g/C Ratio	0.41	1.00	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	755	1615	435	762	762	762	762	762	762	762	354	326
v/s Ratio Prot	c0.17	0.08	0.01	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.04	0.01
v/s Ratio Perm	0.43	0.08	0.02	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.21	0.05
Uniform Delay, d1	7.1	0.0	5.9	7.1	7.1	7.1	7.1	7.1	7.1	7.1	11.0	10.6
Progression 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
Incremental Delay, d2	0.4	0.1	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.1
Delay (s)	7.5	0.1	6.0	7.5	7.5	7.5	7.5	7.5	7.5	7.5	11.3	10.7
Level of Service	A	A	A	A	A	A	A	A	A	A	B	B
Approach Delay (s)	5.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	11.0	11.0
Approach LOS	A	A	A	A	A	A	A	A	A	A	B	B
Intersection Summary												
HCM 2000 Control Delay	7.0											
HCM 2000 Level of Service	A											
HCM 2000 Volume to Capacity ratio	0.36											
Actuated Cycle Length (s)	33.3											
Sum of lost time (s)	13.0											
Intersection Capacity Utilization	58.3%											
ICU Level of Service	B											
Analysis Period (min)	15											
Critical Lane Group												

Timings 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

<Background 2035> PM Peak Hour
12-13-2023

Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations	311	123	10	308	0	74
Traffic Volume (vph)	311	123	10	308	0	74
Future Volume (vph)	311	123	10	308	0	74
Turn Type	NA	Free	Perm	NA	NA	Perm
Protected Phases	2	6	6	6	4	4
Permitted Phases	2	Free	6	6	4	4
Detector Phase	2	Free	6	6	4	4
Switch Phase	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Initial (s)	26.5	26.5	26.5	26.5	25.5	25.5
Minimum Split (s)	36.6	36.6	36.6	36.6	41.4	41.4
Total Split (s)	48.3%	48.3%	48.3%	48.3%	51.8%	51.8%
Total Split (%)	5.0	5.0	5.0	5.0	5.4	5.4
Yellow Time (s)	1.5	1.5	1.5	1.5	1.1	1.1
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	6.5	6.5	6.5	6.5	6.5	6.5
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	None	None	None	None	None	None
Lead-Lag Optimize?	None	None	None	None	None	None
Recall Mode	20.8	36.4	20.8	20.8	14.1	14.1
Act Effct Green (s)	0.57	1.00	0.57	0.57	0.39	0.39
Actuated g/C Ratio	0.30	0.08	0.02	0.30	0.11	0.12
v/c Ratio	8.1	0.1	6.4	8.1	14.0	5.1
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	8.1	0.1	6.4	8.1	14.0	5.1
LOS	A	A	A	A	B	A
Approach Delay	5.9	8.0	9.4	8.0	9.4	9.4
Approach LOS	A	A	A	A	A	A
Intersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 36.4						
Natural Cycle: 35						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.30						
Intersection Signal Delay: 7.2						
Intersection LOS: A						
Intersection Capacity Utilization: 58.3%						
ICU Level of Service: B						
Analysis Period (min): 15						



HCM Signalized Intersection Capacity Analysis 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

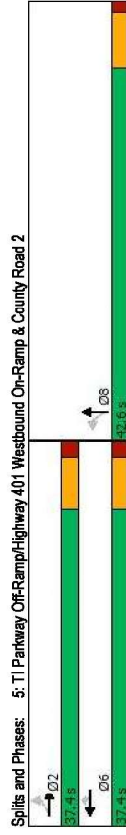
12-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	47	325	0	0	216	30	124	0	11	0	0
Traffic Volume (vph)	47	325	0	0	216	30	124	0	11	0	0
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	6.7	6.7	6.7	6.7	6.7	6.7	6.6	6.6	6.6	6.6	6.6
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99	0.99	0.99
Flt Protected	0.98	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.98	0.98
Satd. Flow (prot)	1736	1863	1863	1863	1863	1863	1769	1769	1769	1769	1769
Flt Permitted	0.81	1.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96	0.96	0.96
Satd. Flow (perm)	1111	1863	1863	1863	1863	1863	1769	1769	1769	1769	1769
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	53	365	0	0	243	34	139	0	12	0	0
RTOR Reduction (vph)	0	0	0	0	0	20	0	40	0	0	0
Lane Group Flow (vph)	53	365	0	0	243	14	0	111	0	0	0
Heavy Vehicles (%)	4%	2%	0%	0%	1%	3%	0%	0%	20%	0%	0%
Turn Type	Perm	NA	NA	NA	Perm	Perm	NA	NA	Perm	NA	NA
Protected Phases	2	2	2	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2	2	2	2
Actuated Green, G (s)	13.5	13.5	13.5	13.5	13.5	13.5	7.0	7.0	13.5	13.5	13.5
Effective Green, g (s)	13.5	13.5	13.5	13.5	13.5	13.5	7.0	7.0	13.5	13.5	13.5
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.21	0.21	0.40	0.40	0.40
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.6	6.6	6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	443	744	744	744	744	744	366	366	744	744	744
v/s Ratio Prot	0.05	0.13	0.13	0.13	0.13	0.13	0.06	0.06	0.13	0.13	0.13
v/s Ratio Perm	0.12	0.49	0.32	0.32	0.32	0.32	0.30	0.30	0.49	0.49	0.49
Uniform Delay, d1	6.4	7.6	7.6	7.6	7.6	7.6	11.3	11.3	7.6	7.6	7.6
Progression Factor	1.00	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	0.3	0.3	0.3	0.3	0.5	0.5	0.3	0.3	0.3
Delay (s)	6.5	8.1	7.9	7.9	7.9	7.9	11.8	11.8	7.9	7.9	7.9
Level of Service	A	A	A	A	A	A	B	B	A	A	A
Approach Delay (s)	7.9	7.9	7.9	7.9	7.9	7.9	11.8	11.8	7.9	7.9	7.9
Approach LOS	A	A	A	A	A	A	B	B	A	A	A
Intersection Summary											
HCM 2000 Control Delay	8.3										
HCM 2000 Level of Service	A										
HCM 2000 Volume to Capacity ratio	0.43										
Actuated Cycle Length (s)	33.8										
Sum of lost time (s)	13.3										
Intersection Capacity Utilization	58.3%										
ICU Level of Service	B										
Analysis Period (min)	15										
Critical Lane Group											

Timings 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

12-13-2023

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT
Lane Configurations	47	325	216	30	0	0	0	0
Traffic Volume (vph)	47	325	216	30	0	0	0	0
Future Volume (vph)	47	325	216	30	0	0	0	0
Turn Type	Perm	NA	NA	Perm	NA	NA	NA	NA
Protected Phases	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2
Detector Phase	2	2	2	2	2	2	2	2
Switch Phase	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Initial (s)	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7
Minimum Split (s)	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (s)	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%
Total Spill (%)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Yellow Time (s)	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
v/c Ratio	0.08	0.35	0.23	0.04	0.21	0.04	0.21	0.04
Control Delay	7.4	8.8	7.9	2.3	11.0	2.3	11.0	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.4	8.8	7.9	2.3	11.0	2.3	11.0	7.4
LOS	A	A	A	A	A	A	A	A
Approach Delay	8.6	7.2	7.2	11.0	11.0	11.0	11.0	8.6
Approach LOS	A	A	A	B	B	B	B	A
Intersection Summary								
Cycle Length: 80								
Actuated Cycle Length: 36.9								
Natural Cycle t5								
Control Type: Actuated-Uncoordinated								
Maximum v/c Ratio: 0.35								
Intersection Signal Delay: 8.6								
Intersection LOS: A								
Intersection Capacity Utilization 58.3%								
ICU Level of Service B								
Analysis Period (min) 15								



HCM Unsignalized Intersection Capacity Analysis 2: Days Road & Site Access (east)

HCM Unsignalized Intersection Capacity Analysis 1: Site Access (west) & King Street East

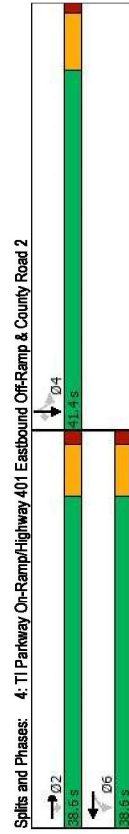
Movement	EBL	EBR	NBL	SBT	SBR	
Lane Configurations	W			W		
Traffic Volume (veh/h)	50	0	0	6	3	48
Future Volume (Veh/h)	50	0	0	6	3	48
Sign Control	Stop			Free		
Grade	0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	0	0	7	3	52
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percut Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
VC, conflicting volume	36	29	55			
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol	36	29	55			
IC, single (s)	6.4	6.2	4.1			
IC, 2 stage (s)						
IF (s)	3.5	3.3	2.2			
p0 queue free %	94	100	100			
cM capacity (veh/h)	977	1046	1550			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	54	7	55			
Volume Left	54	0	0			
Volume Right	0	0	52			
cSH	977	1550	1700			
Volume to Capacity	0.06	0.00	0.03			
Queue Length 95th (m)	1.4	0.0	0.0			
Control Delay (s)	8.9	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	8.9	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			4.1			
Intersection Capacity Utilization			13.3%			
Analysis Period (min)			15			
ICU Level of Service			A			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	W			W		
Traffic Volume (veh/h)	212	39	0	308	0	35
Future Volume (Veh/h)	212	39	0	308	0	35
Sign Control	Free			Free		
Grade	0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	230	42	0	335	0	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percut Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
VC, conflicting volume						
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol						
IC, single (s)						
IC, 2 stage (s)						
IF (s)						
p0 queue free %						
cM capacity (veh/h)						
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	272	335	38			
Volume Left	0	0	0			
Volume Right	42	0	38			
cSH	1700	1700	788			
Volume to Capacity	0.16	0.20	0.05			
Queue Length 95th (m)	0.0	0.0	1.2			
Control Delay (s)	0.0	0.0	9.8			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	9.8			
Approach LOS			A			
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			23.5%			
Analysis Period (min)			15			
ICU Level of Service			A			

Timings 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

HCM Unsignalized Intersection Capacity Analysis 3: Days Road & King Street East/County Road 2

Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	195	60	2	288	0	44
Future Volume (vph)	195	60	2	288	0	44
Turn Type	NA	Perm	Perm	NA	NA	Perm
Protected Phases	2			6	4	
Permitted Phases	2	2	6	6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	26.5	26.5	26.5	26.5	25.5	25.5
Total Split (s)	36.6	36.6	36.6	36.6	41.4	41.4
Total Split (%)	48.3%	48.3%	48.3%	48.3%	51.8%	51.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.4	5.4
All-Red Time (s)	1.5	1.5	1.5	1.5	1.1	1.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	21.1	21.1	21.1	21.1	14.5	14.5
Actuated g/C Ratio	0.79	0.79	0.79	0.79	0.54	0.54
v/c Ratio	0.16	0.05	0.00	0.23	0.03	0.06
Control Delay	5.0	2.5	6.0	5.3	12.1	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.0	2.5	6.0	5.3	12.1	5.6
LOS	A	A	A	A	B	A
Approach Delay	4.4			5.3	7.6	
Approach LOS	A			A	A	



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	247	0	51	287	21	35
Future Volume (Veh/h)	247	0	51	287	21	35
Sign Control	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	294	0	61	342	25	42
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percut Blockage						
Right turn flare (veh)	None					
Median type	None					
Median storage (veh)						
Upstream signal (m)				111		
pK, platoon unblocked					0.90	
VC, conflicting volume		294			788	294
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol		294			679	294
IC, single (s)		4.1			6.4	6.2
IC, 2 stage (s)		2.2			3.5	3.3
IF (s)					93	94
p0 queue free %		95				
qM capacity (veh/h)		1268			359	745
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	294	403	67			
Volume Left	0	61	25			
Volume Right	0	0	42			
ESH	1700	1268	532			
Volume to Capacity	0.17	0.05	0.13			
Queue Length 95th (m)	0.0	1.2	3.4			
Control Delay (s)	0.0	1.6	12.7			
Lane LOS	A	A	B			
Approach Delay (s)	0.0	1.6	12.7			
Approach LOS		B				

Intersection Summary						
Average Delay		2.0				
Intersection Capacity Utilization		44.3%				
Analysis Period (min)		15				
ICU Level of Service					A	

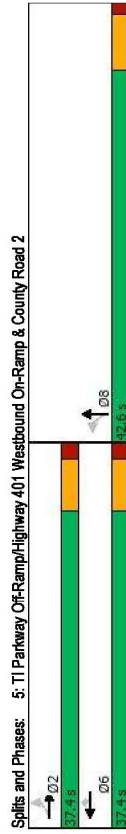
Timings

5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

<Total 2025> AM Peak Hour

12-13-2023

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Configurations	EBL	EBT	WBT	WBR	NBT
Traffic Volume (vph)	58	169	228	65	0
Future Volume (vph)	58	169	228	65	0
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases	2	2	6	6	8
Permitted Phases	2	2	6	6	8
Detector Phase	2	2	6	6	8
Switch Phase	20.0	20.0	20.0	20.0	10.0
Minimum Initial (s)	30.7	30.7	30.7	30.7	32.6
Minimum Split (s)	37.4	37.4	37.4	37.4	42.6
Total Split (s)	46.8%	46.8%	46.8%	46.8%	53.3%
Total Split (%)	5.0	5.0	5.0	5.0	5.4
Yellow Time (s)	1.7	1.7	1.7	1.7	1.2
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	6.7	6.7	6.7	6.7	6.6
Total Lost Time (s)					
Lead/Lag					
Lead-Lag Optimize?	None	None	None	None	None
Recall Mode	20.9	20.9	20.9	20.9	14.8
Act Effect Green (s)	0.68	0.68	0.68	0.68	0.48
Actuated g/C Ratio	0.09	0.17	0.21	0.07	0.09
w/C Ratio	6.8	6.6	6.8	2.5	7.9
Control Delay	0.0	0.0	0.0	0.0	0.0
Queue Delay	6.8	6.6	6.8	2.5	7.9
Total Delay	A	A	A	A	A
LOS	A	A	A	A	A
Approach Delay	6.7	5.8	7.9		
Approach LOS	A	A	A	A	A
Intersection Summary					
Cycle Length: 80					
Actuated Cycle Length: 30.8					
Natural Cycle: 65					
Control Type: Actuated-Uncoordinated					
Maximum w/C Ratio: 0.21					
Intersection Signal Delay: 6.4					
Intersection LOS: A					
Intersection Capacity Utilization 59.4%					
Analysis Period (min) 15					



HCM Signalized Intersection Capacity Analysis

4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

<Total 2025> AM Peak Hour

12-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	195	60	2	288	0	0	0	0	19	0	44
Future Volume (vph)	0	195	60	2	288	0	0	0	0	19	0	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
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
Flt	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.85
Flt Protected	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1810	1615	1805	1863	1863	1863	1863	1863	1863	1444	1482	1482
Flt Permitted	1.00	1.00	1.00	0.62	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1810	1615	1172	1863	1863	1863	1863	1863	1863	1444	1482	1482
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	227	70	2	335	0	0	0	0	22	0	51
RTOR Reduction (vph)	0	0	44	0	0	0	0	0	0	0	0	46
Lane Group Flow (vph)	0	227	26	2	335	0	0	0	0	0	0	22
Heavy Vehicles (%)	0%	5%	0%	0%	2%	0%	0%	0%	0%	25%	0%	9%
Turn Type	NA	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	NA	Perm	Perm
Protected Phases	2	2	6	6	6	6	6	6	6	4	4	4
Permitted Phases	2	2	6	6	6	6	6	6	6	4	4	4
Actuated Green, G (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	2.5	2.5	2.5
Effective Green, g (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	2.5	2.5	2.5
Actuated g/C Ratio	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.10	0.10	0.10
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	664	593	430	664	664	664	664	664	664	147	151	151
w/C Ratio Prot	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.02	0.02	0.02
w/C Ratio Perm	0.34	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.15	0.15	0.15
Uniform Delay, d1	5.6	5.0	4.9	6.0	6.0	6.0	6.0	6.0	6.0	10.0	9.9	9.9
Progression 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
Incremental Delay, d2	0.3	0.0	0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.1	0.1
Delay (s)	5.9	5.0	4.9	6.5	6.5	6.5	6.5	6.5	6.5	10.5	10.0	10.0
Level of Service	A	A	A	A	A	A	A	A	A	B	B	B
Approach Delay (s)	5.7	5.7	6.5	6.5	6.5	6.5	6.5	6.5	6.5	10.2	10.2	10.2
Approach LOS	A	A	A	A	A	A	A	A	A	B	B	B
Intersection Summary												
HCM 2000 Control Delay	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	A	A	A
HCM 2000 Volume to Capacity ratio	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	13.0	13.0	13.0
Actuated Cycle Length (s)	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	24.5	B	B	B
Intersection Capacity Utilization	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	B	B	B
Analysis Period (min)	15	15	15	15	15	15	15	15	15	B	B	B
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 1: Site Access (west) & King Street East

<Total 2035> PM Peak Hour

12-13-2023

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	EB	EB	WB	WB	NB	NB
Traffic Volume (veh/h)	369	37	0	322	0	32
Future Volume (Veh/h)	369	37	0	322	0	32
Sign Control	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	401	40	0	350	0	35
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None				None	
Median storage (veh)						
Upstream signal (m)					158	
pK, platoon unblocked						
VC, conflicting volume					771	421
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol					771	421
IC, single (s)					4.1	6.2
IC, 2 stage (s)					2.2	3.5
p0 queue free %					100	94
cM capacity (veh/h)					1119	368
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	441	350	35			
Volume Left	0	0	0			
Volume Right	40	0	35			
cSH	1700	1700	632			
Volume to Capacity	0.26	0.21	0.06			
Queue Length 95th (m)	0.0	0.0	1.4			
Control Delay (s)	0.0	0.0	11.0			
Lane LOS	B	B	B			
Approach Delay (s)	0.0	0.0	11.0			
Approach LOS	B	B	B			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			31.7%			
Analysis Period (min)			15			
				ICU Level of Service		A

HCM Signalized Intersection Capacity Analysis 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

<Total 2025> AM Peak Hour

12-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	NB	NB
Traffic Volume (vph)	58	169	0	0	228	65	64	0	5	0	0	0
Future Volume (vph)	58	169	0	0	228	65	64	0	5	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.6				
Lane Util. Factor	1.00	1.00	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				
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Flt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.96				
Satd. Flow (prot)	1751	1759	1759	1845	1550	1795						
Flt Permitted	0.59	1.00	1.00	1.00	1.00	1.00	0.98					
Satd. Flow (perm)	1095	1759	1759	1845	1550	1795						
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	68	199	0	0	268	76	75	0	6	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	51	0	42	0	0	0	0
Lane Group Flow (vph)	68	199	0	0	268	25	0	39	0	0	0	0
Conf. Peds. (#/hr)	2					2		2				
Heavy Vehicles (%)	3%	8%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	NA	NA	Perm	Perm	NA	NA	NA	NA	NA	NA
Protected Phases												
Permitted Phases	2	2			6	8						
Actuated Green, G (s)	8.5	8.5			8.5	8.5						
Effective Green, g (s)	8.5	8.5			8.5	8.5						
Actuated g/C Ratio	0.33	0.33			0.33	0.33						
Clearance Time (s)	6.7	6.7			6.7	6.7						
Vehicle Extension (s)	3.0	3.0			3.0	3.0						
Lane Grp Cap (vph)	356	572			600	504						
v/s Ratio Prot		0.11			0.15							
v/s Ratio Perm		0.19			0.45	0.05						
v/c Ratio	0.19	0.35			0.45	0.05						
Uniform Delay, d1	6.3	6.7			6.9	6.0						
Progression Factor	1.00	1.00			1.00	1.00						
Incremental Delay, d2	0.3	0.4			0.5	0.0						
Delay (s)	6.6	7.1			7.5	6.1						
Level of Service	A	A			A	A						
Approach Delay (s)		6.9			7.2							
Approach LOS		A			A							
Intersection Summary												
HCM 2000 Control Delay			7.4									
HCM 2000 Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			26.1									
Intersection Capacity Utilization			59.4%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Days Road & King Street East/County Road 2

HCM Unsignalized Intersection Capacity Analysis

2: Days Road & Site Access (east)

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	EB	EB	WB	WB	NB	NB
Traffic Volume (veh/h)	400	1	41	308	16	31
Future Volume (Veh/h)	400	1	41	308	16	31
Sign Control	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	421	1	43	324	17	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percut Blockage						
Right turn flare (veh)	None					
Median type	None					
Median storage (veh)						
Upstream signal (m)						
px, platoon unblocked						
VC, conflicting volume						
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol						
IC, single (s)						
IC, 2 stage (s)						
IF (s)						
p0 queue free %						
CM capacity (veh/h)						
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	422	367	50			
Volume Left	0	43	17			
Volume Right	1	0	33			
cSH	1700	1137	478			
Volume to Capacity	0.25	0.04	0.10			
Queue Length 95th (m)	0.0	0.9	2.8			
Control Delay (s)	0.0	1.3	13.4			
Lane LOS	A	A	B			
Approach Delay (s)	0.0	1.3	13.4			
Approach LOS		B				
Intersection Summary						
Average Delay		1.4				
Intersection Capacity Utilization		52.9%				
Analysis Period (min)		15				
ICU Level of Service		A				

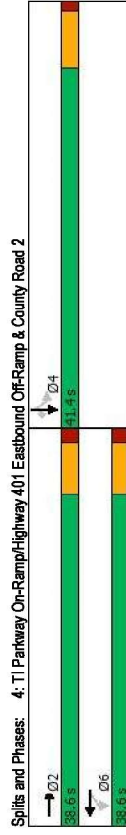
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	WB	WB	NB	NB	SB	SB
Traffic Volume (veh/h)	42	0	0	5	4	38
Future Volume (Veh/h)	42	0	0	5	4	38
Sign Control	Stop	Stop	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	0	0	5	4	41
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percut Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (m)						
px, platoon unblocked						
VC, conflicting volume						
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol						
IC, single (s)						
IC, 2 stage (s)						
IF (s)						
p0 queue free %						
CM capacity (veh/h)						
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	46	5	45			
Volume Left	46	0	0			
Volume Right	0	0	41			
cSH	985	1563	1700			
Volume to Capacity	0.05	0.00	0.03			
Queue Length 95th (m)	1.2	0.0	0.0			
Control Delay (s)	8.8	0.0	0.0			
Lane LOS	A	A	B			
Approach Delay (s)	8.8	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			4.2			
Intersection Capacity Utilization			13.3%			
Analysis Period (min)			15			
ICU Level of Service			A			

HCM Signalized Intersection Capacity Analysis
 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

Timings
 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	294	118	9	292	0	0	0	0	54	0	59
Traffic Volume (vph)	0	294	118	9	292	0	0	0	0	54	0	59
Future Volume (vph)	0	294	118	9	292	0	0	0	0	54	0	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	4.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
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
Frt	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.85
Flt Protected	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1863	1615	1805	1881	1881	1881	1881	1881	1881	1736	1599	1881
Flt Permitted	1.00	1.00	0.57	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1863	1615	1090	1881	1881	1881	1881	1881	1881	1736	1599	1881
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	306	123	9	304	0	0	0	0	56	0	61
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	52
Lane Group Flow (vph)	0	306	123	9	304	0	0	0	0	56	0	56
Heavy Vehicles (%)	0%	2%	0%	0%	1%	0%	0%	0%	0%	4%	0%	1%
Turn Type	NA	Free	Free	Perm	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm
Protected Phases	2	2	2	6	6	6	6	6	6	4	4	4
Permitted Phases	Free	Free	Free	6	6	6	6	6	6	4	4	4
Actuated Green, G (s)	14.3	31.9	14.3	14.3	14.3	14.3	14.3	14.3	14.3	4.6	4.6	4.6
Effective Green, g (s)	14.3	31.9	14.3	14.3	14.3	14.3	14.3	14.3	14.3	4.6	4.6	4.6
Actuated g/C Ratio	0.45	1.00	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.14	0.14	0.14
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	835	1615	488	843	843	843	843	843	843	250	230	843
v/s Ratio Prot	c0.16			0.16						0.03	0.01	
v/s Ratio Perm		0.08	0.01							0.22	0.04	
Uniform Delay, d1	0.37	0.08	0.02	0.36						12.1	11.7	
Progression 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
Incremental Delay, d2	0.3	0.1	0.0	0.3						0.5	0.1	
Delay (s)	6.1	0.1	4.9	6.1						12.5	11.8	
Level of Service	A	A	A	A						B	B	
Approach Delay (s)	4.4			6.0			0.0			12.2		
Approach LOS	A			A			A			B		
Intersection Summary												
HCM 2000 Control Delay	6.0											
HCM 2000 Volume to Capacity ratio	0.33											
Actuated Cycle Length (s)	31.9									13.0		
Intersection Capacity Utilization	58.3%									B		
Analysis Period (min)	15											
c Critical Lane Group												

Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations	2	2	6	6	4	4
Traffic Volume (vph)	294	118	9	292	0	59
Future Volume (vph)	294	118	9	292	0	59
Turn Type	NA	Free	Perm	NA	NA	Perm
Protected Phases	2	2	6	6	4	4
Permitted Phases	2	2	6	6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase	2	2	6	6	4	4
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	26.5	26.5	26.5	26.5	25.5	25.5
Total Split (s)	36.6	36.6	36.6	36.6	41.4	41.4
Total Split (%)	48.3%	48.3%	48.3%	48.3%	51.8%	51.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.4	5.4
All-Red Time (s)	1.5	1.5	1.5	1.5	1.1	1.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?	None	None	None	None	None	None
Recall Mode	22.5	33.2	22.5	22.5	13.5	13.5
Act Effct Green (s)	0.68	1.00	0.68	0.68	0.41	0.41
Actuated g/C Ratio	0.24	0.08	0.01	0.24	0.08	0.09
v/c Ratio	6.8	0.1	6.3	6.7	13.2	5.4
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	6.8	0.1	6.3	6.7	13.2	5.4
LOS	A	A	A	A	B	A
Approach Delay	4.9			6.7	9.2	
Approach LOS	A			A	A	
Intersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 33.2						
Natural Cycle: 35						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.24						
Intersection Signal Delay: 6.1						
Intersection Capacity Utilization: 58.3%						
Analysis Period (min): 15						
ICU Level of Service: B						



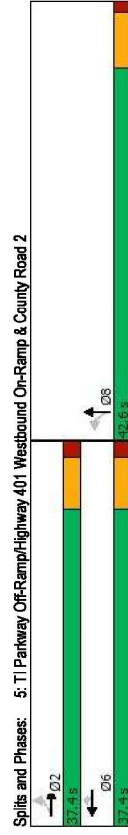
HCM Signalized Intersection Capacity Analysis 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

Timings
5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Traffic Volume (vph)	45	304	0	0	206	28	98	0	8	0	0
Future Volume (vph)	45	304	0	0	206	28	98	0	8	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
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
Frt	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	1736	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Flt Permitted	0.61	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	1123	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	51	342	0	0	231	31	110	0	9	0	0
RTOR Reduction (vph)	0	0	0	0	0	18	0	40	0	0	0
Lane Group Flow (vph)	51	342	0	0	231	13	0	79	0	0	0
Heavy Vehicles (%)	4%	2%	0%	0%	1%	3%	0%	0%	20%	0%	0%
Turn Type	Perm	NA	NA	NA	Perm	Perm	NA	NA	NA	NA	NA
Protected Phases	2	2	2	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2	2	2	2
Actuated Green, G (s)	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6
Effective Green, g (s)	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	453	751	751	751	751	751	751	751	751	751	751
v/s Ratio Prot	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
v/s Ratio Perm	0.05	0.11	0.46	0.30	0.02	0.02	0.22	0.04	0.04	0.04	0.04
Uniform Delay, d1	6.3	7.3	7.3	6.8	6.0	6.0	11.2	11.2	11.2	11.2	11.2
Progression Factor	1.00	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	0.4	0.2	0.0	0.0	0.3	0.3	0.3	0.3	0.3
Delay (s)	6.4	7.8	7.8	7.1	6.1	6.1	11.6	11.6	11.6	11.6	11.6
Level of Service	A	A	A	A	A	A	B	B	B	B	B
Approach Delay (s)	7.6	6.9	6.9	7.6	6.9	6.9	11.6	11.6	11.6	11.6	11.6
Approach LOS	A	A	A	A	A	A	B	B	B	B	B
Intersection Summary											
HCM 2000 Control Delay	8.0										
HCM 2000 Volume to Capacity ratio	0.38										
Actuated Cycle Length (s)	33.7										
Intersection Capacity Utilization	58.3%										
Analysis Period (min)	15										
c Critical Lane Group											

Timings 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT
Traffic Volume (vph)	45	304	206	28	98	0	8	0
Future Volume (vph)	45	304	206	28	98	0	8	0
Turn Type	Perm	NA	NA	Perm	Perm	NA	NA	NA
Protected Phases	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2
Detector Phase	2	2	2	2	2	2	2	2
Switch Phase	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Minimum Initial (s)	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7
Minimum Split (s)	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (%)	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%
Total Split (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Yellow Time (s)	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode								
Act Effct Green (s)	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
v/c Ratio	0.08	0.32	0.22	0.03	0.03	0.17	0.03	0.17
Control Delay	7.1	8.4	7.7	2.0	2.0	9.9	2.0	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	8.4	7.7	2.0	2.0	9.9	2.0	9.9
LOS	A	A	A	A	A	A	A	A
Approach Delay	8.2	7.0	7.0	9.9	9.9	9.9	9.9	9.9
Approach LOS	A	A	A	A	A	A	A	A
Intersection Summary								
Cycle Length: 80								
Actuated Cycle Length: 36.7								
Natural Cycle t5								
Control Type: Actuated-Uncoordinated								
Maximum v/c Ratio: 0.32								
Intersection Signal Delay: 8.1								
Intersection Capacity Utilization 58.3%								
Analysis Period (min) 15								



HCM Unsignalized Intersection Capacity Analysis 2: Days Road & Site Access (east)

<Total 2030> AM Peak Hour
12-13-2023

Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W						
Traffic Volume (veh/h)	50	0	0	6	3	48	
Future Volume (Veh/h)	50	0	0	6	3	48	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	54	0	0	7	3	52	
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	36	29	55				
VC1, stage 1 conf vol							
VC2, stage 2 conf vol							
VCu, unblocked vol	36	29	55				
IC, single (s)	6.4	6.2	4.1				
IC, 2 stage (s)							
IF (s)	3.5	3.3	2.2				
p0 queue free %	94	100	100				
cM capacity (veh/h)	977	1046	1550				
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total	54	7	55				
Volume Left	54	0	0				
Volume Right	0	0	52				
cSH	977	1550	1700				
Volume to Capacity	0.06	0.00	0.03				
Queue Length 95th (m)	1.4	0.0	0.0				
Control Delay (s)	8.9	0.0	0.0				
Lane LOS	A						
Approach Delay (s)	8.9	0.0	0.0				
Approach LOS	A						
Intersection Summary							
Average Delay			4.1				
Intersection Capacity Utilization			13.3%			ICU Level of Service	A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis 1: Site Access (west) & King Street East

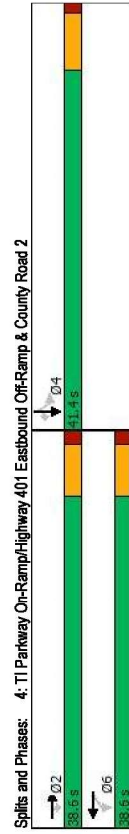
<Total 2030> AM Peak Hour
12-13-2023

Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	W						
Traffic Volume (veh/h)	224	39	0	324	0	35	
Future Volume (Veh/h)	224	39	0	324	0	35	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	243	42	0	352	0	38	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None			
Median storage (veh)							
Upstream signal (m)				156			
pX, platoon unblocked							
VC, conflicting volume			285	616	264		
VC1, stage 1 conf vol							
VC2, stage 2 conf vol							
VCu, unblocked vol			285	616	264		
IC, single (s)			4.1	6.4	6.2		
IC, 2 stage (s)							
IF (s)			2.2	3.5	3.3		
p0 queue free %			100	100	95		
cM capacity (veh/h)			1277	454	775		
Direction, Lane #	EB 1	WB 1	NB 1				
Volume Total	285	352	38				
Volume Left	0	0	0				
Volume Right	42	0	38				
cSH	1700	1700	775				
Volume to Capacity	0.17	0.21	0.05				
Queue Length 95th (m)	0.0	0.0	1.2				
Control Delay (s)	0.0	0.0	9.9				
Lane LOS			A				
Approach Delay (s)	0.0	0.0	9.9				
Approach LOS			A				
Intersection Summary							
Average Delay			0.6				
Intersection Capacity Utilization			24.2%			ICU Level of Service	A
Analysis Period (min)			15				

Timings 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

HCM Unsignalized Intersection Capacity Analysis 3: Days Road & King Street East/County Road 2

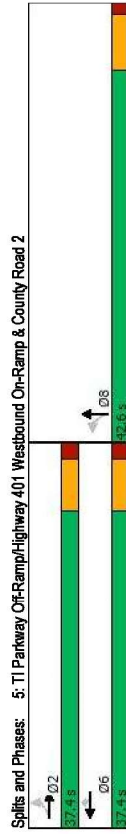
Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations	←	←	←	←	←	←
Traffic Volume (vph)	204	63	2	302	0	50
Future Volume (vph)	204	63	2	302	0	50
Turn Type	NA	Perm	NA	NA	Perm	NA
Protected Phases	2				4	
Permitted Phases	2	2	6	6	4	4
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0
Minimum Split (s)	26.5	26.5	26.5	26.5	25.5	25.5
Total Split (s)	36.6	36.6	36.6	36.6	41.4	41.4
Total Split (%)	48.3%	48.3%	48.3%	48.3%	51.8%	51.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.4	5.4
All-Red Time (s)	1.5	1.5	1.5	1.5	1.1	1.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	20.4	20.4	20.4	20.4	15.7	15.7
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.52	0.52
w/C Ratio	0.19	0.07	0.00	0.28	0.03	0.07
Control Delay	6.6	2.5	6.0	7.0	13.2	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.6	2.5	6.0	7.0	13.2	5.4
LOS	A	A	A	A	B	A
Approach Delay	5.6			7.0	7.9	
Approach LOS	A			A	A	



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	←	←	←	←	←	←
Traffic Volume (veh/h)	259	0	51	303	21	35
Future Volume (veh/h)	259	0	51	303	21	35
Sign Control	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	308	0	61	361	25	42
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percut Blockage						
Right turn flare (veh)	None					
Median type						
Median storage (veh)						
Upstream signal (m)				111		
pk, platoon unblocked					0.87	
VC, conflicting volume		308			791	308
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol		308			887	308
IC, single (s)		4.1			6.4	6.2
IC, 2 stage (s)		2.2			3.5	3.3
IF (s)					93	94
p0 queue free %		95				
CM capacity (veh/h)		1253			342	732
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	308	422	67			
Volume Left	0	61	25			
Volume Right	0	0	42			
CSH	1700	1253	514			
Volume to Capacity	0.18	0.05	0.13			
Queue Length 95th (m)	0.0	1.2	3.6			
Control Delay (s)	0.0	1.6	13.1			
Lane LOS	A	A	B			
Approach Delay (s)	0.0	1.6	13.1			
Approach LOS		B				
Intersection Summary						
Average Delay		1.9				
Intersection Capacity Utilization		45.7%				
Analysis Period (min)		15				
ICU Level of Service					A	

Timings 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2 <Total 2030> AM Peak Hour 12-13-2023

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Configurations	EBL	EBT	WBT	WBR	NBT
Traffic Volume (vph)	61	177	239	69	0
Future Volume (vph)	61	177	239	69	0
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases	2	2	6	6	8
Permitted Phases	2	2	6	6	8
Detector Phase	2	2	6	6	8
Switch Phase	20.0	20.0	20.0	20.0	10.0
Minimum Initial (s)	30.7	30.7	30.7	30.7	32.6
Minimum Split (s)	37.4	37.4	37.4	37.4	42.6
Total Split (s)	46.8%	46.8%	46.8%	46.8%	53.3%
Total Split (%)	5.0	5.0	5.0	5.0	5.4
Yellow Time (s)	1.7	1.7	1.7	1.7	1.2
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	6.7	6.7	6.7	6.7	6.6
Total Lost Time (s)					
Lead/Lag					
Lead-Lag Optimize?	None	None	None	None	None
Recall Mode	23.0	23.0	23.0	23.0	12.5
Act Effect Green (s)	0.68	0.68	0.68	0.68	0.37
Actuated g/C Ratio	0.10	0.17	0.22	0.08	0.13
w/C Ratio	6.9	6.7	6.8	2.4	8.6
Control Delay	0.0	0.0	0.0	0.0	0.0
Queue Delay	6.9	6.7	6.8	2.4	8.6
Total Delay	A	A	A	A	A
LOS	A	A	A	A	A
Approach Delay	6.7	5.8	8.6		
Approach LOS	A	A	A		
Intersection Summary					
Cycle Length: 80					
Actuated Cycle Length: 33.9					
Natural Cycle: 65					
Control Type: Actuated-Uncoordinated					
Maximum w/C Ratio: 0.22					
Intersection Signal Delay: 6.5					
Intersection LOS: A					
Intersection Capacity Utilization 59.4%					
Analysis Period (min) 15					



HCM Signalized Intersection Capacity Analysis 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2 <Total 2030> AM Peak Hour 12-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	204	63	2	302	0	0	0	0	22	0	50
Future Volume (vph)	0	204	63	2	302	0	0	0	0	22	0	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
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
Flt	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.85
Flt Protected	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1810	1615	1805	1863	1863	1863	1863	1863	1863	1444	1482	1482
Flt Permitted	1.00	1.00	0.61	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1810	1615	1161	1863	1863	1863	1863	1863	1863	1444	1482	1482
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	237	73	2	351	0	0	0	0	26	0	58
RTOR Reduction (vph)	0	0	49	0	0	0	0	0	0	0	0	48
Lane Group Flow (vph)	0	237	24	2	351	0	0	0	0	0	0	26
Heavy Vehicles (%)	0%	5%	0%	0%	2%	0%	0%	0%	0%	25%	0%	9%
Turn Type	NA	Perm	Perm	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2	2	6	6	6	6	6	6	6	4	4	4
Permitted Phases	2	2	6	6	6	6	6	6	6	4	4	4
Actuated Green, G (s)	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	4.2	4.2	4.2
Effective Green, g (s)	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	4.2	4.2	4.2
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.16	0.16	0.16
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	593	529	380	611	611	611	611	611	611	236	243	243
w/C Ratio Prot	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.02	0.02	0.02
w/C Ratio Perm	0.40	0.05	0.01	0.57	0.57	0.57	0.57	0.57	0.57	0.11	0.04	0.04
Uniform Delay, d1	6.7	5.9	5.8	7.1	7.1	7.1	7.1	7.1	7.1	9.1	9.0	9.0
Progression 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
Incremental Delay, d2	0.4	0.0	0.0	1.3	1.3	1.3	1.3	1.3	1.3	0.2	0.1	0.1
Delay (s)	7.1	5.9	5.8	8.4	8.4	8.4	8.4	8.4	8.4	9.3	9.1	9.1
Level of Service	A	A	A	A	A	A	A	A	A	A	A	A
Approach Delay (s)	6.8	6.8	8.4	0.0	0.0	0.0	0.0	0.0	0.0	9.1	9.1	9.1
Approach LOS	A	A	A	A	A	A	A	A	A	A	A	A
Intersection Summary												
HCM 2000 Control Delay	7.8	7.8	8.4	0.0	0.0	0.0	0.0	0.0	0.0	9.1	9.1	9.1
HCM 2000 Level of Service	A	A	A	A	A	A	A	A	A	A	A	A
HCM 2000 Volume to Capacity ratio	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Actuated Cycle Length (s)	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6	25.6	13.0	13.0	13.0
Intersection Capacity Utilization	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	59.4%	B	B	B
Analysis Period (min)	15	15	15	15	15	15	15	15	15	15	15	15
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 1: Site Access (west) & King Street East <Total 2030> PM Peak Hour 12-13-2023

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	EB	EB	WB	WB	NB	NB
Traffic Volume (veh/h)	388	37	0	341	0	32
Future Volume (Veh/h)	388	37	0	341	0	32
Sign Control	Free	Free	Free	Stop	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	422	40	0	371	0	35
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
VC, conflicting volume						
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol						
IC, single (s)						
IC, 2 stage (s)						
p0 queue free %						
cm capacity (veh/h)						
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	462	371	35			
Volume Left	0	0	0			
Volume Right	40	0	35			
cSH	1700	1700	615			
Volume to Capacity	0.27	0.22	0.06			
Queue Length 95th (m)	0.0	0.0	1.4			
Control Delay (s)	0.0	0.0	11.2			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	11.2			
Approach LOS			B			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			32.7%			
Analysis Period (min)			15			
ICU Level of Service			A			

HCM Signalized Intersection Capacity Analysis 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2 <Total 2030> AM Peak Hour 12-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Traffic Volume (vph)	61	177	0	0	239	69	73	0	6	0	0	0
Future Volume (vph)	61	177	0	0	239	69	73	0	6	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7			6.7	6.7			6.6			
Lane Util. Factor	1.00	1.00			1.00	1.00			1.00			
Frb, ped/bikes	1.00	1.00			1.00	0.98			1.00			
Frb, ped/bikes	1.00	1.00			1.00	1.00			1.00			
Frt	1.00	1.00			1.00	0.85			0.99			
Flt Protected	0.95	1.00			1.00	1.00			0.96			
Satd. Flow (prot)	1751	1759			1845	1550			1795			
Flt Permitted	0.59	1.00			1.00	1.00			0.98			
Satd. Flow (perm)	1082	1739			1845	1550			1795			
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	72	208	0	0	281	81	86	0	7	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	45	0	43	0	0	0	0
Lane Group Flow (vph)	72	208	0	0	281	36	0	50	0	0	0	0
Conf. Peds. (#/hr)	2				2			2				
Heavy Vehicles (%)	3%	8%	0%	0%	3%	2%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	NA	NA	Perm	Perm	NA	NA	NA	NA	NA	NA
Protected Phases		2			6			8				
Permitted Phases	2				6			8				
Actuated Green, G (s)	14.5	14.5			14.5	14.5		4.7				
Effective Green, g (s)	14.5	14.5			14.5	14.5		4.7				
Actuated g/C Ratio	0.45	0.45			0.45	0.45		0.14				
Clearance Time (s)	6.7	6.7			6.7	6.7		6.6				
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)	482	784			823	691		259				
v/s Ratio Prot	0.12				0.15							
v/s Ratio Perm	0.07				0.34			0.03				
v/c Ratio	0.15	0.27			0.34	0.05		0.19				
Uniform Delay, d1	5.3	5.7			5.9	5.1		12.2				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	0.1	0.2			0.2	0.0		0.4				
Delay (s)	5.5	5.8			6.1	5.1		12.6				
Level of Service	A	A			A	A		B				
Approach Delay (s)	5.7				5.9			12.6				
Approach LOS	A				A			B				
Intersection Summary												
HCM 2000 Control Delay					6.7			HCM 2000 Level of Service				A
HCM 2000 Volume to Capacity ratio					0.31							
Actuated Cycle Length (s)					32.5			Sum of lost time (s)				13.3
Intersection Capacity Utilization					59.4%			ICU Level of Service				B
Analysis Period (min)					15							
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
3: Days Road & King Street East/County Road 2

HCM Unsignalized Intersection Capacity Analysis
2: Days Road & Site Access (east)

Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	W				W		
Traffic Volume (veh/h)	419	1	41	325	16	31	
Future Volume (Veh/h)	419	1	41	325	16	31	
Sign Control	Free				Stop		
Grade	0%				0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	441	1	43	342	17	33	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)	None						
Median type					None		
Median storage (veh)							
Upstream signal (m)					113		
pX, platoon unblocked						0.90	
VC, conflicting volume					442	870	442
VC1, stage 1 conf vol							
VC2, stage 2 conf vol							
VCu, unblocked vol					442	801	442
IC, single (s)					4.1	6.4	6.2
IC, 2 stage (s)					2.2	3.5	3.3
IF (s)					96	94	95
p0 queue free %					1118	307	616
cM capacity (veh/h)							
Direction, Lane #	EB 1	WB 1	NB 1				
Volume Total	442	385	50				
Volume Left	0	43	17				
Volume Right	1	0	33				
cSH	1700	1118	459				
Volume to Capacity	0.26	0.04	0.11				
Queue Length 95th (m)	0.0	1.0	2.9				
Control Delay (s)	0.0	1.3	13.8				
Lane LOS	A	A	B				
Approach Delay (s)	0.0	1.3	13.8				
Approach LOS		B					
Intersection Summary							
Average Delay			1.4				A
Intersection Capacity Utilization			54.8%				
Analysis Period (min)			15				

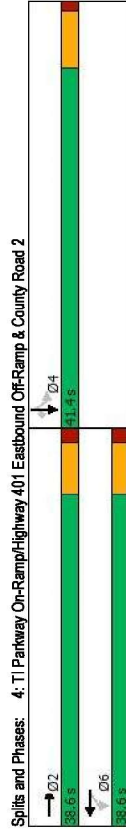
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W				W		
Traffic Volume (veh/h)	42	0	0	5	4	38	
Future Volume (Veh/h)	42	0	0	5	4	38	
Sign Control	Stop				Free		
Grade	0%				0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	46	0	0	5	4	41	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)					None		
Median type					None		
Median storage (veh)							
Upstream signal (m)							
pX, platoon unblocked							
VC, conflicting volume					30	24	45
VC1, stage 1 conf vol							
VC2, stage 2 conf vol							
VCu, unblocked vol					30	24	45
IC, single (s)					6.4	6.2	4.1
IC, 2 stage (s)					3.5	3.3	2.2
IF (s)					95	100	100
p0 queue free %					985	1052	1563
cM capacity (veh/h)							
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total	46	5	45				
Volume Left	46	0	0				
Volume Right	0	0	41				
cSH	985	1563	1700				
Volume to Capacity	0.05	0.00	0.03				
Queue Length 95th (m)	1.2	0.0	0.0				
Control Delay (s)	8.8	0.0	0.0				
Lane LOS	A	A					
Approach Delay (s)	8.8	0.0	0.0				
Approach LOS	A						
Intersection Summary							
Average Delay			4.2				A
Intersection Capacity Utilization			13.3%				
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

Timings
4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	308	124	10	307	0	0	0	0	62	0	67
Traffic Volume (vph)	0	308	124	10	307	0	0	0	0	62	0	67
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	0	308	124	10	307	0	0	0	0	62	0	67
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
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
Frt	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.85
Flt Protected	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1863	1615	1805	1881	1881	1881	1881	1881	1881	1736	1599	1881
Flt Permitted	1.00	1.00	0.57	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1863	1615	1075	1881	1881	1881	1881	1881	1881	1736	1599	1881
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	321	129	10	320	0	0	0	0	65	0	70
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	56
Lane Group Flow (vph)	0	321	129	10	320	0	0	0	0	65	0	14
Heavy Vehicles (%)	0%	2%	0%	0%	0%	1%	0%	0%	0%	0%	4%	0%
Turn Type	NA	Free	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	2	2	2	2	2	2	2	2	2	2	2	2
Permitted Phases	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
Actuated Green, G (s)	13.5	33.3	13.5	13.5	13.5	13.5	13.5	13.5	13.5	6.8	6.8	6.8
Effective Green, g (s)	13.5	33.3	13.5	13.5	13.5	13.5	13.5	13.5	13.5	6.8	6.8	6.8
Actuated g/C Ratio	0.41	1.00	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.20	0.20	0.20
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	755	1615	435	762	762	762	762	762	762	354	326	762
v/s Ratio Prot	c0.17	0.08	0.01	0.17	0.17	0.17	0.17	0.17	0.17	0.04	0.01	0.17
v/s Ratio Perm	0.43	0.08	0.02	0.42	0.42	0.42	0.42	0.42	0.42	0.18	0.04	0.42
Uniform Delay, d1	7.1	0.0	5.9	7.1	7.1	7.1	7.1	7.1	7.1	11.0	10.6	7.1
Progression 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
Incremental Delay, d2	0.4	0.1	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.1	0.4
Delay (s)	7.5	0.1	6.0	7.5	7.5	7.5	7.5	7.5	7.5	11.2	10.7	7.5
Level of Service	A	A	A	A	A	A	A	A	A	B	B	B
Approach Delay (s)	5.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	10.9	10.9	7.4
Approach LOS	A	A	A	A	A	A	A	A	A	B	B	B
Intersection Summary	HCM 2000 Control Delay											
HCM 2000 Control Delay	6.9											
HCM 2000 Volume to Capacity ratio	0.34											
Actuated Cycle Length (s)	33.3											
Intersection Capacity Utilization	58.3%											
Analysis Period (min)	15											
c Critical Lane Group	15											

Lane Group	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↔	↑
Traffic Volume (vph)	308	124	10	307	0	67
Future Volume (vph)	308	124	10	307	0	67
Turn Type	NA	Free	Perm	NA	NA	Perm
Protected Phases	2			6	4	
Permitted Phases		Free	6			4
Detector Phase	2		6	6	4	4
Switch Phase						
Minimum Initial (s)	20.0		20.0	20.0	10.0	10.0
Minimum Split (s)	26.5		26.5	26.5	25.5	25.5
Total Split (s)	36.6		36.6	36.6	41.4	41.4
Total Split (%)	48.3%		48.3%	48.3%	51.8%	51.8%
Yellow Time (s)	5.0		5.0	5.0	5.4	5.4
All-Red Time (s)	1.5		1.5	1.5	1.1	1.1
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5		6.5	6.5	6.5	6.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		None	None	None	None
Act Effct Green (s)	20.8	36.4	20.8	20.8	14.1	14.1
Actuated g/C Ratio	0.57	1.00	0.57	0.57	0.39	0.39
v/c Ratio	0.30	0.08	0.02	0.30	0.10	0.11
Control Delay	8.1	0.1	6.4	8.1	13.9	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	0.1	6.4	8.1	13.9	5.2
LOS	A	A	A	A	B	A
Approach Delay	5.8		8.0	8.0	9.4	
Approach LOS	A		A	A	A	
Intersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 36.4						
Natural Cycle: 55						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.30						
Intersection Signal Delay: 7.1						
Intersection Capacity Utilization 58.3%						
Analysis Period (min) 15						
Intersection LOS: A						
ICU Level of Service B						



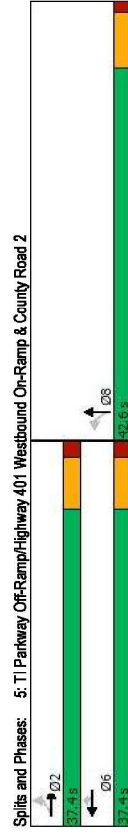
HCM Signalized Intersection Capacity Analysis 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

Timings
5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	47	319	0	0	216	29	112	0	10	0	0
Traffic Volume (vph)	47	319	0	0	216	29	112	0	10	0	0
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	6.7	6.7	6.7	6.7	6.7	6.7	6.6	6.6	6.6	6.6	6.6
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99	0.99	0.99
Flt Protected	0.98	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98	0.98	0.98
Satd. Flow (prot)	1736	1863	1863	1863	1863	1863	1768	1768	1768	1768	1768
Flt Permitted	0.81	1.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96	0.96	0.96
Satd. Flow (perm)	1111	1863	1863	1863	1863	1863	1768	1768	1768	1768	1768
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	53	358	0	0	243	33	126	0	11	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	20	0	40	0	0
Lane Group Flow (vph)	53	358	0	0	243	13	0	97	0	0	0
Heavy Vehicles (%)	4%	2%	0%	0%	1%	3%	0%	0%	20%	0%	0%
Turn Type	Perm	NA	NA	NA	Perm	Perm	NA	NA	NA	NA	NA
Protected Phases	2	2	2	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2	2	2	2
Actuated Green, G (s)	13.5	13.5	13.5	13.5	13.5	13.5	6.9	6.9	6.9	6.9	6.9
Effective Green, g (s)	13.5	13.5	13.5	13.5	13.5	13.5	6.9	6.9	6.9	6.9	6.9
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.20	0.20	0.20	0.20	0.20
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.6	6.6	6.6	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	445	746	746	746	746	746	361	361	361	361	361
v/s Ratio Prot	0.05	0.13	0.13	0.13	0.13	0.13	0.05	0.05	0.05	0.05	0.05
v/s Ratio Perm	0.12	0.48	0.48	0.48	0.48	0.48	0.27	0.27	0.27	0.27	0.27
Uniform Delay, d1	6.4	7.5	7.5	7.5	7.5	7.5	11.3	11.3	11.3	11.3	11.3
Progression Factor	1.00	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	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4
Delay (s)	6.5	8.0	8.0	8.0	8.0	8.0	11.7	11.7	11.7	11.7	11.7
Level of Service	A	A	A	A	A	A	B	B	B	B	B
Approach Delay (s)	7.8	7.1	7.1	7.1	7.1	7.1	11.7	11.7	11.7	11.7	11.7
Approach LOS	A	A	A	A	A	A	B	B	B	B	B
Intersection Summary											
HCM 2000 Control Delay	8.2										
HCM 2000 Level of Service	A										
HCM 2000 Volume to Capacity ratio	0.41										
Actuated Cycle Length (s)	33.7										
Intersection Capacity Utilization	58.3%										
Analysis Period (min)	15										
c. Critical Lane Group											

Timings 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

Lane Group	EBL	EBT	EBT	WBT	WBT	WBR	NBT
Lane Configurations	47	319	216	29	0	0	0
Traffic Volume (vph)	47	319	216	29	0	0	0
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	6.7	6.7	6.7	6.7	6.7	6.6	6.6
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.99	0.99
Flt Protected	0.98	1.00	1.00	1.00	1.00	0.98	0.98
Satd. Flow (prot)	1736	1863	1863	1863	1863	1768	1768
Flt Permitted	0.81	1.00	1.00	1.00	1.00	0.96	0.96
Satd. Flow (perm)	1111	1863	1863	1863	1863	1768	1768
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	53	358	0	0	243	33	126
RTOR Reduction (vph)	0	0	0	0	0	20	0
Lane Group Flow (vph)	53	358	0	0	243	13	0
Heavy Vehicles (%)	4%	2%	0%	0%	1%	3%	0%
Turn Type	Perm	NA	NA	NA	Perm	Perm	NA
Protected Phases	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2
Actuated Green, G (s)	13.5	13.5	13.5	13.5	13.5	6.9	6.9
Effective Green, g (s)	13.5	13.5	13.5	13.5	13.5	6.9	6.9
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.20	0.20
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	445	746	746	746	746	361	361
v/s Ratio Prot	0.05	0.13	0.13	0.13	0.13	0.05	0.05
v/s Ratio Perm	0.12	0.48	0.48	0.48	0.48	0.27	0.27
Uniform Delay, d1	6.4	7.5	7.5	7.5	7.5	11.3	11.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.5	0.5	0.5	0.5	0.4	0.4
Delay (s)	6.5	8.0	8.0	8.0	8.0	11.7	11.7
Level of Service	A	A	A	A	A	B	B
Approach Delay (s)	7.8	7.1	7.1	7.1	7.1	11.7	11.7
Approach LOS	A	A	A	A	A	B	B
Intersection Summary							
Cycle Length: 80							
Actuated Cycle Length: 36.7							
Natural Cycle t5							
Control Type: Actuated-Uncoordinated							
Maximum v/c Ratio: 0.34							
Intersection Signal Delay: 8.4							
Intersection Capacity Utilization 58.3%							
Analysis Period (min) 15							



HCM Unsignalized Intersection Capacity Analysis 2: Days Road & Site Access (east)

<Total 2035> AM Peak Hour
12-13-2023

Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	W						
Traffic Volume (veh/h)	50	0	0	6	3	48	
Future Volume (Veh/h)	50	0	0	6	3	48	
Sign Control	Stop			Free	Free		
Grade	D%			D%	D%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	54	0	0	7	3	52	
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	36	29	55				
VC1, stage 1 conf vol							
VC2, stage 2 conf vol							
VCu, unblocked vol	36	29	55				
IC, single (s)	6.4	6.2	4.1				
IC, 2 stage (s)							
IF (s)	3.5	3.3	2.2				
p0 queue free %	94	100	100				
cM capacity (veh/h)	977	1046	1550				
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total	54	7	55				
Volume Left	54	0	0				
Volume Right	0	0	52				
cSH	977	1550	1700				
Volume to Capacity	0.06	0.00	0.03				
Queue Length 95th (m)	1.4	0.0	0.0				
Control Delay (s)	8.9	0.0	0.0				
Lane LOS	A						
Approach Delay (s)	8.9	0.0	0.0				
Approach LOS	A						
Intersection Summary							
Average Delay			4.1				
Intersection Capacity Utilization			13.3%			ICU Level of Service	A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis 1: Site Access (west) & King Street East

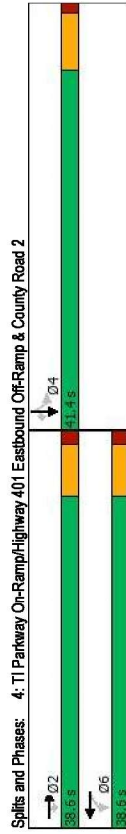
<Total 2035> AM Peak Hour
12-13-2023

Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	W						
Traffic Volume (veh/h)	236	39	0	340	0	35	
Future Volume (Veh/h)	236	39	0	340	0	35	
Sign Control	Free			Free	Stop		
Grade	D%			D%	D%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	257	42	0	370	0	38	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)				None			
Median type				None			
Median storage (veh)							
Upstream signal (m)					156		
pX, platoon unblocked							
VC, conflicting volume				299	648	278	
VC1, stage 1 conf vol							
VC2, stage 2 conf vol							
VCu, unblocked vol				299	648	278	
IC, single (s)				4.1	6.4	6.2	
IC, 2 stage (s)							
IF (s)				2.2	3.5	3.3	
p0 queue free %				100	100	95	
cM capacity (veh/h)				1262	435	761	
Direction, Lane #	EB 1	WB 1	NB 1				
Volume Total	299	370	38				
Volume Left	0	0	0				
Volume Right	42	0	38				
cSH	1700	1700	761				
Volume to Capacity	0.18	0.22	0.05				
Queue Length 95th (m)	0.0	0.0	1.3				
Control Delay (s)	0.0	0.0	10.0				
Lane LOS			A				
Approach Delay (s)	0.0	0.0	10.0				
Approach LOS			A				
Intersection Summary							
Average Delay			0.5				
Intersection Capacity Utilization			24.8%			ICU Level of Service	A
Analysis Period (min)			15				

Timings 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

HCM Unsignalized Intersection Capacity Analysis 3: Days Road & King Street East/County Road 2

Lane Group	EBT	EBR	WBL	WBT	SBT	EBT	EBR	WBL	WBT	SBT	NBL	NBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	←
Traffic Volume (vph)	214	66	2	316	0	57	271	0	51	319	21	35
Future Volume (vph)	214	66	2	316	0	57	271	0	51	319	21	35
Turn Type	NA	Perm	Perm	NA	NA	Perm	Free	Free	Free	Stop	Stop	Stop
Protected Phases	2				4		0%	0%	0%	0%	0%	0%
Permitted Phases	2	2	6	6	4	4	0.84	0.84	0.84	0.84	0.84	0.84
Detector Phase	2	2	6	6	4	4	323	0	61	380	25	42
Switch Phase												
Minimum Initial (s)	20.0	20.0	20.0	20.0	10.0	10.0						
Minimum Split (s)	26.5	26.5	26.5	26.5	25.5	25.5						
Total Split (s)	36.6	36.6	36.6	36.6	41.4	41.4						
Total Split (%)	48.3%	48.3%	48.3%	48.3%	51.8%	51.8%						
Yellow Time (s)	5.0	5.0	5.0	5.0	5.4	5.4						
All-Red Time (s)	1.5	1.5	1.5	1.5	1.1	1.1						
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0						
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5						
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None						
Act Effect Green (s)	20.3	20.3	20.3	20.3	16.0	16.0						
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.54	0.54						
v/c Ratio	0.20	0.07	0.00	0.29	0.04	0.08						
Control Delay	6.6	2.4	6.0	7.1	13.2	5.2						
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0						
Total Delay	6.6	2.4	6.0	7.1	13.2	5.2						
LOS	A	A	A	A	B	A						
Approach Delay	5.6			7.1	7.7							
Approach LOS	A			A	A							
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 29.9												
Natural Cycle: 35												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.29												
Intersection Signal Delay: 6.6												
Intersection Capacity Utilization 59.4%												
Analysis Period (min) 15												

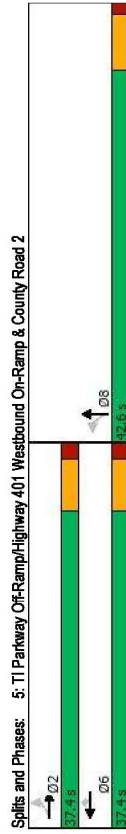


Splits and Phases: 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	←	←	←	←	←	←
Traffic Volume (veh/h)	271	0	51	319	21	35
Future Volume (Veh/h)	271	0	51	319	21	35
Sign Control	Free	Free	Free	Free	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	323	0	61	380	25	42
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Pedestrian Blockage						
Right turn flare (veh)	None	None	None	None	None	None
Median type						
Median storage (veh)						
Upstream signal (m)						
pk, platoon unblocked						
VC, conflicting volume						
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VC, unblocked vol						
IC, single (s)						
IC, 2 stage (s)						
IF (s)						
p0 queue free %						
qM capacity (veh/h)						
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	323	441	67			
Volume Left	0	61	25			
Volume Right	0	0	42			
cSH	1700	1237	495			
Volume to Capacity	0.19	0.05	0.14			
Queue Length 95th (m)	0.0	1.2	3.7			
Control Delay (s)	0.0	1.6	13.4			
Lane LOS	A	A	B			
Approach Delay (s)	0.0	1.6	13.4			
Approach LOS	B	B	B			
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			47.2%			
Analysis Period (min)			15			
ICU Level of Service			A			

Timings 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2 <Total 2035> AM Peak Hour 12-13-2023

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Configurations	EBL	EBT	WBT	WBR	NBT
Traffic Volume (vph)	64	186	251	72	0
Future Volume (vph)	64	186	251	72	0
Turn Type	Perm	NA	NA	Perm	NA
Protected Phases	2	2	6	6	8
Permitted Phases	2	2	6	6	8
Detector Phase	2	2	6	6	8
Switch Phase	20.0	20.0	20.0	20.0	10.0
Minimum Initial (s)	30.7	30.7	30.7	30.7	32.6
Minimum Split (s)	37.4	37.4	37.4	37.4	42.6
Total Split (s)	46.8%	46.8%	46.8%	46.8%	53.3%
Total Split (%)	5.0	5.0	5.0	5.0	5.4
Yellow Time (s)	1.7	1.7	1.7	1.7	1.2
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	6.7	6.7	6.7	6.7	6.6
Total Lost Time (s)					
Lead/Lag					
Lead-Lag Optimize?	None	None	None	None	None
Recall Mode	22.8	22.8	22.8	22.8	12.9
Act Effect Green (s)	0.68	0.68	0.68	0.68	0.38
Actuated g/C Ratio	0.10	0.18	0.24	0.08	0.15
w/c Ratio	6.9	6.7	6.9	2.4	9.1
Control Delay	0.0	0.0	0.0	0.0	0.0
Queue Delay	6.9	6.7	6.9	2.4	9.1
Total Delay	A	A	A	A	A
LOS	A	A	A	A	A
Approach Delay	6.7	5.9	9.1		
Approach LOS	A	A	A		
Intersection Summary					
Cycle Length: 80					
Actuated Cycle Length: 33.7					
Natural Cycle: 65					
Control Type: Actuated-Uncoordinated					
Maximum w/c Ratio: 0.24					
Intersection Signal Delay: 6.6					
Intersection LOS: A					
Intersection Capacity Utilization 59.4%					
Analysis Period (min) 15					



HCM Signalized Intersection Capacity Analysis 4: TI Parkway On-Ramp/Highway 401 Eastbound Off-Ramp & County Road 2 <Total 2035> AM Peak Hour 12-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	0	214	66	2	316	0	0	0	0	25	0	57
Future Volume (vph)	0	214	66	2	316	0	0	0	0	25	0	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5					6.5	6.5	
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
Flt	1.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00
Flt Protected	1.00	1.00	1.00	0.95	1.00					0.95	1.00	
Satd. Flow (prot)	1810	1615	1805	1863						1444	1462	
Flt Permitted	1.00	1.00	0.60	1.00						0.95	1.00	
Satd. Flow (perm)	1810	1615	1149	1863						1444	1462	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	249	77	2	367	0	0	0	0	29	0	66
RTOR Reduction (vph)	0	0	52	0	0	0	0	0	0	0	0	55
Lane Group Flow (vph)	0	249	25	2	367	0	0	0	0	0	0	29
Heavy Vehicles (%)	0%	5%	0%	0%	2%	0%	0%	0%	0%	25%	0%	9%
Turn Type	NA	Perm	Perm	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases	2	2	6	6						4		4
Permitted Phases												
Actuated Green, G (s)	8.3	8.3	8.3	8.3	8.3					4.2	4.2	4.2
Effective Green, g (s)	8.3	8.3	8.3	8.3	8.3					4.2	4.2	4.2
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33					0.16	0.16	0.16
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5					6.5	6.5	6.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)	589	525	373	606						237	244	
w/c Ratio Prot	0.14			c0.20								
w/c Ratio Perm	0.42	0.05	0.01	0.81						0.02	0.01	
Uniform Delay, d1	6.7	5.9	5.8	7.2						9.1	9.0	
Progression Factor	1.00	1.00	1.00	1.00						1.00	1.00	
Incremental Delay, d2	0.5	0.0	0.0	1.7						0.2	0.1	
Delay (s)	7.2	5.9	5.8	8.9						9.3	9.0	
Level of Service	A	A	A	A						A	A	
Approach Delay (s)	6.9		8.9				0.0			9.1		
Approach LOS	A		A				A			A		
Intersection Summary												
HCM 2000 Control Delay	8.1									A		
HCM 2000 Volume to Capacity ratio	0.44											
Actuated Cycle Length (s)	25.5									13.0		
Intersection Capacity Utilization	59.4%									B		
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 1: Site Access (west) & King Street East <Total 2035> PM Peak Hour 12-13-2023

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	EB	EB	WB	WB	NB	NB
Traffic Volume (veh/h)	409	37	0	358	0	32
Future Volume (Veh/h)	409	37	0	358	0	32
Sign Control	Free	Free	Free	Stop	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	445	40	0	389	0	35
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Pedestrian Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
VC, conflicting volume						
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol						
IC, single (s)						
IC, 2 stage (s)						
p0 queue free %						
CM capacity (veh/h)						
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	485	389	35			
Volume Left	0	0	0			
Volume Right	40	0	35			
cSH	1700	1700	597			
Volume to Capacity	0.29	0.23	0.06			
Queue Length 95th (m)	0.0	0.0	1.5			
Control Delay (s)	0.0	0.0	11.4			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	11.4			
Approach LOS			B			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			33.8%			
Analysis Period (min)			15			
ICU Level of Service			A			

HCM Signalized Intersection Capacity Analysis 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2 <Total 2035> AM Peak Hour 12-13-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Traffic Volume (vph)	64	186	0	0	251	72	83	0	7	0	0	0
Future Volume (vph)	64	186	0	0	251	72	83	0	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.6					
Lane Util. Factor	1.00	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					
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00					
Frt	1.00	1.00	1.00	1.00	1.00	1.00	0.98					
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00	0.96					
Satd. Flow (prot)	1751	1759	1845	1845	1550	1795						
Flt Permitted	0.58	1.00	1.00	1.00	1.00	0.98						
Satd. Flow (perm)	1088	1759	1845	1550	1795							
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	75	219	0	0	295	85	98	0	8	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	47	0	43	0	0	0	0
Lane Group Flow (vph)	75	219	0	0	295	38	0	63	0	0	0	0
Conf. Peds. (#/hr)	2				2							
Heavy Vehicles (%)	3%	8%	0%	0%	3%	2%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	NA	NA	Perm	Perm	NA	NA	NA	NA	NA	NA
Protected Phases		2			6		8					
Permitted Phases	2				6		8					
Actuated Green, G (s)	14.4	14.4			14.4	14.4	4.7					
Effective Green, g (s)	14.4	14.4			14.4	14.4	4.7					
Actuated g/C Ratio	0.44	0.44			0.44	0.44	0.15					
Clearance Time (s)	6.7	6.7			6.7	6.7	6.6					
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0					
Lane Grp Cap (vph)	474	781			820	688	260					
v/s Ratio Prot	0.12				0.16							
v/s Ratio Perm	0.07				0.02		0.04					
v/c Ratio	0.16	0.28			0.36	0.05	0.24					
Uniform Delay, d1	5.4	5.7			6.0	5.1	12.3					
Progression Factor	1.00	1.00			1.00	1.00	1.00					
Incremental Delay, d2	0.2	0.2			0.3	0.0	0.5					
Delay (s)	5.5	5.9			6.2	5.2	12.8					
Level of Service	A	A			A	A	B					
Approach Delay (s)	5.8				6.0		12.8					
Approach LOS	A				A		B					
Intersection Summary												
HCM 2000 Control Delay			6.8		HCM 2000 Level of Service		A					
HCM 2000 Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			32.4		Sum of lost time (s)		13.3					
Intersection Capacity Utilization			59.4%		ICU Level of Service		B					
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

3: Days Road & King Street East/County Road 2

HCM Unsignalized Intersection Capacity Analysis

2: Days Road & Site Access (east)

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	W	W	W	W	W	W
Traffic Volume (veh/h)	440	1	41	342	16	31
Future Volume (Veh/h)	440	1	41	342	16	31
Sign Control	Free	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	463	1	43	360	17	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)	None					
Median type	None					
Median storage (veh)						
Upstream signal (m)				113		
pX, platoon unblocked						
VC, conflicting volume		464			910	464
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol		464			841	464
IC, single (s)		4.1			6.4	6.2
IC, 2 stage (s)		2.2			3.5	3.3
IF (s)					94	94
p0 queue free %		96			288	599
CM capacity (veh/h)		1097				
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	464	403	50			
Volume Left	0	43	17			
Volume Right	1	0	33			
cSH	1700	1097	438			
Volume to Capacity	0.27	0.04	0.11			
Queue Length 95th (m)	0.0	1.0	3.1			
Control Delay (s)	0.0	1.3	14.3			
Lane LOS	A	A	B			
Approach Delay (s)	0.0	1.3	14.3			
Approach LOS		B				
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			56.8%			
Analysis Period (min)			15			
ICU Level of Service			B			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W	W	W	W	W	W
Traffic Volume (veh/h)	42	0	0	5	4	38
Future Volume (Veh/h)	42	0	0	5	4	38
Sign Control	Stop	Stop	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	0	0	5	4	41
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	24	45		
VC1, stage 1 conf vol						
VC2, stage 2 conf vol						
VCu, unblocked vol		30	24	45		
IC, single (s)		6.4	6.2	4.1		
IC, 2 stage (s)		3.5	3.3	2.2		
IF (s)		95	100	100		
p0 queue free %		985	1052	1563		
CM capacity (veh/h)		985	1052	1563		
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	46	5	45			
Volume Left	46	0	0			
Volume Right	0	0	41			
cSH	985	1563	1700			
Volume to Capacity	0.05	0.00	0.03			
Queue Length 95th (m)	1.2	0.0	0.0			
Control Delay (s)	8.8	0.0	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.8	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			4.2			
Intersection Capacity Utilization			13.3%			
Analysis Period (min)			15			
ICU Level of Service			A			

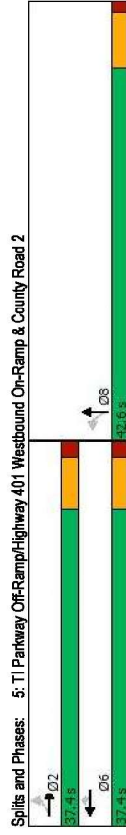
HCM Signalized Intersection Capacity Analysis 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

Timings
5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Traffic Volume (vph)	49	335	0	0	226	30	128	0	11	0	0
Future Volume (vph)	49	335	0	0	226	30	128	0	11	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.6	6.6	6.6	6.6	6.6
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
Frt	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.99	0.96	0.96	0.96
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96	0.96
Satd. Flow (prot)	1736	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Flt Permitted	0.60	1.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96	0.96	0.96
Satd. Flow (perm)	1099	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	55	376	0	0	254	34	144	0	12	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	20	0	40	0	0
Lane Group Flow (vph)	55	376	0	0	254	14	0	116	0	0	0
Heavy Vehicles (%)	4%	2%	0%	0%	1%	3%	0%	0%	20%	0%	0%
Turn Type	Perm	NA	NA	NA	Perm	Perm	NA	NA	NA	NA	NA
Protected Phases	2	2	2	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2	2	2	2
Actuated Green, G (s)	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Effective Green, g (s)	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Clearance Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.6	6.6	6.6	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	438	744	744	744	744	744	366	366	366	366	366
v/s Ratio Prot	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
v/s Ratio Perm	0.05	0.51	0.51	0.51	0.51	0.51	0.01	0.07	0.32	0.32	0.32
Uniform Delay, d1	6.4	7.6	7.6	7.6	7.6	7.6	6.1	11.4	11.4	11.4	11.4
Progression Factor	1.00	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	0.5	0.5	0.5	0.5	0.0	0.5	0.5	0.5	0.5
Delay (s)	6.5	8.2	8.2	8.2	8.2	8.2	6.2	11.9	11.9	11.9	11.9
Level of Service	A	A	A	A	A	A	A	B	B	B	B
Approach Delay (s)	8.0	7.2	7.2	7.2	7.2	7.2	11.9	11.9	11.9	11.9	11.9
Approach LOS	A	A	A	A	A	A	B	B	B	B	B
Intersection Summary	Intersection Summary										
HCM 2000 Control Delay	8.4										
HCM 2000 Volume to Capacity ratio	0.44										
Actuated Cycle Length (s)	33.8										
Intersection Capacity Utilization	58.3%										
Analysis Period (min)	15										
c Critical Lane Group	c Critical Lane Group										

Timings 5: TI Parkway Off-Ramp/Highway 401 Westbound On-Ramp & County Road 2

Lane Group	EBL	EBT	EBT	WBT	WBT	WBR	NBT
Lane Configurations	EBL	EBT	EBT	WBT	WBT	WBR	NBT
Traffic Volume (vph)	49	335	226	30	226	30	0
Future Volume (vph)	49	335	226	30	226	30	0
Turn Type	Perm	NA	NA	NA	Perm	NA	NA
Protected Phases	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2
Detector Phase	2	2	2	2	2	2	2
Switch Phase	2	2	2	2	2	2	2
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	10.0
Minimum Split (s)	30.7	30.7	30.7	30.7	30.7	30.7	32.6
Total Split (s)	37.4	37.4	37.4	37.4	37.4	37.4	42.6
Total Split (%)	46.8%	46.8%	46.8%	46.8%	46.8%	46.8%	53.3%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.4
All-Red Time (s)	1.7	1.7	1.7	1.7	1.7	1.7	1.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.7	6.7	6.7	6.7	6.7	6.7	6.6
Lead/Lag	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?	Lead-Lag Optimize?
Recall Mode	None	None	None	None	None	None	None
Act Effct Green (s)	20.9	20.9	20.9	20.9	20.9	20.9	14.4
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57	0.57	0.39
v/c Ratio	0.09	0.36	0.24	0.04	0.22	0.04	0.22
Control Delay	7.5	9.0	8.1	2.3	11.1	2.3	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.5	9.0	8.1	2.3	11.1	2.3	11.1
LOS	A	A	A	A	A	A	B
Approach Delay	8.8	7.4	7.4	11.1	11.1	11.1	11.1
Approach LOS	A	A	A	B	B	B	B
Intersection Summary	Intersection Summary						
Cycle Length: 80	Cycle Length: 80						
Actuated Cycle Length: 36.9	Actuated Cycle Length: 36.9						
Natural Cycle t5	Natural Cycle t5						
Control Type: Actuated-Uncoordinated	Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.36	Maximum v/c Ratio: 0.36						
Intersection Signal Delay: 8.7	Intersection Signal Delay: 8.7						
Intersection Capacity Utilization 58.3%	Intersection Capacity Utilization 58.3%						
Analysis Period (min) 15	Analysis Period (min) 15						





APPENDIX D

Level of Service Definitions

LEVEL OF SERVICE ANALYSIS AT SIGNALIZED INTERSECTIONS

To assist in clarifying the arithmetic analysis associated with traffic engineering, it is often useful to refer to “Level of Service”. The term Level of Service implies a qualitative measure of traffic flow at an intersection. It is dependent upon vehicle delay and vehicle queue lengths at the approaches. Specifically, Level of Service criteria are stated in terms of the average stopped delay per vehicle for a 15-minute analysis period. The following table describes the characteristics of each level:

<u>Level of Service</u>	<u>Features</u>	<u>Stopped Delay per Vehicle (sec)</u>
A	At this level of service, almost no signal phase is fully utilized by traffic. Very seldom does a vehicle wait longer than one red indication. The approach appears open, turning movements are easily made and drivers have freedom of operation.	≤ 5.0
B	At this level, an occasional signal phase is fully utilized and many phases approach full use. Many drivers begin to feel somewhat restricted within platoons of vehicles approaching the intersection.	$> 5.0 \text{ and } \leq 15.0$
C	At this level, the operation is stable though with more frequent fully utilized signal phases. Drivers feel more restricted and occasionally may have to wait more than one red signal indication, and queues may develop behind turning vehicles. This level is normally employed in urban intersection design.	$> 15.0 \text{ and } \leq 25.0$
D	At this level, the motorist experiences increasing restriction and instability of flow. There are substantial delays to approaching vehicles during short peaks within the peak period, but there are enough cycles with lower demand to permit occasional clearance of developing queues and prevent excessive backups.	$> 25.0 \text{ and } \leq 40.0$
E	At this level, capacity is reached. There are long queues of vehicles waiting upstream of the intersection and delays to vehicles may extend to several signal cycles.	$> 40.0 \text{ and } \leq 60.0$
F	At this level, saturation occurs, with vehicle demand exceeding the available capacity.	> 60.0

LEVEL OF SERVICE ANALYSIS AT UNSIGNALIZED INTERSECTIONS⁽¹⁾

The term "level of service" implies a qualitative measure of traffic flow at an intersection. It is dependent upon the vehicle delay and vehicle queue lengths at approaches. The level of service at unsignalized intersections is often related to the delay accumulated by flows on the minor streets, caused by all other conflicting movements. The following table describes the characteristics of each level.

Level of Service	Features
A	Little or no traffic delay occurs. Approaches appear open, turning movements are easily made, and drivers have freedom of operation.
B	Short traffic delays occur. Many drivers begin to feel somewhat restricted in terms of freedom of operation.
C	Average traffic delays occur. Operations are generally stable, but drivers emerging from the minor street may experience difficulty in completing their movement. This may occasionally impact on the stability of flow on the major street.
D	Long traffic delays occur. Motorists emerging from the minor street experience significant restriction and frustration. Drivers on the major street will experience congestion and delay as drivers emerging from the minor street interfere with the major through movements.
E	Very long traffic delays occur. Operations approach the capacity of the intersection.
F	Saturation occurs, with vehicle demand exceeding the available capacity. Very long traffic delays occur.

⁽¹⁾ Highway Capacity Manual - Special Report No. 209, Transportation Research Board, 1985.