

**3823 County Road 6
Row's Corners Fairgrounds
Redevelopment
Traffic Impact Study**

DRAFT

Prepared For:



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1.0 PROJECT OVERVIEW

The existing Row's Corners Fair Grounds site is located at 3823 County Road 6 in the Township of Elizabethtown-Kitley, Ontario. Campus Habitations has proposed a redevelopment of the site that will include residential units as well as commercial space. A total of 320 1-, 2- and 3-bedroom residential suites are proposed, each of which will be configured as a campus-style dwelling with individual bedrooms and ensuites adjoining a shared common kitchen and living area. The proposed commercial space will front County Road 6 and will include 800 m² / 8,611 ft² of gross floor area (GFA). The development is proposed to be occupied by 2025.

This report is a traffic impact study prepared in support of the site plan application for the proposed development and examines the existing transportation operations in the vicinity of the site, future traffic operations with the site in place, and traffic and active transportation within the site area.

2.0 EXISTING CONDITIONS

The 3823 County Road 6 site is approximately 30 acres in size and is located on the east side of County Road 6 approximately 615m north of Centennial Road (County Road 26). The site lies within the Township of Elizabethtown-Kitley, just to the northeast of the City of Brockville urban boundary. The site is designated as rural land use in the Elizabethtown-Kitley Official Plan (2018 consolidation) and is primarily used for community events. Vehicle access to the site is accommodated by two driveways approximately 30m and 155m north of the south property line.

2.1 Existing Road Network

The road network in the vicinity of the proposed development includes the following:

- **County Road 6** is designated as a County Road under the jurisdiction of the United Counties of Leeds and Grenville (UCLG). Adjacent to the development site, County Road 6 has a posted speed limit of 80 km/h and is configured with a single lane of traffic in each direction, with gravel shoulders and adjacent stormwater ditches. The road includes a painted centerline that is dashed to permit passing maneuvers for some traffic; passing is permitted by northbound traffic from approximately 160m south of the south site access to approximately midway between the two existing site accesses, and then for both directions of traffic for an additional 820m to the north. Property accesses to County Road 6 are limited to the development site, some single-family residential sites to the south and some fenced accesses to the solar farm on the west side of the road; north of the site there are no additional property accesses for approximately 1.7km north of the site. South of Centennial Road, County Road 6 continues south as North Augusta Road and forms the east edge of the urban boundary with the City of Brockville.
- **Centennial Road** is an east-west road that runs along the north edge of the City of Brockville and continues into the Township of Elizabethtown-Kitley approximately 150m to the east of County Road 6 as **County Road 26**. In the vicinity of County Road 6, Centennial Road / County Road 26 is configured with a single lane in each direction with gravel shoulders. The segment signed as Centennial Road has a posted speed limit of 60 km/h, increasing to 80 km/h as it becomes County Road 26 to the east. Centennial Road is fronted by some residential and light commercial development to the east of County Road 6; to the west there are no accesses until the Leclerc Food accesses approximately 400m to the west.

The study area includes one existing intersection:

- The **County Road 6 / Centennial Road** intersection is configured with all-way stop control with stop signs and flashing red beacons on all approaches. All legs of the intersection are configured with a single lane of traffic accommodating all turning movements, there are no auxiliary turning lanes added on any approach. The former Korim's General store and gas station is located on the northeast corner of the intersection but is now closed.

None of the existing roads in the vicinity of the proposed development include sidewalks or any other active transportation facilities.

2.2 Existing Transit Service

Local transit service near the study area is operated by Brockville Transit; the nearest existing transit route is the Brockville Transit blue bus that operates along Laurier Boulevard and California Avenue to the southwest of Centennial Drive and North Augusta Road. The northern extent of the existing blue bus routing is illustrated in Figure 1.

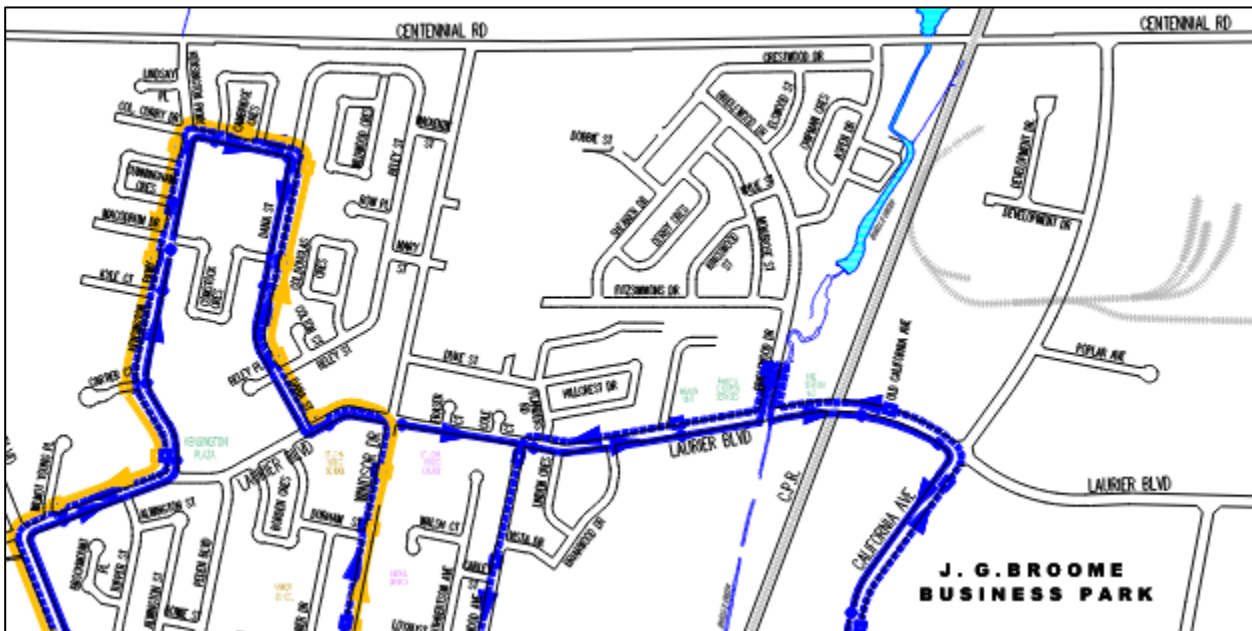


Figure 1: Existing Brockville Transit Service

This existing transit service does not currently provide service to the proposed development site, but the developers have approached the City of Brockville to discuss the potential for an extension of the blue route to serve the development in the future.

2.3 Existing Traffic Volumes and Historical Growth

Historical AADT volumes have been obtained from UCLG's online traffic count mapping. The most recent traffic count on County Road 6 adjacent to the development site is 2,605 vehicles per day, counted in 2018. South of the site, the most recent traffic count on County Road 26 is 3,650 vehicles per day, counted in 2019.

AADT growth on both roads over the last 20 years has been reviewed based on the historical counts available; the growth trends are illustrated in Figure 2. The growth trends indicate an average annual growth on County Road 6 of 0.7%, relative to the most recent AADT. Historical trends indicate a negative annual growth of -0.7% per year on County Road 26 east of County Road 6, but it is noted that the most recent count indicates positive growth from the two counts before.

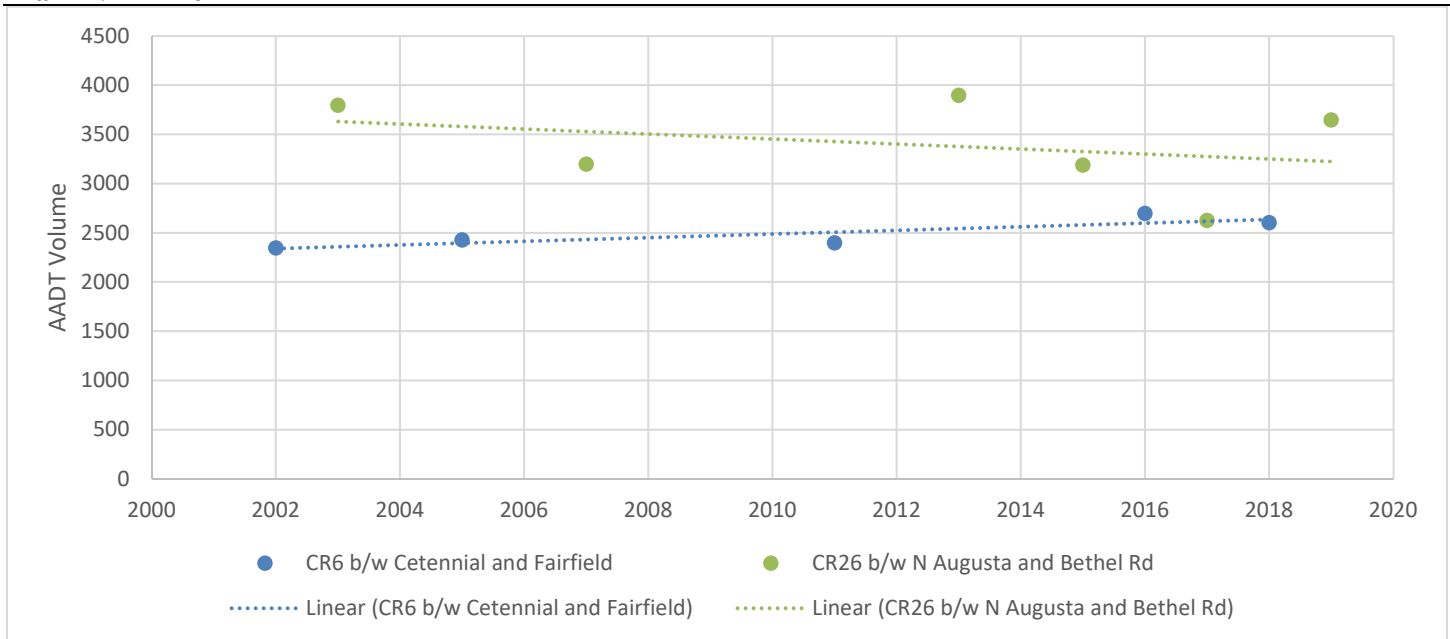


Figure 2: Historical AADT Growth (UCLG)

Additional traffic volume information was provided by the City of Brockville, including AADT and turning movement count information for the intersection of County Road 6 / N Augusta Road with Centennial Road. The City's latest counts at this intersection were undertaken in 2021 and the AADT volumes are illustrated in Figure 3; AADT volumes from this year on each of the intersection approaches were approximately 2,100 for the north and south legs, 2,900 for the east leg (County Road 26) and 3,200 west leg (Centennial Road). It is noted that traffic at the time of the 2021 counts would have been impacted by the COVID-19 pandemic; comparison of the 2021 AADT on Centennial Road at North Augusta Road with the 2018 AADT on Centennial Road at California Avenue to the west indicates a reduction in the AADT volume of approximately 30% from 2018 to 2021.

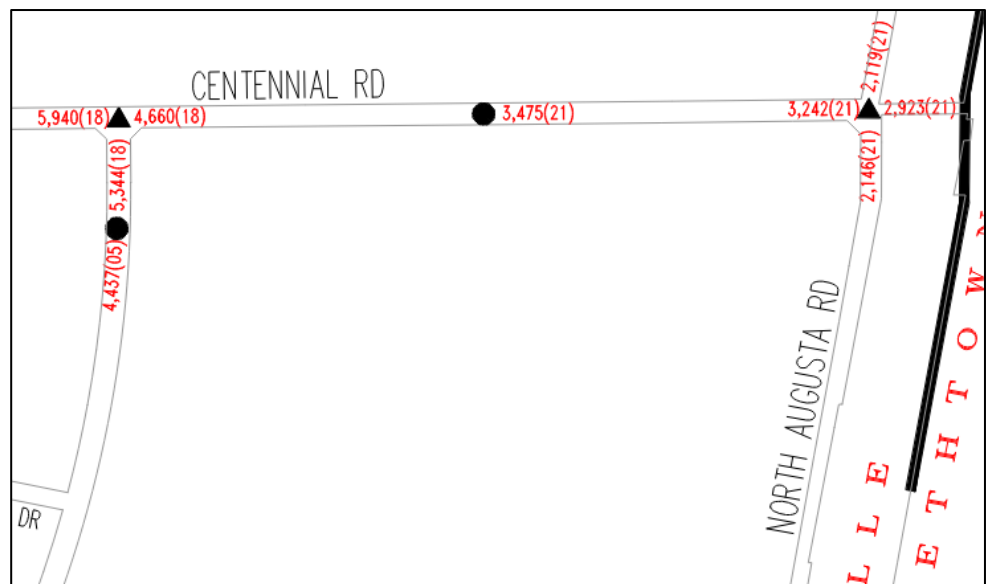


Figure 3: City of Brockville AADT Counts

Turning movement counts for the County Road 6 / Centennial Road intersection were provided by the City of Brockville from 2016 and 2021. Weekday AM and PM peak hour volumes from the provided counts are summarized in Figure 4.

2016 Count			County Road 6			2021 Count			County Road 6			AM Peak (PM Peak)	
(34)	(25)	(8)	↖	4	(6)	(35)	(31)	(10)	↖	8	(8)		
93	85	3	←	157	(84)	72	46	8	←	106	(76)		
Centennial	↙	↓	↘	↙	40	(24)	Centennial	↙	↓	↘	↙	26	(18)
(86)	19	↗	↖	↑	↗	(55)	12	↗	↖	↑	↗	Centennial	
(146)	77	→	11	24	9	(98)	41	→	6	18	10		
(22)	8	↘	(16)	(66)	(72)	(17)	5	↘	(14)	(75)	(60)		
AM Peak Hour (PM Peak Hour)			N Augusta			Total: 530 (589)			N Augusta			Total: 358 (497)	

Figure 4: County Road 6 / Centennial Road Turning Movement Counts (City of Brockville)

A comparison of the 2016 and 2021 counts indicates reductions in the total peak hour volumes entering the intersection from 2016 to 2021 of 32% and 16% during the AM and PM peak hours, respectively. This can be attributed to the impacts of the closures related to the COVID-19 pandemic in 2021 and is consistent with the decrease in AADT along Centennial Road referenced previously.

For the purposes of this Traffic Impact Study, the analysis will conservatively be based on the provided 2016 turning movement count increased using a 1% growth rate to all future horizon years. To account for the impacts of the COVID-19 pandemic, a 0% annual growth rate will be applied through 2020, 2021 and 2022. The resulting base year 2023 volumes that will be used as a basis for the existing conditions analysis are summarized in Figure 5.

2023 Volumes			County Road 6			
(35)	(26)	(8)	↖	4	(6)	
97	88	3	←	163	(87)	
Centennial	↙	↓	↘	↙	42	(25)
(89)	20	↗	↖	↑	↗	Centennial
(152)	80	→	11	25	9	
(23)	8	↘	(17)	(69)	(75)	
N Augusta			AM Peak Hour (PM Peak Hour)			

Figure 5: 2023 Base Year Volumes

2.4 Existing Traffic Operations Analysis

Operational analysis of the existing traffic volumes at the County Road 6 / Centennial Road intersection has been undertaken using Synchro 11. Synchro provides a macroscopic analysis based on Highway Capacity Manual (HCM) methodology and has been used to assess existing level of service, volume to capacity (V/C) ratio, delays and queues at this intersection.

The level of service (LOS) measurement is reported from A-F and assigned based on average delay for each traffic movement reported in the analysis. Delay thresholds specific to LOS measurements differ between signalized and unsignalized intersection control, movements with a V/C ratio of 1.0 or greater are automatically assigned a V/C ratio of F. Delay thresholds specific to the LOS measurements are summarized in Table 1.

Table 1: LOS Definitions

Signalized Delay (s)	Signalized LOS		Unsignalized Delay (s)	Unsignalized LOS	
	V/C < 1.0	V/C ≥ 1.0		V/C < 1.0	V/C ≥ 1.0
< 10	A	F	< 10	A	F
> 10 to 20	B	F	> 10 to 15	B	F
> 20 to 35	C	F	> 15 to 25	C	F
> 35 to 55	D	F	> 25 to 35	D	F
> 55 to 80	E	F	> 35 to 50	E	F
> 80	F	F	> 50	F	F

In general, levels of service A to D are considered acceptable operations. LOS D indicates the start of noticeable congestion, LOS E indicates more extensive congestion and delays. LOS F indicates that the traffic demand is exceeding the capacity of the movement and that extensive queuing and delays are expected.

Per MTO Traffic Impact Study Guidelines, an intersection movement that is operating at a V/C ratio greater than 0.85 is deemed critical and should be evaluated for operational improvements. Movements that exceed this critical threshold will be highlighted in the analysis.

Analysis of the existing traffic operations have been undertaken for the 2023 base year counts AM and PM peak hour counts summarized in Figure 5 above. Results from the analysis are summarized in Table 2; detailed Synchro output is included as Appendix A. Queues measurements are adopted from the HCM6 Synchro results and are expressed in vehicle lengths.

Table 2: Traffic Operations Analysis - 2023 Base Year

Movement	LOS	AM Peak Hour			PM Peak Hour			
		V/C	Delay (s)	Q95 (veh)	LOS	V/C	Delay (s)	Q95 (veh)
County Road 6 / North Augusta Road / Centennial Road								
EB	A	0.16	8.7	0.5	B	0.39	10.8	1.8
WB	A	0.29	9.6	1.2	A	0.18	9.0	0.6
NB	A	0.07	8.4	0.2	A	0.24	9.3	0.9
SB	A	0.25	9.0	1.0	A	0.11	8.5	0.3
TOTAL	A	-	9.1	-	A	-	9.8	-

The analysis results indicate that the intersection of County Road 6 and Centennial Road operates at an overall LOS A under existing weekday AM and PM peak hour volumes. All of the individual movements operate an acceptable LOS B or better during both peak hours, and queues on all approaches are limited to 1-2 vehicles. Overall, the existing conditions analysis indicates that the intersection is operating well.

3.0 PROPOSED DEVELOPMENT

The proposed redevelopment of the existing Row's Corners Fairgrounds Site includes the addition of a number of residential buildings and commercial space all accessed by a new internal road network. The proposed site plan is included as Appendix B.

Residential units in the proposed development will be provided in short-rise buildings that include three storeys plus a basement level. Each storey, including the basement levels will include campus-style suites that include a mix of 1-, 2- and 3-bedroom suites, each separate bedrooms and ensuites adjoining a shared common kitchen and living area, as such each building is proposed to include 16 dwelling units. The rental structure (by unit or individual bedroom) has not yet been confirmed. The site plan is arranged in 2- and 3-building blocks; the current site plan includes 12 three-building blocks and 2 two-building blocks, for a total 640 bedrooms on the site. Each building block will be served by an adjacent parking area connecting to the internal circulation road.

The proposed site plan also includes a small commercial space fronting onto County Road 6, with a gross floor area of 800 square meters or approximately 8,611 square feet. The commercial space will include its own dedicated parking area accessed directly from County Road 6.

The centre of the site will include a shared park and amenity space that is proposed to include amenities such as beach volleyball courts, a skating rink and a basketball court. This amenity space will maintain the existing pavilion structure that was recently reconstructed on the site.

Vehicle access to the site is accommodated by two driveways accessing the commercial and residential area, respectively 30m north and 155m north of the south property line. Approximately 50m to the west of County Road 6, the access will connect to a single lane roundabout that will connect to an internal circulation road that forms a loop through the proposed site connecting to all parking areas. The vehicle access will include a transit stop on the outbound approach to

County Road 6; it is anticipated that a bus would enter the site and make a U-turn through the roundabout to access the bus stop.

Pedestrian access through the site will be accommodated on a pedestrian network that generally follows the perimeter of the internal circulation road and connects to all proposed building accesses. Additional pedestrian pathway links are proposed through the central park and amenity spaces as well as a recreational pathway that encircles the stormwater management pond on the west side of the site. Marked pedestrian crossings are proposed for all crossings of the internal circulation road and parking areas.

3.1 Site Trip Generation and Distribution

Trips that will be generated by the site have been projected based on the Institute of Transportation Engineers (ITE) Trip Generation Manual 11th Edition. This resource includes trip generation rates obtained through historical surveys throughout the US and Canada.

Trip generation for the residential portion of the proposed development is based on ITE land use category 225: Off-Campus Student Apartment (Low-Rise), as this category best reflects the configuration of the residential units in this development with individually occupied bedrooms around a shared living area. While not all of the occupancy in the proposed development will necessarily be students, the use of the student apartment category will allow the trip generation to be calculated by bedroom which more closely aligns with the proposed configuration and will result in a more conservative trip generation estimate than the multifamily residential categories. Given the distance between the development and the Brockville urban area, the "Over ½ Mile from Campus" subcategory from ITE Trip Generation has been selected for calculations.

It is not known at this time what the specific occupancy of the proposed commercial space will be, but this could take the form of retail or restaurants. For the purposes of this analysis, trip generation for the commercial portion will be based on ITE land use category 822: Strip Retail Plaza (<40k sq.ft). Per Table E.9 of the ITE Trip Generation Handbook, a 34% pass-by trip proportion has been applied for the commercial PM peak hour trip generation, again assuming retail use.

Trip generation for the proposed development is summarized for the AM and PM peak hours in Table 3.

Table 3: Site Trip Generation

Land Use	ITE Code	Unit	Size	Avg. Rate	% In	% Out	Trips	Trips In	Trips Out
AM PEAK HOUR									
Off-Campus Student Apartment (Low-Rise) Over 1/2 Mile from Campus	225	Bdrms	640	0.16	27%	73%	102	28	75
Strip Retail Plaza (<40k sq.ft)	822	1000 sq.ft GLA	8.611	2.36	60%	40%	20	12	8
Total Trip Generation							123	40	83
PM PEAK HOUR									
Off-Campus Student Apartment (Low-Rise) Over 1/2 Mile from Campus	225	Bdrms	640	0.31	52%	48%	198	103	95
Strip Retail Plaza (<40k sq.ft)	822	1000 sq.ft GLA	8.611	6.59	50%	50%	57	28	28
Total Trip Generation							255	132	124
Commercial Pass-By				34%	50%	50%	19	10	10
Primary Trip Generation							236	122	114

The results of the trip generation indicate that the proposed development is expected to generate 123 and 255 trips during the weekday AM and PM peak hours, respectively. It is noted that with residential and commercial uses on the same site, that there may be the potential for internal trips between the residential units and commercial space. Given the small amount of commercial trip generation, the analysis conservatively does not include any additional reduction for internal trip capture but it this may result in further trip reductions depending on the ultimate tenant of the commercial space.

It is also noted that the site access has been developed to accommodate a bus stop to service the site, and that transit service, if offered, may further offset some of the vehicle trip generation expected. It is anticipated that as the ITE Trip Generation rate used for student housing may reflect some transit use by students; to be conservative, no additional reductions to vehicle trip generation have been applied to reflect a greater transit mode share, but reductions may be possible depending on the frequency and quality of transit service provided.

The site generation has been distributed on the adjacent road network based on the existing traffic patterns along County Road 6. Directional splits are approximately 20% NB / 80% SB during the AM peak and 70% NB / 30% SB during the PM peak on County Road 6: these proportions have been applied for AM outbound and PM inbound primary trips, but the reverse have been applied for AM inbound and PM outbound primary trips to reflect the greater likelihood of travel to and from Brockville to the south. It is assumed for the purposes of trip distribution that the trips generated by the residential and commercial accesses to the site will use the accesses allocated for each; there may be a small amount of outbound traffic from the commercial access that opts to use the connection to the main site access to exit. The resulting site generated primary and pass-by trips are summarized in Figure 6 and Figure 7, respectively

Site Generated Trips (Primary)				County Road 6		
(0)	(31)	(8)	↖	2	(8)	
0	6	3	←	0	(0)	
↙	↓	↘	↙	6	(20)	
				↖	↑	↗
				0	15	10
				(0)	(28)	(20)
				Commercial Access		
Site Generated Trips (Primary)				County Road 6		
(0)	(20)	(31)	↖	15	(28)	
0	6	6	←	0	(0)	
↙	↓	↘	↙	59	(67)	
				↖	↑	↗
				0	10	22
				(0)	(20)	(73)
				Site Access		
Site Generated Trips (Primary)				County Road 6		
(44)	(33)	(10)	↖	3	(3)	
34	31	1	←	0	(0)	
↙	↓	↘	↙	0	(0)	
Centennial				↖	↑	↗
(50)	13	↗	0	16	0	
(0)	0	→	(0)	(39)	(0)	
(0)	0	↘	Centennial			
N Augusta				AM Peak Hour (PM Peak Hour)		

Figure 6: Site Generated Primary TRips

Site Generated Trips (Pass-by)				County Road 6		
(0)	-(3)	(3)	↖	0	(7)	
0	0	0	←	0	(0)	
↙	↓	↘	↙	0	(3)	
				↖	↑	↗
				0	0	0
				(0)	-(7)	(7)
				Commercial Access		
AM Peak Hour (PM Peak Hour)						

Figure 7: Site Generated Pass-by Trips

4.0 FUTURE CONDITIONS

Occupancy for the proposed development is expected by 2025. Following the requirements of the MTO traffic impact study guidelines, the study will consider three future horizon years, the 2025 opening year, 2030 (opening plus 5 years) and 2035 (opening plus 10 years). Future background traffic volumes will be projected using the same 1% annual growth rate that was applied to establish the 2023 base year volumes.

There are no additional development applications in the vicinity of the site identified that would add additional traffic to future background conditions.

Review of the Elizabethtown-Kitley and United Counties of Leeds and Grenville Official Plans does not indicate any planned road improvements to County Road 6 in the vicinity of the proposed development, and neither the Township or the Counties have a Transportation Master Plan identifying any road improvement projects in the area. County Road 6 within the Brockville Urban Boundary is identified as a potential spine cycling route in the Brockville Official Plan, but the segment of County Road 6 to the north is not identified as part of the proposed cycling network in the UCLG Active Transportation Plan.

As a result of this review, future analysis in this traffic impact study will be based on the projection of the 2023 base volumes to the future horizon years identified but will maintain all existing County Road configurations in the vicinity of the proposed development site.

4.1 Future Background Traffic Analysis

Future background traffic volumes have been projected based on the 1% annual growth rate established previously for the 2025, 2030 and 2035 horizon years. The resulting future traffic volumes for the County Road 6 / Centennial Road intersection are summarized in Figure 8, Figure 9, and Figure 10.

2025 Volumes			County Road 6		
(36)	(27)	(8)	↖	4	(6)
99	90	3	←	167	(89)
Centennial ↙	↓	↘	↙	42	(25)
(91)	20	↗	↖	↑	↗ Centennial
(155)	82	→	12	25	10
(23)	8	↘	(17)	(70)	(76)
N Augusta			AM Peak Hour (PM Peak Hour)		

Figure 8: 2025 Future Background Volumes

2030 Volumes			County Road 6		
(38)	(28)	(9)	↖	4	(7)
104	95	3	←	175	(94)
Centennial ↙	↓	↘	↙	45	(27)
(96)	21	↗	↖	↑	↗ Centennial
(163)	86	→	12	27	10
(25)	9	↘	(18)	(74)	(80)
N Augusta			AM Peak Hour (PM Peak Hour)		

Figure 9: 2030 Future Background Volumes

2035 Volumes			County Road 6		
(40)	(29)	(9)	↖	5	(7)
109	100	4	←	184	(98)
Centennial ↙	↓	↘	↙	47	(28)
(101)	22	↗	↖	↑	↗ Centennial
(171)	90	→	13	28	11
(26)	9	↘	(19)	(77)	(84)
N Augusta			AM Peak Hour (PM Peak Hour)		

Figure 10: 2035 Future Background Volumes

Analysis of the projected future traffic volumes has been undertaken using Synchro 11; the analysis results are summarized in Table 4, Table 5 and Table 6 and the detailed Synchro output is included as Appendix C.

Table 4: Traffic Operations Analysis - 2025 Future Background

Movement	LOS	AM Peak Hour			LOS	PM Peak Hour		
		V/C	Delay (s)	Q95 (veh)		V/C	Delay (s)	Q95 (veh)
County Road 6 / North Augusta Road / Centennial Road								
EB	A	0.16	8.7	0.6	B	0.40	10.9	1.9
WB	A	0.30	9.7	1.2	A	0.19	9.1	0.7
NB	A	0.07	8.4	0.2	A	0.24	9.4	0.9
SB	A	0.26	9.1	1.0	A	0.11	8.6	0.4
TOTAL	A	-	9.2	-	A	-	9.9	-

Table 5: Traffic Operations Analysis - 2030 Future Background

Movement	LOS	AM Peak Hour			LOS	PM Peak Hour		
		V/C	Delay (s)	Q95 (veh)		V/C	Delay (s)	Q95 (veh)
County Road 6 / North Augusta Road / Centennial Road								
EB	A	0.17	8.9	0.6	B	0.43	11.4	2.1
WB	A	0.32	10.0	1.4	A	0.20	9.3	0.7
NB	A	0.08	8.5	0.2	A	0.26	9.6	1.0
SB	A	0.28	9.3	1.1	A	0.12	8.8	0.4
TOTAL	A	-	9.4	-	B	-	10.2	-

Table 6: Traffic Operations Analysis - 2035 Future Background

Movement	LOS	AM Peak Hour			LOS	PM Peak Hour		
		V/C	Delay (s)	Q95 (veh)		V/C	Delay (s)	Q95 (veh)
County Road 6 / North Augusta Road / Centennial Road								
EB	A	0.18	9.0	0.6	B	0.45	11.9	2.3
WB	B	0.34	10.3	1.5	A	0.21	9.5	0.8
NB	A	0.08	8.6	0.3	A	0.28	9.9	1.1
SB	A	0.30	9.6	1.2	A	0.12	8.9	0.4
TOTAL	A	-	9.7	-	B	-	10.6	-

The results of the future background analysis indicate that the intersection will continue to operate at a LOS B or better under all future scenarios assessed, and all individual movements will also operate at a LOS B or better with queues limited to 3 vehicles or less. Overall, the analysis indicates acceptable operations under projected future conditions without any operational concerns.

4.2 Future Total Traffic Analysis

Future total traffic volumes have been calculated as the sum of the site generated primary trips, pass-by trips and the projected background traffic volumes for each horizon year. The analysis of future traffic conditions includes the intersection of County Road 6 and Centennial Road, as well as the two proposed site accesses. Total traffic volumes for the 2025, 2030 and 2035 horizon years are summarized in Figure 11, Figure 12 and Figure 13, respectively.

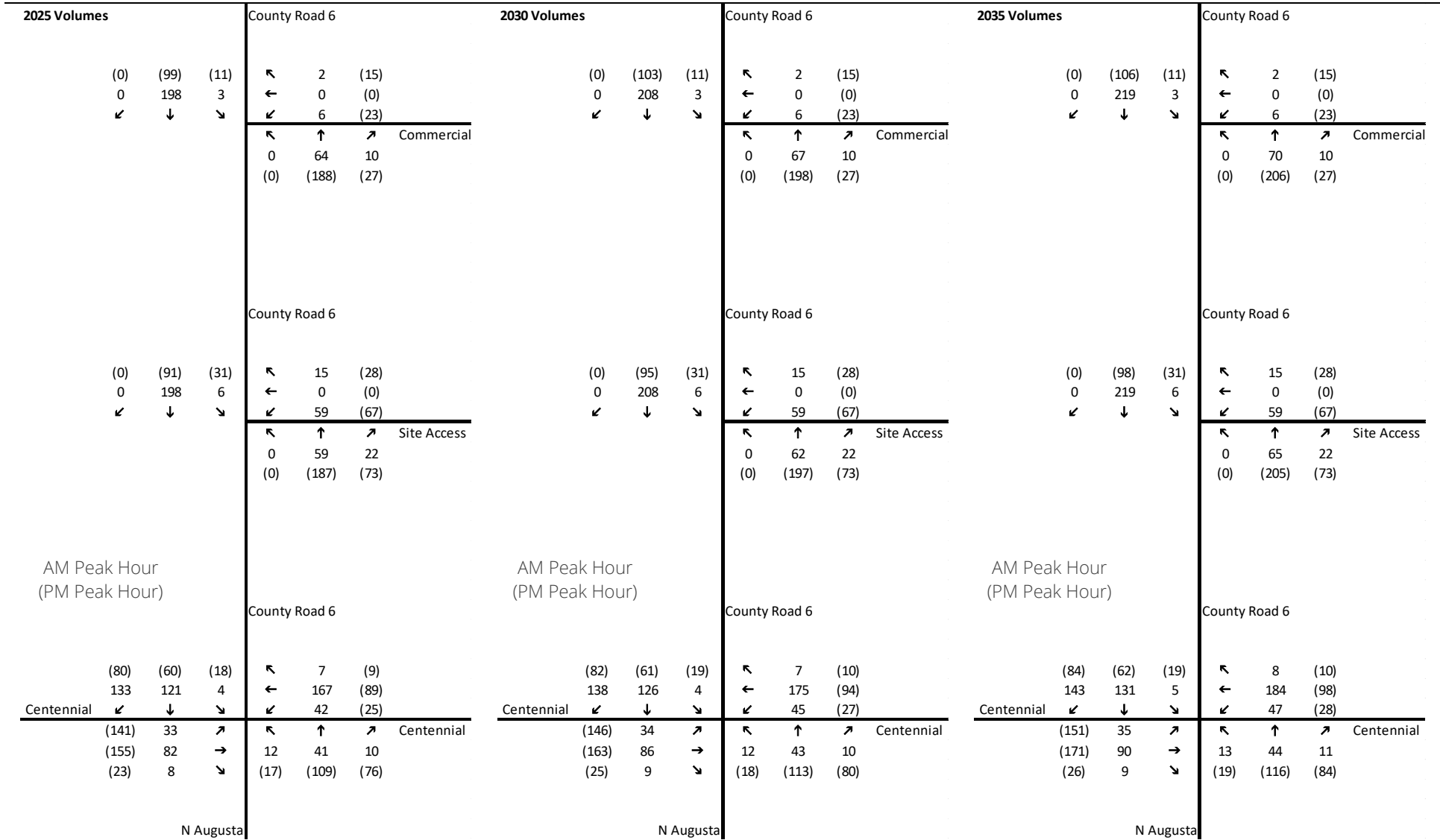


Figure 11: 2025 Total Traffic Volumes

Figure 12: 2030 Total Traffic Volumes

Figure 13: 2035 Total Traffic Volumes

Analysis of the projected future traffic volumes has been undertaken using Synchro 11; the analysis results are summarized in Table 7, Table 8 and Table 9 and the detailed Synchro output is included as Appendix D.

Table 7: Traffic Operations Analysis - 2025 Total Traffic

Movement	LOS	AM Peak Hour			LOS	PM Peak Hour		
		V/C	Delay (s)	Q95 (veh)		V/C	Delay (s)	Q95 (veh)
County Road 6 / Commercial Site Access								
WB	A	0.01	9.9	0	B	0.06	10.4	0.2
NB	A	0.05	0.0	0	A	0.14	0.0	0
SB	A	0.00	0.1	0	A	0.01	0.8	0
TOTAL	A	-	0.4	-	A	-	1.3	-
County Road 6 / Residential Site Access								
WB	B	0.11	10.5	0.4	B	0.17	11.8	0.6
NB	A	0.05	0.0	0	A	0.17	0.0	0
SB	A	0.00	0.2	0	A	0.03	2.2	0.1
TOTAL	A	-	2.3	-	A	-	2.9	-
County Road 6 / North Augusta Road / Centennial Road								
EB	A	0.19	9.3	0.7	B	0.52	14.0	3.0
WB	B	0.32	10.3	1.4	B	0.21	10.1	0.8
NB	A	0.10	8.8	0.3	B	0.33	11.0	1.5
SB	B	0.36	10.2	1.6	B	0.26	10.3	1.0
TOTAL	A	-	9.9	-	B	-	11.9	-

Table 8: Traffic Operations Analysis - 2030 Total Traffic

Movement	LOS	AM Peak Hour			LOS	PM Peak Hour		
		V/C	Delay (s)	Q95 (veh)		V/C	Delay (s)	Q95 (veh)
County Road 6 / Commercial Site Access								
WB	A	0.01	10.0	0	B	0.06	10.5	0.2
NB	A	0.05	0.0	0	A	0.14	0.0	0
SB	A	0.00	0.1	0	A	0.01	0.8	0
TOTAL	A	-	0.4	-	A	-	1.3	-
County Road 6 / Residential Site Access								
WB	B	0.11	10.6	0.4	B	0.17	12.0	0.6
NB	A	0.05	0.0	0	A	0.18	0.0	0
SB	A	0.00	0.2	0	A	0.03	2.1	0.1
TOTAL	A	-	2.2	-	A	-	2.9	-
County Road 6 / North Augusta Road / Centennial Road								
EB	A	0.20	9.4	0.7	B	0.56	14.9	3.4
WB	B	0.34	10.6	1.5	B	0.23	10.4	0.9
NB	A	0.10	8.9	0.3	B	0.36	11.5	1.6
SB	B	0.38	10.5	1.7	B	0.28	10.6	1.1
TOTAL	B	-	10.2	-	B	-	12.5	-

Table 9: Traffic Operations Analysis - 2035 Total Traffic

Movement	LOS	AM Peak Hour			PM Peak Hour			
		V/C	Delay (s)	Q95 (veh)	LOS	V/C	Delay (s)	Q95 (veh)
County Road 6 / Commercial Site Access								
WB	B	0.01	10.0	0	B	0.06	10.6	0.2
NB	A	0.05	0.0	0	A	0.15	0.0	0
SB	A	0.00	0.1	0	A	0.01	0.8	0
TOTAL	A	-	0.3	-	A	-	1.3	-
County Road 6 / Residential Site Access								
WB	B	0.11	10.7	0.4	B	0.17	12.1	0.6
NB	A	0.06	0.0	0	A	0.18	0.0	0
SB	A	0.00	0.2	0	A	0.03	2.1	0.1
TOTAL	A	-	2.2	-	A	-	2.8	-
County Road 6 / North Augusta Road / Centennial Road								
EB	A	0.21	9.7	0.8	C	0.59	15.9	3.8
WB	B	0.37	11.1	1.6	B	0.24	10.7	0.9
NB	A	0.11	9.1	0.4	B	0.38	11.9	1.7
SB	B	0.40	11.0	1.9	B	0.29	10.8	1.2
TOTAL	B	-	10.6	-	B	-	13.1	-

The results of the total future traffic analysis indicates that the intersection of County Road 6 / Centennial Road and both site accesses are expected to operate at an acceptable level of service with the addition of the site-generated traffic from the proposed development. Both site accesses will operate with all movements at an acceptable level of service B or better and the analysis indicates there will be minimal queuing for vehicles exiting the site onto County Road 6.

The additional site generated traffic will increase the level of service of the County Road 6 / Centennial Road intersection to C by the 2035 horizon, which will still be considered acceptable operations. All movements at this intersection will continue to operate well below the MTO critical V/C threshold of 0.85 and as a result no intersection modifications are expected to be required. Queues on all approaches will increase slightly to 2035; the longest queues will be on the eastbound approach during the PM peak hour but will be limited to 4 vehicles or less.

4.3 Future Turn Lane Warrants

As the proposed development will introduce turning movements from County Road 6 into the site, the warrant for left turn storage lanes to accommodate the southbound left turns into the site has have been evaluated. The warrant evaluation has been undertaken based on the MTO Supplement to the TAC Design Guidelines for Canadian Road (2023 Draft), Chapter 9. The warrant analysis is a graphical assessment based on the approaching (V_A) and opposing (V_O) volumes, design speed (conservatively assumed to be the posted speed limit plus 20) and the percentage of left turns in the approaching traffic stream. Based on the projected 2035 traffic volumes, these values are as follows:

- Design speed 100 km/h (based on the posted 80 km/h)
- Commercial Site Access – AM Peak: $V_A = 221$, $V_O = 80$, %LT in $V_A = 1\%$
- Commercial Site Access – PM Peak: $V_A = 117$, $V_O = 233$, %LT in $V_A = 10\%$
- Residential Site Access – PM Peak: $V_A = 225$, $V_O = 87$, %LT in $V_A = 3\%$
- Residential Site Access – PM Peak: $V_A = 129$, $V_O = 278$, %LT in $V_A = 24\%$

The warrant evaluation for these volumes is summarized in Figure 14 to Figure 17.

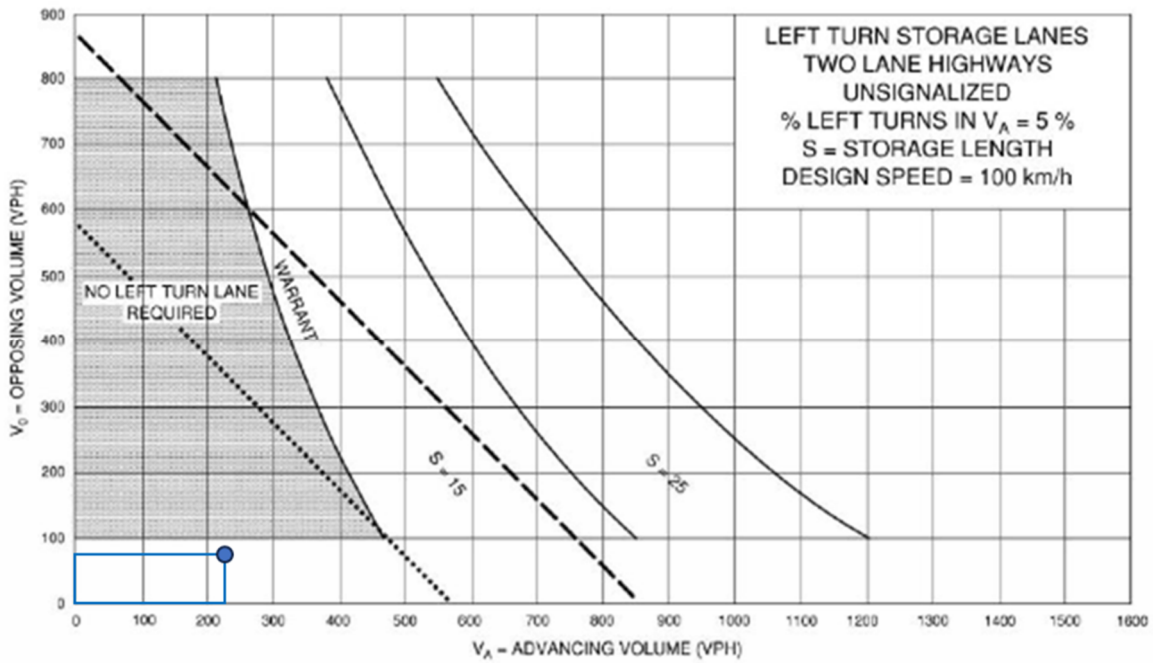


Figure 14: Left Turn Lane Warrant - SB Left at Commercial Site Access, 2035 AM Peak

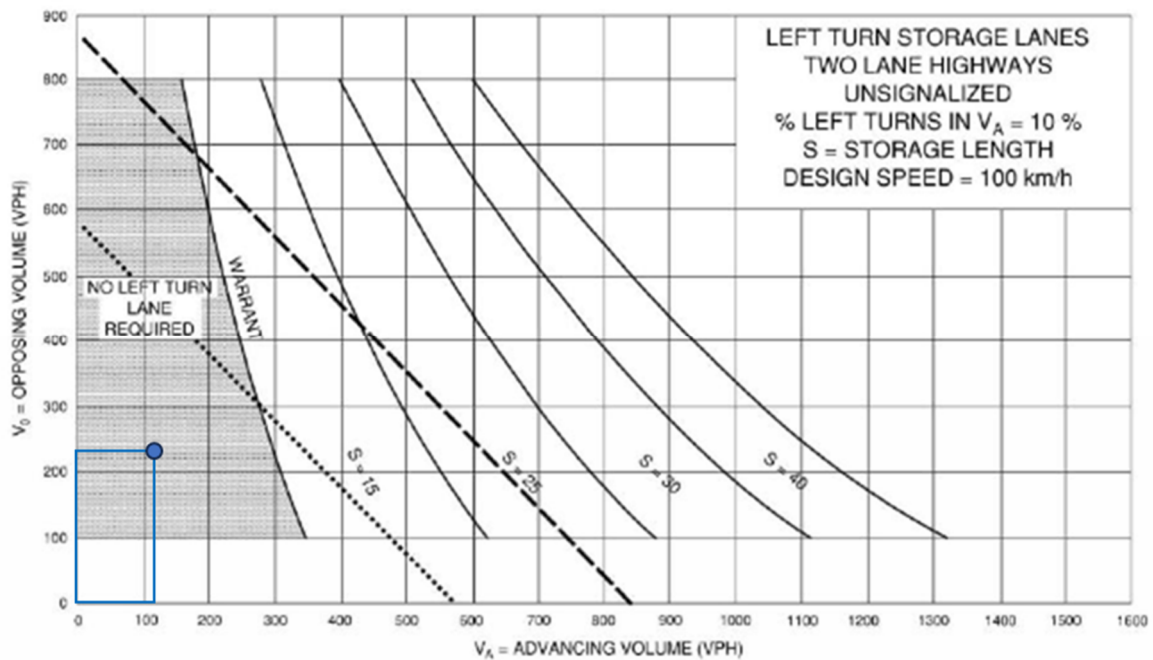


Figure 15: Left Turn Lane Warrant - SB Left at Commercial Site Access, 2035 PM Peak

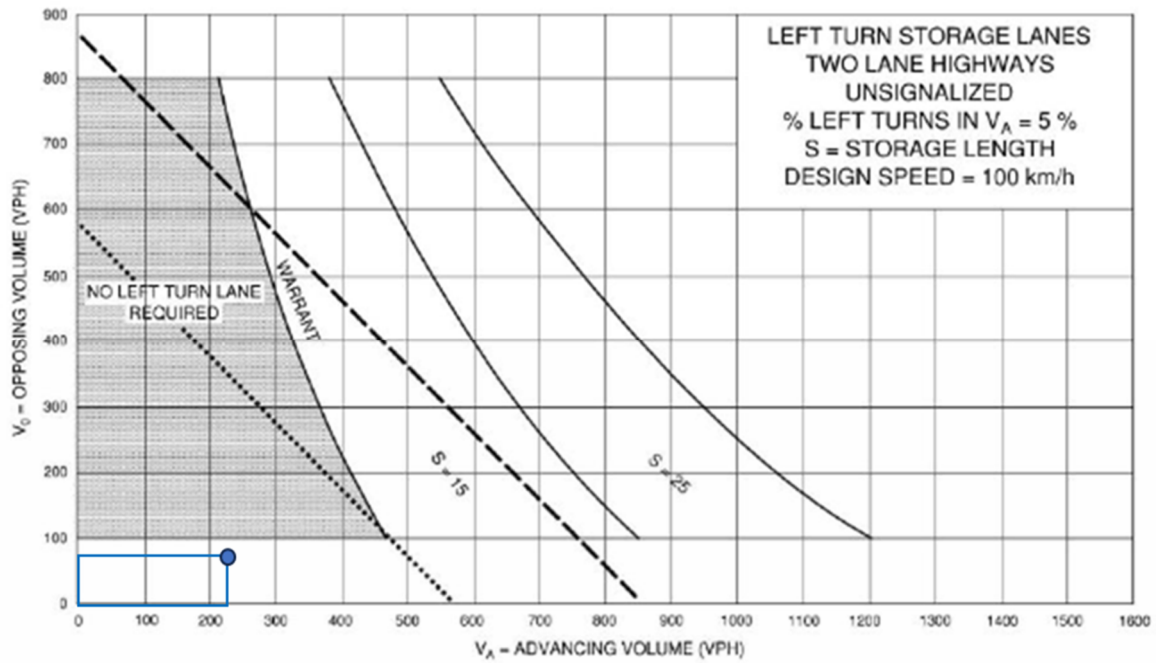


Figure 16: Left Turn Lane Warrant - SB Left at Residential Site Access, 2035 AM Peak

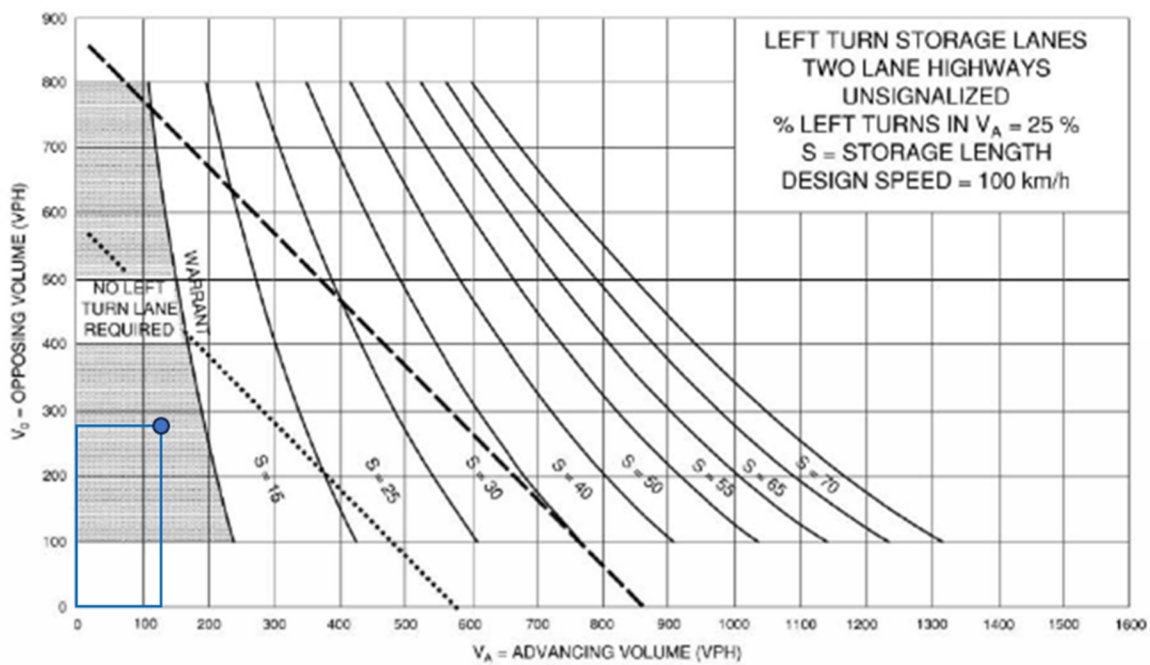


Figure 17: Left Turn Lane Warrant - SB Left at Residential Site Access, 2035 PM Peak

Based on the graphical warrant analysis, the projected 2035 volumes will not warrant a southbound left turn lane at either of the proposed site accesses.

4.4 Proposed Development Internal Site Circulation Review

All internal circulation roads on the proposed site plan are designed at a minimum 7.5 m width and 12m minimum centreline radius for compliance with the fire access requirements of the Ontario building code and are expected to accommodate heavy vehicle movements when required.

The pedestrian network through the proposed site is highlighted in Figure 18; the proposed pedestrian network provides direct access to all buildings, parking areas and amenity spaces. The site plan includes painted pedestrian crossings where the pedestrian network crosses the proposed internal circulation roads and parking areas. Based on the low anticipated volumes within the site, it is anticipated that uncontrolled crossings will be a sufficient crossing treatment. However it is noted that per Ontario Traffic Manual Book 15, "the use of painted crosswalk markings only are not recommended at uncontrolled crossings as they create a false sense of security on the part of pedestrians, particularly children, who may enter the crossing expecting that approaching drivers will see them and stop." The function of the pedestrian crossings crossing the internal access loop road should be further evaluated to confirm if they should take the form of pedestrian crossovers (PXOs) that would require drivers to stop, or if they should be configured as uncontrolled crossings with signage and no pavement markings.

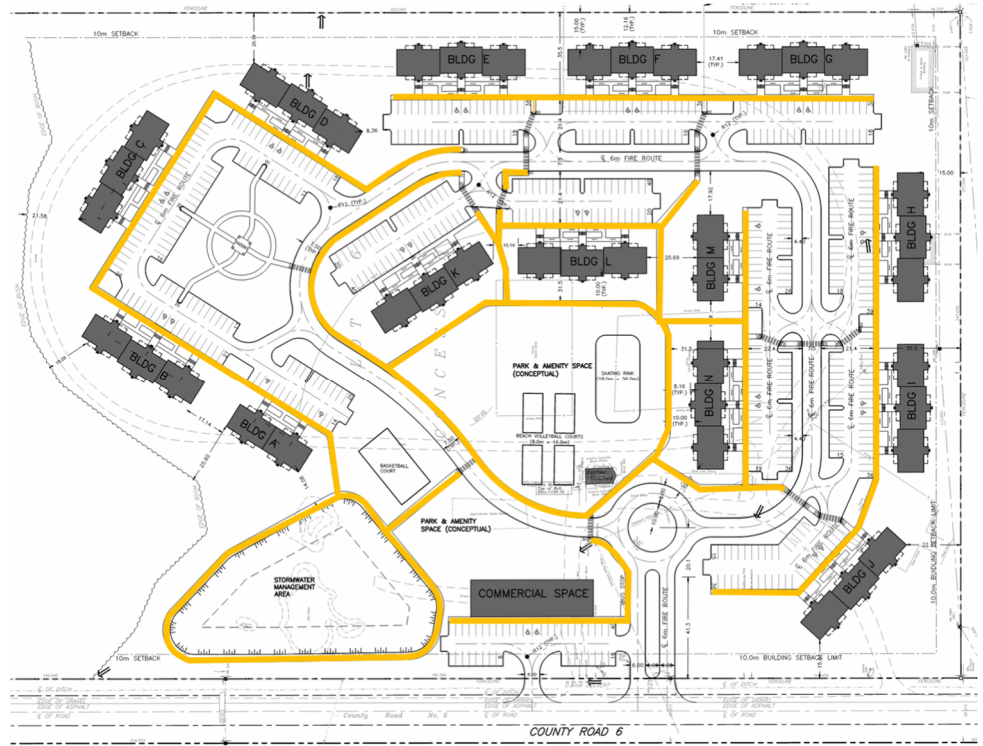


Figure 18: Site Plan Pedestrian Network

4.5 Proposed Development By-Law Compliance Review

The parking areas on the proposed site plan will provide a minimum of 36 spaces per 3-block building (0.75 spaces per bedroom unit), 24 spaces per 2-block building (0.75 spaces per bedroom unit) and 40 spaces for the commercial building (1 space per 20m²). This parking provision is compliant with the Elizabethtown-Kitley zoning by-law provision for commercial use not defined. For residential use, the zoning by-law requires 1 space per dwelling unit for buildings with 3 units or more; the proposed development would be compliant with this provision if each suite was considered a single unit, but not if each individual bedroom was considered an individual unit. The zoning by-law requirement for a boarding house is 1 parking space plus one parking space per 4 rooming units; this interpretation may be more aligned with the residential units proposed and the provided parking would be compliant under this interpretation. While the provided parking supply is less than 1.0 spaces per individual bedroom, it is noted that there is transit service proposed to the site which may reduce the need for auto ownership by all residents.

The zoning by-law requirements for accessible parking spaces are 1 accessible for every 30 spaces; the proposed site plan has been designed to this requirement and will be compliant with this by-law provision.

It is noted that by-law provision 3.10 requires one loading space for a commercial use between 200 and 1000 m²; the site plan should specify the location of this area for the proposed commercial building.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Robinson Consultants Inc has developed a site plan for a proposed redevelopment of the existing Row's Corners Fairgrounds site at 3823 County Road 6 Elizabethtown-Kitley for Campus Habitations; the proposed redevelopment will include a number of campus-style residential buildings that total 320 units and 640 total bedrooms, arranged into mixed 1-, 2- and 3-bedroom suites with shared kitchen and living areas. The site plan also includes an 800m² commercial building fronting County Road 6. Robinson Consultants Inc have prepared a traffic impact study to examine the proposed development from a transportation perspective.

The latest AADT volume for County Road 6 is 2,605, counted in 2018. Turning movement counts were provided by the City of Brockville for 2016 and 2021; the 2021 volumes reflected a reduction in volumes between 15% and 30% from 2016 to 2021, which can be attributed to the COVID-19 pandemic and associated closures present in 2021. As a result, the traffic analysis has conservatively been based on the 2016 count projected to future years using an annual growth rate of 1%; no growth was applied through the COVID-19 pandemic from 2020 to 2022.

The traffic operations analysis includes the two proposed site accesses and the intersection of County Road 6 with Centennial Road to the south of the site. Site trip generation for the proposed development has been based on ITE off-campus student housing trip rates, as these most closely match the campus-style arrangement of the residential units; the commercial tenancy is unknown at this time but has been based on a general retail use. The resulting trip generation estimates are 123 site generated trips during the weekday AM peak hour, and 255 trips during the PM peak hour. Under projected opening day 2025, 2030 and 2035 traffic volumes, all intersections and accesses analyzed will operate at an acceptable level of service C or better and no additional intersection modifications are expected to be required. Turn lane warrants were assessed for the site accesses and it is not expected that additional left turn storage lanes on County Road 6 will be required.

The proposed site plan includes a central circulation road linked to the County Road 6 site access at a roundabout within the site. The circulation road will provide vehicle access to all proposed buildings and parking areas and has been designed to meet the Ontario Building Code fire lane requirements. The site plan includes a robust network of sidewalks that provides pedestrian access to all buildings and amenity areas for pedestrian transportation and recreational use. There is a bus stop proposed at the site access and talks are in progress with Brockville Transit to arrange transit service to the site.

The proposed parking supply is compliant with Elizabethtown-Kitley by-law requirements for the commercial space and for accessible spaces across the site. The residential parking component is based on a parking rate of 0.75 per unit; if each bedroom is considered a separate unit this would fall short of the 1.0 space per suite required by the zoning by-law, but would be in excess of the requirement if each suite was considered a single unit. Regardless, it is anticipated that the provision of transit service to the proposed development would offset the need for vehicle ownership by some tenants.

















Based on the traffic analysis, the proposed development is recommended from a transportation perspective and will have minimal impacts to the surrounding municipal road network. Based on a review of the site plan, the following elements should be clarified:

- Per OTM Book 15 pavement markings are not recommended for uncontrolled pedestrian crossings. It should be clarified on the site plan if the pedestrian crossings on the internal circulation road will be configured as uncontrolled crossings (in which case signage and not pavement markings are recommended) or PXOs (where pavements and signage would be used).
- The zoning by-law requires one loading space for commercial developments between 200m² and 1,000m²; this should be identified on the site plan and truck circulation to this loading area validated.
- The proposed site plan does not specify garbage collection areas; these should be identified on the site plan and truck maneuvers for garbage collection should be validated.

APPENDIX A
EXISTING CONDITIONS TRAFFIC ANALYSIS

HCM Unsignalized Intersection Capacity Analysis
 1: N Augusta Road/County Road 6 & Centennial Road

12-15-2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	80	8	42	163	4	11	25	9	3	88	97
Future Volume (vph)	20	80	8	42	163	4	11	25	9	3	88	97
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	22	86	9	45	175	4	12	27	10	3	95	104
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	117	224	49	202								
Volume Left (vph)	22	45	12	3								
Volume Right (vph)	9	4	10	104								
Hadj (s)	-0.01	0.04	0.00	-0.29								
Departure Headway (s)	4.8	4.7	5.0	4.5								
Degree Utilization, x	0.16	0.29	0.07	0.25								
Capacity (veh/h)	698	723	654	741								
Control Delay (s)	8.7	9.6	8.4	9.0								
Approach Delay (s)	8.7	9.6	8.4	9.0								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			9.1									
Level of Service			A									
Intersection Capacity Utilization			32.9%	ICU Level of Service	A							
Analysis Period (min)			15									

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	80	8	42	163	4	11	25	9	3	88	97
Future Vol, veh/h	20	80	8	42	163	4	11	25	9	3	88	97
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	0	0	0	0	1	0	9	4	0	0	1	1
Mvmt Flow	22	86	9	45	175	4	12	27	10	3	95	104
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.7	9.6	8.5	9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	19%	20%	2%
Vol Thru, %	56%	74%	78%	47%
Vol Right, %	20%	7%	2%	52%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	45	108	209	188
LT Vol	11	20	42	3
Through Vol	25	80	163	88
RT Vol	9	8	4	97
Lane Flow Rate	48	116	225	202
Geometry Grp	1	1	1	1
Degree of Util (X)	0.068	0.153	0.29	0.251
Departure Headway (Hd)	5.036	4.744	4.651	4.462
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	708	753	771	803
Service Time	3.089	2.793	2.694	2.501
HCM Lane V/C Ratio	0.068	0.154	0.292	0.252
HCM Control Delay	8.5	8.7	9.6	9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.5	1.2	1

HCM Unsignalized Intersection Capacity Analysis
 1: N Augusta Road/County Road 6 & Centennial Road

12-15-2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	89	152	23	25	87	6	17	69	75	8	26	35
Future Volume (vph)	89	152	23	25	87	6	17	69	75	8	26	35
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	99	169	26	28	97	7	19	77	83	9	29	39
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	294	132	179	77								
Volume Left (vph)	99	28	19	9								
Volume Right (vph)	26	7	83	39								
Hadj (s)	0.05	0.02	-0.26	-0.25								
Departure Headway (s)	4.8	5.0	4.8	5.0								
Degree Utilization, x	0.39	0.18	0.24	0.11								
Capacity (veh/h)	714	672	688	647								
Control Delay (s)	10.8	9.0	9.3	8.5								
Approach Delay (s)	10.8	9.0	9.3	8.5								
Approach LOS	B	A	A	A								
Intersection Summary												
Delay			9.8									
Level of Service			A									
Intersection Capacity Utilization			39.5%	ICU Level of Service	A							
Analysis Period (min)			15									

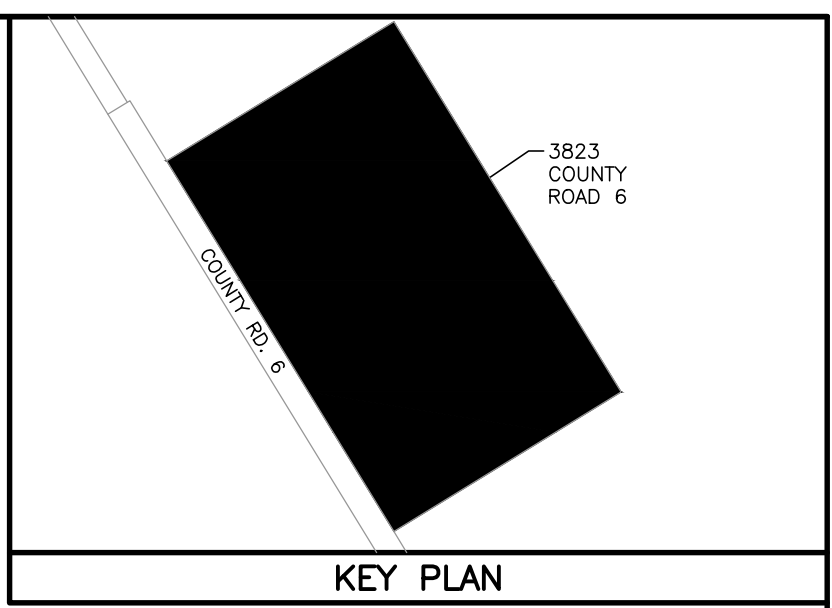
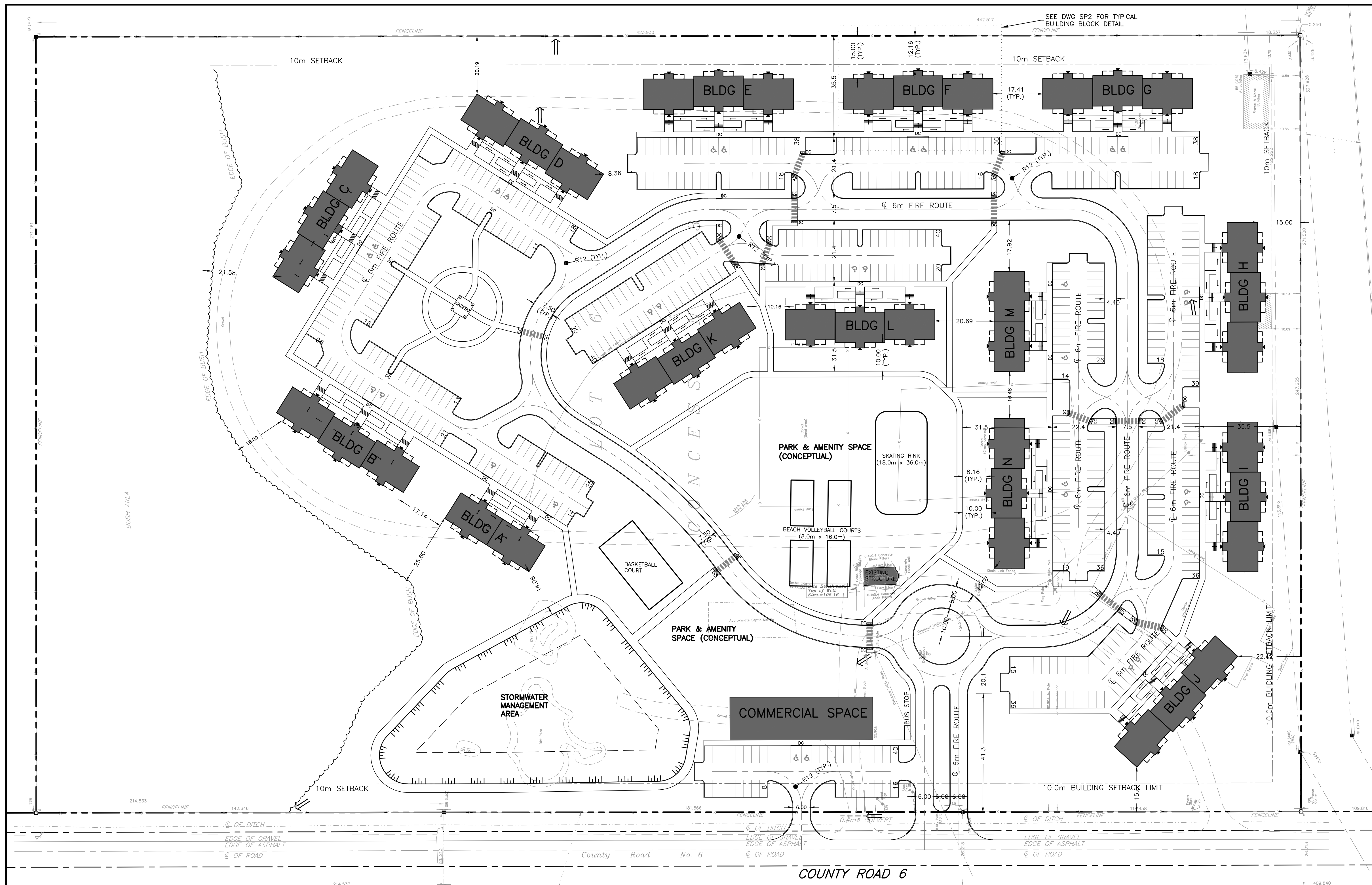
Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	89	152	23	25	87	6	17	69	75	8	26	35
Future Vol, veh/h	89	152	23	25	87	6	17	69	75	8	26	35
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	0	0	1	0	0	0	0	0	0	3
Mvmt Flow	99	169	26	28	97	7	19	77	83	9	29	39
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.7	9	9.3	8.5
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	34%	21%	12%
Vol Thru, %	43%	58%	74%	38%
Vol Right, %	47%	9%	5%	51%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	161	264	118	69
LT Vol	17	89	25	8
Through Vol	69	152	87	26
RT Vol	75	23	6	35
Lane Flow Rate	179	293	131	77
Geometry Grp	1	1	1	1
Degree of Util (X)	0.236	0.385	0.178	0.104
Departure Headway (Hd)	4.749	4.72	4.879	4.865
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	751	757	729	730
Service Time	2.814	2.778	2.948	2.942
HCM Lane V/C Ratio	0.238	0.387	0.18	0.105
HCM Control Delay	9.3	10.7	9	8.5
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.9	1.8	0.6	0.3

**APPENDIX B
PROPOSED SITE PLAN**



LEGEND

- PROPERTY BOUNDARY
- - - EASEMENT
- - - ZONING SETBACKS
- - - PHASING LINE
- - - CENTRELINE OF 6m FIRE ACCESS ROUTE
- ◀ BUILDING ENTRANCE
- ♿ ACCESSIBLE PARKING SPACE
- DC DEPRESSED CURB AND TWSI
- ||||| PEDESTRIAN CROSSING LINES

Zoning Information: RU (Rural)

RU (Rural)	Zoning Requirement	Provided
Minimum Lot Area:	0.4ha	12.01ha
Minimum Lot Frontage:	45m	442.5m
Minimum Front Yard:	10m	N/A
Minimum Rear Yard:	7.5m	>10m
Minimum Interior Side Yard:	6m	min. 10.2m (Bldg K to L)
Minimum Exterior Side Yard:	6m	min. 22.1m (Bldg J)
Maximum Building Height:	10m	X.Xm - 3 Storeys
Maximum Lot Coverage:	20%	6.6% (0.79ha / 12.01ha)
Maximum Dwellings/Dwelling Units:	1	14

Building Information:

Typical 3-Building Block	Details
Building Footprint (Above Grade):	594.5m ²
Basement Floor Area:	538.4m ² (12) Dwelling Units
1st Floor Area:	538.4m ² (12) Dwelling Units
2nd Floor Area:	538.4m ² (12) Dwelling Units
3rd Floor Area:	538.4m ² (12) Dwelling Units
Gross Floor Area (GFA):	2,153.8m ² (48) Dwelling Units
Proposed Building Height:	X.Xm measured from grade to top of parapet
Number of Storeys:	(3) storeys above grade + (1) storey underground

Typical 2-Building Block	Details
Building Footprint (Above Grade):	396.4m ²
Basement Floor Area:	359.0m ² (8) Dwelling Units
Ground Floor Area:	359.0m ² (8) Dwelling Units
2nd Floor Area:	359.0m ² (8) Dwelling Units
3rd Floor Area:	359.0m ² (8) Dwelling Units
Gross Floor Area (GFA):	1,436.0m ² (32) Dwelling Units
Proposed Building Height:	X.Xm measured from grade to top of parapet
Number of Storeys:	(3) storeys above grade + (1) storey underground

Commercial Building	Details
Building Footprint (Above Grade):	800m ²

Parking Information:

Proposed 3-Building Block - Vehicular Parking Requirements	Zoning Requirement
Apartment - Resident: 0.75 spaces per Unit = 48 x 0.75 = 36 spaces	1 space per Unit
consisting of: min. 34 spaces (2.75m x 6m)	
2 accessible spaces (3.7m x 6m)	1 accessible per 30 spaces
Proposed 2-Building Block - Vehicle Parking Requirements	Zoning Requirement
Apartment - Resident: 0.75 spaces per Unit = 32 x 0.75 = 24 spaces	1 space per Unit
consisting of: min. 22 spaces (2.75m x 6m)	
2 accessible spaces (3.7m x 6m)	1 accessible per 30 spaces
Proposed Commercial - Vehicle Parking Requirements	Zoning Requirement
Commercial Building: 1 space per 20m ² = 800 / 20 = 40 spaces	1 space per 20m ²
consisting of: 38 spaces (2.75m x 6m)	
2 accessible spaces (3.7m x 6m)	1 accessible per 30 spaces

Site Information:

Municipal Address: 3823 County Road 6, Township of Elizabethtown-Kitley

Legal Description: Part of Lot 6, Concession 3 Geographic Township of Elizabethtown Township of Elizabethtown-Kitley County of Leeds Pin 44158-0097

This site plan has been compiled using information contained in the the topographic plan signed and dated Oct 18, 2023 provided by:

Hopkins Chitty Land Surveyors Inc., Ontario Land Surveyors

DRAFT
NOT FOR CONSTRUCTION

NOTES

THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

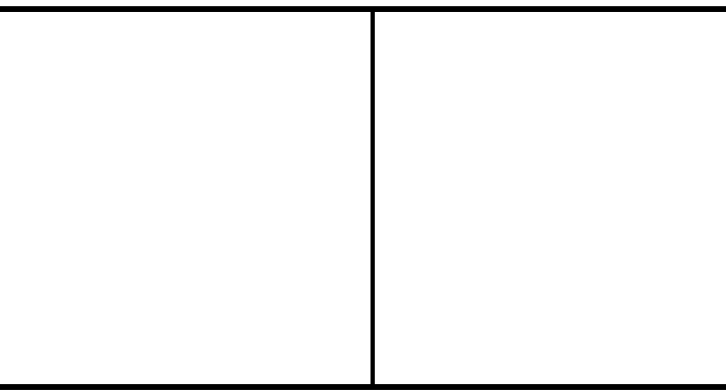
PROPERTY BOUNDARIES ARE DERIVED FROM TOPOGRAPHIC PLAN FOR PART OF LOT 6, CONCESSION 3 IN THE TOWNSHIP OF ELIZABETHTOWN-KITLEY, PREPARED BY HOPKINS CHITTY LAND SURVEYORS INC., REF: 2023-0514. ELEVATIONS ARE GEODETIC AND ARE REFERRED TO THE HT2_0 GEOD MODEL. SITE BENCHMARK BEING THE TOP OF WELL TO THE NORTHWEST OF THE COVERED CONCRETE PAD ELEVATION OF 105.16.

NO.	REVISION DESCRIPTION	DATE	BY
1	ISSUED FOR SITE PLAN	15/12/23	CC

SCALE

0 5m 10m 30m

HORIZONTAL 1:750



350 Palladium Drive
Ottawa, ON K2V 1A8
(613) 592-6060 rcil.com

DESIGN	SM
CHECKED	CC
DRAWN	SM
CHECKED	CC
APPROVED	CC

CAMPUS HABITATIONS

3823 COUNTY ROAD 6
ELIZABETHTOWN-KITLEY, ON

SITE PLAN

PROJECT No.	23075
SURVEY	HCLS
DATED	DEC 2023
DWG. No.	SP1

APPENDIX C
FUTURE BACKGROUND TRAFFIC ANALYSIS

HCM Unsignalized Intersection Capacity Analysis
 1: N Augusta Road/County Road 6 & Centennial Road

12-15-2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	82	8	42	167	4	12	25	10	3	90	99
Future Volume (vph)	20	82	8	42	167	4	12	25	10	3	90	99
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	22	88	9	45	180	4	13	27	11	3	97	106

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	119	229	51	206
Volume Left (vph)	22	45	13	3
Volume Right (vph)	9	4	11	106
Hadj (s)	-0.01	0.04	0.00	-0.29
Departure Headway (s)	4.8	4.7	5.0	4.5
Degree Utilization, x	0.16	0.30	0.07	0.26
Capacity (veh/h)	694	719	650	737
Control Delay (s)	8.7	9.7	8.4	9.1
Approach Delay (s)	8.7	9.7	8.4	9.1
Approach LOS	A	A	A	A

Intersection Summary			
Delay		9.2	
Level of Service		A	
Intersection Capacity Utilization	33.4%		ICU Level of Service A
Analysis Period (min)		15	

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	82	8	42	167	4	12	25	10	3	90	99
Future Vol, veh/h	20	82	8	42	167	4	12	25	10	3	90	99
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	0	0	0	0	1	0	9	4	0	0	1	1
Mvmt Flow	22	88	9	45	180	4	13	27	11	3	97	106
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.7	9.7	8.5	9.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	18%	20%	2%
Vol Thru, %	53%	75%	78%	47%
Vol Right, %	21%	7%	2%	52%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	47	110	213	192
LT Vol	12	20	42	3
Through Vol	25	82	167	90
RT Vol	10	8	4	99
Lane Flow Rate	51	118	229	206
Geometry Grp	1	1	1	1
Degree of Util (X)	0.071	0.157	0.297	0.257
Departure Headway (Hd)	5.054	4.766	4.669	4.482
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	705	749	767	799
Service Time	3.111	2.818	2.715	2.525
HCM Lane V/C Ratio	0.072	0.158	0.299	0.258
HCM Control Delay	8.5	8.7	9.7	9.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.6	1.2	1

HCM Unsignalized Intersection Capacity Analysis
 1: N Augusta Road/County Road 6 & Centennial Road

12-15-2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	91	155	23	25	89	6	17	70	76	8	27	36
Future Volume (vph)	91	155	23	25	89	6	17	70	76	8	27	36
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	101	172	26	28	99	7	19	78	84	9	30	40
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	299	134	181	79								
Volume Left (vph)	101	28	19	9								
Volume Right (vph)	26	7	84	40								
Hadj (s)	0.05	0.02	-0.26	-0.26								
Departure Headway (s)	4.8	5.0	4.8	5.0								
Degree Utilization, x	0.40	0.19	0.24	0.11								
Capacity (veh/h)	711	669	684	643								
Control Delay (s)	10.9	9.1	9.4	8.6								
Approach Delay (s)	10.9	9.1	9.4	8.6								
Approach LOS	B	A	A	A								
Intersection Summary												
Delay			9.9									
Level of Service			A									
Intersection Capacity Utilization			40.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	91	155	23	25	89	6	17	70	76	8	27	36
Future Vol, veh/h	91	155	23	25	89	6	17	70	76	8	27	36
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	0	0	1	0	0	0	0	0	0	3
Mvmt Flow	101	172	26	28	99	7	19	78	84	9	30	40
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.9	9.1	9.4	8.6
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	34%	21%	11%
Vol Thru, %	43%	58%	74%	38%
Vol Right, %	47%	9%	5%	51%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	163	269	120	71
LT Vol	17	91	25	8
Through Vol	70	155	89	27
RT Vol	76	23	6	36
Lane Flow Rate	181	299	133	79
Geometry Grp	1	1	1	1
Degree of Util (X)	0.24	0.393	0.182	0.107
Departure Headway (Hd)	4.774	4.739	4.902	4.893
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	746	756	727	726
Service Time	2.839	2.797	2.971	2.969
HCM Lane V/C Ratio	0.243	0.396	0.183	0.109
HCM Control Delay	9.4	10.9	9.1	8.6
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.9	1.9	0.7	0.4

HCM Unsignalized Intersection Capacity Analysis
 1: N Augusta Road/County Road 6 & Centennial Road

12-15-2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	21	86	9	45	175	4	12	27	10	3	95	104
Future Volume (vph)	21	86	9	45	175	4	12	27	10	3	95	104
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	23	92	10	48	188	4	13	29	11	3	102	112
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	125	240	53	217								
Volume Left (vph)	23	48	13	3								
Volume Right (vph)	10	4	11	112								
Hadj (s)	-0.01	0.04	0.00	-0.29								
Departure Headway (s)	4.9	4.8	5.1	4.6								
Degree Utilization, x	0.17	0.32	0.08	0.28								
Capacity (veh/h)	684	711	638	728								
Control Delay (s)	8.9	10.0	8.5	9.3								
Approach Delay (s)	8.9	10.0	8.5	9.3								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			9.4									
Level of Service			A									
Intersection Capacity Utilization			34.9%		ICU Level of Service					A		
Analysis Period (min)			15									

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	86	9	45	175	4	12	27	10	3	95	104
Future Vol, veh/h	21	86	9	45	175	4	12	27	10	3	95	104
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	0	0	0	0	1	0	9	4	0	0	1	1
Mvmt Flow	23	92	10	48	188	4	13	29	11	3	102	112
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	9.9	8.6	9.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %		24%	18%	20%
Vol Thru, %		55%	74%	78%
Vol Right, %		20%	8%	2%
Sign Control		Stop	Stop	Stop
Traffic Vol by Lane		49	116	224
LT Vol		12	21	45
Through Vol		27	86	175
RT Vol		10	9	4
Lane Flow Rate		53	125	241
Geometry Grp		1	1	1
Degree of Util (X)		0.075	0.167	0.315
Departure Headway (Hd)		5.124	4.817	4.715
Convergence, Y/N		Yes	Yes	Yes
Cap		695	740	759
Service Time		3.188	2.876	2.767
HCM Lane V/C Ratio		0.076	0.169	0.318
HCM Control Delay		8.6	8.9	9.9
HCM Lane LOS		A	A	A
HCM 95th-tile Q		0.2	0.6	1.4

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12-15-2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	96	163	25	27	94	7	18	74	80	9	28	38
Future Volume (vph)	96	163	25	27	94	7	18	74	80	9	28	38
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	107	181	28	30	104	8	20	82	89	10	31	42
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	316	142	191	83								
Volume Left (vph)	107	30	20	10								
Volume Right (vph)	28	8	89	42								
Hadj (s)	0.05	0.02	-0.26	-0.25								
Departure Headway (s)	4.8	5.1	4.9	5.1								
Degree Utilization, x	0.43	0.20	0.26	0.12								
Capacity (veh/h)	702	657	671	626								
Control Delay (s)	11.4	9.3	9.6	8.8								
Approach Delay (s)	11.4	9.3	9.6	8.8								
Approach LOS	B	A	A	A								
Intersection Summary												
Delay			10.2									
Level of Service			B									
Intersection Capacity Utilization			41.3%	ICU Level of Service	A							
Analysis Period (min)			15									

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	96	163	25	27	94	7	18	74	80	9	28	38
Future Vol, veh/h	96	163	25	27	94	7	18	74	80	9	28	38
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	0	0	1	0	0	0	0	0	0	3
Mvmt Flow	107	181	28	30	104	8	20	82	89	10	31	42
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.3	9.3	9.6	8.7
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	34%	21%	12%
Vol Thru, %	43%	57%	73%	37%
Vol Right, %	47%	9%	5%	51%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	172	284	128	75
LT Vol	18	96	27	9
Through Vol	74	163	94	28
RT Vol	80	25	7	38
Lane Flow Rate	191	316	142	83
Geometry Grp	1	1	1	1
Degree of Util (X)	0.258	0.42	0.196	0.115
Departure Headway (Hd)	4.852	4.791	4.967	4.982
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	734	745	715	711
Service Time	2.925	2.86	3.05	3.071
HCM Lane V/C Ratio	0.26	0.424	0.199	0.117
HCM Control Delay	9.6	11.3	9.3	8.7
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	1	2.1	0.7	0.4

HCM Unsignalized Intersection Capacity Analysis
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12-15-2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	22	90	9	47	184	5	13	28	11	4	100	109
Future Volume (vph)	22	90	9	47	184	5	13	28	11	4	100	109
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	24	97	10	51	198	5	14	30	12	4	108	117
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	131	254	56	229								
Volume Left (vph)	24	51	14	4								
Volume Right (vph)	10	5	12	117								
Hadj (s)	-0.01	0.04	0.00	-0.29								
Departure Headway (s)	4.9	4.8	5.2	4.7								
Degree Utilization, x	0.18	0.34	0.08	0.30								
Capacity (veh/h)	671	703	624	717								
Control Delay (s)	9.0	10.3	8.6	9.6								
Approach Delay (s)	9.0	10.3	8.6	9.6								
Approach LOS	A	B	A	A								
Intersection Summary												
Delay			9.7									
Level of Service			A									
Intersection Capacity Utilization			36.4%	ICU Level of Service	A							
Analysis Period (min)			15									

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	22	90	9	47	184	5	13	28	11	4	100	109
Future Vol, veh/h	22	90	9	47	184	5	13	28	11	4	100	109
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	0	0	0	0	1	0	9	4	0	0	1	1
Mvmt Flow	24	97	10	51	198	5	14	30	12	4	108	117
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9	10.2	8.7	9.6
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	18%	20%	2%
Vol Thru, %	54%	74%	78%	47%
Vol Right, %	21%	7%	2%	51%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	52	121	236	213
LT Vol	13	22	47	4
Through Vol	28	90	184	100
RT Vol	11	9	5	109
Lane Flow Rate	56	130	254	229
Geometry Grp	1	1	1	1
Degree of Util (X)	0.081	0.176	0.336	0.292
Departure Headway (Hd)	5.19	4.88	4.762	4.59
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	684	730	751	779
Service Time	3.265	2.948	2.821	2.647
HCM Lane V/C Ratio	0.082	0.178	0.338	0.294
HCM Control Delay	8.7	9	10.2	9.6
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.3	0.6	1.5	1.2

HCM Unsignalized Intersection Capacity Analysis

1: N Augusta Road/County Road 6 & Centennial Road

12-15-2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	101	171	26	28	98	7	19	77	84	9	29	40
Future Volume (vph)	101	171	26	28	98	7	19	77	84	9	29	40
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	112	190	29	31	109	8	21	86	93	10	32	44
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	331	148	200	86								
Volume Left (vph)	112	31	21	10								
Volume Right (vph)	29	8	93	44								
Hadj (s)	0.05	0.02	-0.26	-0.26								
Departure Headway (s)	4.9	5.1	5.0	5.2								
Degree Utilization, x	0.45	0.21	0.28	0.12								
Capacity (veh/h)	695	646	650	614								
Control Delay (s)	11.9	9.5	9.9	8.9								
Approach Delay (s)	11.9	9.5	9.9	8.9								
Approach LOS	B	A	A	A								
Intersection Summary												
Delay			10.6									
Level of Service			B									
Intersection Capacity Utilization			42.8%		ICU Level of Service				A			
Analysis Period (min)			15									

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	101	171	26	28	98	7	19	77	84	9	29	40
Future Vol, veh/h	101	171	26	28	98	7	19	77	84	9	29	40
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	0	0	1	0	0	0	0	0	0	3
Mvmt Flow	112	190	29	31	109	8	21	86	93	10	32	44
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

















Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.8	9.5	9.9	8.9
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	34%	21%	12%
Vol Thru, %	43%	57%	74%	37%
Vol Right, %	47%	9%	5%	51%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	180	298	133	78
LT Vol	19	101	28	9
Through Vol	77	171	98	29
RT Vol	84	26	7	40
Lane Flow Rate	200	331	148	87
Geometry Grp	1	1	1	1
Degree of Util (X)	0.273	0.445	0.206	0.124
Departure Headway (Hd)	4.913	4.837	5.03	5.153
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	722	738	705	700
Service Time	3	2.919	3.127	3.153
HCM Lane V/C Ratio	0.277	0.449	0.21	0.124
HCM Control Delay	9.9	11.8	9.5	8.9
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	1.1	2.3	0.8	0.4

APPENDIX D
FUTURE TOTAL TRAFFIC ANALYSIS

HCM Unsignalized Intersection Capacity Analysis
 1: N Augusta Road/County Road 6 & Centennial Road

12-15-2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	33	82	8	42	167	7	12	41	10	4	121	133
Future Volume (vph)	33	82	8	42	167	7	12	41	10	4	121	133
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	35	88	9	45	180	8	13	44	11	4	130	143
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	132	233	68	277								
Volume Left (vph)	35	45	13	4								
Volume Right (vph)	9	8	11	143								
Hadj (s)	0.01	0.03	0.01	-0.29								
Departure Headway (s)	5.1	5.0	5.2	4.6								
Degree Utilization, x	0.19	0.32	0.10	0.36								
Capacity (veh/h)	645	676	618	723								
Control Delay (s)	9.3	10.3	8.8	10.2								
Approach Delay (s)	9.3	10.3	8.8	10.2								
Approach LOS	A	B	A	B								
Intersection Summary												
Delay			9.9									
Level of Service			A									
Intersection Capacity Utilization			35.7%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: County Road 6 & Site Access

12-15-2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	59	15	59	22	6	198
Future Volume (Veh/h)	59	15	59	22	6	198
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	63	16	63	24	6	213
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	300	75			87	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	300	75			87	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	98			100	
cM capacity (veh/h)	693	992			1522	
Direction, Lane #						
	WB 1	NB 1	SB 1			
Volume Total	79	87	219			
Volume Left	63	0	6			
Volume Right	16	24	0			
cSH	738	1700	1522			
Volume to Capacity	0.11	0.05	0.00			
Queue Length 95th (m)	2.9	0.0	0.1			
Control Delay (s)	10.5	0.0	0.2			
Lane LOS	B		A			
Approach Delay (s)	10.5	0.0	0.2			
Approach LOS	B					
Intersection Summary						
Average Delay		2.3				
Intersection Capacity Utilization		26.1%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

8: County Road 6 & Commercial Access

12-15-2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	2	64	10	3	198
Future Volume (Veh/h)	6	2	64	10	3	198
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)	7	2	70	11	3	215
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	296	76			81	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	296	76			81	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	698	991			1529	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	9	81	218			
Volume Left	7	0	3			
Volume Right	2	11	0			
cSH	747	1700	1529			
Volume to Capacity	0.01	0.05	0.00			
Queue Length 95th (m)	0.3	0.0	0.0			
Control Delay (s)	9.9	0.0	0.1			
Lane LOS	A		A			
Approach Delay (s)	9.9	0.0	0.1			
Approach LOS	A					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			22.8%	ICU Level of Service	A	
Analysis Period (min)			15			

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	33	82	8	42	167	7	12	41	10	4	121	133
Future Vol, veh/h	33	82	8	42	167	7	12	41	10	4	121	133
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	0	0	0	0	1	0	9	4	0	0	1	1
Mvmt Flow	35	88	9	45	180	8	13	44	11	4	130	143
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.3	10.3	8.9	10.2
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	19%	27%	19%	2%
Vol Thru, %	65%	67%	77%	47%
Vol Right, %	16%	7%	3%	52%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	63	123	216	258
LT Vol	12	33	42	4
Through Vol	41	82	167	121
RT Vol	10	8	7	133
Lane Flow Rate	68	132	232	277
Geometry Grp	1	1	1	1
Degree of Util (X)	0.099	0.185	0.316	0.353
Departure Headway (Hd)	5.244	5.03	4.903	4.579
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	677	706	727	780
Service Time	3.33	3.113	2.978	2.642
HCM Lane V/C Ratio	0.1	0.187	0.319	0.355
HCM Control Delay	8.9	9.3	10.3	10.2
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.3	0.7	1.4	1.6

HCM 6th TWSC
2: County Road 6 & Site Access

12-15-2023

Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	59	15	59	22	6	198
Future Vol, veh/h	59	15	59	22	6	198
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	63	16	63	24	6	213

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	300	75	0	0	87
Stage 1	75	-	-	-	-
Stage 2	225	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	696	992	-	-	1522
Stage 1	953	-	-	-	-
Stage 2	817	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	693	992	-	-	1522
Mov Cap-2 Maneuver	693	-	-	-	-
Stage 1	953	-	-	-	-
Stage 2	814	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	738	1522
HCM Lane V/C Ratio	-	-	0.108	0.004
HCM Control Delay (s)	-	-	10.5	7.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0

HCM 6th TWSC
8: County Road 6 & Commercial Access

12-15-2023

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	2	64	10	3	198
Future Vol, veh/h	6	2	64	10	3	198
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	7	2	70	11	3	215

















Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	297	76	0	0	81
Stage 1	76	-	-	-	-
Stage 2	221	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	698	991	-	-	1529
Stage 1	952	-	-	-	-
Stage 2	821	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	697	991	-	-	1529
Mov Cap-2 Maneuver	697	-	-	-	-
Stage 1	952	-	-	-	-
Stage 2	819	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	753	1529
HCM Lane V/C Ratio	-	-	0.012	0.002
HCM Control Delay (s)	-	-	9.8	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM Unsignalized Intersection Capacity Analysis
 1: N Augusta Road/County Road 6 & Centennial Road

12-15-2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	141	155	23	25	89	9	17	109	76	18	60	80
Future Volume (vph)	141	155	23	25	89	9	17	109	76	18	60	80
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	157	172	26	28	99	10	19	121	84	20	67	89
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	355	137	224	176								
Volume Left (vph)	157	28	19	20								
Volume Right (vph)	26	10	84	89								
Hadj (s)	0.07	0.01	-0.21	-0.27								
Departure Headway (s)	5.3	5.6	5.4	5.4								
Degree Utilization, x	0.52	0.21	0.33	0.26								
Capacity (veh/h)	641	573	607	598								
Control Delay (s)	14.0	10.1	11.0	10.3								
Approach Delay (s)	14.0	10.1	11.0	10.3								
Approach LOS	B	B	B	B								
Intersection Summary												
Delay			11.9									
Level of Service			B									
Intersection Capacity Utilization			44.6%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: County Road 6 & Site Access

12-15-2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	28	187	73	31	91
Future Volume (Veh/h)	67	28	187	73	31	91
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	74	31	208	81	34	101
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	418	248			289	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	418	248			289	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	96			97	
cM capacity (veh/h)	580	795			1284	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	105	289	135			
Volume Left	74	0	34			
Volume Right	31	81	0			
cSH	630	1700	1284			
Volume to Capacity	0.17	0.17	0.03			
Queue Length 95th (m)	4.8	0.0	0.7			
Control Delay (s)	11.8	0.0	2.2			
Lane LOS	B		A			
Approach Delay (s)	11.8	0.0	2.2			
Approach LOS	B					
Intersection Summary						
Average Delay			2.9			
Intersection Capacity Utilization			36.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

8: County Road 6 & Commercial Access

12-15-2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	23	15	188	27	11	99
Future Volume (Veh/h)	23	15	188	27	11	99
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)	25	16	204	29	12	108
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	350	218			233	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	350	218			233	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	98			99	
cM capacity (veh/h)	645	826			1346	
Direction, Lane #						
	WB 1	NB 1	SB 1			
Volume Total	41	233	120			
Volume Left	25	0	12			
Volume Right	16	29	0			
cSH	705	1700	1346			
Volume to Capacity	0.06	0.14	0.01			
Queue Length 95th (m)	1.5	0.0	0.2			
Control Delay (s)	10.4	0.0	0.8			
Lane LOS	B		A			
Approach Delay (s)	10.4	0.0	0.8			
Approach LOS	B					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization		24.4%		ICU Level of Service		A
Analysis Period (min)			15			

Intersection	
Intersection Delay, s/veh	11.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	141	155	23	25	89	9	17	109	76	18	60	80
Future Vol, veh/h	141	155	23	25	89	9	17	109	76	18	60	80
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	1	2	0	0	1	0	0	0	0	0	0	1
Mvmt Flow	157	172	26	28	99	10	19	121	84	20	67	89
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	13.9	10.1	11	10.3
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	44%	20%	11%
Vol Thru, %	54%	49%	72%	38%
Vol Right, %	38%	7%	7%	51%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	202	319	123	158
LT Vol	17	141	25	18
Through Vol	109	155	89	60
RT Vol	76	23	9	80
Lane Flow Rate	224	354	137	176
Geometry Grp	1	1	1	1
Degree of Util (X)	0.332	0.519	0.211	0.26
Departure Headway (Hd)	5.324	5.274	5.557	5.338
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	673	684	644	671
Service Time	3.37	3.311	3.607	3.387
HCM Lane V/C Ratio	0.333	0.518	0.213	0.262
HCM Control Delay	11	13.9	10.1	10.3
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.5	3	0.8	1

HCM 6th TWSC
2: County Road 6 & Site Access

12-15-2023

Intersection						
Int Delay, s/veh	2.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	67	28	187	73	31	91
Future Vol, veh/h	67	28	187	73	31	91
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	74	31	208	81	34	101

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	418	249	0	0	289
Stage 1	249	-	-	-	-
Stage 2	169	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	595	795	-	-	1284
Stage 1	797	-	-	-	-
Stage 2	866	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	578	795	-	-	1284
Mov Cap-2 Maneuver	578	-	-	-	-
Stage 1	797	-	-	-	-
Stage 2	842	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.9	0	2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	629	1284
HCM Lane V/C Ratio	-	-	0.168	0.027
HCM Control Delay (s)	-	-	11.9	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1

HCM 6th TWSC
8: County Road 6 & Commercial Access

12-15-2023

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	15	188	27	11	99
Future Vol, veh/h	23	15	188	27	11	99
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	25	16	204	29	12	108

















Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	351	219	0	0	233
Stage 1	219	-	-	-	-
Stage 2	132	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	650	826	-	-	1346
Stage 1	822	-	-	-	-
Stage 2	899	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	644	826	-	-	1346
Mov Cap-2 Maneuver	644	-	-	-	-
Stage 1	822	-	-	-	-
Stage 2	891	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	705	1346
HCM Lane V/C Ratio	-	-	0.059	0.009
HCM Control Delay (s)	-	-	10.4	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

HCM Unsignalized Intersection Capacity Analysis
 1: N Augusta Road/County Road 6 & Centennial Road

12-15-2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	34	86	9	45	175	7	12	43	10	4	126	138
Future Volume (vph)	34	86	9	45	175	7	12	43	10	4	126	138
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	37	92	10	48	188	8	13	46	11	4	135	148
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	139	244	70	287								
Volume Left (vph)	37	48	13	4								
Volume Right (vph)	10	8	11	148								
Hadj (s)	0.01	0.03	-0.01	-0.29								
Departure Headway (s)	5.2	5.0	5.3	4.7								
Degree Utilization, x	0.20	0.34	0.10	0.38								
Capacity (veh/h)	636	666	608	713								
Control Delay (s)	9.4	10.6	8.9	10.5								
Approach Delay (s)	9.4	10.6	8.9	10.5								
Approach LOS	A	B	A	B								
Intersection Summary												
Delay			10.2									
Level of Service			B									
Intersection Capacity Utilization			37.1%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: County Road 6 & Site Access

12-15-2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	59	15	62	22	6	208
Future Volume (Veh/h)	59	15	62	22	6	208
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	63	16	67	24	6	224
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	315	79			91	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	315	79			91	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	98			100	
cM capacity (veh/h)	679	987			1517	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	79	91	230			
Volume Left	63	0	6			
Volume Right	16	24	0			
cSH	725	1700	1517			
Volume to Capacity	0.11	0.05	0.00			
Queue Length 95th (m)	2.9	0.0	0.1			
Control Delay (s)	10.6	0.0	0.2			
Lane LOS	B		A			
Approach Delay (s)	10.6	0.0	0.2			
Approach LOS	B					
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization		26.6%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

8: County Road 6 & Commercial Access

12-15-2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	2	67	10	3	208
Future Volume (Veh/h)	6	2	67	10	3	208
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)	7	2	73	11	3	226
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	310	78			84	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	310	78			84	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	685	988			1526	
Direction, Lane #						
	WB 1	NB 1	SB 1			
Volume Total	9	84	229			
Volume Left	7	0	3			
Volume Right	2	11	0			
cSH	735	1700	1526			
Volume to Capacity	0.01	0.05	0.00			
Queue Length 95th (m)	0.3	0.0	0.0			
Control Delay (s)	10.0	0.0	0.1			
Lane LOS	A		A			
Approach Delay (s)	10.0	0.0	0.1			
Approach LOS	A					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			23.3%	ICU Level of Service	A	
Analysis Period (min)			15			

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	34	86	9	45	175	7	12	43	10	4	126	138
Future Vol, veh/h	34	86	9	45	175	7	12	43	10	4	126	138
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	0	0	0	0	1	0	8	2	0	0	1	1
Mvmt Flow	37	92	10	48	188	8	13	46	11	4	135	148
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.4	10.6	9	10.5
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	26%	20%	1%
Vol Thru, %	66%	67%	77%	47%
Vol Right, %	15%	7%	3%	51%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	65	129	227	268
LT Vol	12	34	45	4
Through Vol	43	86	175	126
RT Vol	10	9	7	138
Lane Flow Rate	70	139	244	288
Geometry Grp	1	1	1	1
Degree of Util (X)	0.103	0.196	0.336	0.371
Departure Headway (Hd)	5.3	5.082	4.952	4.634
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	668	698	718	769
Service Time	3.397	3.175	3.035	2.704
HCM Lane V/C Ratio	0.105	0.199	0.34	0.375
HCM Control Delay	9	9.4	10.6	10.5
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.3	0.7	1.5	1.7

HCM 6th TWSC
2: County Road 6 & Site Access

12-15-2023

Intersection						
Int Delay, s/veh	2.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	59	15	62	22	6	208
Future Vol, veh/h	59	15	62	22	6	208
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	63	16	67	24	6	224

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	315	79	0	0	91
Stage 1	79	-	-	-	-
Stage 2	236	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	682	987	-	-	1517
Stage 1	949	-	-	-	-
Stage 2	808	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	679	987	-	-	1517
Mov Cap-2 Maneuver	679	-	-	-	-
Stage 1	949	-	-	-	-
Stage 2	804	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	725	1517
HCM Lane V/C Ratio	-	-	0.11	0.004
HCM Control Delay (s)	-	-	10.6	7.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0

HCM 6th TWSC
8: County Road 6 & Commercial Access

12-15-2023

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	2	67	10	3	208
Future Vol, veh/h	6	2	67	10	3	208
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	7	2	73	11	3	226

















Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	311	79	0	0	84
Stage 1	79	-	-	-	-
Stage 2	232	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	686	987	-	-	1526
Stage 1	949	-	-	-	-
Stage 2	811	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	685	987	-	-	1526
Mov Cap-2 Maneuver	685	-	-	-	-
Stage 1	949	-	-	-	-
Stage 2	809	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	742	1526
HCM Lane V/C Ratio	-	-	0.012	0.002
HCM Control Delay (s)	-	-	9.9	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM Unsignalized Intersection Capacity Analysis
 1: N Augusta Road/County Road 6 & Centennial Road

12-15-2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	146	163	25	27	94	10	18	113	80	19	61	82
Future Volume (vph)	146	163	25	27	94	10	18	113	80	19	61	82
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	162	181	28	30	104	11	20	126	89	21	68	91
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	371	145	235	180								
Volume Left (vph)	162	30	20	21								
Volume Right (vph)	28	11	89	91								
Hadj (s)	0.07	0.01	-0.21	-0.27								
Departure Headway (s)	5.4	5.7	5.5	5.5								
Degree Utilization, x	0.56	0.23	0.36	0.28								
Capacity (veh/h)	632	561	596	582								
Control Delay (s)	14.9	10.4	11.5	10.6								
Approach Delay (s)	14.9	10.4	11.5	10.6								
Approach LOS	B	B	B	B								
Intersection Summary												
Delay			12.5									
Level of Service			B									
Intersection Capacity Utilization			46.0%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: County Road 6 & Site Access

12-15-2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	28	197	73	31	95
Future Volume (Veh/h)	67	28	197	73	31	95
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	74	31	219	81	34	106
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	434	260			300	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	434	260			300	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	96			97	
cM capacity (veh/h)	568	784			1273	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	105	300	140			
Volume Left	74	0	34			
Volume Right	31	81	0			
cSH	618	1700	1273			
Volume to Capacity	0.17	0.18	0.03			
Queue Length 95th (m)	4.9	0.0	0.7			
Control Delay (s)	12.0	0.0	2.1			
Lane LOS	B		A			
Approach Delay (s)	12.0	0.0	2.1			
Approach LOS	B					
Intersection Summary						
Average Delay			2.9			
Intersection Capacity Utilization			36.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

8: County Road 6 & Commercial Access

12-15-2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	23	15	198	27	11	103
Future Volume (Veh/h)	23	15	198	27	11	103
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)	25	16	215	29	12	112
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	366	230			244	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	366	230			244	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	98			99	
cM capacity (veh/h)	632	815			1334	
Direction, Lane #						
	WB 1	NB 1	SB 1			
Volume Total	41	244	124			
Volume Left	25	0	12			
Volume Right	16	29	0			
cSH	693	1700	1334			
Volume to Capacity	0.06	0.14	0.01			
Queue Length 95th (m)	1.5	0.0	0.2			
Control Delay (s)	10.5	0.0	0.8			
Lane LOS	B		A			
Approach Delay (s)	10.5	0.0	0.8			
Approach LOS	B					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization		24.6%		ICU Level of Service		A
Analysis Period (min)			15			

HCM 6th AWSC

1: N Augusta Road/County Road 6 & Centennial Road

12-15-2023

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	146	163	25	27	94	10	18	113	80	19	61	82
Future Vol, veh/h	146	163	25	27	94	10	18	113	80	19	61	82
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	1	2	0	0	1	0	0	0	0	0	0	1
Mvmt Flow	162	181	28	30	104	11	20	126	89	21	68	91
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	14.8	10.4	11.4	10.6
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	44%	21%	12%
Vol Thru, %	54%	49%	72%	38%
Vol Right, %	38%	7%	8%	51%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	211	334	131	162
LT Vol	18	146	27	19
Through Vol	113	163	94	61
RT Vol	80	25	10	82
Lane Flow Rate	234	371	146	180
Geometry Grp	1	1	1	1
Degree of Util (X)	0.353	0.551	0.229	0.273
Departure Headway (Hd)	5.425	5.349	5.657	5.455
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	661	672	632	655
Service Time	3.481	3.395	3.716	3.513
HCM Lane V/C Ratio	0.354	0.552	0.231	0.275
HCM Control Delay	11.4	14.8	10.4	10.6
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.6	3.4	0.9	1.1

HCM 6th TWSC
2: County Road 6 & Site Access

12-15-2023

Intersection						
Int Delay, s/veh	2.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	67	28	197	73	31	95
Future Vol, veh/h	67	28	197	73	31	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	74	31	219	81	34	106

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	434	260	0	0	300
Stage 1	260	-	-	-	-
Stage 2	174	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	583	784	-	-	1273
Stage 1	788	-	-	-	-
Stage 2	861	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	567	784	-	-	1273
Mov Cap-2 Maneuver	567	-	-	-	-
Stage 1	788	-	-	-	-
Stage 2	837	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	1.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	617	1273
HCM Lane V/C Ratio	-	-	0.171	0.027
HCM Control Delay (s)	-	-	12	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1

HCM 6th TWSC
8: County Road 6 & Commercial Access

12-15-2023

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	15	198	27	11	103
Future Vol, veh/h	23	15	198	27	11	103
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	25	16	215	29	12	112

















Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	366	230	0	0	244
Stage 1	230	-	-	-	-
Stage 2	136	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	638	814	-	-	1334
Stage 1	813	-	-	-	-
Stage 2	895	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	632	814	-	-	1334
Mov Cap-2 Maneuver	632	-	-	-	-
Stage 1	813	-	-	-	-
Stage 2	886	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	693	1334
HCM Lane V/C Ratio	-	-	0.06	0.009
HCM Control Delay (s)	-	-	10.5	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

HCM Unsignalized Intersection Capacity Analysis
 1: N Augusta Road/County Road 6 & Centennial Road

12-15-2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	35	90	9	47	184	8	13	44	11	5	131	143
Future Volume (vph)	35	90	9	47	184	8	13	44	11	5	131	143
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	38	97	10	51	198	9	14	47	12	5	141	154
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	145	258	73	300								
Volume Left (vph)	38	51	14	5								
Volume Right (vph)	10	9	12	154								
Hadj (s)	0.01	0.03	-0.01	-0.29								
Departure Headway (s)	5.3	5.1	5.4	4.8								
Degree Utilization, x	0.21	0.37	0.11	0.40								
Capacity (veh/h)	624	657	584	700								
Control Delay (s)	9.7	11.1	9.1	11.0								
Approach Delay (s)	9.7	11.1	9.1	11.0								
Approach LOS	A	B	A	B								
Intersection Summary												
Delay			10.6									
Level of Service			B									
Intersection Capacity Utilization			38.6%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: County Road 6 & Site Access

12-15-2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	59	15	65	22	6	219
Future Volume (Veh/h)	59	15	65	22	6	219
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	63	16	70	24	6	235
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	329	82			94	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	329	82			94	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	98			100	
cM capacity (veh/h)	667	983			1513	
Direction, Lane #						
	WB 1	NB 1	SB 1			
Volume Total	79	94	241			
Volume Left	63	0	6			
Volume Right	16	24	0			
cSH	713	1700	1513			
Volume to Capacity	0.11	0.06	0.00			
Queue Length 95th (m)	3.0	0.0	0.1			
Control Delay (s)	10.7	0.0	0.2			
Lane LOS	B		A			
Approach Delay (s)	10.7	0.0	0.2			
Approach LOS	B					
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization		27.2%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

8: County Road 6 & Commercial Access

12-15-2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	2	70	10	3	219
Future Volume (Veh/h)	6	2	70	10	3	219
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)	7	2	76	11	3	238
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	326	82			87	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	326	82			87	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	671	984			1522	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	9	87	241			
Volume Left	7	0	3			
Volume Right	2	11	0			
cSH	722	1700	1522			
Volume to Capacity	0.01	0.05	0.00			
Queue Length 95th (m)	0.3	0.0	0.0			
Control Delay (s)	10.0	0.0	0.1			
Lane LOS	B		A			
Approach Delay (s)	10.0	0.0	0.1			
Approach LOS	B					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization		23.9%		ICU Level of Service		A
Analysis Period (min)			15			

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	35	90	9	47	184	8	13	44	11	5	131	143
Future Vol, veh/h	35	90	9	47	184	8	13	44	11	5	131	143
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	0	0	0	0	1	0	8	2	0	0	1	1
Mvmt Flow	38	97	10	51	198	9	14	47	12	5	141	154
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.6	10.9	9.2	10.8
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	19%	26%	20%	2%
Vol Thru, %	65%	67%	77%	47%
Vol Right, %	16%	7%	3%	51%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	68	134	239	279
LT Vol	13	35	47	5
Through Vol	44	90	184	131
RT Vol	11	9	8	143
Lane Flow Rate	73	144	257	300
Geometry Grp	1	1	1	1
Degree of Util (X)	0.111	0.21	0.357	0.391
Departure Headway (Hd)	5.48	5.252	5.004	4.69
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	657	687	709	759
Service Time	3.488	3.256	3.103	2.78
HCM Lane V/C Ratio	0.111	0.21	0.362	0.395
HCM Control Delay	9.2	9.6	10.9	10.8
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.4	0.8	1.6	1.9

HCM 6th TWSC
2: County Road 6 & Site Access

12-15-2023

Intersection						
Int Delay, s/veh	2.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	59	15	65	22	6	219
Future Vol, veh/h	59	15	65	22	6	219
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	63	16	70	24	6	235

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	329	82	0	0	94
Stage 1	82	-	-	-	-
Stage 2	247	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	670	983	-	-	1513
Stage 1	946	-	-	-	-
Stage 2	799	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	667	983	-	-	1513
Mov Cap-2 Maneuver	667	-	-	-	-
Stage 1	946	-	-	-	-
Stage 2	795	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	713	1513
HCM Lane V/C Ratio	-	-	0.112	0.004
HCM Control Delay (s)	-	-	10.7	7.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0

HCM 6th TWSC
8: County Road 6 & Commercial Access

12-15-2023

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	2	70	10	3	219
Future Vol, veh/h	6	2	70	10	3	219
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	7	2	76	11	3	238

















Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	326	82	0	0	87
Stage 1	82	-	-	-	-
Stage 2	244	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	672	983	-	-	1522
Stage 1	946	-	-	-	-
Stage 2	801	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	671	983	-	-	1522
Mov Cap-2 Maneuver	671	-	-	-	-
Stage 1	946	-	-	-	-
Stage 2	799	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	729	1522
HCM Lane V/C Ratio	-	-	0.012	0.002
HCM Control Delay (s)	-	-	10	7.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM Unsignalized Intersection Capacity Analysis
 1: N Augusta Road/County Road 6 & Centennial Road

12-15-2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	151	171	26	28	98	10	19	116	84	19	62	84
Future Volume (vph)	151	171	26	28	98	10	19	116	84	19	62	84
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	168	190	29	31	109	11	21	129	93	21	69	93
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	387	151	243	183								
Volume Left (vph)	168	31	21	21								
Volume Right (vph)	29	11	93	93								
Hadj (s)	0.07	0.01	-0.21	-0.27								
Departure Headway (s)	5.5	5.8	5.6	5.6								
Degree Utilization, x	0.59	0.24	0.38	0.29								
Capacity (veh/h)	625	549	583	568								
Control Delay (s)	15.9	10.7	11.9	10.8								
Approach Delay (s)	15.9	10.7	11.9	10.8								
Approach LOS	C	B	B	B								
Intersection Summary												
Delay			13.1									
Level of Service			B									
Intersection Capacity Utilization			47.5%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: County Road 6 & Site Access

12-15-2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	28	205	73	31	98
Future Volume (Veh/h)	67	28	205	73	31	98
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	74	31	228	81	34	109
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	446	268			309	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	446	268			309	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	96			97	
cM capacity (veh/h)	559	775			1263	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	105	309	143			
Volume Left	74	0	34			
Volume Right	31	81	0			
cSH	609	1700	1263			
Volume to Capacity	0.17	0.18	0.03			
Queue Length 95th (m)	5.0	0.0	0.7			
Control Delay (s)	12.1	0.0	2.1			
Lane LOS	B		A			
Approach Delay (s)	12.1	0.0	2.1			
Approach LOS	B					
Intersection Summary						
Average Delay			2.8			
Intersection Capacity Utilization			37.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

8: County Road 6 & Commercial Access

12-15-2023



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	23	15	206	27	11	106
Future Volume (Veh/h)	23	15	206	27	11	106
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)	25	16	224	29	12	115
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	378	238			253	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	378	238			253	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	98			99	
cM capacity (veh/h)	622	805			1324	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	41	253	127			
Volume Left	25	0	12			
Volume Right	16	29	0			
cSH	683	1700	1324			
Volume to Capacity	0.06	0.15	0.01			
Queue Length 95th (m)	1.5	0.0	0.2			
Control Delay (s)	10.6	0.0	0.8			
Lane LOS	B		A			
Approach Delay (s)	10.6	0.0	0.8			
Approach LOS	B					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			24.7%		ICU Level of Service	A
Analysis Period (min)			15			

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	151	171	26	28	98	10	19	116	84	19	62	84
Future Vol, veh/h	151	171	26	28	98	10	19	116	84	19	62	84
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	1	2	0	0	1	0	0	0	0	0	0	1
Mvmt Flow	168	190	29	31	109	11	21	129	93	21	69	93
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	15.8			10.7			11.9			10.8		
HCM LOS	C			B			B			B		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	43%	21%	12%
Vol Thru, %	53%	49%	72%	38%
Vol Right, %	38%	7%	7%	51%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	219	348	136	165
LT Vol	19	151	28	19
Through Vol	116	171	98	62
RT Vol	84	26	10	84
Lane Flow Rate	243	387	151	183
Geometry Grp	1	1	1	1
Degree of Util (X)	0.373	0.582	0.241	0.283
Departure Headway (Hd)	5.512	5.415	5.751	5.555
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	650	665	621	644
Service Time	3.575	3.467	3.82	3.623
HCM Lane V/C Ratio	0.374	0.582	0.243	0.284
HCM Control Delay	11.9	15.8	10.7	10.8
HCM Lane LOS	B	C	B	B
HCM 95th-tile Q	1.7	3.8	0.9	1.2

HCM 6th TWSC
2: County Road 6 & Site Access

12-15-2023

Intersection						
Int Delay, s/veh	2.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	67	28	205	73	31	98
Future Vol, veh/h	67	28	205	73	31	98
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	74	31	228	81	34	109

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	446	269	0	0	309
Stage 1	269	-	-	-	-
Stage 2	177	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	574	775	-	-	1263
Stage 1	781	-	-	-	-
Stage 2	859	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	557	775	-	-	1263
Mov Cap-2 Maneuver	557	-	-	-	-
Stage 1	781	-	-	-	-
Stage 2	834	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	1.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	607	1263
HCM Lane V/C Ratio	-	-	0.174	0.027
HCM Control Delay (s)	-	-	12.2	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1

HCM 6th TWSC
8: County Road 6 & Commercial Access

12-15-2023

Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	15	206	27	11	106
Future Vol, veh/h	23	15	206	27	11	106
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	25	16	224	29	12	115

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	378	239	0	0	253
Stage 1	239	-	-	-	-
Stage 2	139	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	628	805	-	-	1324
Stage 1	805	-	-	-	-
Stage 2	893	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	622	805	-	-	1324
Mov Cap-2 Maneuver	622	-	-	-	-
Stage 1	805	-	-	-	-
Stage 2	884	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	683	1324
HCM Lane V/C Ratio	-	-	0.06	0.009
HCM Control Delay (s)	-	-	10.6	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0