Village of Linden

Traffic Impact Assessment

Northwest Linden Area Structure Plan



CIMA+ file number: CA000928 October 24, 2024 – FINAL

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Northwest Linden Area Structure Plan

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Executive Summary

The Village of Linden is planning to develop 15.2 hectares of land within the northwest quadrant of the Village boundary, adjacent to Highway 806. This Traffic Impact Assessment (TIA) evaluates the potential traffic impacts of the proposed development, which includes residential, commercial, and industrial land uses, and provides recommendations for necessary infrastructure improvements.

The development is planned in two phases. Phase 1, expected by 2030, will see partial buildout with 50% industrial and 30% residential development. Full build-out is anticipated by 2040, completing all planned land uses. At Full Buildout and beyond, the development has been reviewed both with and without an additional North Access. Traffic volumes were assessed for the years 2024 (Background), 2030, 2040, 2050 and 2060, with background traffic growth projected at a 2% growth rate.

Key intersections analyzed include Highway 806 & Central Avenue W, Highway 806 & Service Road, Central Ave W & 6 Street NW, Central Ave W & 5 Street NW, and a new proposed North Access along Highway 806 at the northwest edge of the development. Intersection treatments and control measures were evaluated for each development phase and horizon year along Highway 806.

Following a review of the traffic control scheme, all-way stop control was recommended for the intersection in conjunction with Phase 1 development. Additional lighting is also recommended for the intersection of Highway 806 and Township Road 304 / Central Avenue W with Phase 1 development. Traffic signals may be warranted at this intersection by 2060, however due to the conservative assumptions this should be reviewed periodically to confirm the need for signalization or other forms of increased traffic control. As the Type 3a intersection configuration at Highway 806 and the Service Road is adequate to support all scenarios, it is recommended that the new east-west roadway replacing the service road ties into the existing intersection.

Operational analysis indicates that, with the recommendations in place, all intersections are expected to operate at acceptable Levels of Service (LOS) through 2060, with no significant queuing or capacity issues identified in all scenarios. While the proposed North Access is not required to serve the proposed ASP area from an operational perspective, protecting the right-of-way for a potential future north access road will provide flexibility for future development.

Periodic reviews of traffic conditions and volumes are recommended to ensure the continued adequacy of the proposed measures. Given that the development area is in the early planning stages, it is important to note that significant changes to the proposed development timeline or land uses may trigger a need to update this Traffic Impact Assessment.



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1. Introduction and Background

The Village of Linden (the Village) is planning to develop 15.2 hectares of land within the northwest quadrant of the Village boundary, adjacent to Highway 806. CIMA+ was retained to complete a Traffic Impact Assessment (TIA) for an Area Structure Plan (ASP) underway for Northwest Linden. The study area is illustrated in **Figure 1.1** and shows the surrounding Village and transportation network.

Key tasks undertaken as part of this TIA include:

- > Identification of traffic volumes generated by the development area
- > Assessment of impacts of background and development related growth
- > Review of operations and identification of necessary mitigation measures

The analysis conducted considers the peak morning and afternoon periods for background traffic in 2024, 2030, and 2040, corresponding with for the proposed development in 2030 (Phase 1) and 2040 (full build-out), as well as 10- and 20-years following each development phase, at the following intersections:

- > Highway 806 & Central Avenue W
- > Highway 806 & Service Road (Existing Service Road to be bulbed)
- > Central Ave W & 6 Street NW
- > Central Ave W & 5 Street NW
- > Highway 806 & North Access (New Phase 2 only)

This report outlines the methodology, assumptions, analysis results and mitigation measures identified.

1.1 Local Context

The Village of Linden has an existing population that fluctuates between 700 – 830 residents¹. Located within an area of high-quality soil, it is a service centre for surrounding agricultural activities. Linden is one of a handful of communities not located along a rail line. The Village also acts as a bedroom community for workers in Calgary and other nearby cities, most of which are approximately an hour's drive. According to the Statistics Canada 2021 census, resident age is more evenly distributed in Linden compared to the traditional bell curve seen in most populations; the proportion of residents over the age of 65 is almost double the province as a whole (24.3% compared to 14.8%).

¹ Statistics Canada Community Profile, 2016 and 2021, retrieved April 8, 2024





Figure 1.1: Study Area

1.2 Proposed Development

The Village of Linden plans to develop the northwest lands of SW-29-30-25 W4, within the Village boundary, for residential, commercial, and industrial purposes. The area is currently used as farmland and has not previously been developed. The proposed land use plan is illustrated in **Figure 1.2**, supplemented by a detailed breakdown of land use in **Table 1.1**. The proposed development will be constructed in two phases, with expected partial build-out occurring by 2030 and full build-out occurring by 2040.

The proposed development will access the surrounding transportation network at the following locations:

- > The existing service road connection to Highway 806 will be truncated with a cul-de-sac and replaced with a new east/west roadway to the proposed development
- > Access to Central Avenue W will be provided by extending 5 Street NW and 6 Street NW into the development area
- > A new access to Highway 806 is also being considered at the northern boundary of the development

Surrounding land uses vary substantially, land uses near the proposed development include:

- > A residential neighbourhood comprised of mobile and multi-unit housing to the south of the site along 5th Street NW
- > An auto-oriented commercial area to the south along 6th Street NW
- > An agriculture oriented industrial area to the south along the service road
- > Farmland to the north and west
- > A tributary to the Kneehill Creek forms the eastern site boundary.





Figure 1.2: Proposed Land Use Plan

Land Use	m²	ha	ac	Density	
C2 - Commercial / Industrial Flex	17,320	1.7	4.3	N/A	
M1 - Industrial	56,472	5.6	14.0	N/A	
P - Park	20,977	2.1	5.2	N/A	
P1 - Public Infrastructure	15,641	1.6	3.9	N/A	
R2 - Single-Detached Residential	24,623	2.5	6.1	6 UPA	36 dwelling units
R3 - Attached Residential	16,732	1.7	4.1	12 UPA	50 dwelling units
Grand Total	151,765	15.2	37.5		86 units
					2.3 persons per unit
					198 population estimated

Table 1.1: Land Use Details



The NW Linden ASP area is located immediately east of Highway 806. There are two existing intersections and one potential future intersection on Highway 806 within the ASP study area. The intersections listed below and illustrated in **Figure 1.3** have been identified for analysis as part of this study:

- 1. Highway 806 & Central Avenue W
- 2. Highway 806 & Service Road (Existing Service Road to be bulbed)
- 3. Central Ave W & 6 Street NW
- 4. Central Ave W & 5 Street NW
- 5. Highway 806 & North Access (New, Phase 2 Full Build-out only)

Analysis will be conducted both with and without a new north access at full build-out to understand if it is required to support the NW ASP area and the mitigation measures needed for each scenario.



Figure 1.3: Intersection Analysis Locations



1.2.1 Access Management

Intersection spacing is proposed to be approximately 320 m between the Service Road and North Access and 480 m between Central Avenue and Service Road (consistent with existing).

Access management requirements for a major-two lane corridor in a rural setting are outlined in Chapter I of the Alberta Highway Geometric Design Guide (HGDG). For a major two-lane highway in a rural setting, desirable spacing between municipal roadways is 1.6 km. However, direct access to commercial and residential development is allowed, provided that 400 m is provided between accesses. The HGDG Urban supplement, indicates a minimum intersection spacing of 400 m for a major arterial roadway and 200 m for a minor arterial. Given the semi-urban nature of the proposed development and adjacent Village area, 400 m intersection spacing is a reasonable guideline, where possible.

With the location of the existing service road intersection, achieving 400 m between the Service Road and the North Access Road within the ASP area is not feasible. The current village boundary and residential property to the north of the ASP area restrict the ability to shift the north access an additional 80 m north to meet the 400 m. Given that the projected long term AADT is >3000 vehicles per day between the two intersections, that there are no current or planned direct accesses to Highway 806 between the intersections, and that the speed is reduced to 70 km/hr adjacent to the Village, the 320 m spacing is not anticipated to be a concern. If/when the north access road is constructed, it is recommended that consideration be given to extending the reduced speed zone north of the new intersection.

2. Future Highway and Municipal Plans

At the time of the writing of this report, there were no other developments approved or known to be in the planning stages in the Village of Linden or adjacent to the Village in Kneehill County.

The study team is not aware of any provincial plans for changes along Highway 806 in the vicinity of the Village.



3. Existing Infrastructure Conditions

A site visit was conducted by the study team on Wednesday April 10, 2024, in conjunction with traffic data collection and select study intersections.

3.1 Highway 806

The proposed development is located east of Highway 806 Control Section 04, from approximately KM 9.9 to KM 10.8. Highway 806 is a Level 3 highway serving local and intermunicipal traffic. It's roadside and functional classification is Major Rural Arterial Undivided (RAU)². Highway 806 is a two-lane highway primarily aligned in a north/south direction, beginning north of Beiseker, passing through the Village of Linden to its junction with Highway 583 east of Allingham.

The following provides a summary of existing conditions along Highway 806 in the vicinity of the study area:

- 1. Lane configuration: 2-Lane Undivided
- 2. Design and posted speed limit:
 - Posted Speed: 70 km/h
 - Design Speed: 110 km/h
- 3. Locations of speed limit changes:
 - Posted speed limit changes from 100 km/hr to 70 km/hr approximately 1.1 km south of Township Road 304 and from 70 km/hr to 100 km/h immediately north of the proposed development boundary.
- 4. Pavement width (lane, shoulder, and median width) and lane markings:
 - 10m pavement width with 3.5 m lanes, with an average shoulder width of 1.5 m
 - Southbound no passing within the study area
 - Northbound passing is allowed beginning approximately 220 m north of the Service Road intersection.
- 5. Right-of-way width: 40 m
- 6. Horizontal and vertical alignment of highway: There is a curve south of the study area, intersection markings for the southmost study intersection begin on the curve. No major vertical features
- 7. Vertical grades of the highway:
 - Vertical grades vary in the study area based on 2024 GPS survey data by EBA Engineering Consultants. There is a +3.2% grade approaching Township Road 304 from the south and north of Township Road 304 the grade varies from +1.7% to +0.2%

² TEC Roadside Management Classification Map



- 8. Sight distance: All sight distances within the study area are sufficient.
- 9. Longitudinal barrier and end treatments: None
- 10. Hazards in the clear zone: None
- 11. Existing illumination:
 - Single light poles in the NE and SE quadrants of the intersection of Highway 806 and Central Ave W / Township Road 304
- 12. Traffic control type: Highway 806 is free flow in the study area, cross-roads are stop controlled
- 13. Traffic operation signage: SB truck turning sign north of the service road intersection
- 14. Accesses:
 - CS 4, KM 9.95 Township Road 304 / Central Avenue W, Type 3c
 - CS 4 ~KM 10.15 Gated Field Access (west side)
 - CS 4, KM 10.43 Service Road, Type 3a (east side)
 - CS 4 ~KM 10.75 Gated Field Access (west side)
- 15. Alternative modes of transportation: N/A
- 16. Existing operational issues and apparent collision issues:
 - There are no known existing operational or collision issues on Highway 806 within the study area. NESS collision data showed only one animal related collision (KM 10.08 travelling northbound) and one rear end collision (KM 9.95 exiting from the minor road) at the intersection of Township Road 304 / Central Avenue W between 2015 and 2019.

3.1.1 Highway 806 and Township Road 304 / Central Avenue W

Highway 806 and Township Road 304 / Central Avenue W is a Type 3c intersection, with features and measurements consistent with Figure D-7h in the HGDG and a RAU-210.0 highway designation with a 110 km/hr design speed. The posted speed limit through the intersection is 70 km/hr, however there is no difference in the standards between an 80 km/hr and 110 km/hr design speed. Township Road 304 to the west is considered the minor roadway.

Based on 2024 GPS survey data by EBA Engineering Consultants. There is a +3.2% grade approaching Township Road 304 / Central Avenue W from the south and a +1.7% grade leaving the intersection to the north. There is a +0.6% grade approaching Highway 806 from the west and a +1.3% grade leaving the intersection to the east. There are no sight distance concerns at the intersection.

The nearest accesses on Highway 806 are approximately 110 m to the south and 200 m to the north. Both are on the west side of the highway. The access to the north is gated and serves an agriculture operation. The access to the south provides residential access to a single home.



Approximately 100 m to the west on Township Road 304, an access serving agricultural uses is found on the north and south side of the roadway. To the east on Central Avenue W, direct access to businesses along the corridor begins approximately 50 m beyond the intersection.

3.1.2 Highway 806 and Service Road

Highway 806 and the Service Road is a Type 3a intersection, with features and measurements consistent with Figure D-7f in the HGDG and a RAU-210.0 highway designation with a 110 km/hr design speed. The posted speed limit through the intersection is 70 km/hr, however there is no difference in the standards between an 80 km/hr and 110 km/hr design speed. The Service Road connects to Highway 806 with a bulb-out to accommodate truck turning movements.

Based on 2024 GPS survey data by EBA Engineering Consultants. There is a +0.2% grade through the Service Road intersection. There are no sight distance concerns at the intersection.

The nearest accesses on Highway 806 are approximately 315 m to the south and 325 m to the north. Both are on the west side of the highway. The access to the south is gated and serves an agriculture operation. The access to the north is a gated field access.

There is no direct access to the service road in the vicinity of the intersection.

3.2 Central Avenue W

Central Ave W is a two-lane, roadway running east-west through Linden, it is the main corridor through the Village. The posted speed is 50 km/h. There are no sight distance concerns within the vicinity of the study area. The study intersections along Central Ave W are stop controlled on the north leg. Access is not restricted along Central Ave W and there are several commercial driveways between Highway 806 and 5 St NW. A sidewalk begins on the north side of Central Avenue W east of 5 Street NW. Central Avenue W has a 25m right-of-way width.

3.2.1 Central Ave W and 6 Street W

The intersection is a T-intersection meeting at 90 degrees that is stop controlled on the North leg with no auxiliary lane treatments. The intersecting roadway, 6 Street NW, is paved with a posted speed limit of 50 km/h. Access to individual parcels and business is not restricted along Central Ave W, however, the nearest intersection is located 160 m to the east. All development using this intersection is existing, except for the proposed development.

3.2.2 Central Ave and 5 Street W

This is a 4-leg intersection meeting at 90 degrees that is stop controlled on the North leg with no auxiliary lane treatments. The intersecting roadway, 5 Street NW, is paved with a posted speed limit of 50 km/h. Access to individual parcels and business is not restricted along Central Ave W, however, the nearest intersection is located 160 m to the west. All development using this intersection is existing, except for the proposed development.



4. Background Traffic and Projection

Existing and historical count data provides the basis for the background traffic volumes used in analysis for each of the development phases and horizons.

4.1 Existing Background Traffic Volumes

Turning Movement Count (TMC) data collected by TEC on August 1, 2023, at the intersection of Highway 806 and Township Road 304/Central Avenue W provided the base for developing the background traffic volumes. The 24-hour data indicated that the morning (AM) peak occurs between 7:45 am and 8:45 am while the afternoon (PM) peak occurs between 4:30 pm and 5:30 pm.

CIMA+ collected AM and PM peak hour traffic volume information at the remaining three study intersections on April 10, 2024. Data was collected at Highway 806 and the Service Road from 7:45 am to 8:45 am and from 4:30 pm to 5:30 pm. Thirty-minute spot counts were conducted on Central Avenue at 6 Street NW from 7:45 am to 8:15 am and 5:00 pm to 5:30 pm and at 5 Street NW from 8:15 am to 8:45 am and from 4:30 pm to 5:00 pm. Copies of all traffic count data is provided in **Appendix A**.

Comparison between the count data collected at Highway 806 and the existing service road and Central Avenue W and 6 Street NW with the TMC data at Highway 806 and Township Road 304 / Central Avenue W showed that the AM and PM peak hour data collected on April 10, 2024, was generally lower than the 2023 100th highest hour AM and PM peak hour volumes at Highway 806 and Township Road 304 / Central Avenue W. The 100th highest hours are the preferred design hours used by TEC in reviewing operations and identifying any necessary modifications to existing configurations. To adjust the volumes to represent the 100th highest hour, the collected traffic volumes were balanced to the 2023 data. A growth rate of 2% was then applied to develop the AM and PM Peak 2024 background traffic volumes as illustrated in **Figure 4.1** and **Figure 4.2**.

For analysis of post development conditions, background traffic using the existing service road intersection will be redistributed between the new connection and 6 Street NW based on current distributions and considering shortest travel paths. The redistributed AM and PM peak 2024 background traffic volumes are illustrated in **Figure 4.3** and **Figure 4.4**.

To estimate the AADT on Highway 806 of post development traffic volumes, for use in warrant analysis, a Design Hourly Volume (DHV) 'K' factor was applied to the PM peak hour volumes using the following relationship:

DHV = K (AADT)

Review of the PM and AADT data in the 2023 count summary at Highway 806 and Township Road 304 / Central Avenue W showed that a K factor of 0.15 is applicable for Highway 806.



Note: Typically, a 12-hr count would be required at the intersection of Highway 806 and the existing service road (Int #2), however, given that the proposed roadway network includes the closure of the existing service road intersection and subsequent re-routing of the traffic, the key information needed for the analysis was the existing peak hour traffic volumes at the intersection, to allow for re-distribution. The recent 2023 24-hr count conducted by TEC for the intersection of Highway 806 and Township Road 304 / Central Avenue W, was used to balance the peak hour counts collected at the existing service road to bring them up to the 100th highest hour. There is only one (gated) access on Highway 806 between the two intersections, as such balancing between the two was determined to be appropriate. The Highway 806 and Township Road 304 / Central Ave W count data and summary also provides relevant/recent data for a conversion from peak hour to AADT, for use in the warrant analysis. The approach, regardless of the number of hours counted at the service road would be to use the Highway 806 and Township Road 304 / Central Ave W couse the Highway 806 and Township Road 304 / Central Ave W couse the Highway 806 and Township Road 304 / Central Ave W couse the Highway 806 and Township Road 304 / Central Ave W coust data and summary also provides relevant/recent data for a conversion from peak hour to AADT, for use in the warrant analysis. The approach, regardless of the number of hours counted at the service road would be to use the Highway 806 and Township Road 304 / Central Ave W data as the base, given that it is the most significant intersection in the study area and has available historical data, additional count data at the service road would not change the traffic volumes used, nor change the results of the analysis.





Figure 4.1: 2024 Background Traffic – AM Peak



Figure 4.2: 2024 Background Traffic – PM Peak





Figure 4.3: 2024 Background Traffic (Redistributed) – AM Peak



Figure 4.4: 2024 Background Traffic (Redistributed) – PM Peak



4.2 Projected Background Traffic Volumes

Historical annual growth rates were reviewed using data from the provinces Traffic Volume History (1962 – 2023) report and historical TMC summaries, as shown in **Table 4.1**. The community and surrounding traffic patterns were affected by the Covid-19 pandemic and, as a result, recent traffic growth shows an overall decrease. Longer range forecasts show small but steady growth. Regardless, TEC Traffic Impact Assessment Guidelines note that an annual non-compounding growth rate of 2% should be used as a lower limit and will be applied for this analysis.

Figure 4.5 through **Figure 4.12** illustrate the background peak hour traffic volumes for each of the future analysis horizons.

Location	Historical Growth (%)	5-Year Growth (%)	10-Year Growth (%)	20-Year Growth (%)
Highway 806 South of TWP RD 304	1.10%	-2.60%	1.35%	1.10%
Highway 806 North of TWP RD 304	0.89%	-2.39%	0.82%	0.58%
Township Road 304 West of Highway 806	-0.11%	-4.62%	0.16%	-0.12%
Central Avenue W East of Highway 806	0.70%	-3.67%	0.74%	0.77%

Table 4.1 Historic Growth Rates





Figure 4.5: 2030 Background Traffic (Redistributed) – AM Peak



Figure 4.6: 2030 Background Traffic (Redistributed) – PM Peak





Figure 4.7: 2040 Background Traffic (Redistributed) – AM Peak



Figure 4.8: 2040 Background Traffic (Redistributed) – PM Peak





Figure 4.9: 2050 Background Traffic (Redistributed) – AM Peak



Figure 4.10: 2050 Background Traffic (Redistributed) – PM Peak





Figure 4.11: 2060 Background Traffic (Redistributed) – AM Peak



Figure 4.12: 2060 Background Traffic (Redistributed) – PM Peak



5. Development Traffic

To review the impacts of the proposed development, two development stages are considered:

> Phase 1 – "Commencement Year/Opening Day"

- Assumed to occur by 2030
- 50% of industrial 7 acres Industrial, 2.15 acres Commercial/Industrial Flex
- 30% of residential 26 residential units

> Phase 2 – "Full Build-Out"

- Assumed to occur by 2040
- 100% of industrial 14 acres Industrial, 4.3 acres Commercial/Industrial Flex
- 100% of residential 86 residential units

Estimation of development traffic volumes considers the number of trips added to the roadway network due to the proposed land uses (trip generation), the anticipated origin and destination of the trips (trip distribution) and the likely travel paths for the trips (trip assignment).

5.1 Trip Generation

Trip generation rates for the proposed development were estimated using the Institute of Transportation Engineers' Trip General Manual, 11th Edition (ITE TGM). The ITE TGM is a resource that was developed for dense urban environments which generate much more traffic than rural prairies. Based on the location of this development, typical ITE trip generation rates are likely conservative. The fitted curve was used where available. When the independent variable is very small – as is the case for this site – the fitted curve and average rate diverge; the higher of the two values was used.

The ITE land use code for Single Family Detached Housing (ITE code 210) was selected to represent the residential area. For Phase 1, 26 residential units are assumed, with 86 for full build-out.

The ITE land use code Building Materials and Lumber Store (ITE code 812) was selected to represent the commercial / flex area. This aligns with the current auto-oriented commercial businesses in the area. A Floor Area Ratio (FAR) of 0.14 was used in this analysis which is consistent with development immediately south of the site. The gross floor area (GFA) is estimated to be 13,000 square feet (0.12 hectares) at Phase 1 and 86,000 square feet (0.8 hectares) at full build-out.

The ITE land use for General Light Industrial (ITE code 110) and Warehousing (ITE code 150) were selected to represent the industrial area. A Floor Area Ratio (FAR) of 0.14 was used in this analysis which is consistent with similar light industrial development immediately south of the site. The gross floor area (GFA) is estimated to be 42,000 square feet (0.40 hectares) at Phase 1 and 86,000 square feet (0.80 hectares) at full build-out.



Trip generation rates for the AM and PM peak hour of adjacent street traffic and daily trips are summarized in **Table 5.1**. Traffic volumes generated in Phase 1 and at full build-out are summarized in **Table 5.2** and **Table 5.3** respectively.

It is assumed that pass-by, diverted link, and internal trips will be negligible for this development.

Due to the rural nature of this development, it is also assumed that all trips will be made by vehicle. The Village does not have a transit service and active modes of transportation is generally recreational or school based.

The proposed development is expected to produce 86 two-way trips in the AM peak and 100 two-way trips in the PM peak following Phase 1 construction followed by 169 two-way trips in the AM peak and 198 two-way trips in the PM peak at full build-out.

Although these trip rates are assumed to be conservative given the population profile of the Village and rural nature of the development, no reductions are proposed. Given the early stage of planning, this approach provides some buffer for potentially higher generating development than exists in the Village of Linden today.

At this time there is no planed high trip generating developments such as a drive through or gas station/convenience store, it is understood that if these types of commercial developments are to be proposed in the future, a TIA review and update could be required. As noted previously, based on the counts collected, the trip generation rates proposed are likely conservative and should be reviewed in any future update to reflect development that has taken place.

Heavy truck traffic is assumed to be consistent with existing proportions.



Table 5.1 Proposed	Trip	Generation	Rates
--------------------	------	------------	-------

	ITE Land Use		AM Peak			PM Peak	Daily				
			Total	In	Out	Total	In	Out	Total	In	Out
Low Density Residential	210	Single Family Detached Housing	Ln(T) = 0.91 Ln(X) + 0.12	25%	75%	Ln(T) = 0.94 Ln(X) + 0.27	63%	37%	Ln(T) = 0.92 Ln(X) + 2.68	50%	50%
Commercial Flex	812	Building Materials and Lumber Store	T = 1.59 (X)	62%	38%	T = 2.25 (X)	46%	54%	T = 17.05 (X)	50%	50%
Industrial	150	Warehousing	T = 0.12(X) + 23.62	77%	23%	T = 0.12(X) + 26.48	28%	72%	T = 1.58(X) + 38.29	50%	50%
Industrial	110	General Light Industrial	T = 0.68(X) + 3.81	88%	12%	Ln(T) = 0.72 Ln(X) + 0.38	14%	86%	T = 3.76(X) + 50.47	50%	50%

Table 5.2 Phase 1 Trip Generation

	ITE Land Use		Unite	AM Peak				PM Peak		Daily		
			onns	Total	In	Out	Total	In	Out	Total	In	Out
Low Density Residential	210	Single Family Detached Housing	26 Dwellings	21	5	16	28	18	10	292	146	146
Commercial Flex	812	Building Materials and Lumber Store	13,000 ft ² GFA	21	13	8	30	14	16	222	111	111
Industrial	150	Warehousing	21,000 ft ² GFA	26	20	6	29	8	21	72	36	36
Industrial	110	General Light Industrial	21,000 ft ² GFA	18	16	2	13	2	11	130	65	65
				86	54	32	100	42	58	716	358	358

Table 5.3 Full Build-Out Trip Generation

	ITE Land Lies		Unito	AM Peak				PM Peak		Daily		
			Units	Total	In	Out	Total	In	Out	Total	In	Out
Low Density Residential	210	Single Family Detached Housing	86 Dwellings	65	16	49	86	54	32	878	439	439
Commercial Flex	812	Building Materials and Lumber Store	26,000 ft ² GFA	42	26	16	59	27	32	444	222	222
Industrial	150	Warehousing	43,000 ft ² GFA	29	22	7	31	8	23	106	53	53
Industrial	110	General Light Industrial	43,000 ft ² GFA	33	29	4	22	3	19	210	105	105
				169	93	76	198	92	106	1638	819	819

5.2 Trip Distribution and Assignment

Trip distribution is the general direction that trips to and from a site are expected to travel based on their likely origins and destinations. Distribution was estimated based on a combination of existing highway and intersection directional splits and the location of nearby residential areas and services. **Table 5.4** summarizes the trip distribution used for the proposed development. This distribution is applied for both Phase 1 and full build-out. Note that there may be some minor differences due to rounding.

	Origin / Destination	Share (%)	Total Trips AM Peak	Total Trips PM Peak	Total Trips Daily
North	Kneehill County	20%	34	40	328
South	To Calgary / Airdrie	30%	50	59	492
East	Town Centre	40%	67	79	656
West	Kneehill County	10%	17	20	164

Trip assignment is the placement of the trips on the roadway network. We have assumed that travellers will choose the shortest travelled path. Trip assignment is illustrated graphically in **Figure 5.1** through **Figure 5.4** for scenarios without the North Access and **Figure 5.5** and **Figure 5.6** for scenarios with the North Access. Note that there may be some minor differences due to rounding.

5.3 Volumes

Site generated traffic volumes at the five study intersections are illustrated in **Figure 5.7** and **Figure 5.8** for Phase 1, and in **Figure 5.9** and **Figure 5.10** for full build-out without the North Access. **Figure 5.11** and **Figure 5.12** illustrate full build-out with the North Access.





Figure 5.1: Trip Assignment Phase 1 AM



Figure 5.2: Trip Assignment Phase 1 PM





Figure 5.3: Trip Assignment Full Build-out without North Access AM



Figure 5.4: Trip Assignment Full Build-out without North Access PM





Figure 5.5: Trip Assignment Full Build-out with North Access AM



Figure 5.6: Trip Assignment Full Build-out with North Access PM





Figure 5.7: Site Generated Phase 1 Traffic – AM Peak



Figure 5.8: Site Generated Phase 1 Traffic – PM Peak





Figure 5.9: Site Generated Full Build-Out Traffic (Without North Access) – AM Peak



Figure 5.10: Site Generated Full Build-Out Traffic (Without North Access) – PM Peak





Figure 5.11: Site Generated Full Build-Out Traffic (With North Access) – AM Peak



Figure 5.12: Site Generated Full Build-Out Traffic (With North Access) – PM Peak


6. Post Development Traffic

To allow for analysis of the study intersections for post development conditions, background and development traffic are added together to determine combined traffic volumes for each of the study horizons and scenarios. Combined traffic volumes for the AM and PM peak hours, are illustrated in **Figure 6.1** through **Figure 6.18**, for each of the future analysis horizons.

Heavy truck traffic is assumed to be consistent with existing proportions.





Figure 6.1: 2030 Combined Phase 1 Traffic – AM Peak



Figure 6.2: 2030 Combined Phase 1 Traffic – PM Peak





Figure 6.3: 2040 Combined Phase 1 Traffic – AM Peak



Figure 6.4: 2040 Combined Phase 1 Traffic – PM Peak





Figure 6.5: 2050 Combined Phase 1 Traffic – AM Peak



Figure 6.6: 2050 Combined Phase 1 Traffic – PM Peak





Figure 6.7: 2040 Combined Full Build-Out Traffic (Without North Access) – AM Peak



Figure 6.8: 2040 Combined Full Build-Out Traffic (Without North Access) – PM Peak





Figure 6.9: 2050 Combined Full Build-Out Traffic (Without North Access) – AM Peak



Figure 6.10: 2050 Combined Full Build-Out Traffic (Without North Access) – PM Peak





Figure 6.11: 2060 Combined Full Build-Out Traffic (Without North Access) – AM Peak



Figure 6.12: 2060 Combined Full Build-Out Traffic (Without North Access) – PM Peak





Figure 6.13: 2040 Combined Full Build-Out Traffic (With North Access) – AM Peak



Figure 6.14: 2040 Combined Full Build-Out Traffic (With North Access) – PM Peak





Figure 6.15: 2050 Combined Full Build-Out Traffic (With North Access) – AM Peak



Figure 6.16: 2050 Combined Full Build-Out Traffic (With North Access) – PM Peak





Figure 6.17: 2060 Combined Full Build-Out Traffic (With North Access) – AM Peak



Figure 6.18: 2060 Combined Full Build-Out Traffic (With North Access) – PM Peak



7. Intersection Warrants

Intersection warrants follow the procedures outlined in the Alberta Highway Geometric Design Guide (HGDG) and the Traffic Impact Assessment Guidelines. Warrant analysis provides guidance in determining existing and future requirements at the study intersections. Generally, warrants are used to:

- Review the adequacy of the intersection treatments to confirm whether the current configuration is adequate under existing and horizon year traffic volumes.
- Identify treatments for proposed intersections that are adequate for horizon year traffic volumes.
- Investigate additional traffic control modifications that could be considered (i.e. all-way stop control or signals).
- > Review the lighting warrants to determine the need for illumination.

7.1 Treatment Type

Analysis of intersection treatment types was conducted following the procedure outlined in Section D.7.4 and D.7.5 of the HGDG, using the Alberta Transportation Intersection Analysis Two-Lane Undivided Highways Excel template. Treatment type warrants were completed for all background and combined scenarios at each of the analysis horizons. Treatment type warrant analysis results are provided in **Appendix B**

Table 7.1 and **Table 7.2** show the treatment type warrant results for Highway 806 with the Service Road and the north access road, in all cases additional storage is not required. A Type II intersection is warranted for both intersections, except for the Highway 806 and Service Road intersection at the 2060 horizon which indicates a Type III configuration is required for a scenario without the north access road in place. The current intersection at Highway 806 and the Service Road is a Type 3a, meeting the 2060 post development needs.

Given that the minor street volumes (Central Avenue W) are higher than the Highway 806 volumes, a review of the traffic control scheme is needed, and intersection treatment type warrants are not applicable. The review of traffic control scheme is discussed in subsequent sections.

7.1.1 Right Turn Warrants

In accordance with Section D.7.7, an exclusive right turn lane is warranted on an undivided highway when all three of the following conditions are met:

- > main (or through) road AADT is greater than or equal to 1,800
- > intersecting road AADT is greater than or equal to 900
- > right turn daily traffic volume is greater than or equal to 360 for the movement in question



Based on these requirements, an exclusive right turn is not warranted, at any horizon, for the northbound Highway 806 approaches at the Service Road or the new North Access. A right turn Lane is warranted for 2030 and beyond for the northbound right at Township Road 304 / Central Avenue W, however given that the traffic control scheme needs to be reviewed, the need for a right turn lane will be revisited based on the results of a four-way stop control warrant and the operational analysis.

Horizon & Scenario	۲	/ре
	AM Peak	PM Peak
2024 Background	Type II	Type II
2030 Background	Type II	Type II
2030 Phase 1 Combined	Type II	Type II
2040 Background	Type II	Type II
2040 Phase 1 Combined	Type II	Type II
2040 Full Build-Out Combined (Without N Access)	Type II	Type II
2040 Full Build-Out Combined (With N Access)	Type II	Type II
2050 Background	Type II	Type II
2050 Phase 1 Combined	Type II	Type II
2050 Full Build-Out Combined (Without N Access)	Type II	Type II
2050 Full Build-Out Combined (With N Access)	Type II	Type II
2060 Background	Type II	Type II
2060 Full Build-Out Combined (Without N Access)	Type III	Type II
2060 Full Build-Out Combined (With N Access)	Type II	Type II

Table 7.1: Highway 806 & Service Road Treatment Type Warrant Results

Table 7.2: Highway 806 &	N Access Road Treatment	Type Warrant Results
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Horizon & Scenario	Туре							
	AM Peak	PM Peak						
2040 Phase 2 Combined (With N Access)	Type II	Type II						
2050 Phase 2 Combined (With N Access)	Type II	Type II						
2060 Phase 2 Combined (With N Access)	Type II	Type II						



7.2 Four-Way Stop Control

Given that the minor street volumes (Central Avenue W) are higher than the Highway 806 volumes, a review of the traffic control scheme is needed. An assessment of the potential for an All-Way stop control was performed to determine if installation is warranted for the intersection of Highway 806 and Township Road 304 / Central Avenue W. According to the recommended practices for stop sign implementation published by TEC (included in **Appendix C**), All-Way stop control should only be considered at minor intersections of lower class, lower volume two-lane highways which are preferably located in semi-urban areas close to urban centres. This intersection is located directly adjacent to the Village of Linden, which can be considered a semi-urban environment. Its current classification as a Level 3 roadway meets the intent of a lower-class facility. Generally, the following situations benefit from All-Way stop control:

- > As a measure to control delays on all approaches
- > As an interim measure prior to traffic signal implementation
- > As part of a traffic control scheme transition

Neither of the last two situations currently apply to the Highway 806 and Township Road 304 / Central Avenue W intersection; however, as part of reviewing the All-Way stop warrant, control delays are one of two conditions that must be met. The conditions include:

- 1) Traffic volumes on intersecting roads are approximately equal, and
 - a. the combined pedestrian and vehicular volumes on one of the approaches of the minor road exceeds 200 vehicles per hour for each of any eight hours of the day,
 - or
 - b. the average delay to vehicular traffic entering the intersection from the minor road exceeds 30 seconds per vehicle during the peak hour.
- 2) The percentage of vehicles turning from a major highway to a minor highway (right and left turns combined) is between 50 percent and 70 percent of the total volume of traffic (AADT) on the major highway approaches.

A review of the traffic volumes applicable to the warranting conditions indicates that four-way stop control could be appropriate at Highway 806 and Township Road 304 / Central Avenue W in 2040 for background conditions or in 2030 coinciding with Phase 1 of the proposed development. A summary of the warrant review is provided in **Table 7.4**.

An all-way stop condition also serves to create a gateway into the Village of Linden, further indicating to drivers that they are entering a semi-urban area and helping to enforce the reduced speed zone.

Based on these results the operational Analysis for 2040, 2050 and 2060 background conditions and 2030, 2040, 2050 and 2060 post development conditions will assume a four-way stop controlled intersection treatment.



Warrant Condition	Requirement	Traffic Condition	Warrant Satisfied?
1	Volumes are approximately equal	North approach 2023 AADT – 1,580 South approach 2023 AADT – 1,730 East approach 2023 AADT – 2,100 West approach 2023 AADT – 750	Yes – Although the volumes on the west approach are lower, the (minor) east approach volumes exceed the north and south approach volumes
1a	One minor road approach volumes exceed 200 vph	Central Avenue W 2024 Background met for 2/8 hrs 2030 Combined met for 7/8 hrs 2040 Background met for 8/8 hrs 	Yes for 2040 Background and 2030 Phase 1 Combined and all future horizons
1b	Average delay exceeds 30 seconds per vehicle	 Central Avenue W 2050 Combined Full Build-out average delay on minor road = 36.8 in AM peak 	Yes for 2050 and 2060 Combined Full Build-out
2	Between 50% and 70% of turning volumes – major road to minor road	2024 BackgroundTraffic turning from the major road represents 52% of AADT on Highway 806	Yes for 2024 Background and all future horizons

Table 7.3: All-Way Stop Control Warrant Review

Note: vph – vehicles per hour

7.3 Signalization

TEC utilizes The Transportation Association of Canada's (TAC) "Traffic Signal and Pedestrian Signal Head Warrant Handbook" when reviewing the warrants for signalizing intersections, following the 100-point system. Signal warrants were reviewed working backwards from the 2060 horizon using post development volumes (combined). To estimate future six-hour traffic volumes the AM and PM peak volumes were assumed to occur in three hours each, this represents a conservative estimate. Warrant results are shown in **Table 7.4** and are included in **Appendix C**.

The signal warrant results indicate that signalization may need to be considered at the intersection of Highway 806 and Township Road 304 / Central Avenue W for the 2060 post development conditions, with or without the north access. Given that this horizon is over 35-years away and that the background growth, trip generation and six-hour volume assumptions are all conservative, the need for signals cannot be fully confirmed at this early planning stage. As the Village develops, traffic volumes and surrounding conditions should be reviewed periodically to confirm the need for signalization or other forms of increased traffic control.



Horizon & Scenario	Highway Township R	806 & .oad 304	Highway Service I	806 & Road	Highway 806 & North Access						
	Warranted	Points	Warranted	Warranted	Points						
2050 Background	N	69									
2050 Phase 1 Combined	N	79									
2050 Full Build-Out Combined (Without N Access)	N	89	Not reviewed, due to low points in 2060								
2050 Full Build-Out Combined (With N Access)	N	89									
2060 Background	N	88	N	8							
2060 Full Build-Out Combined (Without N Access)	Y	110	N	18							
2060 Full Build-Out Combined (With N Access)	Y	111	N	15	N	6					

Table 7.4: Signal Warrant Results

7.4 Illumination

Illumination warrant assessments were completed at the Highway 806 intersections for each analysis horizon, working backwards from the 2060 horizon and following the methodology presented in TAC's Illumination of Isolated Rural Intersections manual. Estimated AADT from the projected volumes were used and collision information was obtained from the TIMS Network Expansion Support System (NESS) data. **Table 7.5** provides a summary of the warrant analysis results. Detailed illumination warrant assessment sheets for each analysis horizon are provided in **Appendix C**.

Horizon & Scenario		Hig Town	hway 806 & ship Road 304	Highv Servi	vay 806 & ice Road	Highway 806 & North Access
	Y/N	Points	Result	Y/N	Points	Y/N Points
2030 Background	N	111				
2030 Phase 1 Combined	Y	121	Partial or Delineation			
2040 Background	Y	121	Partial or Delineation			
2040 Phase 1 Combined	Y	121	Partial or Delineation			
2040 Full Build-Out Combined (Without N Access)	Y	121	Partial or Delineation			
2040 Full Build-Out Combined (With N Access)	Y	121	Partial or Delineation		Not review low point	ved, due to s in 2060
2050 Background	Y	121	Partial or Delineation			
2050 Phase 1 Combined	Y	121	Partial or Delineation			
2050 Full Build-Out Combined (Without N Access)	Y	131	Delineation Lighting			
2050 Full Build-Out Combined (With N Access)	Y	131	Delineation Lighting			
2060 Background	Y	131	Delineation Lighting	Ν	58	

Table 7.5: Illumination Warrant Results



Horizon & Scenario		Hig Town	hway 806 & ship Road 304	Highw Servi	vay 806 & ice Road	Highway 806 & North Access		
	Y/N	Points	Result	Y/N	Points	Y/N	Points	
2060 Full Build-Out Combined (Without N Access)	Y	131	Delineation Lighting	Ν	78			
2060 Full Build-Out Combined (With N Access)	Y	131	Delineation Lighting	N	58	N	38	

The Highway 806 and Township Road 304 / Central Avenue W intersection currently has partial lighting (lighting for the main roadway). Lighting modifications will be required for Phase 1 of the proposed development. Delineation lighting to light the proposed stop condition in each quadrant is recommended. Details of the lighting will need to be confirmed with detailed design, however it is anticipated that at minimum, additional lighting in the northwest and southwest corners, lighting the stop condition, as well as an additional davit on the current pole to light the stop condition in the northeast corner will be needed.

8. **Operational Analysis**

The capacity and operating characteristics of the study intersections were evaluated using Cubic|Trafficware's Synchro 11 analysis software.

Synchro 11 implements the methodology of the 2016 Transportation Research Board's Highway Capacity Manual, Sixth Edition: A Guide for Multimodal Mobility Analysis. The software provides several measures of effectiveness to assess the operations of an intersection, including Level-of-Service (LOS), average vehicle delay, queue lengths, and volume-to-capacity (v/c) ratios. LOS analysis assesses the effectiveness of traffic operations alphabetically from A to F, based on average delay per vehicle. The LOS criteria for un-signalized intersections are summarized in **Table 8.1.** LOS targets on Alberta highways vary by service classification³ and by the location of the highway within the province. The LOS target is tolerable within the design period. For a level 3 highway in a rural or urban context, a LOS D is the tolerable LOS target.

Level of Service	Average Total Delay at Unsignalized Intersections (seconds)
А	≤10
В	>10 - 15
С	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

Table 8.1: Level of Service Criteria

³ Alberta Transportation and Economic Corridors, Highway Geometric Design Guide, Chapter A, February 2022, Table A-6-1a, <u>https://open.alberta.ca/dataset/2b5c861b-3de9-41f5-9d80-522f0c34550c/resource/dd4963a8-331e-4fbe-aea7-1845eee31f8a/download/trans-highway-geometric-design-guide-chapter-a-2022-02.pdf</u>



Other measures, such as queue length, and v/c ratio are also assessed to identify traffic capacity issues. The v/c ratio represents the amount of congestion and available capacity at an intersection and for each individual movement and is generally indicative of an intersection's ability to accommodate fluctuations in traffic flow. Volume-to-capacity has a theoretical maximum of 1.00; a value of 0.90 is generally accepted as the maximum desirable for design of intersection modifications. Synchro is also used to estimate queuing lengths for individual movements at atgrade intersections. Estimated 95th Percentile Queue Lengths are reviewed on a movement-by-movement basis. Queuing calculations are used to design appropriate turn bay storage lengths when necessary, and to ensure that spillback into adjacent intersections is not a problem.

Analysis parameters were programmed in accordance with site conditions or typical industry practices. AM and PM Peak Hour Factors (PHF) were calculated for the Highway 806 and Township Road 304 / Central Avenue W intersection and applied to the whole network. Both the AM and PM peak hour factors were determined to be quite similar at 0.80 and 0.81 respectively. Heavy vehicle percentages were determined based on traffic counts.

Summary tables showing all of the operational analysis results are provide in the following sections 8.1 through 8.4. Synchro Results for the Background and Development scenarios are provided in **Appendix D** and **Appendix E** respectively.



8.1 Background

Based on the intersection and four-way stop warrant analysis, a fully stop controlled intersection is assumed with existing laning for background conditions at Highway 806 and Township Road 304 / Central Avenue W beginning in 2040. The operational analysis results show that for background conditions, at all horizons, all movements operate at Levels of Service B or better with the exception of 6 Street NW in the 2060 AM Peak which has a SB LOS C. All movements on Highway 806 are well within the LOS D target for the long-term (2060) horizon. There are no concerns with v/c ratios or queueing.

Intersection	Intersection Control Measure of Eastbound Westbound								No	orthbou	ind	Southbound				Overall
intersection	Туре	Effectiveness	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT TH			RT	Intersection
				AN	И Peak	- 2024	Backgro	ound								
		Volume				5	5 5			87	5	10	1	17		229
Highway 806 & Sarvica	Stop	V/C Ratio					0.01			0.06	0.00	0.01 0.06				
Road	Controlled	95 th % Queue (m)					0.3			0.0	0.0	0.2 0.0				
Noau	WB	Delay (s)					9.4			0.0	0.0	1.5 0.0				0.7
		LOS					А			Α	Α	A	4	А		А
		Volume	10	61	0	71	20	41	10	41	61	66	2	46	10	437
Highway 806 &	Stop	V/C Ratio		0.17			0.27		0.	01	0.04		0.06		0.01	
Township Road 340 /	Controlled	95 th % Queue (m)		5.0			8.7		0	.2	0.0		1.4		0.0	
Central Ave W	EB/WB	Delay (s)	13.6				13.1		1	.6	0.0		4.6		0.0	7.5
		LOS		В			В		ļ	4	Α		Α		Α	А
		Volume	20	158			117	61				20			5	381
Control Avo W/ & C ST	Stop	V/C Ratio	0.0	02			0.1	13					0.	.05		
	Controlled	95 th % Queue (m)	0.	5			0.	.0					1	.3		
INVV	SB	Delay (s)	1.	0			0.	.0					1:	1.2		1.2
		LOS	A	١			A	4						В		А
		Volume	10	163			122	15				15			41	366
Control Aug M/ 8 E St	Stop	V/C Ratio	0.0)1			0.10					0.09			•	
	Controlled	95 th % Queue (m)	0.	2		0.0						2.5				
W	SB	Delay (s)	0.	5			0.	.0				10.3				1.8
		LOS	A	1		A						В				А
				٩N	/I Peak	- 2024	Backgro	ound								
		Volume				10		31		97	5	5	1	02		250
Uishuusu 000 0 Camilaa	Stop	V/C Ratio				0.06			0.07 0.00		0.00 0.05		0.05			
Highway 806 & Service	Controlled	95 th % Queue (m)				1.5				0.0	0.0	0.	1	0.0		
ROad	WB	Delay (s)					9.4			0.0	0.0	1.	.0	0.0		1.7
		LOS					А			Α	Α	A	4	Α		А
		Volume	5	26	5	71	1 36 46		10 51 71		71	41	6	56	5	433
Highway 806 &	Stop	V/C Ratio		0.08			0.27		0.	01	0.05		0.04		0.00	
Township Road 340 /	Controlled	95 th % Queue (m)		2.0			8.9		0	.2	0.0		0.9		0.0	
Central Ave W	EB/WB	Delay (s)		11.7			12.2		1	.3	0.0		3.1		0.0	6.2
		LOS		В			В			4	Α		А		Α	A
		Volume	5	133			117	15				31			36	337
	Stop	V/C Ratio	0.0	00			0.1	10					0.	.11		
Central Ave W & 6 ST	Controlled	95 th % Queue (m)	0.	1			0.	.0					2	2.9		
NW	SB	Delay (s)	0.	3			0.	.0					1(0.3		2.2
		LOS	A	1			A	ł				В				A
		Volume	10	148			117	20				10			10	315
	Stop	V/C Ratio	0.0)1			0.1	10					0.	.03		
Central Ave W & 5 St	Controlled	95 th % Queue (m)	0.	2			0.	.0				0.8				
W	SB	Delay (s)	0.	5			0.	.0				10.0				0.9
		LOS	A	1			A	4						В		А

Table 8.2: 2024 Background Analysis Results



Intersection	Control	Measure of	Eastbound			W	Westbound			orthbou	ind	Southbound				Overall
intersection	Туре	Effectiveness	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	Т	Ή	RT	Intersection
				A	M Peak	2030	Backgro	ound								
		Volume				6		6		97	6	11	13	31		257
Llightung OC 8 Convior	Stop	V/C Ratio					0.02			0.07	0.00	0.	01	0.06		
Road	Controlled	95 th % Queue (m)					0.5			0.0	0.0	0	.2	0.0		
Nudu	WB	Delay (s)					9.5			0.0	0.0	1	.6	0.0		0.8
		LOS					А			Α	Α	A	4	Α		А
		Volume	11	68	0	80	23	46	11	46	68	74	5	51	11	489
Highway 806 &	Stop	V/C Ratio		0.21			0.33		0.01 0.05				0.06		0.01	
Township Road 340 /	Controlled	95 th % Queue (m)	6.3				11.4		0	.3	0.0		1.6		0.0	
Central Ave W	EB/WB	Delay (s)	14.7				14.4		1	.6	0.0		4.7		0.0	8.2
		LOS		В		В			/	4	А		А		Α	А
		Volume	23	177			131	68				23			6	428
Control Ave W/ 8 6 ST	Stop	V/C Ratio	0.02				0.	15					0.	06		
	Controlled	95 th % Queue (m)	0.	6			0	.0					1	.6		
IN VV	SB	Delay (s)	1.1				0	.0					11	1.7		1.3
		LOS	А	1			A	١						В		А
		Volume	11	182			137	17				17			46	410
	Stop	V/C Ratio	0.0)1			0.	11					0.	11		
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0.	2			0	.0					2	.9		
	SB	Delay (s)	0.	5			0	.0					10).6		1.9
		LOS	А	1			A	١					1	В		А
				P	M Peak	- 2030	Backgro	ound								
		Volume				11		34		108	6	6	1	14		279
Lichway OOC 9 Convice	Stop	V/C Ratio			0.07				0.08	0.00	0.01 0.06					
Highway 806 & Service	Controlled	95 th % Queue (m)				1.7			0.0	0.0	0.1 0.0		0.0			
Rudu	WB	Delay (s)				9.6				0.0	0.0	1	.0	0.0		1.7
		LOS					А			А	А	A	4	Α		А
		Volume	6	29	6	80	40	51	11	57	80	46	7	74	6	486
Highway 806 &	Stop	V/C Ratio		0.09			0.32		0.	01	0.06		0.04		0.00	
Township Road 340 /	Controlled	95 th % Queue (m)		2.4			11.2		0	.2	0.0		1.0		0.0	
Central Ave W	EB/WB	Delay (s)		12.3			13.1		1	.3	0.0		3.1		0.0	6.6
		LOS		В			В		/	4	Α		А		Α	А
		Volume	6	148			131	17				34			40	376
Control Aug M/ 9 C CT	Stop	V/C Ratio	0.0)1			0.	11					0.	12		
Central Ave w & 651	Controlled	95 th % Queue (m)	0.	1			0	.0					3	.4		
IN VV	SB	Delay (s)	0.	3			0	.0					10).6		2.2
		LOS	A	1			A	١				В				A
		Volume	11	165			131	23				11			11	352
	Stop	V/C Ratio	0.0)1			0.	11				0.04				
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0.	2			0	.0				1.0				
	SB	Delay (s)	0.	6			0	.0				10.3				0.9
		LOS	A	1			A	۹.					I	В		А

Table 8.3: 2030 Background Analysis Results

Intersection	Control	Measure of	E	astbour	nd	W	estbou	nd	No	orthbou	nd		South	bound		Overall
intersection	Туре	Effectiveness	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	T	'H	RT	Intersection
				AN	/I Peak	- 2040 E	Backgrou	und								
		Volume				7	7 7			114	7	13	15	54		302
Highway 806 8 Convice	Stop	V/C Ratio					0.02			0.08	0.01	0.	01	0.08		
Road	Controlled	95 th % Queue (m)					0.6			0.0	0.0	1	.6	0.0		
Kudu	WB	Delay (s)					9.7			0.0	0.0	1	1.6 0.0			0.8
		LOS					Α			Α	Α	4	4	Α		А
		Volume	13	80	0	94	94 27 54		13	54	80	87	6	50	13	575
Highway 806 &	All Way	V/C Ratio		0.18		0.32			0.	15	0.14		0.31		0.02	
Township Road 340 /	Stop	95 th % Queue (m)	-				-		· ·	-	-		-		-	
Central Ave W	Controlled	Delay (s)		9.7			10.6		9	.1	7.7		10.5		6.9	9.8
		LOS	А			В		4	4	Α		В		Α	Α	
		Volume	27	208			154	80				27			7	503
Control Ave M/R C CT	Stop	V/C Ratio	0.	03			0.1	L7					0.	08		
Central Ave W & 6 ST Controlled		95 th % Queue (m)	0	.7			0.	0					2	.2		
INVV	SB	Delay (s)	1	.2			0.	0					12	2.6		1.4
		LOS	A				A	1					[В		Α
		Volume	13	214			161	20				20			54	482
	Stop	V/C Ratio	0.	01			0.1	13					0.	14		
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0	.3			0.	0					3	.8		
	SB	Delay (s)	0	.5			0.	0					11	L.2		2.0
	LOS	/	4			A						ſ	В		Α	
				PN	/I Peak	- 2040 E	Backgrou	und								
		Volume				13		40		147	7	7	13	34		348
	Stop	V/C Ratio				0.08			0.09	0.01	0.01 0.06					
Highway 806 & Service	Controlled	95 th % Queue (m)				2.1				0.0	0.0	0.2 0.0		0.0		
Road	WB	Delay (s)					Α			0.0	0.0	1	.1	0.0		1.8
		LOS					Α	A		Α	Α	4	4	Α		Α
		Volume	7	34	7	94	47	60	13	67	94	54	8	37	7	571
Highway 806 &	All Way	V/C Ratio		0.09			0.34		0.	16	0.16		0.28		0.01	
Township Road 340 /	Stop	95 th % Queue (m)		-			-			-	-		-		-	
Central Ave W	Controlled	Delay (s)		8.7			10.5		8	.7	7.7		9.9		6.7	9.4
		LOS		Α			В		1	4	Α		Α		Α	А
		Volume	7	174			154	20				40			47	442
_	Stop	V/C Ratio	0.	01			0.1	13					0.	16		
Central Ave W & 6 ST	Controlled	95 th % Queue (m)	0	.2			0.	0					4	.4		
NW	SB	Delay (s)	0	.4			0.	0					11	L.2		2.3
		LOS		4			А					B				Α
		Volume	13	194			154	27				13			13	414
	Stop	V/C Ratio	0.	01			0.1	13			0.05					
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0	.3			0.	0				1.2				
	SB	Delay (s)	0	.6			0.	0				10.7				1.0
		LOS	1	4			А							В		Α

Table 8.4: 2040 Background Analysis Results

Intersection	Control	Measure of	Ea	stboun	d	w	estbou	nd	No	orthbou	nd		South	bound		Overall
intersection	Туре	Effectiveness	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	Т	н	RT	Intersection
				A	M Peak	(- 2050 I	Backgro	und								
		Volume				8		8		131	8	15	1	77		347
Uish	Stop	V/C Ratio					0.03			0.10	0.01	0.0	01	0.09		
nigriway 800 & service	Controlled	95 th % Queue (m)					0.7			0.0	0.0	0.	.3	0.0		
Road	WB	Delay (s)					10.0			0.0	0.0	1.	.7	0.0		0.8
		LOS					А			А	Α	A	Ą	Α		А
		Volume	15	92	0	108	31	62	15	62	92	100	e	i9	15	661
Highway 806 &	All Way	V/C Ratio		0.22			0.38		0.	18	0.17		0.37		0.03	
Township Road 340 /	Stop	95 th % Queue (m)		-			-			-	-		-		-	
Central Ave W	Controlled	Delay (s)		10.4			11.8		9	.7	8.3		11.7		7.2	10.7
		LOS		В			В		A	7	Α		В		Α	В
		Volume	31	239			177	92				31			8	578
Control Ave W/ 8 C CT	Stop	V/C Ratio	0.0	3			0.2	20					0.	11		
	Controlled	95 th % Queue (m)	0.8	3			0.	.0					2	.8		
INVV	SB	Delay (s)	1.3	3			0.	.0					13	3.7		1.5
		LOS	A				A	4						В		А
		Volume	15	246			185	23				23			62	554
	Stop	V/C Ratio	0.0	1			0.	15					0.	17		
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0.4	t I			0.	.0					4	.9		
	SB	Delay (s)	0.6	5			0.	.0					11	L.9		2.1
		LOS	A				A	4						В		А
				P	M Peak	- 2050 E	Backgrou	und								
		Volume				15		46		146	8	8	1	54		377
Llighway 806 8 Carries	Stop	V/C Ratio					0.10			0.11	0.01	0.0	01	0.07		
Poad	Controlled	95 th % Queue (m)					2.6			0.0	0.0	0.	.2	0.0		
Noau	WB	Delay (s)					10.2			0.0	0.0	1.	.1	0.0		1.8
		LOS					В			Α	Α	A	4	Α		A
		Volume	8	39	8	108	54	69	15	77	108	62	10	00	8	656
Highway 806 &	All Way	V/C Ratio		0.10			0.41		0.	19	0.19		0.34		0.01	
Township Road 340 /	Stop	95 th % Queue (m)		-			-			-	-		-		-	
Central Ave W	Controlled	Delay (s)		9.2			11.7		9	.2	8.2		10.9		7.0	10.3
		LOS		А			В		A	4	Α		В		Α	В
		Volume	8	200			177	23				46	5	54		508
Control Avo W/8.6ST	Stop	V/C Ratio	0.0	1			0.3	15					0.	19		
NW/	Controlled	95 th % Queue (m)	0.2	2			0.	.0					5	.7		
INVV	SB	Delay (s)	0.4	t			0.	.0					11	L.9		2.5
		LOS	A				A	4						В		A
		Volume	15	223			177	31				15			15	476
	Stop	V/C Ratio	0.0	1			0.1	15					0.	06		
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0.4	ţ			0.	.0					1	.6		
	SB	Delay (s)	0.6	5			0.	.0					11	.3		1.0
		LOS	A				A	4					1	В		А

Table 8.5: 2050 Background Analysis Results

Internation Control Measure of Eastbound Westbound Northbound Southbound		Overall
Intersection Type Effectiveness LT TH RT LT TH RT LT TH RT LT TH RT LT TH	RT	Intersection
AM Peak - 2060 Background		
Volume 9 9 9 148 9 17 200		392
Lichway 200 & Caprice Stop V/C Ratio 0.03 0.11 0.01 0.02 0.10		
Tightway soo & service Controlled 95 th % Queue (m) 0.8 0.0 0.0 0.4 0.0		
WB Delay (s) 10.3 0.0 0.0 1.7 0.0		0.8
LOS B A A A A		A
Volume 17 104 0 122 35 70 17 70 104 113 78	17	747
Highway 806 & All Way V/C Ratio 0.26 0.45 0.21 0.20 0.43	0.03	
Township Road 340 / Stop 95 th % Queue (m)	-	
Central Ave W Controlled Delay (s) 11.3 13.3 10.4 8.9 13.3	7.5	11.9
LOS B B A A B	А	В
Volume 35 270 200 104 35	9	653
Stop V/C Ratio 0.04 0.22 0.13		
Central Ave W & 65T Controlled 95 th % Queue (m) 1.0 0.0 3.7		
NW SB Delay(s) 1.3 0.0 15.1		1.6
		А
Volume 17 278 209 26 29	70	629
Stop V/C Ratio 0.02 0.17 0.21		
Central Ave W & 5 St W Controlled 95 th % Oueue (m) 0.4 0.0 6.4		
SB Delay (s) 0.6 0.0 12.9		2.3
		A
PM Peak - 2060 Background		
Volume 17 52 165 9 9 174		426
Stop V/C Ratio 0.11 0.12 0.01 0.08		
Highway 806 & Service Controlled (9 ^{ch} % Queue (m) 3.1 0.0 0.0 0.2 0.0		
Road WB Delay (s) 10.5 0.0 0.0 1.1 0.0		19
		A 4
Volume 9 44 9 122 61 78 17 87 122 70 113	9	741
Highway 806.8 All Way V/C Ratio 0.12 0.48 0.22 0.23 0.40	0.02	/11
Township Road 340 / Ston Ge th & Olegue (m)	-	
Central Ave W Controlled Delay (s) 9.7 13.3 9.8 8.9 12.2	72	11.4
	7.2 A	B
Volume 9 226 200 26 52	61	574
Stop V/(Ratio 0.01 0.16 0.23	01	5/4
Central Ave W & 6 ST Controlled get % (unune (m)) 0.2 0.0 71		
NW SB poly (c) 0.4 0.0 128		2.7
		Δ
Valume 17 252 200 25 17	17	529
stop V/(Ratio 0.02 0.17 0.07	1/	550
Central Ave W & 55t W Controlled (at 1 a control at a con		
SR Dolaw(c) 0.7 0.0 110		11
LOS A A B		A

Table 8.6: 2060 Background Analysis Results

8.2 Phase 1

Based on the intersection and four-way stop warrant analysis, a fully stop controlled intersection is assumed with existing laning for Phase 1 conditions at Highway 806 and Township Road 304 / Central Avenue W beginning in 2030. The operational analysis results show that for Phase 1, at all horizons, all movements operate at Levels of Service B or better. All movements on Highway 806 are well within the LOS D target through to and beyond 2050. There are no concerns with v/c ratios or queueing.

Internetion	Control	Measure of	Ea	astbour	d	w	estboun	ıd	No	orthbou	nd		South	bound		Overall
intersection	Туре	Effectiveness	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	Т	Ή	RT	Intersection
				AM	Peak - 2	2030 Pha	ase 1 Cor	nbined								
		Volume				10		13		97	30	22	1	31		303
Ulahunan OOC 9 Camilaa	Stop	V/C Ratio	•				0.03			0.07	0.02	0.0	02	0.06		
Road	Controlled	95 th % Queue (m)					0.9			0.0	0.0	0.	.5	0.0		
Nudu	WB	Delay (s)					9.6			0.0	0.0	2.	.7	0.0		1.3
		LOS					А			Α	Α	A	١	Α		А
		Volume	16	69	0	91	25	56	11	55	76	77	5	51	13	540
Highway 806 &	All Way	V/C Ratio		0.16			0.30		0.	14	0.13		0.26		0.02	
Township Road 340 /	Stop	95 th % Queue (m)		-			-			-	-		-		-	
Central Ave W	Controlled	Delay (s)		9.5			10.2		8	.9	7.5		9.8		6.8	9.4
		LOS		А			В		Å	۹.	Α		А		Α	А
		Volume	30	182			145	78				26			12	473
Control Aug M/ 8 6 6T	Stop	V/C Ratio	0.0	03			0.1	.6					0.	08		
	Controlled	95 th % Queue (m)	0.	8			0.	0					2	.2		
INVV	SB	Delay (s)	1.	.4			0.	0					11	L.9		1.6
		LOS	A	١			A							В		А
		Volume	13	188			156	19				23			51	450
	Stop	V/C Ratio	0.0	01			0.1	.3					0.	14		
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0.	3			0.	0					3	.8		
	SB	Delay (s)	0.	.6			0.	0					11	L.2		2.1
		LOS	A	١			A							В		А
				PM	Peak - 2	2030 Pha	ise 1 Cor	nbined								
		Volume				30		45		108	15	12	1	14		324
Highway 906 9 Carries	Stop	V/C Ratio	•				0.12			0.08	0.01	0.0	01	0.06		
Read	Controlled	95 th % Queue (m)					3.1			0.0	0.0	0.	.3	0.0		
Nuau	WB	Delay (s)					10.0			0.0	0.0	1.	.9	0.0		2.6
		LOS					В			Α	Α	A	1	А		А
		Volume	8	31	6	94	41	56	11	59	91	56	7	'8	11	542
Highway 806 &	All Way	V/C Ratio		0.08			0.32		0.	14	0.15		0.26		0.02	
Township Road 340 /	Stop	95 th % Queue (m)		-			-			-	-		-		-	
Central Ave W	Controlled	Delay (s)		8.6			10.2		8	.4	7.6		9.6		6.7	9.2
		LOS		А			В		4	4	Α		А		Α	А
		Volume	12	162			139	22				44			52	431
Control Aug M/ 8 6 6T	Stop	V/C Ratio	0.0	01			0.1	.2					0.	17		
	Controlled	95 th % Queue (m)	0.	3			0.	0					4	.8		
INVV	SB	Delay (s)	0.	.6			0.	0					11	l.1		2.7
		LOS	A	١			A							В		А
		Volume	16	184			141	30				15			14	400
	Stop	V/C Ratio	0.0	01			0.1	2					0.	05		
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0.	4			0.	0					1	.4		
	SB	Delay (s)	0.	7			0.	0					10).7		1.2
		LOS	А	١			A							В		A

Tahla	8 7.	2030	Combined	Phase	1	Analysis	Regulto
Ianc	0.7.	2030	Combined	rnase	1	Allalysis	resuits



Intercection	Control	Measure of	Ea	stboun	d	W	'estboui	nd	No	orthbou	nd		South	bound		Overall
intersection	Туре	Effectiveness	LT	ΤH	RT	LT	TH	RT	LT	TH	RT	LT	Т	īΗ	RT	Intersection
				AM	Peak - 2	2040 Pha	ise 1 Coi	nbined								
		Volume				10		14		114	30	24	1	54		346
	Stop	V/C Ratio					0.04			0.08	0.02	0.	02	0.08		
Highway 806 & Service	Controlled	95 th % Queue (m)					1.0			0.0	0.0	0	.5	0.0		
ROđu	WB	Delay (s)					9.8			0.0	0.0	2	.6	0.0		1.2
		LOS					А			Α	А	ļ	١	А		А
		Volume	18	81	0	106	29	64	13	62	89	90	5	59	15	626
Highway 806 &	All Way	V/C Ratio		0.20			0.37		0.	17	0.16		0.32		0.03	
Township Road 340 /	Stop	95 th % Queue (m)		-			-			-	-		-		-	
Central Ave W	Controlled	Delay (s)		10.1			11.3		9	.5	8.0		10.9		7.1	10.2
		LOS		В			В		A	4	Α		В		Α	В
		Volume	35	213			168	90				30			14	550
Control Auto M/ R C CT	Stop	V/C Ratio	0.0)4			0.:	19					0.	11		
	Controlled	95 th % Queue (m)	0.	9			0.	0					2	.9		
IN VV	SB	Delay (s)	1.	5			0.	0					12	2.9		1.7
		LOS	A				A	۱						В		А
		Volume	15	220			180	22				26			59	522
	Stop	V/C Ratio	0.0)1			0.1	15					0.	17		
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0.	4			0.	0					4	.8		
	SB	Delay (s)	0.	6			0.	0					11	1.8		2.2
		LOS	A				A	١						В		А
				PM	Peak - 2	2040 Pha	ise 1 Cor	nbined								
		Volume				30		51		127	15	13	1	34		370
	Stop	V/C Ratio					0.13			0.09	0.01	0.	01	0.06		
Highway 806 & Service	Controlled	95 th % Queue (m)					3.5			0.0	0.0	0	.3	0.0		
коаа	WB	Delay (s)					10.3			0.0	0.0	1	.8	0.0		2.5
		LOS					В			А	А	A	A	Α		А
		Volume	9	36	7	110	48	65	13	68	106	64	8	39	12	627
Highway 806 &	All Way	V/C Ratio		0.10			0.39		0.	16	0.19		0.31		0.02	
Township Road 340 /	Stop	95 th % Queue (m)		-			-			-	-		-		-	
Central Ave W	Controlled	Delay (s)		9.0			11.3		8	.9	8.1		10.5		6.9	10.0
		LOS		А			В		A	J –	А		В		А	В
		Volume	14	188			162	25				50			61	500
Constant Auro MAR CCT	Stop	V/C Ratio	0.0)1			0.3	14					0.	21		
	Controlled	95 th % Queue (m)	0.	3			0.	0					6	i.2		
IN VV	SB	Delay (s)	0.	6			0.	0					11	1.9		2.9
		LOS	A	1			A	١						В		А
		Volume	18	213			164	34				17			16	462
	Stop	V/C Ratio	0.0)2			0.1	14					0.	.07		
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0.	4			0.	0					1	7		
	SB	Delay (s)	0.	7			0.	0					11	1.2		1.2
		LOS	А				A	\						В		А

Table 8.8: 2040 Combined Phase 1 Analysis Results

Internetion	Control	Measure of	Ea	astboun	d	W	estbour	nd	No	orthbou	nd		South	bound		Overall
intersection	Туре	Effectiveness	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	Т	Ή	RT	Intersection
				AM	Peak - 2	050 Pha	se 1 Cor	nbined								
		Volume				10		15		131	30	26	1	77		389
Lighway 906 9 Carries	Stop	V/C Ratio					0.04			0.10	0.02	0.0)2	0.09		
Highway 806 & Service	Controlled	95 th % Queue (m)					1.0			0.0	0.0	0.	6	0.0		
RUdu	WB	Delay (s)					10.0			0.0	0.0	2.	5	0.0		1.2
		LOS					В			А	Α	А		Α		А
		Volume	20	93	0	121	33	72	15	69	102	103	e	57	17	712
Highway 806 &	All Way	V/C Ratio		0.24			0.44		0.3	19	0.20		0.38		0.03	
Township Road 340 /	Stop	95 th % Queue (m)		-			-		-		-		-		-	
Central Ave W	Controlled	Delay (s)		10.9			12.8		10).1	8.7		12.2		7.4	11.3
		LOS		В			В		A	A	А		В		Α	В
		Volume	40	244			191	102				34			16	627
	Stop	V/C Ratio	0.0	04			0.2	22					0.	14		
Central Ave w & 651	Controlled	95 th % Queue (m)	1.	1			0.	0					3	.7		
NW	SB	Delay (s)	1.	6			0.	0					14	1.1		1.8
		LOS	А	1			A	1						В		A
		Volume	17	252			204	25				29			67	594
	Stop	V/C Ratio	0.0)2			0.1	17					0.	20		
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0.	4			0.	0					6	.0		
	SB	Delay (s)	0.	6			0.	0					12	2.6		2.3
		LOS	А	1			А	1						В		А
				PM	Peak - 2	.050 Pha	se 1 Cor	nbined								
		Volume				30		57		146	15	14	1	54		416
	Stop	V/C Ratio					0.14			0.11	0.01	0.0)1	0.07		
Highway 806 & Service	Controlled	95 th % Queue (m)					4.0			0.0	0.0	0.	3	0.0		
коад	WB	Delay (s)					10.6			0.0	0.0	1.	7	0.0		2.5
		LOS					В			А	Α	A		Α		А
		Volume	10	41	8	126	55	74	15	77	121	72	10	00	13	712
Highway 806 &	All Way	V/C Ratio		0.12			0.46		0.2	20	0.22		0.37		0.02	
Township Road 340 /	Stop	95 th % Queue (m)		-			-		-		-		-		-	
Central Ave W	Controlled	Delay (s)		9.5			12.8		9.	.5	8.7		11.6		7.2	11.0
		LOS		А			В		A	4	А		В		А	В
		Volume	16	214			185	28				56			70	569
	Stop	V/C Ratio	0.0	02			0.3	15					0.	25		
Central Ave W & 6 ST	Controlled	95 th % Queue (m)	0.	4			0.	0					7	.9		
NW	SB	Delay (s)	0.	7			0.	0					12	2.8		3.1
		LOS	А	1			Α	1						В		A
		Volume	20	242			187	38				19			18	524
	Stop	V/C Ratio	0.0)2			0.1	16					0.	08	-	
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0.	5			0.	0					2	.0		
	SB	Delay (s)	0.	8			0.	0					11	1.8		1.2
		LOS	Д	1			Α	1						В		А

Table 8.9: 2050 Combined Phase 1 Analysis Results

8.3 Full Build-Out (Phase 2) Without North Access

Based on the intersection and four-way stop warrant, a fully stop controlled intersection is assumed with existing laning for full build-out at Highway 806 and Township Road 304 / Central Avenue W beginning in 2040. The operational analysis results show that for full build-out, without the north access road, at all horizons, all movements operate at Levels of Service C or better. All movements on Highway 806 operate at LOS B or better and are well within the LOS D target through and beyond 2060. There are no concerns with v/c ratios or queueing.

The signal warrant analysis indicated that signals may be warranted for 2060 full-build out with or without the north access. Synchro results show that an all-way stop control is adequate for the intersection up to and beyond the 2060 horizon. Overall conditions including safety should continue to be reviewed to confirm the intersections continues to perform satisfactorily.

Intersection	Control	Measure of	Eas	stboun	ıd	w	'estbou	nd	No	orthbou	nd	So	outhboun	d	Overall
intersection	Туре	Effectiveness	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
			AM Pe	ak - 20	040 Phas	se 2 Com	nbined i	no N Ace	cess						
		Volume				19		22		114	47	31	154		387
	Stop	V/C Ratio					0.07			0.08	0.03	0.03	0.08		
Highway 806 & Service	Controlled	95 th % Queue (m)					1.8			0.0	0.0	0.7	0.0		
коаа	WB	Delay (s)					10.1			0.0	0.0	3.1	0.0		1.7
		LOS					В			Α	Α	А	А		А
		Volume	21	82	0	115	32	69	13	71	92	93	64	17	669
Highway 806 &	All Way	V/C Ratio		0.21			0.41		0.	19	0.17	0	34	0.03	
Township Road 340 /	Stop	95 th % Queue (m)		-			-			-	-		-	-	
Central Ave W	Controlled	Delay (s)		10.4			12.1		9	.8	8.3	1	1.4	7.2	10.7
		LOS		В			В		- A	A	Α		В	Α	В
		Volume	35	218			183	95				33		17	581
Control And M/R C CT	Stop	V/C Ratio	0.04	4			0.	20					0.13		
Central Ave w & 651	Controlled	95 th % Queue (m)	1.0)			0	.0					3.4		
IN VV	SB	Delay (s)	1.5	;			0	.0					13.3		1.8
		LOS	А				/	ł					В		А
		Volume	14	224			191	26				26		58	539
	Stop	V/C Ratio	0.01	1			0.	16					0.17		
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0.3				0	.0					4.8		
	SB	Delay (s)	0.6	;			0	.0					12.0		2.1
		LOS	А				/	4					В		А
			PM Pe	eak - 20	040 Phas	se 2 Com	nbined I	no N Aco	cess						
		Volume				46		60		127	25	25	134		417
Highway 806 8 Caprica	Stop	V/C Ratio					0.18			0.09	0.02	0.02	0.06		
Road	Controlled	95 th % Queue (m)					5.1			0.0	0.0	0.6	0.0		
KUdu	WB	Delay (s)					10.9			0.0	0.0	2.9	0.0		3.3
		LOS					В			Α	Α	А	А		A
		Volume	12	39	7	116	50	68	13	73	115	69	98	14	674
Highway 806 &	All Way	V/C Ratio		0.11			0.42		0.	18	0.21	0	35	0.02	
Township Road 340 /	Stop	95 th % Queue (m)		-			-			-	-		-	-	
Central Ave W	Controlled	Delay (s)		9.3			11.9		9	.2	8.4	1	1.2	7.1	10.5
		LOS		А			В		A	4	А		В	А	В
		Volume	17	204			171	28				55		63	538
Control Ava W/ 8 6 ST	Stop	V/C Ratio	0.02	2			0.	14					0.23		
	Controlled	95 th % Queue (m)	0.4	Ļ			0	.0					7.1		
INVV	SB	Delay (s)	0.7	'			0	.0					12.4		3.0
		LOS	А				/	4					В		А
		Volume	28	224			169	49				26		22	518
	Stop	V/C Ratio	0.03	3			0.	16					0.10		
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0.7	,			0	.0					2.7		
	SB	Delay (s)	1.1				0	.0					12.0		1.6
		LOS	А				/	4					В		А

 Table 8.10: 2040 Combined Full Build-Out Analysis Results (Without North Access)



Table 8.11: 2050 Combined Full Build-Out Analysis Results (Without North Access)

	Control	Measure of	E	astbour	d	w	estbou	nd	No	orthbou	nd	So	uthboun	d	Overall
Intersection	Туре	Effectiveness	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
			AM P	eak - 20	50 Phas	e 2 Com	bined n	o N Acc	ess						
		Volume				19		23		131	47	33	177		430
111 - h	Stop	V/C Ratio					0.07			0.10	0.03	0.03	0.09		
Highway 806 & Service	Controlled	95 th % Queue (m)					1.9			0.0	0.0	0.8	0.0		
KUdu	WB	Delay (s)					10.4			0.0	0.0	3.0	0.0		1.7
		LOS					В			А	Α	А	А		А
		Volume	23	94	0	130	36	77	15	78	105	106	72	19	755
Highway 806 &	All Way	V/C Ratio		0.25			0.48		0.	22	0.21	0.4	11	0.04	
Township Road 340 /	Stop	95 th % Queue (m)		-			-			-	-	-		-	
Central Ave W	Controlled	Delay (s)		11.3			13.8		10).5	8.9	12	.9	7.6	12
		LOS		В			В			۹	Α	E	3	Α	В
		Volume	40	249			206	107				37		19	658
Central Ave W & 6 ST	Stop	V/C Ratio	0.0	05			0.	23					0.16		
NW	Controlled	95 th % Queue (m)	1.	.1			0	.0					4.4		
	SB	Delay (s)	1.	.6			0	.0					14.6		1.9
		LOS	4	4			A	4					В		A
		Volume	16	256			215	29				29		66	611
	Stop	V/C Ratio	0.0	02			0.	18					0.20		
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0.	.4			0	.0					6.1		
	SB	Delay (s)	0.	.6			0.	.0					12.8		2.3
		LOS	A	4			A	4					В		A
		-	PM P	eak - 20	50 Phas	e 2 Com	bined n	o N Acc	ess						
		Volume				46		66		146	25	26	154		463
Highway 806 & Service	Stop	V/C Ratio					0.19			0.11	0.02	0.02	0.07		
Road	Controlled	95 th % Queue (m)					5.7			0.0	0.0	0.6	0.0		
	WB	Delay (s)					11.2			0.0	0.0	2.8	0.0		3.2
		LOS			1		В			A	A	A	А		A
		Volume	13	44	8	132	57	77	15	82	130	77	109	15	759
Highway 806 &	All Way	V/C Ratio		0.13			0.50		0.	21	0.25	0.4	11	0.03	
Township Road 340 /	Stop	95 th % Queue (m)		-			-			-	-	-		-	
Central Ave W	Controlled	Delay (s)		9.8			13.7		9	.8	9.1	12	.5	7.4	11.6
		LOS		A			В		/	4	A	E	3	A	В
		Volume	19	230			194	31				61		72	607
Central Ave W & 6 ST	Stop	V/C Ratio	0.0	02			0.	16					0.28		
NW	Controlled	95 ¹¹ % Queue (m)	0.	.4			0.	.0					9.1		
	SB	Delay (s)	0.	.8			0	.0					13.4		3.3
		LOS	A	1			4	4					В		A
		Volume	30	253			192	53				28	0.40	24	580
	Stop	V/C Ratio	0.0	-			0.	18					0.12		
Central Ave W & 5 St W	Controlled	95"'% Queue (m)	0.	.7			0.	.0					3.3		
	SB	Delay (s)	1.	.1			0	.0					12.7		1.7
		LOS	A	4			A	4					В		A

Table	8.12:	2060	Combined	Full	Build-	Out	Analysis	Results	(Without	North	Access)	ļ

to the second term	Control	Measure of	E	astboun	nd	W	estbour	nd	No	orthbou	nd	So	uthbound	d	Overall
Intersection	Туре	Effectiveness	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection
			AM	Peak - 2	2060 Ph	ase 2 Co	mbined	no N A	ccess						
		Volume				19		24		148	47	35	200		473
Highway 906 9 Carries	Stop	V/C Ratio					0.08			0.11	0.03	0.03	0.10		
Road	Controlled	95 th % Queue (m)					2.0			0.0	0.0	0.9	0.0		
NUdu	WB	Delay (s)					10.7			0.0	0.0	2.9	0.0		1.6
		LOS					В			Α	Α	А	А		А
		Volume	25	106	0	145	40	85	17	85	118	119	80	21	841
Highway 806 &	All Way	V/C Ratio		0.30			0.56		0.	25	0.25	0.4	18	0.04	
Township Road 340 /	Stop	95 th % Queue (m)		-			-				-	-		-	
Central Ave W	Controlled	Delay (s)		12.3			16.2		11	3	9.7	14	.9	7.9	13.6
		LOS		В			С		1	3	А	E	3	Α	В
		Volume	45	280			229	119				41		21	735
Control Ave W & 6 ST	Stop	V/C Ratio	0.	05			0.2	26					0.19		
NW/	Controlled	95 th % Queue (m)	1	.3			0.	0					5.7		
11.00	SB	Delay (s)	1	.7			0.	0					16.2		2.1
		LOS	Å	4			A	۱					С		А
		Volume	18	288			239	32				32		74	683
	Stop	V/C Ratio	0.	02			0.2	20					0.24		
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0	.4			0.	0					7.6		
	SB	Delay (s)	0	.6			0.	0					13.8		2.4
		LOS	Å	4			A	۱					В		А
				PM Pea	ak - 2060) Combi	ned no N	Acces	s						
		Volume				46		72		165	25	27	174		509
Highway 806 & Service	Stop	V/C Ratio					0.21			0.12	0.02	0.03	0.08		
Road	Controlled	95 th % Queue (m)					6.4			0.0	0.0	0.6	0.0		
Nodu	WB	Delay (s)					11.6			0.0	0.0	2.7	0.0		3.1
		LOS					В			Α	А	A	А		А
		Volume	14	49	9	148	64	86	17	91	145	85	120	16	844
Highway 806 &	All Way	V/C Ratio		0.15			0.58		0.	24	0.29	0.4	47	0.03	
Township Road 340 /	Stop	95 th % Queue (m)		-			-				-	-		-	
Central Ave W	Controlled	Delay (s)		10.4			16.1		10).5	9.9	14	.2	7.7	13.2
		LOS		В			С		1	3	А	E	3	Α	В
		Volume	21	256			217	34				67		81	676
Control Ave W & 6 ST	Stop	V/C Ratio	0.	02			0.1	18					0.33		
NW/	Controlled	95 th % Queue (m)	0	.5			0.	0					11.6		
1444	SB	Delay (s)	0	.8			0.	0					14.8		3.6
		LOS	Å	4			A	۱					В		А
		Volume	32	282			215	57				30		26	642
	Stop	V/C Ratio	0.	03			0.2	20					0.14		
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0	.8			0.	0					3.9		
	SB	Delay (s)	1	.1			0.	0					13.5		1.7
		LOS	A	4			A	۱					В		А

8.4 Full Build-Out (Phase 2) With North Access

Based on the intersection and four-way stop warrant analysis, a fully stop controlled intersection is assumed with existing laning for full build-out conditions at Highway 806 and Township Road 304 / Central Avenue W beginning in 2040. The operational analysis results show that for full build-out, with the north access road, at all horizons, all movements operate at Levels of Service C or better. All movements on Highway 806 operate at LOS C or better and are well within the LOS D target through to and beyond 2060. There are no concerns with v/c ratios or queueing.

The signal warrant analysis indicated that signals may be warranted for 2060 full-build out with or without the north access. Synchro results show that an all-way stop control is adequate for the intersection up to and beyond the 2060 horizon. Overall conditions including safety should continue to be reviewed to confirm the intersections continues to perform satisfactorily.



Table 8.13: 2040 Combined Full Build-Out Analysis Results (With North Access)

late and the s	Control	Measure of	E	astboun	d	W	estbou	nd	N	orthbou	nd		South	bound		Overall
Intersection	Туре	Effectiveness	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT		ſΗ	RT	Intersection
				AM	Peak - 2	040 Phas	se 2 wit	h N Acce	ss							
		Volume				8		8		128	18	6	1	74		342
Highway 806 & North	Stop	V/C Ratio					0.03			0.	11		0.01			
	Controlled	95 th % Queue (m)					0.7			0.	.0		0.1			
Alless	WB	Delay (s)					10.2			0.	.0		0.3			0.6
		LOS					В			A	4		А			A
		Volume				16		14		132	33	22	1	62		379
Highway 806 & Mid	All Way	V/C Ratio					0.05			0.10	0.02	0.	02	0.08		
	Stop	95 th % Queue (m)					1.3			0.0	0.0	C	.5	0.0		
Access	Controlled	Delay (s)					10.2			0.0	0.0	2	.4	0.0		1.3
		LOS			-		В			Α	Α		4	Α		A
		Volume	22	81	0	112	31	72	13	72	91	93	6	57	18	672
Highway 806 &	Stop	V/C Ratio		0.21	-		0.41		0.	19	0.17		0.35		0.03	
Township Road 340 /	Controlled	95 th % Queue (m)		-			-			-	-		-		-	
Central Ave W	EB/WB	Delay (s)		10.5			12.1		9	.8	8.3		11.5		7.3	10.8
		LOS		В			В		A	A	Α		В		Α	В
		Volume	35	218			182	92				32			17	576
Control Aug M/R C CT	Stop	V/C Ratio	0.0	04			0	.20					0.	12		
	Controlled	95 th % Queue (m)	1.	0			().0					З	.3		
IN VV	SB	Delay (s)	1.	.5			().0					13	3.2		1.8
		LOS	A	١				A						В		А
		Volume	17	225			191	26				39			64	562
	Stop	V/C Ratio	0.0	02			0	.16					0.	22		
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0.	.4			().0					6	5.6		
	SB	Delay (s)	0.	.7			().0					12	2.8		2.6
		LOS	A	١				A						В		А
				PMI	Peak - 20	040 Phas	e 2 wit	h N Acce	SS							
		Volume				17		10		178	8	6	1	47		366
	Stop	V/C Ratio					0.05			0.	14		0.01			
Highway 806 & North	Controlled	95 th % Queue (m)					1.3			0	.0		0.2			
Access	WB	Delay (s)					10.9			0	.0		0.4			0.9
		LOS					В			A	A		А			А
		Volume				35		50		135	22	16	1	51		409
	All Way	V/C Ratio					0.14			0.10	0.02	0.	02	0.07		
Highway 806 & Mid	Stop	95 th % Queue (m)					3.9			0.0	0.0	C	.4	0.0		
Access	Controlled	Delay (s)					10.6			0.0	0.0	2	.0	0.0		2.5
		LOS					В			А	Α		4	Α		A
		Volume	13	38	7	114	49	68	13	76	112	72	1	00	15	677
Highway 806 &	Stop	V/C Ratio		0.11			0.41		0.	19	0.20		0.36		0.03	
Township Road 340 /	Controlled	95 th % Oueue (m)		-			-			-	-		-		-	-
Central Ave W	EB/WB	Delay (s)		9.3			11.9		9	.2	8.4		11.3		7.1	10.5
		LOS		A			В		-	Ą	A		В		A	B
		Volume	17	202			169	27				52			63	530
	Stop	V/C Ratio	0.0	02			0	.14					0.	22		
Central Ave W & 6 ST	Controlled	95 th % Oueue (m)	0.	4			().0	-				6	i.8		
NW	SB	Delay (s)	0	.7			().0					1	2.3		3.0
		LOS	4	\				A					1.	B		A 5.0
		Volume	24	224			169	49	-			26		-	20	512
	Ston	V/C Ratio	0.0	02			0	.16					0.	10		516
Central Ave W & 5 St W	Controlled	95 th % Oueue (m)	0	6			(10					2	6		
	SB	Delay (s)	1	0				0					1.	19		15
		LOS	A	1			`	A					1.	B		A



Table 8.14: 2050 Combined Full Build-Out Analysis Results (With North Access)

later set an	Control	Measure of	E	astboun	d	W	estbour	nd	N	orthbou	nd		South	bound		Overall
Intersection	Туре	Effectiveness	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	Т	Ή	RT	Intersection
				AM Pe	eak - 205	0 Phase	2 with M	N Acces	s							
		Volume				8		8		146	18	6	19	99		385
Ulabora OCC 8 Marth	Stop	V/C Ratio					0.03			0.	12		0.01			
	Controlled	95 th % Queue (m)					0.7			0	.0		0.1			
ALLESS	WB	Delay (s)					10.5			0	.0		0.3			0.6
		LOS					В			Å	4		А			А
		Volume				16		15		149	33	24	13	85		422
Highway 806 8 Mid	All Way	V/C Ratio					0.06			0.11	0.02	0.	02	0.09		
	Stop	95 th % Queue (m)					1.4			0.0	0.0	0	.6	0.0		
ALLESS	Controlled	Delay (s)					10.5			0.0	0.0	2	.3	0.0		1.3
		LOS					В			А	Α	A	4	А		A
		Volume	24	93	0	127	35	80	15	79	104	106	7	′5	20	758
Highway 806 &	Stop	V/C Ratio		0.25			0.48		0.	22	0.21		0.41		0.04	
Township Road 340 /	Controlled	95 th % Queue (m)		-			-			-	-		-		-	
Central Ave W	EB/WB	Delay (s)		11.3			13.8		10).6	8.9		13.0		7.6	12.0
		LOS		В			В			4	Α		В		Α	В
		Volume	40	249			205	104				36			19	653
Constant Auro MAR C CT	Stop	V/C Ratio	0.	05			0.2	23					0.	15		
	Controlled	95 th % Queue (m)	1	.1			0.	.0					4	.3		
IN VV	SB	Delay (s)	1	.6			0.	.0				-	14	1.5		1.9
		LOS		4			А	A					I	В		А
		Volume	19	257			215	29				42			72	634
	Stop	V/C Ratio	0.	02			0.1	18					0.	26		
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0	.5			0.	.0					8	.1		
	SB	Delay (s)	0	.7			0.	.0					13	3.8		2.8
		LOS		4			А	٩						В		А
				ΡΜ Ρε	eak - 205	0 Phase	2 with N	N Access	5							
		Volume				17		10		203	8	6	1	68		412
Lighway 906 9 North	Stop	V/C Ratio					0.05			0.	16		0.01			
	Controlled	95 th % Queue (m)					1.4			0	.0		0.2			
ALLESS	WB	Delay (s)					11.3			0	.0		0.3			0.9
		LOS					В			Å	A		А			А
		Volume				35		56		154	22	17	1	71		455
Highway 806 8 Mid	All Way	V/C Ratio		· · ·			0.16			0.11	0.02	0.	02	0.08		
	Stop	95 th % Queue (m)					4.4			0.0	0.0	0	.4	0.0		
ALLESS	Controlled	Delay (s)					10.9			0.0	0.0	1	.9	0.0		2.5
		LOS					В			А	Α	Å	4	А		А
		Volume	14	43	8	130	56	77	15	85	127	80	1	11	16	762
Highway 806 &	Stop	V/C Ratio		0.13			0.49		0.	22	0.24		0.42		0.03	
Township Road 340 /	Controlled	95 th % Queue (m)		-			-			-	-		-		-	
Central Ave W	EB/WB	Delay (s)		9.9			13.6		9	.9	9.1		12.7		7.4	11.7
		LOS		А			В			4	Α		В		А	В
		Volume	19	228			192	30				58			72	599
Control Ave W/R C CT	Stop	V/C Ratio	0.	02			0.1	16					0.	27		
	Controlled	95 th % Queue (m)	0	.4			0.	.0					8	.7		
INVV	SB	Delay (s)	0	.8			0.	.0					13	3.2		3.2
		LOS	1	4			Α	1						В		А
		Volume	26	253			192	53				28			22	574
	Stop	V/C Ratio	0.	03			0.1	18					0.	12		
Central Ave W & 5 St W	Controlled	95 th % Queue (m)	0	.6			0.	.0					3	.1		
	SB	Delay (s)	1	.0			0.	.0					12	2.7		1.6
		LOS		4			A	4						В		А



Table 8.15: 2060 Combined Full Build-Out Analysis Results (With North Access)

Interneticus	Control	Measure of	Eastbound LT TH RT		Westbound			Northbound			Southbound				Overall	
Intersection	Туре	Effectiveness			LT TH RT		LT	LT TH		LT TH		RT	Intersection			
				AM Pe	eak - 206	0 Phase	2 with M	N Acces	s							
Highway 806 & North Access	Stop Controlled WB	Volume			8	8 8			164	164 18		22	24		428	
		V/C Ratio			0.03			0.13		0.01						
		95 th % Queue (m)				0.8				0.0		0.1				
		Delay (s)				10.8				0.0		0.3			0.6	
		LOS			В			A		A			А			
Highway 806 & Mid Access	All Way Stop Controlled	Volume				16 16			166	33	26 208			465		
		V/C Ratio			0.06			0.12	0.02	0.03 0.10						
		95 th % Queue (m)				1.5				0.0 0.0		0.6 0.0				
		Delay (s)				10.8			0.0	0.0	2.	3	0.0		1.2	
		LOS				В				A	A	А	١	A		A
Highway 806 & Township Road 340 / Central Ave W	Stop Controlled EB/WB	Volume	26	105	0	142	39	88	17	86	117	119	8	33	22	844
		V/C Ratio	0.30		0.56		0.	0.26 0.2		0.49		0.05				
		95 th % Queue (m)	-		-			-		-	-			-		
		Delay (s)	12.4		16.4		11.5		9.8	15.2		8.0	13.8			
		LOS		В			С			В	A		С		A	В
Central Ave W & 6 ST NW	Stop Controlled SB	Volume	45	280			228	116				40			21	730
		V/C Ratio	0.05			0.25					0.19					
		95 th % Queue (m)	1.3				0.0						5	.5		
		Delay (s)	1.7				0.0 A					16.1				2.1
		LOS	A										C			A
Central Ave W & 5 St W	Stop Controlled	Volume	21 289				239 32					45			80	706
		V/C Ratio	0.02		0.20				0.30							
		95 [™] % Queue (m)	0.5		0.0					10.2						
	SB	Delay (s)	0.7		0.0					15.0				3.0		
		LOS	A		A						(A			
PM Peak - 2060 Phase 2 with N Access														_		
Highway 806 & North Access	Stop Controlled WB	Volume				17 10			228	228 8		6 189			458	
		V/C Ratio				0.06		-	0.1/		0.01					
		95" % Queue (m)				1.5			0.0		0.2					
		Delay (s)				11./			0.0		0.3				0.8	
		LUS			25	B 62			A		A 101				A	
Highway 806 & Mid Access	All Way Stop	Volume			35 62		62		1/3	22	18	12	91		501	
						5.0				0.13	0.02	0.0	JZ	0.09		
		95 ^m % Queue (m)				5.0			0.0	0.0	0.	4	0.0		2.5	
	controlleu	Delay (s)			B				0.0	0.0 0.0		0	0.0		2.5	
		LUS	15	15 /8 9		146	62	96	17	A 04	A 142	- P	1'	A 22	17	A
Highway 806 & Township Road 340 / Central Ave W	Stop Controlled EB/WB	V/C Ratio	15	0 16	9	140	0.57	00	1/	94 25	0.28	00	0.48	22	0.03	047
			-		-		0.						0.05			
		95 % Queue (m)	10.5		16 1			10.6		0.0	14 5		77	12.2		
			B		C		10.0 R		9.9 A	R		Δ	13.5 B			
	-	Volume	21	254			215	33			~	64	D		81	668
Central Ave W & 6 ST NW	Stop Controlled SB	V/C Ratio	0.02				215	- 35 18				0.32			01	008
			0.02			0.10					11.0					
		Delay (s)	0.5			0.0					14.5				2.5	
			Δ			0.0					B				3.J A	
		Volume	28 282				215 57					30		24	636	
Central Ave W & 5 St W	Ston	V/C Ratio	0.03				0.2	0.20					0.14			030
	Controlled SB	95 th % Oueue (m)	0.7			0.2		0			3.7					
		Delay (s)	1.0				0.0					13.4				16
		LOS	A				A					В				A



9. Conclusions and Recommendations

The Village of Linden (the Village) is planning to develop 15.2 hectares of land within the northwest quadrant of the Village boundary, adjacent to Highway 806. The proposed development comprised of industrial, commercial and residential land uses, is anticipated to be constructed in two phases, with expected partial build-out occurring by 2030 and full build-out occurring by 2040.

The results of the comprehensive analysis undertaken for this TIA indicate that minimal changes are required to accommodate the development proposed in the Northwest Area Structure Plan area. No geometric changes have been identified. The following modifications are recommended in conjunction with Phase 1 of the proposed development:

- > Revise the traffic control at the intersection of Highway 806 and Township Road 304 / Central Avenue W from two-way stop control to all-way stop control
- Provide delineation lighting at the intersection at Highway 806 and Township Road 304 / Central Avenue W:
 - Details of the lighting will need to be confirmed with detailed design, however it is anticipated that at minimum, additional lighting in the northwest and southwest corners, lighting the stop condition, as well as an additional davit on the current pole to light the stop condition in the northeast corner will be needed.

The Type 3a configuration of the current intersection at Highway 806 and the Service Road is sufficient to support full build-out of the ASP area with or without the North Access. It is recommended that the new east west roadway replacing the service road ties into the existing intersection.

The proposed North Access is not required to serve the proposed ASP area from an operational perspective. Whether or not it is constructed, it is recommended that right-of-way is protected to allow for construction at a later date providing options for future connectivity and greater flexibility for both the planned APS area and future development areas.

Given that the development area is in the early planning stages, it is important to note that significant changes to the proposed development timeline or land uses may trigger a need to update this Traffic Impact Assessment.





Appendix A Traffic Count Data











DIRECTIONAL TRAFFIC COUNT SUMMARY

HIGHWAY: 806 LATITUDE (degrees): 51.59064829

REFERENCE NO.: 00100256 LONGITUDE (degrees): -113.4975608

INTERSECTION OF: 806 & TWP RD 304 CENTRAL AVE, LINDEN LEGAL DESCRIPTION: 19-30-25-400000000

D	AY & D	ATE (OF CC	UNT:	TUE	SDAY, A	AUGU	ST 01,	2023										COU	NT D	URA	TION:	24	HOURS	(MIDNI	ЭНТ ТО) MID	NIG	HT)								
							FRO	M TH	E EAST	ON	CENTR		APF /E	PROA	CHIN	G INTE	RSEC						FRC	OM THE	WEST C	N TW	P RD	304									_
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1:45 - 2:00 2:00 - 2:15	() () (0 0 0 0) () () ()) 0) 0	0	0	0	0	0) () () (0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0)
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4:15 - 4:30	(0	0	0	0	0	1			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0	t
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VEH CLASS TOTALS	A 514	В	1 (D	E 5 12	A 257	B 7 1	C	D 9	E 15	A 312	B	C	D 15	E 5 19	A 4	В 3	1	0	ر 6	E 9	A 290	B	С 0	D	- A 18	57	В	<u>с</u> 0	D	E 11	161:	2	A 312	В 1	<u>с</u> 0	,
		AMENC) (Y / M\-	· YES	<u>11</u>		ET			<u> </u>		ER					WL	-				v			s			WR			<u> </u>	L				SED
WEATHER CON RECO ROAD SURFA COL	ION DIAGRAM ENCLOSED (Y / N): YES IONDITIONS: SUNNY CORDER(S): MIOVISION CAMERAS - ISAAC CASSLEY IFACE CONDTIONS: DRY COMMENTS:															A: P/ D: Si	ASSEN NGLE	iger Vi Unit T	EHICL RUCK	ES S			<u>-</u>	B: REC E: TRA	CREATIC	ON VEH	CLES	S MBIN		NS	C: BI	J SÆS HER F ROA	CONI RECOF	DITIONS: S RDER(S): M RFACE CON MMENTS:	UNNY /IOVISION IDTIONS:	CAMERAS	3-1
			WBL					WBT	_		<u> </u>		WBR			<u> </u>		EBL	L					EBT	_			E	EBR			J	L			SBL	
AM Peak	36	0 2	∠ 6%	0		14 II	+ 2	: 14%			23	3	13%	1		:	3	1 33	5%			21	2	10%		н	1	0	0%					22	0	0%	
PM Peak	59) (vvBL) 0%	Ď		11 21	0	VVBT) 0%			28	2	7%	1		1	3	⊢BL 0 0	∟)%			22	0	сы		11	9	0	<u>-вк</u> 0%			L.	L	28	0	<u>5BL</u> 0%	,



315 4:30 - 5:30 PM

0.81

0.80



SBO NBL NBT NBR NBI Highway 806

36

6

61 103

107

F

- NBT NBR Highway 806

6%

7%

7%

NBI

17%

NBL

SBO

Intersection:	Highway 806 & Service Road
Count Date:	April 10. 2024

		Fron	n the	e Nor	th			From t	he Sc	outh				From	the E	ast			From	the W	est	
	Left	Straig	jht R	light T	ruck	Peds	Left	Straight	Right	Truck	Peds	L	_eft	Straight	Right	Truck	Peds	Left	Straight	Right	Truck	Peds
06:30 - 06:45																						
06:45 - 07:00																						
07:00 - 07:15																						
07:15 - 07:30																						
07:30 - 07:45																						
07:45 - 08:00	1		20		1			9	0	(C		0		0							
08:00 - 08:15	0)	11		1			4	1	(C		0		0							
08:15 - 08:30	1		18		2			10	0	2	2		1		0							
08:30 - 08:45	1		13		1			15	1	4	4		0		1							
08:45 - 09:00																						
Total	3	3	62	0	5	0	0	38	2	(6 (1	0	1	0	0		0 0	0	0	0
Peak	3	3	62	0	5	0	0	38	2	(6 (1	0	1	0	0		0 0	0	0	0
PHF	0.77	,					0.63	;					0.50					#DIV/	D!			
% Trucks	7.7%)					15.0%	1					0.0%					#DIV/	D!			
16:00 - 16:15																						
16:15 - 16:30																						
16:30 - 16:45	0)	16		4			13	0	2	2		2		4	C)					
16:45 - 17:00	0)	14		0			14	0	(C		1		4	C)					
17:00 - 17:15	1		11		1			19	1		1		2		8	C)					
17:15 - 17:30	0)	18		2			18	0	(C		0		1	1						
17:30 - 17:45																						
17:45 - 18:00																						
18:00 - 18:15																						
18:15 - 18:30																						
Total	1		59	0	7	0	0	64	1	;	3 (5	0	17	1	0		0 0	0	0	0
Peak	1		59	0	7	0	0	64	1	;	3 (5	0	17	1	0		0 0	0	0	0
PHF	0.83	3					0.81						0.55					#DIV/	D!			
% Trucks	11.7%)					4.6%)					4.5%					#DIV/	D!			

Intersection: Highway 806 & Central Avenue Count Date: August 1, 2023

		From t	he No	orth			From t	he Sc	outh			From	the E	ast			From	the W	est	
	Left	Straight	Right	Truck	Peds	Left	Straight	Right	Truck	Peds	Left	Straight	Right	Truck	Peds	Left	Straight	Right	Truck	Peds
06:30 - 06:45	7	7	0	0		0	4	3	1		7	3	8	0		3	3	1	1	
06:45 - 07:00	8	7	2	2		0	3	16	0		6	4	1	2		0	3	0	1	
07:00 - 07:15	3	5	2	2		2	2	7	0		9	5	1	4		0	2	1	0	
07:15 - 07:30	2	4	1	2		3	6	8	2		9	1	4	2		1	1	1	1	
07:30 - 07:45	5	3	1	2		0	3	9	1		3	4	4	3		0	4	1	2	
07:45 - 08:00	10	7	1	1		1	6	9			11	3	6	2		1	9	0	0	
08:00 - 08:15	5	6	1	0		1	7	4	4		7	2	4	0		0	4	0	1	
08:15 - 08:30	2	10	0	0		0	4	7	1		12	4	7	3		1	0	0	0	
08:30 - 08:45	5	5	1	0		0	9	5	2		6	5	6	2		1	8	1	2	
08:45 - 09:00	6	5	0	1		0	10	7	1		5	2	6	1		0	5	2	0	
Total	53	59	9	10	0	7	54	75	12	0	75	33	47	19	0	7	39	7	8	0
Peak	22	28	3	1	0	2	26	25	7	0	36	14	23	7	0	3	21	1	3	0
PHF	0.74					0.83					0.79					0.63				
% Trucks	8.3%					8.8%					12.3%					15.1%				
16:00 - 16:15	9	8	1	1		2	7	6	1		15	5	9	1		1	6	3	0	
16:15 - 16:30	4	5	2	1		1	7	12	2		13	2	7	1		0	5	1	0	
16:30 - 16:45	6	8	1	0		0	6	12	2		8	6	5	1		0	5	4	0	
16:45 - 17:00	5	6	0	0		2	9	17	3		20	5	6	0		1	6	2	0	
17:00 - 17:15	9	15	1	1		2	12	16	2		17	8	10	1		1	5	1	0	
17:15 - 17:30	8	10	1	1		2	9	16	0		14	2	7	0		1	6	2	0	
17:30 - 17:45	2	5	0	0		2	8	12	2		11	1	7	1		1	7	1	1	
17:45 - 18:00	2	3	0	0		0	4	10	1		11	6	4	0		0	5	1	0	
18:00 - 18:15	6	2	1	2		0	8	6	1		10	6	6	1		0	2	0	0	
18:15 - 18:30	14	5	1	2		1	6	7	0		2	6	6	1		1	5	1	1	
Total	65	67	8	8	0	12	76	114	14	0	121	47	67	7	0	6	52	16	2	0
Peak	28	39	3	2	0	6	36	61	7	0	59	21	28	2	0	3	22	9	0	0
PHF	0.70					0.86					0.77					0.94				
% Trucks	5.7%					6.9%					3.0%					2.7%				

Intersection: Central Avenue & 6 Street NW Count Date: 10-Apr-24

		From t	the N	orth			From t	he So	outh			From	the Ea	ast			From	the W	est	
	Left	Straight	Right	Truck	Peds	Left	Straight	Right	Truck	Peds	Left	Straight	Right	Truck	Peds	Left	Straight	Right	Truck	Peds
06:30 - 06:45																				
06:45 - 07:00																				
07:00 - 07:15																				
07:15 - 07:30																				
07:30 - 07:45																				
07:45 - 08:00	1		() (0							19	10	0		1	20		4	
08:00 - 08:15	5		2	2 (0							12	6	2		5	18		2	2
08:15 - 08:30	1		() (0							12	6	2		1	20		4	
08:30 - 08:45	1		() (0							12	6	2		1	20		4	
08:45 - 09:00																				
Total	8	0	2	2 (0 0		0 0	0	0	0	0	55	28	6	0	8	78	0	14	2
1/2 Hr Total	6		2	2 (0	(D	0	0	1		31	16	2		6	38		6	
% Trucks	0.0%					#DIV/0	!				7.2%					16.3%				
16:00 - 16:15																				
16:15 - 16:30																				
16:30 - 16:45	0		4	4 (0							21	2	2		0	31		1	
16:45 - 17:00	0		4	4 (0							21	2	2		0	31		1	
17:00 - 17:15	23		12	2 2	2							21	2	2		0	31		1	
17:15 - 17:30	0		2	4 (0							27	3	2		2	31		3	
17:30 - 17:45																				
17:45 - 18:00																				
18:00 - 18:15																				
18:15 - 18:30																				
Total	23	0	24	4 :	2 0		0 0	0	0	0	0	90	9	8	0	2	124	0	6	0
1/2 Hr Total	23		16	6 2	2							48	5	4		2	62	0		
% Trucks	4.3%					#DIV/0	!				8.1%					4.8%				

Intersection: Central Avenue & 5 Street NW Count Date: 10-Apr-24

		From	the N	lorth				From t	he So	outh			From	the E	ast			From	the We	est		
	Left	Straight	Righ	nt Tru	ck Pe	ds	Left	Straight	Right	Truck	Peds	Left	Straight	Right	Truck	Peds	Left	Straight	Right	Truc	k Pe	eds
06:30 - 06:45																						
06:45 - 07:00																						
07:00 - 07:15																						
07:15 - 07:30																						
07:30 - 07:45																						
07:45 - 08:00	2			5	1		1	0	1			2	2 16	2	4		0	22	0		0	
08:00 - 08:15	2			5	1		1	0	1			2	2 16	2	4		0	22	0		0	
08:15 - 08:30	2	C)	5	1		1	0	1	C)	2	2 16	2	4		0	22	0		0	
08:30 - 08:45	0	C)	5	2	1	C) 0	0	C)	2	2 17	1	4		3	17	0		3	
08:45 - 09:00																						
Total	6	C) 2	0	5	1	3	s 0	3	C) 0	8	65	7	16	0	3	83	0		3	0
1/2 Hr Total	2	C) 1	0	0		1	0	1	C)	4	33	3	0		3	39	0	•	0	
% Trucks	19.2%						0.0%)				20.0%)				3.5%					
16:00 - 16:15																						
16:15 - 16:30																						
16:30 - 16:45	2	C)	1	0		C) 0	0	C)	C) 20	3	0		2	29	0		1	
16:45 - 17:00	0	C)	2	0		C) 0	0	C)	C) 26	4	1		2	29	0		2	
17:00 - 17:15	2	C)	1	0							C) 20	3	0		2	29	0		1	
17:15 - 17:30	2	C)	1	0							C	20	4	1		2	29	0		1	
17:30 - 17:45																						
17:45 - 18:00																						
18:00 - 18:15																						
18:15 - 18:30																						
Total	6	C)	5	0	0	C) 0	0	C) 0	0	86	14	2	0	8	116	0		5	0
	2	C)	3	0		C) 0	0	C)	C) 46	7	1		4	58	0		3	
% Trucks	0.0%						#DIV/0					2.0%					4.0%					

ALBERTA HIGHWAYS 1 TO 986 TRAFFIC VOLUME HISTORY 1962 - 2022

Alberta Transportation

Produced: 2023-Jul-10 By MORR Transportation Consulting Ltd.

	1985	1989	1990	1991	1992	1993	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023					2019	2019
Hwy CS TCS Muni Location Description	AADT	Historical	5-Yr	10-yr	20 -yr	20-yr	17-yr																																
806 4 4 Knee S OF TWP RD 304 19-30-25-400000000	1010	1260	1270	1280	1350	1410	1330	1330	1230	1280	1370	1370	1370	1370	1370	1270	1900	1900	1900	1900	1900	1580	1520	1520	1520	1520	1930	1910	1910	1730	1790	1740	1730	1.10%	-2.60%	1.35%	1.10%	1.74%	,
806 4 4 Knee N OF TWP RD 304 19-30-25-400000000	900	1130	1140	1150	1210	1260	1200	1200	1110	1150	1210	1210	1210	1210	1210	1210	1610	1610	1610	1610	1610	1310	1260	1260	1260	1260	1510	1490	1490	1360	1400	1360	1360	0.89%	-2.39%	0.82%	0.58%	1.20%	,
Central Ave W of Hwy 806												2160		2160										2080					2500				2110	-0.11%	-4.62%	0.16%	-0.12%	1	0.80%
Central Ave E of Hwy 806												640		640										700					860				750	0.70%	-3.67%	0.74%	0.77%	1	1.50%



Appendix B Intersection Treatment Type Warrant Tables





Central Ave - 2024









Classification: Protected A









Phase 1

Alberta Transportation Intersection Analysis



Direction: SB

Year of Analysis: 2030

Main Rd: HWY 806







Phase 1

Alberta Transportation



Direction: SB

Year of Analysis: 2040

Main Rd: HWY 806



Phase 2 - No N Access





Phase 2 - With N Access









Phase 1

Alberta Transportation Intersection Analysis **Two-Lane Undivided Highways**



Direction: SB

Year of Analysis: 2050

Main Rd: HWY 806



Phase 2 - No N Access





Phase 2 - With N Access








Phase 2 - No N Access









N Access - 2040





N Access - 2050





N Access - 2060







Appendix C Illumination, Signalization and All-Way Stop Control Warrant Details





Government of Alberta Transportation		STOP SIGN	Issued: DEC 2003 Revised: JAN 2010 MAR 2012 Page 1 of 9	
RECOMMENDED PRACTICES		PART	HIGHWAY SIGNS	
		SECTION	REGULATORY SIGNS	3
		SUB-SECTION		

General

The purpose of a Stop sign is to clearly assign right-of-way between vehicles approaching an intersection from different directions. The Stop sign requires drivers to stop their vehicles before entering an intersection and then proceed only when the conditions are safe to do so.

The introduction of a stop control to a noncontrolled intersection improves the overall operation of the intersection and the main route. Stop-controlled intersections are believed to be safer than those without any traffic control (i.e., the frequency of certain collision types such as the right angle collisions is usually reduced).

The introduction of a stop control traffic scheme at one of the intersections along a route is not without its disadvantages. Under heavy traffic conditions, the stop condition introduces delays to the minor road traffic and increases the potential for certain collision types (e.g., rear end collisions).

The increase in rear end collisions is particularly evident at intersections located along high speed routes or where a stop condition has been introduced on a previously non-controlled approach (e.g., changed to four-way stop control).

In rural areas, where driving speeds are higher, it is usually desirable to clearly assign right-of-way at an intersection of crossing roadways. Usually, the Stop sign controls traffic movements from a minor roadway onto a major or higher class roadway.

In urban areas, where non-controlled intersections are sometimes present along minor collector roads, a Stop sign is introduced after a traffic assessment has recommended that such stop control is needed.

Provincial Legislation

Alberta Infrastructure and Transportation has jurisdiction over the provincial highways and dictates which intersections should be stop-controlled and when this traffic control scheme may be changed.

Traffic control at intersections located on the provincial highways is enforced through the legislation of the Traffic Safety Act (Alberta Regulation 304/2002 – Use of Highway and Rules of the Road Regulation).

Section 36 of the Regulation 304/2002 includes general regulations for traffic entering the provincial highways.

Based on Section 36 of the Regulation 304/2002:

36 (2) A person driving a vehicle that is about to enter:

a) onto a primary highway or street from a road, service road, alley or driveway, or

b) into an alley or onto a road from a

driveway

shall, unless the intersection of the two roadways is marked with a Yield sign or a Merge sign, bring the vehicle to a stop

- c) before entering on the intersecting roadway and at a point no further than 3 metres back from the intersecting roadway, or
- d) in the case where there is
 - (i) a marked crosswalk on the near side of the intersection, immediately before entering on the crosswalk, or
 - (ii) a marked stop line on the near side of the intersection, at the stop line.

Guidelines for installing a Stop sign at intersections with provincial highways are included in the subsequent sections.

For intersections which are already controlled with a Stop sign, the following regulations from Section 37 apply:

37 A person driving a vehicle that is about to enter onto a highway from another highway that is marked by a Stop sign is required to bring the vehicle to a stop:

 a) before entering on the intersecting roadway and at a point no further than 3 m back from the intersecting roadway, or

- b) in the case where there is
 - (i) a marked crosswalk on the near side of the intersection, immediately before entering on the crosswalk, or
 - (ii) a marked stop line on the near side of the intersection, at the stop line.

Section 38 of the Regulation 304/2002 outlines the driver's responsibilities when entering a provincial highway (i.e., a driver has to exercise caution and has to yield the right of way to all vehicles and pedestrians approaching their vehicle along that roadway).

Standard

A standard Stop sign (RA-1) has the shape of an octagon.



RA-1	600 mm x 600 mm 900 mm x 900 mm 1200 mm x 1200 mm 1500 mm x 1500 mm						
Colour	Message Background	White Red					
Sheeting	ASTM, Type IX						

Transportation

STOP SIGN

Guidelines for Use

A Stop sign should be installed in the following situations:

- at a minor provincial highway intersecting a major provincial highway
- at each public roadway intersecting a provincial highway
- at each service road intersecting a provincial highway
- at intersections with a record of collisions or incidents where this record can be improved by introducing a Stop sign
- at an intersection where the safe speed on the approach is less than 15 km/h
- at a major private or public commercial or industrial access to a provincial highway, where traffic volumes entering this access are 50 AADT or more and/or operation of this access presents a safety concern.

A Stop sign is not required at field, farm and other minor private entrances onto a provincial highway.

Stop Sign in a Median Area

A Stop sign may be installed in a median area of an intersection on a divided highway when traffic entering the first set of lanes is controlled by a Stop sign and further enforcement of a stop condition is needed before traffic can enter the second set of lanes.

Usually, the additional Stop sign is justified when the width of a median exceeds 30 metres. The paved median area should have a painted centerline (yellow solid line) to separate the opposing traffic movements.

Stop Sign at a "T" Intersection

A Stop sign should normally be installed on the leg perpendicular or most skewed in relation to the other two legs (leg "A" on Figure 1) unless the distribution of traffic volumes indicates a preference for a different traffic control.

When traffic volumes on one of the approaching legs ("B" or "C") of the through roadway constitute less than 20% of the traffic volumes along the approach "A", consideration may be given to installing Stop signs on legs "B" and "C".





Figure 1 – Non-conventional installation of Stop signs at a "T" intersection.

Conditions Restricting Use of a Stop Sign

A Stop sign should <u>not</u> be used in the following situations:

- on an intersection approach where traffic signals are already controlling traffic operation on this approach
- at unsignalized intersections where a stop condition would interfere with the progression of traffic from adjacent signalized intersections

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STOP SIGN

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Revised: JAN 2010

MAR 2012

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 as a portable Stop sign, except in emergency or temporary situations, such as at construction sites in conjunction with Traffic Control Persons or at intersections where traffic signals are temporarily not operating.

A Stop sign should never be used as a speed controlling device.

Sizes of a Stop Sign

A standard size of a Stop sign is **600 mm x 600 mm.** This is the minimum sign size permitted on the provincial highways. A 600 mm x 600 mm Stop sign should normally be used to control traffic at intersections with two-lane highways posted at 100 km/h or less.

Oversize Stop signs are allowed under heavy traffic conditions at complex intersections where a larger Stop sign is needed to improve traffic operations and safety.

The following oversize Stop signs are currently in use: 900 mm x 900 mm, 1200 mm x 1200 mm and 1500 mm x 1500 mm.

The following guidelines in Table 1 outline operational conditions under which it may be justified to install an oversize Stop sign.

Table 1

Use of Various Stop Sign Sizes on the Provincial Highways

Size of a Stop Sign (mm X mm)	Roadway Class /Warranting Conditions
600 x 600	 Municipal, local roads Two-lane minor and major highways posted at 100 km/h or less
900 x 900	 Two-lane major highways Multi-lane highways Expressways Used as an oversize sign at major and minor intersections (on all roadway classes), based on the warranting criteria (for oversize Stop sign warrant see the following section).
1200 x 1200	 Used as an oversize sign at major and minor intersections (on all roadway classes), based on the warranting criteria (for oversize Stop sign warrant see the following section). Installed only as an enhancement when other measures have failed.
1500 x 1500	 Used as an oversize sign at major intersections only (on major highways), based on warranting criteria (see the following section). Installed only as an enhancement when other measures have failed. A 1500 mm x 1500 mm sign should only be reserved for higher classes, high speed roadways.



STOP SIGN

A Stop sign **900 mm x 900 mm** may be installed in the following situations:

- at major intersections on two-lane rural highways posted at 100 km/h
- at major intersections on all rural multilane undivided and divided highways
- along urban or semi-urban highways where many signs compete for driver attention
- at intersections on two-lane highways posted at 90 km/h or less where the prevailing traffic conditions warrant greater sign visibility or emphasis. These conditions include:
 - locations with a history of three or more collisions or reported incidents (near misses) involving Stop sign violation over a period of five years
 - complex visual environment where many signs compete for the driver's attention (e.g., semi urban or urban intersections).
 - complex intersections with high traffic volumes and complex geometry where a driver must concentrate more on the driving task.

Installation of an oversize **1200 mm x 1200 mm or 1500 mm x 1500 mm** Stop sign may be warranted under the following two conditions:

- an intersection has been identified as a high collision location with three or more collisions involving Stop sign violations over the period of five years
- other corrective measures, such as improving sight lines or installing

oversize 900 mm x 900 mm sign, have already been tried and have proven to be ineffective.

Normally, a **1500 mm x 1500 mm** Stop sign should only be reserved for major junctions of the provincial highways with complex geometry, high traffic volumes and high running speeds.

Oversize Stop signs can lose their effectiveness if used indiscriminately.

Stop signs reduced in size may be used on designated off-road bikeways to regulate movements of cyclists. In such situations, the minimum dimensions are 450 mm x 450 mm.

Traffic Control Devices Used in Conjunction with a Stop sign

Roadway geometric and operational conditions may sometimes dictate the need for introducing supplementary traffic control devices to add emphasis to a Stop sign and to provide advance warning prior to a stop condition.

Supplementary traffic control devices commonly used in conjunction with a Stop sign include:

- a Stop Ahead sign in advance of a stop condition when sight distance restrictions are present on an approach
- Stop and Stop Ahead pavement markings on an approach prior to a stop condition. Guidelines for the application of special pavement markings are included in the *Highway Pavement Marking Guide*.

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- transverse rumble strips on an approach prior to a stop condition
- flashing red beacon. Persistent safety problems at some locations may also warrant installation of a supplementary flashing red beacon. The red beacon provides strong reinforcement of a Stop sign and should only be used under special warranting conditions. A flashing beacon should be installed at the top of a Stop sign.

Guidelines For Placement

The following guidelines should be considered when installing a Stop sign:

- A Stop sign should be placed at or as near as possible to the point where a vehicle is to stop, normally on the right side of the roadway and facing the approaching traffic.
- A Stop sign shall not be placed closer than 1.5 metres from the edge of the roadway.
- A Stop sign shall not be placed farther than 15 metres from the near edge of the intersecting road, with its preferred location being not farther than 5 metres from the roadway edge. The desirable location of a Stop sign in various situations is indicated in Figures TCS-A-201 and TCS-A-202.
- Divided highways and one-way roadways with visibility problems may require a supplementary Stop sign installed on the left side of the roadway.
- Legs approaching an intersection at an acute angle should have a Stop sign turned or shielded, so that motorists

travelling on the higher priority roadway cannot see it.

- In rural areas, no other traffic signs should be installed together with a Stop sign on a common post.
- In urban areas, a Street Name sign may be placed above a Stop sign.
- At a stop-controlled railway crossing, a Stop sign should be installed immediately below the Railway Crossing sign.
- At an intersection on a divided highway where an additional Stop sign is required in a median area, a Stop sign should be placed at the far edge of the bullet nose.

Stop-controlled intersections with a paved surface should be provided with painted pavement markings indicating a stop condition (i.e., Stop bar). Where pavement markings have been provided, a Stop sign should be placed next to a Stop bar.

The exact location of a Stop bar and Stop sign will depend on the roadway geometric characteristics, location of other traffic control devices, presence of obstructions, etc. Usually, the preliminary layout of the devices (i.e., positions of a Stop bar and Stop sign) will be established during a detailed design stage with consideration of the following factors:

- turning path of the design vehicle (left turn movement from a major highway)
- presence of traffic islands (right turn channelization, median islands, slotted left turn lanes)
- presence of other traffic devices.

Government of Alberta <mark>=</mark>

Transportation

STOP SIGN

All-Way Stop Control

The purpose of introducing All-Way Stop control is to optimize operation of an intersection (i.e., by reducing delays, providing adequate gaps) along all intersecting roadways.

The advantage is not only improved traffic progression but also improved safety at an intersection.

Introducing All-Way stop control often helps to reduce the number and severity of certain types of collisions (e.g., Angle, Entered when Unsafe collisions).

Introducing All-Way control at an intersection is not without its disadvantages. Under the All-Way traffic control scheme, delays are introduced for all drivers and certain types of collisions such as Rear End may increase.

Generally, All-Way stop control should be considered in the following situations:

- as a measure of controlling delays on the approaches (as defined in the Traffic Warrant, below)
- as an interim measure, where traffic control signals are warranted but cannot be implemented immediately
- during a transition period when the traffic control scheme changes (e.g., a transfer of right-of-way from a noncontrolled roadway to a stop-controlled roadway).

Where it has been determined that All-Way stop condition is required based on the warranting criteria (see below), the Stop sign should be supplemented with All-Way tabs mounted directly below the Stop sign.

Traffic Warrant

All-Way stop control should only be considered at minor intersections of lower class, lower volume two-lane highways.

Intersections located close to urban centres make better candidates than isolated rural sites. Usually, at such semi-urban intersections drivers may be more aware of the need to reduce their speed. Also, turning maneuvers toward the urbanized centre are more frequent.

All-Way stop control may be introduced at an intersection when the following two conditions are met:

- 1) Traffic volumes on intersecting roads are approximately equal, and
 - (a) the combined pedestrian and vehicular volumes on one of the approaches of the minor road exceed 200 vehicles per hour for each of any eight hours of the day, or
 - (b) the average delay to vehicular traffic entering the intersection from the minor road exceeds 30 seconds per vehicle during peak hour.
- The percentage of vehicles turning from a major highway to a minor highway (right and left turns combined) is between 50 percent and 70 percent of the total volume of traffic (AADT) on the major highway approaches.

Government of Alberta Transportation		Issued: DEC 2003
	STOP SIGN	Revised: JAN 2010 MAR 2012
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Geometry of All-Way Intersection

All-Way stop control should only be considered at intersections where the approaches are directly opposing (i.e., not offset). The approaching roadways should preferably meet at right angles and have an equal number of lanes.

Conditions Restricting Use of All-Way Stop Condition

All-Way stop control should <u>not</u> be used under the following conditions:

- as a speed control device or as a means of calming traffic through residential areas
- at intersections that are offset, poorly defined or geometrically substandard
- at intersections having less than three or more than four approaching legs
- at intersections that have one or more multi-lane approaches and/or designated turning lanes
- on roads where traffic signals are coordinated and the introduction of a stop condition would interfere with traffic progression
- on arterial roads within urban areas posted at 60 km/h or more.

Stop Sign Installation at a Railway Crossing

In some situations, it may be necessary to introduce a stop condition at an unrestricted railway crossing. Transport Canada has developed guidelines for installing a Stop sign at an unrestricted railway crossing without a grade crossing warning system. Based on the guidelines, a Stop sign may be installed at an at-grade railway crossing (with no grade crossing warning system) where it is impossible for drivers to see an approaching train within the sightline limits, without first:

- slowing down to a speed of less than 15 km/h, or
- stopping at the railway crossing.

Sightline requirements at a railway crossing are described in the Alberta Infrastructure and Transportation's Highway Geometric Design Guide, Chapter C.9 on "*Railway Crossings*".

A Stop sign may be used as an interim measure at a railway crossing that is scheduled for grade crossing warning system installation.

When used, the Stop sign should be placed on a common post, immediately below the Railway Crossing sign.

Changes to the Intersection Right-of-Way Status

Transfer of the right-of-way from one roadway to another roadway may require that a stop condition be introduced on a previously uncontrolled roadway. The roadway which was controlled by a Stop sign in the initial traffic control scheme is given the right-of-way.

Such reassignment of the right-of-way is usually accomplished in stages with the All-Way control introduced first and then after an introductory period, Stop signs are eliminated from the previously stopcontrolled approaches. Government of Alberta

Transportation

Prior to and during the introductory period, information regarding the change in the right-of-way control should be publicized via local newspapers and radio stations.

Local residents should be advised of the change in traffic control. Advance notification should also be provided to local ambulance services, transit authorities, bus companies, taxi companies and trucking firms known to use the intersection frequently.

The final removal of Stop signs at an intersection should be done during off-peak hours during reduced traffic demand.

Transfer of the right-of-way from stopcontrolled to uncontrolled highway approaches should be completed in the following steps:

- Install new Stop signs on previously uncontrolled approaches (provide oversize Stop signs if warranted). Install stop lines and crosswalk markings, if required.
- Install New Sign (WD-182) signs on the affected approaches.
- Install All-Way tabs on all approaches.
- Install Stop Ahead signs if visibility is a problem.
- After an introductory period (one to two months), remove Stop signs, New Sign signs and pavement markings from the previously stop-controlled approaches.

Similarly, an introductory period may be required when a Two-Way control is replaced with an All-Way traffic control or when an All-Way control is replaced with a Two-Way control.

References to Standards:

Highway Geometric Design Guide Chapter D	At Grade Intersections
<i>Highway Geometric Design Guide</i> Chapter C, Section C.9	Railway Crossings
Canadian Railway- Roadway Grade Crossing Standards, Section 9	Signs and Road Markings





CENTRAL AVE - 2050 BACKGROUND

TEC - Traffic Signal Warrant Analysis

Main Street (name)	HWY 806					Dire	NS Road A							
Side Street (name) Central Ave W]									
Quadrant / Int #				C	omments	2	2050 Base	- Existin	g		Analy	sis I		
for Warrant Calculation	CH	CHECK SHEET								Count				
Down'										D	ate Entry	For		
Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes					
HWY 806	NB		1		L	L	1	10,000	1					
HWY 806	SB		1				1	10,000	1					
Central Ave W	WB				1					-				
Central Ave W	EB				1									
Are the Central Ave W Are the Central Ave W	WB right t / EB right t	turns signifi turns signifi	cantly impe	eded by through the second sec	ugh moveme ugh moveme	ents? (y/n) ents? (y/n)	n n							
Other input	8_	Speed (Km/h)	Truck	Bus Rt (y/n)	Median (m)			J						
HWY 806	NS	70	8.0%	n	(111)									
Central Ave W	EW		7.0%	n										
Set Peak Hours														
Traffic Input		NB			SB			WB			EB			
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	ŀ		
	15	62	92	100	69	15	108	31	62	15	92			
	15	62	92	100	69	15	108	31	62	15	92			
press 'Set Peak Hours'	15	62	92	100	69	15	108	31	62	15	92			
Button to set the peak hour	15	77	108	62	100	8	108	54	69	8	39			
perious	15	77	108	62	100	8	108	54	69	8	39			
	15	77	108	62	100	0	100	54	60	Q	20			

Road Authority:	TEC
City:	Linden
Analysis Date:	2024 May 08, Wed
Count Date:	2023 Aug 01, Tue
te Entry Format:	(yyyy-mm-dd)

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	704
Central Business District	(y/n)	n

Set Peak Hours													Ped1	Ped2	Ped3	Ped4
Traffic Input		NB			SB			WB			EB		NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
	15	62	92	100	69	15	108	31	62	15	92	0	0	0	0	0
	15	62	92	100	69	15	108	31	62	15	92	0	0	0	0	0
press 'Set Peak Hours' Button to get the neak hour	15	62	92	100	69	15	108	31	62	15	92	0	0	0	0	0
periods	15	77	108	62	100	8	108	54	69	8	39	8	0	0	0	0
	15	77	108	62	100	8	108	54	69	8	39	8	0	0	0	0
	15	77	108	62	100	8	108	54	69	8	39	8	0	0	0	0
Total (6-hour peak)	90	417	600	486	507	69	648	255	393	69	393	24	0	0	0	0
Average (6-hour peak)	15	70	100	81	85	12	108	43	66	12	66	4	0	0	0	0



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CENTRAL AVE - 2050 PHASE 1

Total (6-hour peak)

Average (6-hour peak)

TEC - Traffic Signal Warrant Analysis

Main Street (name)	HWY 806				Direction (EW or NS) NS						Road A	uthority:		
Side Street (name)	Central Ave W			Direction (EW or NS) EW						City				
Quadrant / Int #				C	omments	20	50 Phase	1 - Existi	ng	Analysis Date				
for Warrant Calculation	CH	IECK SHE	EET							Count Date				
Results, please nit 'Page Down'										Date Entry Format				
Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes					
HWY 806	NB		1				1	10,000	1					
HWY 806	SB		1				1	10,000	1					
Central Ave W	WB				1					-				
Central Ave W	EB				1									
Are the Central Ave W Are the Central Ave W	WB right t ⁷ EB right t	urns signifi urns signifi	cantly impe cantly impe	ded by thro ded by thro	ugh movem ugh movem	ents? (y/n) ents? (y/n)	n n]						
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)									
HWY 806	NS	70	8.0%	n										
Central Ave W	EW		7.0%	n										
Set Peak Hours														
Traffic Input		NB			SB			WB			EB			
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT		
	15	69	102	103	67	17	121	33	72	20	93	0		
	15	69	102	103	67	17	121	33	72	20	93	0		
press 'Set Peak Hours'	15	69	102	103	67	17	121	33	72	20	93	0		
Button to set the peak hour neriods	15	77	121	72	100	13	126	55	74	10	41	8		
Periodo	15	77	121	72	100	13	126	55	74	10	41	8		
	15	77	121	72	100	13	126	55	74	10	41	8		

Road Authority:	TEC
City:	Linden
Analysis Date:	2024 May 08, Wed
Count Date:	2023 Aug 01, Tue
e Entry Format:	(yyyy-mm-dd)

Ped1

NS

W Side

Ped2

NS

E Side

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	704
Central Business District	(y/n)	n

Ped3

EW

N Side

Ped4

EW

S Side



Traffic Signal Warrant Spreadsheet - $v3H \otimes 2007$ Transportation Association of Canada

CENTRAL AVE - 2050 PHASE 2 - NO N ACCESS

TEC - Traffic Signal Warrant Analysis

Main Street (name)		HWY 800	6			ection (EV	W or NS)	NS		
Side Street (name)	Ce	ntral Ave	W			Dire	ection (EV	W or NS)	EW	
Quadrant / Int #				Comments 2050 Phase 2 Combined					_no N	
for Warrant Calculation Results, please hit 'Page	CHECK SHEET			j			AU	UC\$\$		
Down'										
Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes	
HWY 806	NB		1			L	1	10,000	1	
HWY 806	SB		1				1	10,000	1	
Central Ave W	WB				1					
Central Ave W	EB				1					
Are the Central Ave W	WB right t	urns signifi	cantly impe	ded by thro	ugh movem	ents? (y/n)	n			
Are the Central Ave W	V EB right t	urns signifi	cantly impe	ded by thro	ugh movem	ents? (y/n)	n			
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)					
HWY 806	NS	70	8.0%	n						
Central Ave W	EW		7.0%	n						
Set Peak Hours										
Traffic Input		NB			SB			WB		
i.				1				1		

Road Authority:	TEC
City:	Linden
Analysis Date:	2024 May 09, Thu
Count Date:	2023 Aug 01, Tue
Date Entry Format:	(yyyy-mm-dd)

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	704
Central Business District	(y/n)	n

Set Peak Hours													Ped1	Ped2	Ped3	Ped4
Traffic Input		NB			SB			WB			EB			NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
	15	78	105	106	72	19	130	36	77	23	94	0	0	0	0	0
	15	78	105	106	72	19	130	36	77	23	94	0	0	0	0	0
press 'Set Peak Hours' Button to set the neak hour	15	78	105	106	72	19	130	36	77	23	94	0	0	0	0	0
periods	15	82	130	77	109	15	132	57	77	13	44	8	0	0	0	0
	15	82	130	77	109	15	132	57	77	13	44	8	0	0	0	0
	15	82	130	77	109	15	132	57	77	13	44	8	0	0	0	0
Total (6-hour peak)	90	480	705	549	543	102	786	279	462	108	414	24	0	0	0	0
Average (6-hour peak)	15	80	118	92	91	17	131	47	77	18	69	4	0	0	0	0



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CENTRAL AVE - 2050 PHASE 2 - WITH N ACCESS

TEC - Traffic Signal Warrant Analysis

Main Street (name)		HWY 806				Dire	ection (E	W or NS)	NS		Road A	ut
Side Street (name)	Ce	ntral Ave	• W		Direction (EW or							
Quadrant / Int #				C	omments	2050 P	hase 2 Co	with N		Analy	si	
for Warrant Calculation	CF	IECK SHE	CET				AU	LESS			Cou	nt
Results, please hit 'Page Down'										D	ate Entry	F
Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes			
HWY 806	NB		1	L	L	<u> </u>	1	10,000	1			
HWY 806	SB		1				1	10,000	1			
Central Ave W	WB				1					4		
Central Ave W	EB				1							
Are the Central Ave W Are the Central Ave W	WB right t ' EB right t	urns signifi urns signifi	cantly impe cantly impe	ded by thro ded by thro	ugh moveme ugh moveme	ents? (y/n) ents? (y/n)	n n]				
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)							
HWY 806	NS	70	8.0%	n								
Central Ave W	EW		7.0%	n								
Set Peak Hours												
Traffic Input		NB			SB			WB			EB	
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	
	15	79	104	106	75	20	127	35	80	24	93	
	15	79	104	106	75	20	127	35	80	24	93	
press 'Set Peak Hours'	15	79	104	106	75	20	127	35	80	24	93	
Button to set the peak hour	15	85	127	80	111	16	130	56	77	14	43	
Perious	15	85	127	80	111	16	130	56	77	14	43	

Road Authority:	TEC
City:	Linden
Analysis Date:	2024 May 09, Thu
Count Date:	2023 Aug 01, Tue
e Entry Format:	(yyyy-mm-dd)

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	704
Central Business District	(y/n)	n

Set Peak Hours													Ped1	Ped2	Ped3	Ped4
Traffic Input	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
	15	79	104	106	75	20	127	35	80	24	93	0	0	0	0	0
	15	79	104	106	75	20	127	35	80	24	93	0	0	0	0	0
press 'Set Peak Hours'	15	79	104	106	75	20	127	35	80	24	93	0	0	0	0	0
neriods	15	85	127	80	111	16	130	56	77	14	43	8	0	0	0	0
F • • • • • •	15	85	127	80	111	16	130	56	77	14	43	8	0	0	0	0
	15	85	127	80	111	16	130	56	77	14	43	8	0	0	0	0
Total (6-hour peak)	90	492	693	558	558	108	771	273	471	114	408	24	0	0	0	0
Average (6-hour peak)	15	82	116	93	93	18	129	46	79	19	68	4	0	0	0	0



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CENTRAL AVE - 2060 BACKGROUND

Total (6-hour peak)

Average (6-hour peak)

TEC - Traffic Signal Warrant Analysis

Main Street (name)		HWY 806				Dire	ection (E	NS		Road Au	
Side Street (name)	Ce	entral Ave	e W	Direction (EW or					EW		
Quadrant / Int #				C	omments	2	060 Base	e - Existin	g		Analys
for Warrant Calculation	CF	IECK SHI	EET								Cour
Results, please hit 'Page Down'				-						Da	ate Entry
Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	⊭ of Thru Lanes		
HWY 806	NB		1				1	10,000	<u>+</u> 1		
HWY 806	SB		1				1	10,000	1		
Central Ave W	WB				1					1	
Central Ave W	EB				1			1			
Are the Central Ave W Are the Central Ave W	WB right t / EB right t	turns signifi turns signifi	cantly impe	ded by thro ded by thro	ough movem ough movem	ents? (y/n) ents? (y/n)	n n				
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)						
HWY 806	NS	70	8.0%	n							
Central Ave W	EW		7.0%	n							
Set Peak Hours											
Traffic Input		NB			SB			WB			EB
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th
	17	70	104	113	78	17	122	35	70	17	104
	17	70	104	113	78	17	122	35	70	17	104
press 'Set Peak Hours'	17	70	104	113	78	17	122	35	70	17	104
Button to set the peak hour	17	87	122	70	113	9	122	61	78	9	44
perious	17	87	122	70	113	9	12.2	61	78	9	44
	1/	07	122	10	115	,	144	01	70	,	

Road Authority:	TEC
City:	Linden
Analysis Date:	2024 May 08, Wed
Count Date:	2023 Aug 01, Tue
te Entry Format:	(yyyy-mm-dd)

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	704
Central Business District	(y/n)	n

Ped4 EW

S Side

	/:0/0	11												_
											Ped1	Ped2	Ped3	
NB			SB			WB			EB		NS	NS	EW	
Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	
70	104	113	78	17	122	35	70	17	104	0	0	0	0	
70	104	113	78	17	122	35	70	17	104	0	0	0	0	
70	104	113	78	17	122	35	70	17	104	0	0	0	0	
87	122	70	113	9	122	61	78	9	44	9	0	0	0	
87	122	70	113	9	122	61	78	9	44	9	0	0	0	
87	122	70	113	9	122	61	78	9	44	9	0	0	0	



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CENTRAL AVE - 2060 PHASE 2 - NO N ACCESS

TEC - Traffic Signal Warrant Analysis

Main Street (name)		HWY 800	6			Dire	ection (E	W or NS)	NS		Road A
Side Street (name)	Ce	ntral Ave	e W			Dire	ection (EV	W or NS)	EW		
Quadrant / Int #				C	Comments 2060 Phase 2 Combined_no Nor Access						Analy
for Warrant Calculation Results, please hit 'Page	CH	IECK SHI	EET				110				Cou
Down'										D	ate Entry
Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes		
HWY 806	NB		1				1	10,000	1		
HWY 806	SB		1				1	10,000	1		
Central Ave W	WB				1				•	•	
Central Ave W	EB				1						
Are the Central Ave W	WB right t	urns signifi	cantly impe	ded by thro	ugh movem	ents? (y/n)	n				
Are the Central Ave W	' EB right t	urns signifi	cantly impe	ded by thro	ugh movem	ents? (y/n)	n	ļ			
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)						
HWY 806	NS	70	8.0%	n							
Central Ave W	EW		7.0%	n							
Set Peak Hours											
Traffic Input		NB			SB			WB			EB
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th
	17	85	118	119	80	21	145	40	85	25	106
	17	85	118	119	80	21	145	40	85	25	106
press 'Set Peak Hours'	17	85	118	119	80	21	145	40	85	25	106
Button to set the peak hour											

Road Authority:	TEC
City:	Linden
Analysis Date:	2024 May 09, Thu
Count Date:	2023 Aug 01, Tue
e Entry Format:	(yyyy-mm-dd)

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	704
Central Business District	(y/n)	n

Set Peak Hours													Ped1	Ped2	Ped3	Ped4
Traffic Input	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
	17	85	118	119	80	21	145	40	85	25	106	0	0	0	0	0
	17	85	118	119	80	21	145	40	85	25	106	0	0	0	0	0
press 'Set Peak Hours' Button to set the neak hour	17	85	118	119	80	21	145	40	85	25	106	0	0	0	0	0
periods	17	91	145	85	120	16	148	64	86	14	49	9	0	0	0	0
	17	91	145	85	120	16	148	64	86	14	49	9	0	0	0	0
	17	91	145	85	120	16	148	64	86	14	49	9	0	0	0	0
Total (6-hour peak)	102	528	789	612	600	111	879	312	513	117	465	27	0	0	0	0
Average (6-hour peak)	17	88	132	102	100	19	147	52	86	20	78	5	0	0	0	0



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CENTRAL AVE - 2060 PHASE 2 - WITH N ACCESS

TAC

TEC - Traffic Signal Warrant Analysis

Main Street (name)		HWY 800	6			Dire	ection (E	W or NS)	NS		ŀ
Side Street (name)	Ce	ntral Ave	e W			Dire	ection (E	W or NS)	EW		
Quadrant / Int #				C	omments	2060 P	hase 2 Co	ombined_	with N		
for Warrant Calculation Results, please hit 'Page	CF	IECK SHI	EET				AC	CCSS			
Down'										Da Da	ate
Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes		
HWY 806	NB		1				1	10,000	1		
HWY 806	SB		1				1	10,000	1		
Central Ave W	WB				1				-		
Central Ave W	EB				1						
Are the Central Ave W	WB right t	urns signifi	cantly impe	ded by thro	ugh movem	ents? (y/n)	n				
Are the Central Ave W	/ EB right t	urns signifi	cantly impe	ded by thro	ugh movem	ents? (y/n)	n				
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)						
HWY 806	NS	70	8.0%	n							
Central Ave W	EW		7.0%	n							
Set Peak Hours											
Traffic Input		NB			SB			WB			
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	
	17	86	117	119	83	22	142	39	88	26	
1											1

Road Authority:	TEC
City:	Linden
Analysis Date:	2024 May 09, Thu
Count Date:	2023 Aug 01, Tue
te Entry Format:	(yyyy-mm-dd)

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	704
Central Business District	(y/n)	n

Set Peak Hours						_							Ped1	Ped2	Ped3	Ped4
Traffic Input NB SB WB			WB	WB EB					NS	EW	EW					
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
	17	86	117	119	83	22	142	39	88	26	105	0	0	0	0	0
	17	86	117	119	83	22	142	39	88	26	105	0	0	0	0	0
press 'Set Peak Hours' Button to set the neak hour	17	86	117	119	83	22	142	39	88	26	105	0	0	0	0	0
periods	17	94	142	88	122	17	146	63	86	15	48	9	0	0	0	0
	17	94	142	88	122	17	146	63	86	15	48	9	0	0	0	0
	17	94	142	88	122	17	146	63	86	15	48	9	0	0	0	0
Total (6-hour peak)	102	540	777	621	615	117	864	306	522	123	459	27	0	0	0	0
Average (6-hour peak)	17	90	130	104	103	20	144	51	87	21	77	5	0	0	0	0



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SERVICE RD - 2060 BACKGROUND

TEC - Traffic Signal Warrant Analysis

				_						_						
Main Street (name)		HWY 806	Ó			Dire	ection (E	W or NS)	NS		Road A	uthority:	ity:			
Side Street (name)	S	ervice Roa	ad			Dire	ection (E	W or NS)	EW			City:			Lin	
Quadrant / Int #				C	omments		2060 Exis	sting Base	2		Analy	sis Date:			2024 Ma	
for Warrant Calculation	CH	IECK SHE	ЕТ								Cou	nt Date:			2023 Aug	
Results, please hit 'Page Down'										Date Entry Format:				(yyyy-r		
Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes							
HWY 806	NB			1			1	10,000	1				Demograp	ohics		
HWY 806	SB		1	1				10,000	2				Elem. Scho	ool/Mobility	/ Challenged	
Service Road	WB				1					Senior's Complex						
Service Road	EB				0								Pathway to School			
Are the Service Road	WB right t	turns signific	cantly impe	ded by thro	ugh movem	ents? (y/n)	n	-					Metro Area	a Population	1	
							n	1					Central Bu	siness Distr	rict	
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)											
HWY 806	NS	70	8.0%	n												
Service Road	EW		7.0%	n												
Set Peak Hours				-									Ped1	Ped2	Ped3	
Traffic Input		NB			SB			WB			EB		NS	NS	EW	
-	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	
	0	148	9	17	200	0	9	0	9	0	0	0	0	0	0	
	0	148	9	17	200	0	9	0	9	0	0	0	0	0	0	
press 'Set Peak Hours'	0	148	9	17	200	0	9	0	9	0	0	0	0	0	0	
Button to set the peak hour	0	165	9	9	174	0	17	0	52	0	0	0	0	0	0	
Periodo	0	165	9	9	174	0	17	0	52	0	0	0	0	0	0	
	0	165	9	9	174	0	17	0	52	0	0	0	0	0	0	
Total (6-hour peak)	0	939	54	78	1,122	0	78	0	183	0	0	0	0	0	0	
Average (6-hour peak)	0	157	9	13	187	0	13	0	31	0	0	0	0	0	0	

oad Authority:	TEC
City:	Linden
Analysis Date:	2024 May 10, Fri
Count Date:	2023 Aug 01, Tue
Entry Format:	(yyyy-mm-dd)

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	704
Central Business District	(y/n)	n

Ped4 EW

S Side

0

0

0

0

0

0

0 0



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SERVICE ROAD - 2060 PHASE 2 - NO N ACCESS

TEC - Traffic Signal Warrant Analysis

n n

n 704

n

Main Street (name)	-	HWY 800	6		Direction (EW or NS)			NS		Road A	uthority:	: TEC				
Side Street (name)	Se	ervice Ro	ad			Dire	ection (E	W or NS)	EW			City:			Linde	n
Quadrant / Int #				C	omments	2060	Phase 2 C	Combined	_no N		Analy	vsis Date:			2024 May	10, Fri
for Warrant Calculation	CH	IECK SHI	CET	j	Acc			cess			Cou	nt Date:			2023 Aug (1, Tue
Results, please hit 'Page Down'										D	ate Entry	Format:			(yyyy-mn	n-dd)
Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes							
HWY 806	NB			1			1	10,000	1				Demograp	ohics		
HWY 806	SB		1	1		10,000 2					Elem. Scho	ool/Mobility	/ Challenged	(y/n)		
Service Road	WB				1			4					Senior's Co	omplex		(y/n)
Service Road	EB				0			-					Pathway to	School		(y/n)
Are the Service Road	WB right t	turns signifi	cantly impe	eded by thro	ugh movem	ents? (y/n)	n						Metro Area	a Population	1	(#)
							n						Central Bu	siness Disti	nct	(y/n)
Other input		Speed	Truck	Bus Rt	Median											
		(Km/h)	%	(y/n)	(m)											
HWY 806	NS	70	8.0%	n												
Service Road	EW		7.0%	n												
Set Peak Hours													Ped1	Ped2	Ped3	Ped4
Traffic Input		NB			SB			WB			EB		NS	NS	EW	EW
-	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
	0	148	47	35	200	0	19	0	24	0	0	0	0	0	0	0
	0	148	47	35	200	0	19	0	24	0	0	0	0	0	0	0
press 'Set Peak Hours'	0	148	47	35	200	0	19	0	24	0	0	0	0	0	0	0
Button to set the peak hour	0	165	25	27	174	0	46	0	72	0	0	0	0	0	0	0
perious	0	165	25	27	174	0	46	0	72	0	0	0	0	0	0	0
	0	165	25	27	174	0	46	0	72	0	0	0	0	0	0	0
Total (6-hour peak)	0	939	216	186	1,122	0	<u>19</u> 5	0	288	0	0	0	0	0	0	0
Average (6-hour peak)	0	157	36	31	187	0	33	0	48	0	0	0	0	0	0	0



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SERVICE ROAD - 2060 PHASE 2 - WITH N ACCESS

TEC - Traffic Signal Warrant Analysis

(y/n)

Ped4 EW

S Side

n

n

n 704

n

Main Street (name)		HWY 800	6			Dire	ection (E	W or NS)	NS		Road A	uthority:		TEC		
Side Street (name)	S	ervice Ro	ad			Dire	ection (E	W or NS)	EW			City:			Linde	n
Quadrant / Int #				C	omments	2060 P	hase 2 C	ombined_	with N		Analy	ysis Date:			2024 May	10, Fri
for Warrant Calculation	CF	IECK SHE	EET				Ac	Cess			Cou	nt Date:			2023 Aug 0	1, Tue
Results, please hit 'Page Down'										D	ate Entry	Format:			(yyyy-mn	n-dd)
Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes							
HWY 806	NB			1			1	10,000	1				Demograp	ohics		
HWY 806	SB		1	1				10,000	2				Elem. Scho	ool/Mobilit	y Challenged	(y/n)
Service Road	WB				1			_					Senior's Co	omplex		(y/n)
Service Road	EB				0			_					Pathway to	School		(y/n)
Are the Service Road	WB right t	turns signifi	cantly impe	ded by thro	ugh movem	ents? (y/n)	n						Metro Area	a Populatio	n	(#)
							n						Central Bu	siness Dist	rict	(y/n)
Other input		Speed	Truck	Bus Rt	Median											
		(Km/h)	%	(y/n)	(m)											
HWY 806	NS	70	8.0%	n												
Service Road	EW		7.0%	n												-
Set Peak Hours													Pod1	Pod?	Pod3	Pod4
Traffic Input		NB			SB			WB			EB		NS	NS	EW	EW
-	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
	0	166	33	26	208	0	16	0	16	0	0	0	0	0	0	0
	0	166	33	26	208	0	16	0	16	0	0	0	0	0	0	0
press 'Set Peak Hours'	0	166	22	20	200	0	16	0	16	0	0	0	0	0	0	0
Button to set the peak hour	0	100	33	20	208	0	10	0	10	0	0	0	0	0	0	0
periods	0	1/3	22	18	191	0	35	0	62	0	0	0	0	0	0	0
	0	173	22	18	191	0	35	0	62	0	0	0	0	0	0	0
	0	173	22	18	191	0	35	0	62	0	0	0	0	0	0	0
Total (6-hour peak)	0	1,017	165	132	1,197	0	153	0	234	0	0	0	0	0	0	0
Average (6-hour peak)	0	170	28	22	200	0	26	0	39	0	0	0	0	0	0	0



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N ACCESS - 2060 PHASE 2 - WITH N ACCESS

TEC - Traffic Signal Warrant Analysis

(y/n)

EW

S Side

n

n

n 704

n

Main Street (name)		HWY 800	6			Dire	ection (E	W or NS)	NS		Road A	uthority:	: TEC			2
Side Street (name)		N Access	5			Dire	ection (E	W or NS)	EW			City:			Linde	en
Quadrant / Int #				C	omments	2060 P	hase 2 Co	ombined_	with N		Analy	sis Date:			2024 May	10, Fri
for Warrant Calculation	CI	HECK SHI	EET	j	Access				Count Date:					2023 Aug	01, Tue	
Results, please hit 'Page Down'										D	ate Entry	Format:			(yyyy-mr	n-dd)
Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes							
HWY 806	NB		-			1		10,000	1				Demograp	ohics		
HWY 806	SB		1					10,000	1				Elem. Scho	ool/Mobility	y Challenged	(y/n)
N Access	WB				1					-			Senior's Co	omplex		(y/n)
N Access	EB				0								Pathway to	School		(y/n)
Are the N Access	WB right	turns signifi	cantly impe	ded by thro	ugh moveme	ents? (y/n)	n	-					Metro Area	a Population	n	(#)
							n						Central Bu	siness Dist	rict	(y/n)
Other input		Speed	Truck	Bus Rt	Median											
		(Km/h)	%	(y/n)	(m)											
HWY 806	NS	70	8.0%	n												
N Access	EW		7.0%	n										r		1
Set Peak Hours													Ped1	Ped2	Ped3	Ped4
Traffic Input		NB			SB			WB			EB		NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
	0	164	18	6	224	0	8	0	8	0	0	0	0	0	0	0
	0	164	18	6	224	0	8	0	8	0	0	0	0	0	0	0
press 'Set Peak Hours'	0	164	18	6	224	0	8	0	8	0	0	0	0	0	0	0
Button to set the peak hour	0	228	8	6	189	0	17	0	10	0	0	0	0	0	0	0
perious	0	228	8	6	189	0	17	0	10	0	0	0	0	0	0	0
	0	228	8	6	189	0	17	0	10	0	0	0	0	0	0	0
Total (6-hour peak)	0	1,176	78	36	1,239	0	75	0	54	0	0	0	0	0	0	0
Average (6-hour peak)	0	196	13	6	207	0	13	0	9	0	0	0	0	0	0	0



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Illumination of Isolated Rural Intersections LIGHTING WARRANT SPREADSHEET

This spreadsheet is to be used in conjunction with Illumination of Isolated Rural Intersections, Transportation Association of Canada, February 2001.

Please enter information in the cells with yellow background

		Date	May 9, 2024		
Main Road Minor Road City/Town	I	Other	2030 Base - Existing		
Value Descriptive N (km/h) 0	Rating 0	Weight 5	Comments Refer to Table 1(A) to determine rating value	Check OK OK OK	Score
o) <u>100</u>	0	10	Relative to the recommended minimum sight distance	OK	0
70 ategory = ategory = ategory = C ategory =	0 0 0		Enter "T" for tangent (no horizontal curve at the intersection)	OK OK	
	0	5		OK	0
90	0	5		OK	0
3.0	0	3	Rounded to nearest tenth of a percent	OK	0
4	2	3	Number of legs = 3 or more	ОК	6
,	Main Road Minor Road City/Town Value Descriptive N km/h) 0 100 70 T ategory = ategory = ategory = ategory = C ategory = C ategory = C ategory = 4 degory = Ategory = A	$\begin{array}{c c c c c c c } \hline Main Road \\ Minor Road \\ City/Town \\ \hline \end{array}$	Main Road Minor Road City/TownDate OtherValue DescriptiveRating 0WeightMain Road Other0NMain Road City/Town010Main Road Descriptive05Main Road Descriptive010N Descriptive010N N O010N N O70 T0N Ategory = ategory = C0 01070 T O01070 T O0500 O590059003423	Main Road Minor Road City/Town Date Other May 9, 2024 2030 Base - Existing Value Descriptive Rating 0 Weight 0 Comments Refer to Table 1(A) to determine rating value km/h) 0 5 Enter "T" for tangent (no horizontal curve at the intersection) i) 100 0 10 Relative to the recommended minimum sight distance 70 T 0 0 5 Enter "T" for tangent (no horizontal curve at the intersection) ategory = ategory = 0 0 5 State 90 5 90 0 5 90 5 90 5 90 0 5 90 5 90 5 90 0 5 90 3 Rounded to nearest tenth of a percent 4 2 3 Number of legs = 3 or more 90 90 90 90	Date Main Road Minor Road City/Town Date Other May 9, 2024 2030 Base - Existing Value Descriptive Rating 0 Weight 0 Comments Refer to Table 1(A) to determine rating value Check OK km/h) 0 5 Refer to Table 1(A) to determine rating value OK i) 100 0 10 Relative to the recommended minimum sight distance OK i) 100 0 10 Relative to the recommended minimum sight distance OK i) 100 0 10 Relative to the recommended minimum sight distance OK i) 100 0 5 Enter "T" for tangent (no horizontal curve at the intersection) OK itegory = 0 0 5 OK OK idegory = 0 0 5 OK idegory = 0 3 Rounded to nearest tenth of a percent OK idegory = 0

OPERATIONAL FACTORS							
Is the intersection signalized $? (Y/N)$	n			Calculate the Signalization Warrant Factor			
AADT on Major Road (2-way) AADT on Minor Road (2-way) Signalization Warrant	1972 2405 Descriptive	1 4 0	10 20 30	Either Use the two AADT inputs OR the Descriptive Signalization Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK OK OK	ОК	10 80 0
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	ОК		0
Intersecting Roadway Classification	Descriptive	1	5	Refer to Table 1(B) for ratings.	ОК		5
Operating Speed or Posted Speed on Major Road (km/h)	70	2	5	Refer to Table 1(B), note #3	ОК		10
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	ОК		0
				Operational Factors	Subtota	al	105

ENVIRO	ONME	ENT	AL F	FACI	OR			



0

0 0 5

Maximum of 4 quadrants

OK 0

Environmental Factor Subtotal

COLLISION HISTORY							
Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #) OR	0.0	0	0	Enter either the annual frequency (See Table 1(C), note #4) OR the number of collisions / MEV	ОК	0	
Collision Rate over last 3 years, due to inadequate lighting (/MEV)	0	0	0	(Unused values should be set to Zero)	OK	0	
Is the average ratio of all night to day collisions >= 1.5 (Y/N)	n	0			OK		
						OK	
				Collision Hist	ny Subtotal	•	
					Ji y Sublolai	U	

Check Intersection Signalization: Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY		
Geometric Factors Subtotal	6	
Operational Factor Subtotal	105	
Environmental Factor Subtotal	0	
Collision History Subtotal	0	
TOTAL POINTS	111	

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Illumination of Isolated Rural Intersections LIGHTING WARRANT SPREADSHEET

This spreadsheet is to be used in conjunction with *Illumination of Isolated Rural Intersections*, Transportation Association of Canada, February 2001.

Please enter information in the cells with yellow background

ı (km/h) %)	Main Road Minor Road City/Town Value Descriptive N 0	Rating 0	Other Weight	2030 Phase 1 Combined Comments Refer to Table 1(A) to determine rating value	Check OK OK	Score
ı (km/h) %)	Value Descriptive N 0	Rating 0	Weight 5	Comments Refer to Table 1(A) to determine rating value	Check OK OK	Score
ı (km/h) %)	Value Descriptive N 0	Rating 0	Weight	Comments Refer to Table 1(A) to determine rating value	Check OK OK	Score
ı (km/h) %)	Value Descriptive N 0	Rating 0	Weight 5	Comments Refer to Table 1(A) to determine rating value	Check OK OK	Score
• (km/h) %)	Descriptive N 0	0	5	Refer to Table 1(A) to determine rating value	OK OK	
ı (km/h) %)	N 0 100		5		OK	
(km/h) %)	0 100		5		· · · ·	
%)	100				OK	
%)	100				OK	0
		0	10	Relative to the recommended minimum sight distance	OK	0
	70				ОК	
	Т			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Category =		0		0 (
Category =		0				
Category =	С	0				
Category =		0				
		0	5		OK	0
	90	0	5		ОК	0
	3.0	0	3	Rounded to nearest tenth of a percent	OK	0
	4	2	3	Number of legs = 3 or more	ОК	6
				Geometric Facto	ors Subtotal	6
		3.0 4	3.0 0 4 2	3.0 0 3 4 2 3	3.0 0 3 Rounded to nearest tenth of a percent 4 2 3 Number of legs = 3 or more Geometric Facto	3.0 0 3 Rounded to nearest tenth of a percent OK 4 2 3 Number of legs = 3 or more OK Geometric Factors Subtotal

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way) AADT on Minor Road (2-way) Signalization Warrant	2260 2460 Descriptive	2 4 0	10 20 30	Either Use the two AADT inputs OR the Descriptive Signalization Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK OK OK	20 80 0 OK
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	ОК	0
Intersecting Roadway Classification	Descriptive	1	5	Refer to Table 1(B) for ratings.	ОК	5
Operating Speed or Posted Speed on Major Road (km/h)	70	2	5	Refer to Table 1(B), note #3	OK	10
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	ОК	0
				Operational Factors	Subtota	al 115

ENVIRONMENTAL FACTOR

0 0 ч D within 150 dive of intersection



0

Lighted Developments within 150 m radius (of intersection
--	-----------------

5 Maximum of 4 quadrants

OK 0

Environmental Factor Subtotal

COLLISION HISTORY						
Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)	0.0	0	0	Enter either the annual frequency (See Table 1(C), note #4) OR the number of collisions / MEV	ОК	0
Collision Rate over last 3 years, due to inadequate lighting (/MEV)	0	0	0	(Unused values should be set to Zero)	OK	0
Is the average ratio of all night to day collisions >= 1.5 (Y/N)	n	0			OK	
						OK
Collision History Subtotal						

Check Intersection Signalization:

Intersection is not Signalized

ILLUMINATION WARRANTED REVIEW SITE AND COLLISIONS TO DETERMINE LIGHTING TYPE (PARTIAL OR DELINEATION)

6
115
0
0
121

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CENTRAL AVE - 2040

Illumination of Isolated Rural Intersections LIGHTING WARRANT SPREADSHEET

This spreadsheet is to be used in conjunction with *Illumination of Isolated Rural Intersections*, Transportation Association of Canada, February 2001.

Please enter information in the cells with yellow background

INTERSECTION CHARACTERIS	STICS			Date	May 9, 2024		
Highway 806 Central Ave W / Township Rd 304 Linden AB		Main Road Minor Road City/Town		Other	2040 Base - Existing		
GEOMETRIC FACTORS							
Channelization Rating Presence of raised channelization? (Y/	N)	Value Descriptive N	Rating 0	Weight	Comments Refer to Table 1(A) to determine rating value	Check OK OK	Score
Channelization Factor		U		5		OK	0
Approach Sight Distance on most const	rained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h) Radius of Horizontal Curve (m)	Posted Speed Category = Posted Speed Category = Posted Speed Category =	70 T C	0 0 0		Enter "T" for tangent (no horizontal curve at the intersection)	ОК ОК	
Horizontal Curvature Factor	Posted Speed Category =		0	5		OK	0
Angle of Intersection (10's of Degrees)		90	0	5		OK	0
Downhill Approach Grade (x.x%)		3.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs		4	2	3	Number of legs = 3 or more	OK	6
					Geometric Fact	ors Subtotal	6

OPERATIONAL FACTORS							
Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor			
AADT on Major Road (2-way) AADT on Minor Road (2-way) Signalization Warrant	2318 2827 Descriptive	2 4 0	10 20 30	Either Use the two AADT inputs OR the Descriptive Signalization Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK OK OK	ОК	20 80 0
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK		0
Intersecting Roadway Classification	Descriptive	1	5	Refer to Table 1(B) for ratings.	ОК		5
Operating Speed or Posted Speed on Major Road (km/h)	70	2	5	Refer to Table 1(B), note #3	ОК		10
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	ОК		0
				Operational Factors	s Subtota	al	115

0 0 within 150 dive of intersection 5 Maximum of 4 quadrants ч D



0

Lighted Developments within 150 m radius (of intersection
--	-----------------

ENVIRONMENTAL FACTOR

OK 0

Environmental Factor Subtotal

COLLISION HISTORY						
Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)	0.0	0	0	Enter either the annual frequency (See Table 1(C), note #4)	ОК	0
Collision Rate over last 3 years, due to inadequate lighting (/MEV)	0	0	0	(Unused values should be set to Zero)	ОК	0
Is the average ratio of all night to day collisions >= 1.5 (Y/N)	n	0			OK	OK
				Collision Histo	ory Subtotal	0

Check Intersection Signalization:

Intersection is not Signalized

ILLUMINATION WARRANTED REVIEW SITE AND COLLISIONS TO DETERMINE LIGHTING TYPE (PARTIAL OR DELINEATION)

SUMMARY	
Geometric Factors Subtotal	6
Operational Factor Subtotal	115
Environmental Factor Subtotal	0
Collision History Subtotal	0
TOTAL POINTS	121

This spreadsheet is to be used in conjunction with *Illumination of Isolated Rural Intersections*, Transportation Association of Canada, February 2001.

Please enter information in the cells with yellow background

INTERSECTION CHARACTERI	STICS			Date	May 9, 2024		
Highway 806 Central Ave W / Township Rd 304 Linden AB		Main Road Minor Road City/Town		Other	2040 Phase 1 Combined		
GEOMETRIC FACTORS							
Channelization Rating Presence of raised channelization? (Y Highest operating speed on raised, cha Channelization Factor	/ N) nnelized approach (km/h)	Value Descriptive N 0	Rating 0	Weight	Comments Refer to Table 1(A) to determine rating value	Check OK OK OK OK	Score
Approach Sight Distance on most const	trained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h) Radius of Horizontal Curve (m) Horizontal Curvature Factor	Posted Speed Category = Posted Speed Category = Posted Speed Category = Posted Speed Category =	70 T C	0 0 0 0	5	Enter "T" for tangent (no horizontal curve at the intersection)	OK OK	0
Angle of Intersection (10's of Degrees)		90	0	5		OK	0
Downhill Approach Grade (x.x%)		3.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs		4	2	3	Number of legs = 3 or more	ОК	6
			_		Geometric Facto	ors Subtotal	6
OPERATIONAL FACTORS							
Is the intersection signalized $?$ (Y/ N)		n			Calculate the Signalization Warrant Factor		

Is the intersection signalized ? (Y/N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way) AADT on Minor Road (2-way) Signalization Warrant	2620 2860 Descriptive	2 4 0	10 20 30	Either Use the two AADT inputs OR the Descriptive Signalization Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK OK OK	20 80 0 OK
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	1	5	Refer to Table 1(B) for ratings.	OK	5
Operating Speed or Posted Speed on Major Road (km/h)	70	2	5	Refer to Table 1(B), note #3	OK	10
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	OK	0
				Operational Factors	Subtotal	115

ENVIRONMENTAL FACTOR

0 0 ч D within 150 dive of intersection 5 Maximum of 4 quadrants



0

Lighted Developments within 150 m radius (of intersection
--	-----------------

OK 0

Environmental Factor Subtotal

COLLISION HISTORY						
Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)	0.0	0	0	Enter either the annual frequency (See Table 1(C), note #4)	ОК	0
Collision Rate over last 3 years, due to inadequate lighting (/MEV)	0	0	0	(Unused values should be set to Zero)	ОК	0
Is the average ratio of all night to day collisions >= 1.5 (Y/N)	n	0			OK	OK
				Collision Histo	ory Subtotal	0

Check Intersection Signalization:

Intersection is not Signalized

ILLUMINATION WARRANTED REVIEW SITE AND COLLISIONS TO DETERMINE LIGHTING TYPE (PARTIAL OR DELINEATION)

SUMMARY	
Geometric Factors Subtotal	6
Operational Factor Subtotal	115
Environmental Factor Subtotal	0
Collision History Subtotal	0
TOTAL POINTS	121

This spreadsheet is to be used in conjunction with *Illumination of Isolated Rural Intersections*, Transportation Association of Canada, February 2001.

Please enter information in the cells with yellow background

INTERSECTION CHARACTERIS	STICS			Date	May 9, 2024		
Highway 806		Main Road		Other	2040 Phase 2 Combined_no N Access		
Central Ave W / Township Rd 304		Minor Road					
		Oity/10Wil					
GEOMETRIC FACTORS							
Channelization Pating		Value Descriptive	Rating	Weight	Comments	Check	Score
Presence of raised channelization? (Y/	′N)	N	U		Relet to Table I(A) to determine fating value	OK	
Highest operating speed on raised, char	nnelized approach (km/h)	0		5		OK	
Channelization Factor						OK	0
Approach Sight Distance on most const	rained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)		70				ОК	
Radius of Horizontal Curve (m)		Т	_		Enter "T" for tangent (no horizontal curve at the intersection)	OK	
	Posted Speed Category =		0				
	Posted Speed Category =	С	0				
	Posted Speed Category =		0	-		014	0
Horizontal Curvature Factor			0	5		ŬK	0
Angle of Intersection (10's of Degrees)		90	0	5		OK	0
Downhill Approach Grade (x.x%)		3.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs		4	2	3	Number of legs = 3 or more	OK	6
					Geometric Factor	s Subtotal	6
OPERATIONAL FACTORS							
Is the intersection signalized $?$ (Y/N)		n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		2813	2	10		OK	20
AADT on Minor Road (2-way)		3047	4	20	Either Use the two AADT inputs OR the Descriptive Signalization	OK	80
Signalization Warrant		Descriptive	0	30	1(B) for description and rating values for signalization warrant.	OK	0
						OK	
Night-Time Hourly Pedestrian Volume		0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification		Descriptive	1	5	Refer to Table 1(B) for ratings.	OK	5
Operating Speed or Posted Speed on M	lajor Road (km/h)	70	2	5	Refer to Table 1(B), note #3	OK	10
Operating Speed on Minor Road (km/h)		50	0	5	Refer to Table 1(B), note #3	OK	0
					Operational Factor	s Subtotal	115

ENVIRONMENTAL FACTO

0 0 ata within 150 **ما:** ا . 4 : 5 Maximum of 4 quadrants



0

Lighted Developments within 150 m radius (of intersection
--	-----------------

OK 0

Environmental Factor Subtotal

COLLISION HISTORY						
Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)	0.0	0	0	Enter either the annual frequency (See Table 1(C), note #4)	ОК	0
Collision Rate over last 3 years, due to inadequate lighting (/MEV)	0	0	0	(Unused values should be set to Zero)	ОК	0
Is the average ratio of all night to day collisions >= 1.5 (Y/N)	n	0			OK	OK
				Collision Histo	ory Subtotal	0

Check Intersection Signalization:

Intersection is not Signalized

ILLUMINATION WARRANTED REVIEW SITE AND COLLISIONS TO DETERMINE LIGHTING TYPE (PARTIAL OR DELINEATION)

SUMMARY	
Geometric Factors Subtotal	6
Operational Factor Subtotal	115
Environmental Factor Subtotal	0
Collision History Subtotal	0
TOTAL POINTS	121

This spreadsheet is to be used in conjunction with Illumination of Isolated Rural Intersections, Transportation Association of Canada, February 2001.

Please enter information in the cells with yellow background

INTERSECTION CHARACTERI	STICS			Date	May 9, 2024		
Highway 806		Main Road		Other	2040 Phase 2 Combined_with N Access		
Central Ave W / Township Rd 304		Minor Road					
Linden AB		City/Town					
GEOMETRIC FACTORS							
		Value	Rating	Weight	Comments	Check	Score
Channelization Rating		Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y	/ N)	N		_		OK	
Highest operating speed on raised, chai	nnelized approach (km/h)	0		5		OK	0
						ŬK	0
Approach Sight Distance on most const	rained approach (%)	100	0	10	Relative to the recommended minimum sight distance	ОК	0
Posted Speed limit (in 10's of km/h)		70				ОК	
Radius of Horizontal Curve (m)		Т			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
	Posted Speed Category =		0				
	Posted Speed Category =		0				
	Posted Speed Category =	С	0				
Horizontal Cunvaturo Eastar	Posted Speed Category =		0	5		OK	0
			0	5		UK	0
Angle of Intersection (10's of Degrees)		90	0	5		OK	0
Downhill Approach Grade (x.x%)		3.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs		4	2	3	Number of legs = 3 or more	ОК	6
					Geometric Factor	s Subtotal	6
OPERATIONAL FACTORS							
Is the intersection signalized ? (Y/N)		n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)		2813	2	10	Either Lise the two AADT inputs \mathbf{OP} the Descriptive Signalization	OK	20
AADT on Minor Road (2-way)		3020	4	20	Warrant (Unused values should be set to Zero) Refer to Table	OK	80
Signalization Warrant		Descriptive	0	30	1(B) for description and rating values for signalization warrant.	OK	0
						ŬK	
Night-Time Hourly Pedestrian Volume		0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification		Descriptive	1	5	Refer to Table 1(B) for ratings.	ОК	5
Operating Speed or Posted Speed on M	lajor Road (km/h)	70	2	5	Refer to Table 1(B), note #3	ОК	10
Operating Speed on Minor Road (km/h)		50	0	5	Refer to Table 1(B), note #3	OK	0
					Operational Factor	s Subtotal	115

ENVIRONMENTAL FACTOR

Lighted Developments within 450 m radius of intermedian



0

Lighted Developments within 150 m radius (of intersection
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<mark>0</mark>05 Ma

Maximum of 4 quadrants

OK 0

Environmental Factor Subtotal

COLLISION HISTORY						
Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)	0.0	0	0	Enter either the annual frequency (See Table 1(C), note #4)	ОК	0
Collision Rate over last 3 years, due to inadequate lighting (/MEV)	0	0	0	(Unused values should be set to Zero)	ОК	0
Is the average ratio of all night to day collisions >= 1.5 (Y/N)	n	0			OK	OK
				Collision Histo	ory Subtotal	0

Check Intersection Signalization:

Intersection is not Signalized

ILLUMINATION WARRANTED REVIEW SITE AND COLLISIONS TO DETERMINE LIGHTING TYPE (PARTIAL OR DELINEATION)

SUMMARY	
Geometric Factors Subtotal	6
Operational Factor Subtotal	115
Environmental Factor Subtotal	0
Collision History Subtotal	0
TOTAL POINTS	121

CENTRAL AVE - 2050

Illumination of Isolated Rural Intersections LIGHTING WARRANT SPREADSHEET

This spreadsheet is to be used in conjunction with *Illumination of Isolated Rural Intersections*, Transportation Association of Canada, February 2001.

Please enter information in the cells with yellow background

INTERSECTION CHARACTERIS	STICS			Date	May 9, 2024		
Highway 806 Central Ave W / Township Rd 304 Linden AB		Main Road Minor Road City/Town		Other	2050 Base - Existing		
GEOMETRIC FACTORS							
Channelization Rating Presence of raised channelization? (Y /	/ N)	Value Descriptive N	Rating 0	Weight	Comments Refer to Table 1(A) to determine rating value	Check OK OK	Score
Highest operating speed on raised, chan Channelization Factor	nnelized approach (km/h)	0		5		OK OK	0
Approach Sight Distance on most const	rained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h) Radius of Horizontal Curve (m)	Posted Speed Category = Posted Speed Category = Posted Speed Category =	70 T C	0 0 0		Enter "T" for tangent (no horizontal curve at the intersection)	OK OK	
Horizontal Curvature Factor	Posted Speed Category =		0	5		ОК	0
Angle of Intersection (10's of Degrees)		90	0	5		ОК	0
Downhill Approach Grade (x.x%)		3.0	0	3	Rounded to nearest tenth of a percent	ОК	0
Number of Intersection Legs		4	2	3	Number of legs = 3 or more	ОК	6
					Geometric Fact	ors Subtotal	6

OPERATIONAL FACTORS							
Is the intersection signalized $?$ (Y/N)	n			Calculate the Signalization Warrant Factor			
AADT on Major Road (2-way) AADT on Minor Road (2-way) Signalization Warrant	2664 3249 Descriptive	2 4 0	10 20 30	Either Use the two AADT inputs OR the Descriptive Signalization Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK OK OK	ОК	20 80 0
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK		0
Intersecting Roadway Classification	Descriptive	1	5	Refer to Table 1(B) for ratings.	OK		5
Operating Speed or Posted Speed on Major Road (km/h)	70	2	5	Refer to Table 1(B), note #3	ОК		10
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	ОК		0
				Operational Factors	Subtota	ıl	115

..... a of interposition 0 0 ч D 150 **ما:**. 5 Maximum of 4 quadrants



0

Lighted Developments within 150 m radius (of intersection
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ENVIRONMENTAL FACTOR

OK 0

Environmental Factor Subtotal

COLLISION HISTORY						
Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)	0.0	0	0	Enter either the annual frequency (See Table 1(C), note #4)	ОК	0
Collision Rate over last 3 years, due to inadequate lighting (/MEV)	0	0	0	(Unused values should be set to Zero)	ОК	0
Is the average ratio of all night to day collisions >= 1.5 (Y/N)	n	0			OK	OK
				Collision Histo	ory Subtotal	0

Check Intersection Signalization:

Intersection is not Signalized

ILLUMINATION WARRANTED REVIEW SITE AND COLLISIONS TO DETERMINE LIGHTING TYPE (PARTIAL OR DELINEATION)

SUMMARY	
Geometric Factors Subtotal	6
Operational Factor Subtotal	115
Environmental Factor Subtotal	0
Collision History Subtotal	0
TOTAL POINTS	121

This spreadsheet is to be used in conjunction with *Illumination of Isolated Rural Intersections*, Transportation Association of Canada, February 2001.

Please enter information in the cells with yellow background

ITERSECTION CHARACTERISTICS				Date	May 9, 2024		
Highway 806		Main Road		Other	2050 Phase 1 Combined		
Central Ave W / Township Rd 304		Minor Road					
Linden AB		City/Town					
GEOMETRIC FACTORS							
		Value	Rating	Weight	Comments	Check	Score
Channelization Rating		Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y /	N)	N				OK	
Highest operating speed on raised, channelized approach (km/h)		0		5		OK	
Channelization Factor						OK	0
Approach Sight Distance on most constra	ained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)		70				OK	
Radius of Horizontal Curve (m)		Т			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
	Posted Speed Category =		0		0 (
	Posted Speed Category =		0				
	Posted Speed Category =	С	0				
	Posted Speed Category =		0				
Horizontal Curvature Factor			0	5		OK	0
Angle of Intersection (10's of Degrees)		90	0	5		ОК	0
Downhill Approach Grade (x.x%)		3.0	0	3	Rounded to nearest tenth of a percent	ОК	0
			0	0		OK	0
number of intersection Legs		4	Z	3	number of legs = 3 of more	UK	O
					Coomotric Eact	ore Subtotal	6

Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor			
AADT on Major Road (2-way) AADT on Minor Road (2-way) Signalization Warrant	2980 3260 Descriptive	2 4 0	10 20 30	Either Use the two AADT inputs OR the Descriptive Signalization Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK OK OK	20 80 0 OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	ОК	0	
Intersecting Roadway Classification	Descriptive	1	5	Refer to Table 1(B) for ratings.	OK	5	
Operating Speed or Posted Speed on Major Road (km/h)	70	2	5	Refer to Table 1(B), note #3	OK	10	
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	OK	0	
				Operational Factors	Subtota	l 115	5

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0	5	Maximum of 4 quadrants	
--	---	---	---	------------------------	--



0

OK 0

Environmental Factor Subtotal

COLLISION HISTORY						
Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)	0.0	0	0	Enter either the annual frequency (See Table 1(C), note #4)	ОК	0
Collision Rate over last 3 years, due to inadequate lighting (/MEV)	0	0	0	(Unused values should be set to Zero)	ОК	0
Is the average ratio of all night to day collisions >= 1.5 (Y/N)	n	0			OK	OK
				Collision Histo	ory Subtotal	0

Check Intersection Signalization:

Intersection is not Signalized

ILLUMINATION WARRANTED REVIEW SITE AND COLLISIONS TO DETERMINE LIGHTING TYPE (PARTIAL OR DELINEATION)

SUMMARY	
Geometric Factors Subtotal	6
Operational Factor Subtotal	115
Environmental Factor Subtotal	0
Collision History Subtotal	0
TOTAL POINTS	121

This spreadsheet is to be used in conjunction with *Illumination of Isolated Rural Intersections*, Transportation Association of Canada, February 2001.

Please enter information in the cells with yellow background

INTERSECTION CHARACTERI	STICS			Date	May 9, 2024		
Highway 806		Main Road		Other	2050 Phase 2 Combined_no N Access		
Central Ave W / Township Rd 304		Minor Road City/Town					
		Oky/Town					
GEOMETRIC FACTORS							
Channelization Pating		Value Descriptive	Rating	Weight	Comments	Check	Score
Presence of raised channelization? (Y)	/ N)	N	U		Refer to Table I(A) to determine fating value	OK	
Highest operating speed on raised, char	nnelized approach (km/h)	0		5		OK	
Channelization Factor						OK	0
Approach Sight Distance on most const	rained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)		70				ОК	
Radius of Horizontal Curve (m)		Т			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
	Posted Speed Category =		0				
	Posted Speed Category =	С	0				
	Posted Speed Category =		0	_			-
Horizontal Curvature Factor			0	5		OK	0
Angle of Intersection (10's of Degrees)		90	0	5		OK	0
Downhill Approach Grade (x.x%)		3.0	0	3	Rounded to nearest tenth of a percent	ОК	0
Number of Intersection Legs		4	2	3	Number of legs = 3 or more	ОК	6
					Geometric Factor	's Subtotal	6
OPERATIONAL FACTORS							
Is the intersection signalized ? (Y/ N)		n			Calculate the Signalization Warrant Factor		
		0470	0	40			00
AADT on Major Road (2-way)		3173	3	10 20	Either Use the two AADT inputs OR the Descriptive Signalization	OK	30 80
Signalization Warrant		Descriptive	0	30	Warrant (Unused values should be set to Zero) Refer to Table	OK	0
						OK	
Night-Time Hourly Pedestrian Volume		0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification		Descriptive	1	5	Refer to Table 1(B) for ratings.	ОК	5
Operating Speed or Posted Speed on M	lajor Road (km/h)	70	2	5	Refer to Table 1(B), note #3	OK	10
Operating Speed on Minor Road (km/h)		50	0	5	Refer to Table 1(B), note #3	OK	0
					Operational Factor	's Subtotal	125

ENVIRONMENTAL FACTOR

0 0 .:+|-:.



0

Lighted Developments within	150 m radius of intersection
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5

Maximum of 4 quadrants

OK 0

Environmental Factor Subtotal

COLLISION HISTORY							
Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #) OR	0.0	0	0	Enter either the annual frequency (See Table 1(C), note #4) OR the number of collisions / MEV	ОК		0
Collision Rate over last 3 years, due to inadequate lighting (/MEV)	0	0	0	(Unused values should be set to Zero)	OK		0
Is the average ratio of all night to day collisions >= 1.5 (Y/N)	n	0			OK		
						OK	
				Collision Histo	ory Subtotal		0

Check Intersection Signalization:

Intersection is not Signalized

ILLUMINATION WARRANTED DELINEATION LIGHTING TO ILLUMINATE PEDESTRIANS OR **CROSS STREET TRAFFIC**

SUMMARY	
Geometric Factors Subtotal	6
Operational Factor Subtotal	125
Environmental Factor Subtotal	0
Collision History Subtotal	0
TOTAL POINTS	131

This spreadsheet is to be used in conjunction with *Illumination of Isolated Rural Intersections*, Transportation Association of Canada, February 2001.

Please enter information in the cells with yellow background

INTERSECTION CHARACTERIS	STICS			Date	May 9, 2024		
Highway 806		Main Road		Other	2050 Phase 2 Combined_with N Access		
Central Ave W / Township Rd 304		Minor Road					
Linden AB		City/ I own					
GEOMETRIC FACTORS							
		Value	Rating	Weight	Comments	Check	Score
Channelization Rating		Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Highest operating speed on raised char	(N) nnelized annroach (km/h)	N		5		OK	
Channelization Factor				Ū		OK	0
Approach Sight Distance on most const	rained approach (%)	100	0	10	Relative to the recommended minimum sight distance	ОК	0
Posted Speed limit (in 10's of km/h)		70				ОК	
Radius of Horizontal Curve (m)		Т			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
	Posted Speed Category =		0				
	Posted Speed Category =	C	0				
	Posted Speed Category =	Ũ	0				
Horizontal Curvature Factor			0	5		OK	0
Angle of Intersection (10's of Degrees)		90	0	5		OK	0
Downhill Approach Grade (x.x%)		3.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs		4	2	3	Number of legs = 3 or more	ОК	6
					Geometric Factor	's Subtotal	6
OPERATIONAL FACTORS							
Is the intersection signalized ? (Y/ N) $$		n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2 way)		2172	2	10		OK	30
AADT on Minor Road (2-way)		3420	4	20	Either Use the two AADT inputs OR the Descriptive Signalization	OK	30 80
Signalization Warrant		Descriptive	0	30	Warrant (Unused values should be set to Zero) Refer to Table	OK	0
						OK	
Night-Time Hourly Pedestrian Volume		0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification		Descriptive	1	5	Refer to Table 1(B) for ratings.	OK	5
Operating Speed or Posted Speed on M	lajor Road (km/h)	70	2	5	Refer to Table 1(B), note #3	OK	10
Operating Speed on Minor Road (km/h)		50	0	5	Refer to Table 1(B), note #3	ОК	0
					Operational Factor	's Subtotal	125

ENVIRONMENTAL FACTOR

0 0 a of interaction Maximum of 4 quadrants 150 5



0

Lighted Developments within	150 m radius of intersection
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OK 0

Environmental Factor Subtotal

COLLISION HISTORY							
Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #) OR	0.0	0	0	Enter either the annual frequency (See Table 1(C), note #4) OR the number of collisions / MEV	ОК		0
Collision Rate over last 3 years, due to inadequate lighting (/MEV)	0	0	0	(Unused values should be set to Zero)	OK		0
Is the average ratio of all night to day collisions >= 1.5 (Y/N)	n	0			OK		
						OK	
				Collision Histo	ory Subtotal		0

Check Intersection Signalization:

Intersection is not Signalized

ILLUMINATION WARRANTED DELINEATION LIGHTING TO ILLUMINATE PEDESTRIANS OR **CROSS STREET TRAFFIC**

SUMMARY	
Geometric Factors Subtotal	6
Operational Factor Subtotal	125
Environmental Factor Subtotal	0
Collision History Subtotal	0
TOTAL POINTS	131

CENTRAL AVE - 2060

Illumination of Isolated Rural Intersections LIGHTING WARRANT SPREADSHEET

This spreadsheet is to be used in conjunction with *Illumination of Isolated Rural Intersections*, Transportation Association of Canada, February 2001.

Please enter information in the cells with yellow background

INTERSECTION CHARACTERIS	STICS			Date	May 9, 2024		
Highway 806 Central Ave W / Township Rd 304 Linden AB		Main Road Minor Road City/Town		Other	2060 Base - Existing		
GEOMETRIC FACTORS							
Channelization Rating Presence of raised channelization? (Y /	(N)	Value Descriptive N	Rating 0	Weight	Comments Refer to Table 1(A) to determine rating value	Check OK OK	Score
Highest operating speed on raised, char Channelization Factor	nnelized approach (km/h)	0		5		OK OK	0
Approach Sight Distance on most const	rained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h) Radius of Horizontal Curve (m)	Posted Speed Category = Posted Speed Category = Posted Speed Category = Posted Speed Category =	70 T C	0 0 0		Enter "T" for tangent (no horizontal curve at the intersection)	OK OK	
Horizontal Curvature Factor	Posted Speed Category -		0	5		OK	0
Angle of Intersection (10's of Degrees)		90	0	5		ОК	0
Downhill Approach Grade (x.x%)		3.0	0	3	Rounded to nearest tenth of a percent	ОК	0
Number of Intersection Legs		4	2	3	Number of legs = 3 or more	OK	6
					Geometric Factor	ors Subtotal	6

OPERATIONAL FACTORS							
Is the intersection signalized $? (Y/N)$	n			Calculate the Signalization Warrant Factor			
AADT on Major Road (2-way) AADT on Minor Road (2-way) Signalization Warrant	3010 3671 Descriptive	3 4 0	10 20 30	Either Use the two AADT inputs OR the Descriptive Signalization Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK OK OK	ОК	30 80 0
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	ОК		0
Intersecting Roadway Classification	Descriptive	1	5	Refer to Table 1(B) for ratings.	ОК		5
Operating Speed or Posted Speed on Major Road (km/h)	70	2	5	Refer to Table 1(B), note #3	ОК		10
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	ОК		0
Operational Factors Subtotal							125

ENVIRONMENTAL FACTOR

0 E Maximum of A guadrante



0 0 5 Maxi

Maximum of 4 quadrants

OK 0

0

Environmental Factor Subtotal

COLLISION HISTORY							
Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #) OR	0.0	0	0	Enter either the annual frequency (See Table 1(C), note #4) OR the number of collisions / MEV	ОК		0
Collision Rate over last 3 years, due to inadequate lighting (/MEV)	0	0	0	(Unused values should be set to Zero)	OK		0
Is the average ratio of all night to day collisions >= 1.5 (Y/N)	n	0			OK		
						OK	
				Collision Histo	ory Subtotal		0

Check Intersection Signalization:

Intersection is not Signalized

ILLUMINATION WARRANTED DELINEATION LIGHTING TO ILLUMINATE PEDESTRIANS OR CROSS STREET TRAFFIC

SUMMARY	
Geometric Factors Subtotal	6
Operational Factor Subtotal	125
Environmental Factor Subtotal	0
Collision History Subtotal	0
TOTAL POINTS	131

This spreadsheet is to be used in conjunction with *Illumination of Isolated Rural Intersections*, Transportation Association of Canada, February 2001.

Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS			Date	May 9, 2024		
Highway 806 Central Ave W / Township Rd 304 Linden AB	Main Road Minor Road City/Town		Other	2060 Phase 2 Combined_no N Access		
GEOMETRIC FACTORS						
Channelization Rating Presence of raised channelization? (Y / N) Highest operating speed on raised, channelized approach (km/h) Channelization Factor	Value Descriptive N 0	Rating 0	Weight	Comments Refer to Table 1(A) to determine rating value	Check OK OK OK OK	Score 0
Approach Sight Distance on most constrained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h) Radius of Horizontal Curve (m) Posted Speed Category = Posted Speed Category = Posted Speed Category =	70 T C	0 0 0		Enter "T" for tangent (no horizontal curve at the intersection)	OK OK	
Posted Speed Category = Horizontal Curvature Factor		0 0	5		OK	0
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	3.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	4	2	3	Number of legs = 3 or more	OK	6
				Geometric Factor	s Subtotal	6
OPERATIONAL FACTORS						
Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way) AADT on Minor Road (2-way) Signalization Warrant	3533 3847 Descriptive	3 4 0	10 20 30	Either Use the two AADT inputs OR the Descriptive Signalization Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK OK OK	30 80 0 OK
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	1	5	Refer to Table 1(B) for ratings.	OK	5
Operating Speed or Posted Speed on Major Road (km/h)	70	2	5	Refer to Table 1(B), note #3	OK	10
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	OK	0
				Operational Factor	s Subtotal	125

ENVIRONMENTAL FACTOR

0 0 ч D. within 150 dive of intersection 5 Maximum of 4 quadrants



0

Lighted Developments within	150 m radius of intersection
-----------------------------	------------------------------

OK 0

Environmental Factor Subtotal

COLLISION HISTORY							
Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #) OR	0.0	0	0	Enter either the annual frequency (See Table 1(C), note #4) OR the number of collisions / MEV	ОК		0
Collision Rate over last 3 years, due to inadequate lighting (/MEV)	0	0	0	(Unused values should be set to Zero)	OK		0
Is the average ratio of all night to day collisions >= 1.5 (Y/N)	n	0			OK		
						OK	
				Collision Histo	ory Subtotal		0

Check Intersection Signalization:

Intersection is not Signalized

ILLUMINATION WARRANTED DELINEATION LIGHTING TO ILLUMINATE PEDESTRIANS OR **CROSS STREET TRAFFIC**

SUMMARY	
Geometric Factors Subtotal	6
Operational Factor Subtotal	125
Environmental Factor Subtotal	0
Collision History Subtotal	0
TOTAL POINTS	131

This spreadsheet is to be used in conjunction with *Illumination of Isolated Rural Intersections*, Transportation Association of Canada, February 2001.

Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS			Date	May 9, 2024		
Highway 806	Main Road		Other	2060 phase 2 Combined_with N access		
Central Ave W / Township Rd 304	Minor Road					
	City/10wil					
GEOMETRIC FACTORS						
Channelization Pating	Value Descriptive	Rating	Weight	Comments	Check	Score
Presence of raised channelization? (Y / N)	N	0		Refer to Table T(A) to determine fating value	OK	
Highest operating speed on raised, channelized approach (km/h)	0		5		OK	
Channelization Factor					OK	0
Approach Sight Distance on most constrained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)	70				OK	
Radius of Horizontal Curve (m)	Т			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Posted Speed Category = Posted Speed Category =		0				
Posted Speed Category =	С	0				
Posted Speed Category =		0	-			0
Horizontal Curvature Factor		0	5		ŬK	0
Angle of Intersection (10's of Degrees)	90	0	5		OK	0
Downhill Approach Grade (x.x%)	3.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs	4	2	3	Number of legs = 3 or more	ОК	6
				Geometric Factor	's Subtotal	6
OPERATIONAL FACTORS						
Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way)	3533	З	10		OK	30
AADT on Minor Road (2-way)	3840	4	20	Either Use the two AADT inputs OR the Descriptive Signalization	OK	80
Signalization Warrant	Descriptive	0	30	1(B) for description and rating values for signalization warrant.	OK	0
					OK	
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	OK	0
Intersecting Roadway Classification	Descriptive	1	5	Refer to Table 1(B) for ratings.	OK	5
Operating Speed or Posted Speed on Major Road (km/h)	70	2	5	Refer to Table 1(B), note #3	ОК	10
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	OK	0
				Operational Factor	s Subtotal	125

ENVIRONMENTAL FACTOR

0 0 of into rootion 5 Maximum of 4 quadrants



0

Lighted Developments within	150 m radius of intersection
-----------------------------	------------------------------

OK 0

Environmental Factor Subtotal

COLLISION HISTORY							
Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #) OR	0.0	0	0	Enter either the annual frequency (See Table 1(C), note #4) OR the number of collisions / MEV	ОК		0
Collision Rate over last 3 years, due to inadequate lighting (/MEV)	0	0	0	(Unused values should be set to Zero)	OK		0
Is the average ratio of all night to day collisions >= 1.5 (Y/N)	n	0			OK		
						OK	
				Collision Histo	ory Subtotal		0

Check Intersection Signalization:

Intersection is not Signalized

ILLUMINATION WARRANTED DELINEATION LIGHTING TO ILLUMINATE PEDESTRIANS OR **CROSS STREET TRAFFIC**

SUMMARY	
Geometric Factors Subtotal	6
Operational Factor Subtotal	125
Environmental Factor Subtotal	0
Collision History Subtotal	0
TOTAL POINTS	131

This spreadsheet is to be used in conjunction with Illumination of Isolated Rural Intersections, Transportation Association of Canada, February 2001.

Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS	6			Date	May 10, 2024		
Highway 806		Main Road		Other	2060 Existing Base		
Service Road		Minor Road					
_inden AB		City/Town					
GEOMETRIC FACTORS							
		Value	Rating	Weight	Comments	Check	Score
Channelization Rating		Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y / N)		N				OK	
lighest operating speed on raised, channelize	ed approach (km/h)	0		5		OK	
Channelization Factor						OK	0
Approach Sight Distance on most constrained	approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)		70				OK	
Radius of Horizontal Curve (m)		Т			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
Pos	ted Speed Category =		0				
Pos	ted Speed Category =		0				
Pos	ted Speed Category =	С	0				
Pos	ted Speed Category =		0				
Horizontal Curvature Factor			0	5		OK	0
Angle of Intersection (10's of Degrees)		90	0	5		ОК	0
Downhill Approach Grade (x.x%)		3.0	0	3	Rounded to nearest tenth of a percent	OK	0

Geometric Factors Subtotal 3 **OPERATIONAL FACTORS** Calculate the Signalization Warrant Factor Is the intersection signalized ? (Y/N) n AADT on Major Road (2-way) OK 20 2366 2 10 Either Use the two AADT inputs **OR** the Descriptive Signalization AADT on Minor Road (2-way) OK 580 20 20 1 Warrant (Unused values should be set to Zero) Refer to Table Signalization Warrant 30 OK Descriptive 0 0 1(B) for description and rating values for signalization warrant. OK Night-Time Hourly Pedestrian Volume 0 Refer to Table 1(B), note #2, to account for children and seniors OK 0 10 0 Intersecting Roadway Classification 5 Refer to Table 1(B) for ratings. OK 5 Descriptive 1 Operating Speed or Posted Speed on Major Road (km/h) 2 5 Refer to Table 1(B), note #3 OK 10 70 Operating Speed on Minor Road (km/h) 50 0 5 Refer to Table 1(B), note #3 OK 0 **Operational Factors Subtotal** 55

3

3

1

ENVIRONMENTAL FACTOR	
Linkted Developments within 450 m and inc. of interestion	

E Maximum of A guadranta



0

Number of Intersection Legs

0 0 5 Maxin

Maximum of 4 quadrants

Number of legs = 3 or more

<mark>OK</mark> 0

OK

3

Environmental Factor Subtotal

COLLISION HISTORY							
Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #) OR	0.0	0	0	Enter either the annual frequency (See Table 1(C), note #4) OR the number of collisions / MEV	ОК		0
Collision Rate over last 3 years, due to inadequate lighting (/MEV)	0	0	0	(Unused values should be set to Zero)	OK		0
Is the average ratio of all night to day collisions >= 1.5 (Y/N)	n	0		· · · · ·	OK		
						OK	
				Collision Histo	ory Subtota	1	0

Check Intersection Signalization: Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	3
Operational Factor Subtotal	55
Environmental Factor Subtotal	0
Collision History Subtotal	0
TOTAL POINTS	58

This spreadsheet is to be used in conjunction with *Illumination of Isolated Rural Intersections*, Transportation Association of Canada, February 2001.

Please enter information in the cells with yellow background

INTERSECTION CHARACTERIS	STICS			Date	May 10, 2024]	
Highway 806		Main Road		Other	2060 phase 2 Combined_no N access		
Service Road		Minor Road					
Linden AB		City/Town					
GEOMETRIC FACTORS							
		Value	Rating	Weight	Comments	Check	Score
Channelization Rating		Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y	/ N)	N				OK	
Highest operating speed on raised, cha	nnelized approach (km/h)	0		5		OK	
Channelization Factor						OK	0
Approach Sight Distance on most const	trained approach (%)	100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)		70				OK	
Radius of Horizontal Curve (m)		Т			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
	Posted Speed Category =		0			U.V.	
	Posted Speed Category =		0				
	Posted Speed Category =	С	0				
	Posted Speed Category =	-	0				
Horizontal Curvature Factor			0	5		OK	0
Angle of Intersection (10's of Degrees)		90	0	5		OK	0
Downhill Approach Grade (x.x%)		3.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs		3	1	3	Number of legs = 3 or more	ОК	3
					Geometric Facto	rs Subtotal	3
OPERATIONAL FACTORS							
Is the intersection signalized $?$ (Y/N)		n			Calculate the Signalization Warrant Factor		

Is the intersection signalized $? (Y/N)$	n			Calculate the Signalization Warrant Factor		
AADT on Major Road (2-way) AADT on Minor Road (2-way) Signalization Warrant	2920 1133 Descriptive	2 2 0	10 20 30	Either Use the two AADT inputs OR the Descriptive Signalization Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK OK OK	20 40 0 OK
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	ОК	0
Intersecting Roadway Classification	Descriptive	1	5	Refer to Table 1(B) for ratings.	OK	5
Operating Speed or Posted Speed on Major Road (km/h)	70	2	5	Refer to Table 1(B), note #3	OK	10
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	OK	0
				Operational Factors	Subtotal	75

ENVIRONMENTAL FACTOR



0

OK 0

Environmental Factor Subtotal

COLLISION HISTORY							
Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #) OR	0.0	0	0	Enter either the annual frequency (See Table 1(C), note #4) OR the number of collisions / MEV	ОК		0
Collision Rate over last 3 years, due to inadequate lighting (/MEV)	0	0	0	(Unused values should be set to Zero)	OK		0
Is the average ratio of all night to day collisions >= 1.5 (Y/N)	n	0			OK	ОК	
				Collision Hist	ory Subtota	al 🗌	0

Check Intersection Signalization: Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	3
Operational Factor Subtotal	75
Environmental Factor Subtotal	0
Collision History Subtotal	0
TOTAL POINTS	78

This spreadsheet is to be used in conjunction with *Illumination of Isolated Rural Intersections*, Transportation Association of Canada, February 2001.

Please enter information in the cells with yellow background

INTERSECTION CHARACTERI	STICS			Date	May 10, 2024		
Highway 806		Main Road		Other	2060 phase 2 Combined_with N access		
Service Road		Minor Road					
Linden AB		City/Town					
GEOMETRIC FACTORS							
		Value	Rating	Weight	Comments	Check	Score
Channelization Rating		Descriptive	0		Refer to Table 1(A) to determine rating value	OK	
Presence of raised channelization? (Y	/ N)	N				OK	
Highest operating speed on raised, cha	nnelized approach (km/h)	0		5		OK	
Channelization Factor						OK	0
Approach Sight Distance on most constrained approach (%)		100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h)		70				OK	
Radius of Horizontal Curve (m)		Т			Enter "T" for tangent (no horizontal curve at the intersection)	OK	
	Posted Speed Category =	· · ·	0			•••	
	Posted Speed Category =		0				
	Posted Speed Category =	С	0				
	Posted Speed Category =	-	0				
Horizontal Curvature Factor			0	5		OK	0
Angle of Intersection (10's of Degrees)		90	0	5		OK	0
Downhill Approach Grade (x.x%)		3.0	0	3	Rounded to nearest tenth of a percent	ОК	0
		2	4	2	Number of land = 2 or more	OK	2
Number of Intersection Legs		3	1	3	Number of legs = 3 or more	UK	3
					Geometric Facto	rs Subtotal	3
OPERATIONAL FACTORS							
Is the intersection signalized $?$ (Y/N)		n			Calculate the Signalization Warrant Factor		

Is the intersection signalized ? (Y/N)	n			Calculate the Signalization Warrant Factor					
AADT on Major Road (2-way) AADT on Minor Road (2-way) Signalization Warrant	2960 913 Descriptive	2 1 0	10 20 30	Either Use the two AADT inputs OR the Descriptive Signalization Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK OK OK	20 20 0 OK			
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	ОК	0			
Intersecting Roadway Classification	Descriptive	1	5	Refer to Table 1(B) for ratings.	ОК	5			
Operating Speed or Posted Speed on Major Road (km/h)	70	2	5	Refer to Table 1(B), note #3	ОК	10			
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	ОК	0			
Operational Factors Subtotal									

ENVIRONMENTAL FACTOR

Lighted Developments within 150 m radius of intersection	0	0 5	Maximum of 4 quadrants	
--	---	-----	------------------------	--



0

OK 0

Environmental Factor Subtotal

COLLISION HISTORY							
Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #) OR	0.0	0	0	Enter either the annual frequency (See Table 1(C), note #4) OR the number of collisions / MEV	ОК		0
Collision Rate over last 3 years, due to inadequate lighting (/MEV)	0	0	0	(Unused values should be set to Zero)	OK		0
Is the average ratio of all night to day collisions >= 1.5 (Y/N)	n	0		· · · · ·	OK		
						OK	
				Collision Histo	ory Subtota	1	0

Check Intersection Signalization: Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	3
Operational Factor Subtotal	55
Environmental Factor Subtotal	0
Collision History Subtotal	0
TOTAL POINTS	58

This spreadsheet is to be used in conjunction with Illumination of Isolated Rural Intersections, Transportation Association of Canada, February 2001.

Please enter information in the cells with yellow background

INTERSECTION CHARACTERISTICS				Date	May 10, 2024		
Highway 806 N Access Linden AB		Main Road Minor Road City/Town		Other	2060 phase 2 Combined_with N access		
GEOMETRIC FACTORS							
Channelization Rating Presence of raised channelization?(Y / N)		Value Descriptive	Rating 0	Weight	Comments Refer to Table 1(A) to determine rating value	Check OK OK	Score
Channelization Factor	ized approach (km/n)	U		5		OK OK	0
Approach Sight Distance on most constrained approach (%)		100	0	10	Relative to the recommended minimum sight distance	OK	0
Posted Speed limit (in 10's of km/h) Radius of Horizontal Curve (m) P P	osted Speed Category = osted Speed Category =	70 T	0 0		Enter "T" for tangent (no horizontal curve at the intersection)	OK OK	
P P Horizontal Curvature Factor	osted Speed Category = osted Speed Category =	С	0 0 0	5		ОК	0
Angle of Intersection (10's of Degrees)		90	0	5		ОК	0
Downhill Approach Grade (x.x%)		3.0	0	3	Rounded to nearest tenth of a percent	OK	0
Number of Intersection Legs		3	1	3	Number of legs = 3 or more	ОК	3
					Geometric Facto	ors Subtotal	3

OF ERAHORAE FACTORS									
Is the intersection signalized ? (Y/ N)	n			Calculate the Signalization Warrant Factor					
AADT on Major Road (2-way) AADT on Minor Road (2-way) Signalization Warrant	2947 273 Descriptive	2 0 0	10 20 30	Either Use the two AADT inputs OR the Descriptive Signalization Warrant (Unused values should be set to Zero) Refer to Table 1(B) for description and rating values for signalization warrant.	OK OK OK	OK	20 0 0		
Night-Time Hourly Pedestrian Volume	0	0	10	Refer to Table 1(B), note #2, to account for children and seniors	ОК		0		
Intersecting Roadway Classification	Descriptive	1	5	Refer to Table 1(B) for ratings.	ОК		5		
Operating Speed or Posted Speed on Major Road (km/h)	70	2	5	Refer to Table 1(B), note #3	ОК		10		
Operating Speed on Minor Road (km/h)	50	0	5	Refer to Table 1(B), note #3	ОК		0		
Operational Factors Subtotal									

ENVIRONMENTAL FACTOR

0 0 ata within 150 dive of interposition - -



0

5 Maximum of 4 quadrants

OK 0

Environmental Factor Subtotal

COLLISION HISTORY							
Average Annual night-time collision frequency due to inadequate lighting (collisions/yr, rounded to nearest whole #)	0.0	0	0	Enter either the annual frequency (See Table 1(C), note #4)	ОК		0
OR Collision Pote over lost 2 years, due to inadequate lighting (/ME\/)	0	0	0	OR the number of collisions / MEV	OK		0
Is the average ratio of all night to day collisions $>= 1.5$ (Y/N)	n	0	0	(Onused values should be set to Zero)	OK		0
						OK	
				Collision Histo	ory Subtota	I	0

Check Intersection Signalization: Intersection is not Signalized

LIGHTING IS NOT WARRANTED

SUMMARY	
Geometric Factors Subtotal	3
Operational Factor Subtotal	35
Environmental Factor Subtotal	0
Collision History Subtotal	0
TOTAL POINTS	38



Appendix D Synchro Results – Background Traffic





2024 AM

HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

	٦	-	$\mathbf{\hat{z}}$	4	+	*	1	Ť	۲	1	ŧ	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			\$			ર્સ	1		ર્સ	1
Traffic Volume (veh/h)	10	61	0	71	20	41	10	41	61	66	46	10
Future Volume (Veh/h)	10	61	0	71	20	41	10	41	61	66	46	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	12	76	0	89	25	51	12	51	76	82	58	12
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	360	373	58	335	309	51	70			127		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	360	373	58	335	309	51	70			127		
tC, single (s)	7.4	6.6	6.2	7.2	6.6	6.3	4.6			4.1		
tC, 2 stage (s)												
tF (s)	3.8	4.1	3.3	3.6	4.1	3.4	2.7			2.2		
p0 queue free %	97	85	100	83	95	95	99			94		
cM capacity (veh/h)	471	510	1014	515	548	987	1275			1472		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	88	165	63	76	140	12						
Volume Left	12	89	12	0	82	0						
Volume Right	0	51	0	76	0	12						
cSH	504	611	1275	1700	1472	1700						
Volume to Capacity	0.17	0.27	0.01	0.04	0.06	0.01						
Queue Length 95th (m)	5.0	8.7	0.2	0.0	1.4	0.0						
Control Delay (s)	13.6	13.1	1.6	0.0	4.6	0.0						
Lane LOS	В	В	А		А							
Approach Delay (s)	13.6	13.1	0.7		4.3							
Approach LOS	В	В										
Intersection Summary												
Average Delav			7.5									
Intersection Capacity Utiliza	tion		33.6%	IC	CU Level o	of Service			А			
Analysis Period (min)			15									

	≯	-	+	•	1	∢	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	4Î		¥		
Traffic Volume (veh/h)	20	158	117	61	20	5	
Future Volume (Veh/h)	20	158	117	61	20	5	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	25	198	146	76	25	6	
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	222				432	184	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	222				432	184	
tC, single (s)	4.3				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	98				96	99	
cM capacity (veh/h)	1268				573	864	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	223	222	31				
Volume Left	25	0	25				
Volume Right	0	76	6				
cSH	1268	1700	613				
Volume to Capacity	0.02	0.13	0.05				
Queue Length 95th (m)	0.5	0.0	1.3				
Control Delay (s)	1.0	0.0	11.2				
Lane LOS	А		В				
Approach Delay (s)	1.0	0.0	11.2				
Approach LOS			В				
Intersection Summary							
Average Delay			12				
Intersection Capacity Utilizati	ion		32.6%	IC	ULevelo	of Service	A
Analysis Period (min)			15		5 25.070		

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	1,		¥.		
Traffic Volume (veh/h)	10	163	122	15	15	41	
Future Volume (Veh/h)	10	163	122	15	15	41	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	12	204	152	19	19	51	
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	171				390	162	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	171				390	162	
tC, single (s)	4.1				6.6	6.4	
tC, 2 stage (s)							
tF (s)	2.2				3.7	3.5	
p0 queue free %	99				97	94	
cM capacity (veh/h)	1394				577	841	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	216	171	70				
Volume Left	12	0	19				
Volume Right	0	19	51				
cSH	1394	1700	748				
Volume to Capacity	0.01	0.10	0.09				
Queue Length 95th (m)	0.2	0.0	2.5				
Control Delay (s)	0.5	0.0	10.3				
Lane LOS	Α		В				
Approach Delay (s)	0.5	0.0	10.3				
Approach LOS			В				
Intersection Summary							
Average Delay			1.8				
Intersection Capacity Utilizatio	n		26.8%	IC	U Level o	of Service	А
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1	-	41	
Traffic Volume (veh/h)	5	5	87	5	10	117	
Future Volume (Veh/h)	5	5	87	5	10	117	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	6	6	109	6	12	146	
Pedestrians	Ŭ	Ŭ	100	Ű			
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)			110110			110110	
Upstream signal (m)							
nX platoon unblocked							
vC conflicting volume	206	109			115		
vC1_stage 1 conf vol	200	100			110		
vC2_stage 2 conf vol							
vCu, unblocked vol	206	109			115		
tC single (s)	68	69			4.3		
tC, 2 stage (s)	0.0	0.0			1.0		
tF (s)	35	33			23		
n0 queue free %	99	99			99		
cM canacity (veh/h)	763	930			1429		
	100				07.0		
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2		
Volume Total	12	109	6	61	97		
Volume Left	6	0	0	12	0		
Volume Right	6	0	6	0	0		
cSH	838	1700	1700	1429	1700		
Volume to Capacity	0.01	0.06	0.00	0.01	0.06		
Queue Length 95th (m)	0.3	0.0	0.0	0.2	0.0		
Control Delay (s)	9.4	0.0	0.0	1.5	0.0		
Lane LOS	А			А			
Approach Delay (s)	9.4	0.0		0.6			
Approach LOS	А						
Intersection Summary							
Average Delay			0.7				
Intersection Capacity Utiliza	ation		17.2%	IC	ULevel	of Service	
Analysis Period (min)			15	.0			

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HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			ę	1		र्स	1
Traffic Volume (veh/h)	5	26	5	71	36	46	10	51	71	41	66	5
Future Volume (Veh/h)	5	26	5	71	36	46	10	51	71	41	66	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	6	32	6	88	44	57	12	63	88	51	81	6
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	349	358	81	292	276	63	87			151		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	349	358	81	292	276	63	87			151		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.4			2.2		
p0 queue free %	99	94	99	86	93	94	99			96		
cM capacity (veh/h)	525	547	985	610	607	988	1420			1442		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	44	189	75	88	132	6						
Volume Left	6	88	12	0	51	0						
Volume Right	6	57	0	88	0	6						
cSH	578	689	1420	1700	1442	1700						
Volume to Capacity	0.08	0.27	0.01	0.05	0.04	0.00						
Queue Length 95th (m)	2.0	8.9	0.2	0.0	0.9	0.0						
Control Delay (s)	11.7	12.2	1.3	0.0	3.1	0.0						
Lane LOS	В	В	А		А							
Approach Delay (s)	11.7	12.2	0.6		3.0							
Approach LOS	В	В										
Intersection Summary												
Average Delav			6.2									
Intersection Capacity Utiliza	tion		34.4%	IC	CU Level of	of Service			А			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	4Î		- M		
Traffic Volume (veh/h)	5	133	117	15	31	36	
Future Volume (Veh/h)	5	133	117	15	31	36	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	6	164	144	19	38	44	
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	163				330	154	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	163				330	154	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				94	95	
cM capacity (veh/h)	1398				658	887	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	170	163	82				
Volume Left	6	0	38				
Volume Right	0	19	44				
cSH	1398	1700	764				
Volume to Capacity	0.00	0.10	0.11				
Queue Length 95th (m)	0.1	0.0	2.9				
Control Delay (s)	0.3	0.0	10.3				
Lane LOS	А		В				
Approach Delay (s)	0.3	0.0	10.3				
Approach LOS			В				
Intersection Summary							
Average Delay			2.2				
Intersection Capacity Utilization	on		21.6%	IC	U Level o	of Service	А
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	ţ,		¥.		
Traffic Volume (veh/h)	10	148	117	20	10	10	
Future Volume (Veh/h)	10	148	117	20	10	10	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	12	183	144	25	12	12	
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	169				364	156	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	169				364	156	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	99				98	99	
cM capacity (veh/h)	1396				634	894	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	195	169	24				
Volume Left	12	0	12				
Volume Right	0	25	12				
cSH	1396	1700	742				
Volume to Capacity	0.01	0.10	0.03				
Queue Length 95th (m)	0.2	0.0	0.8				
Control Delay (s)	0.5	0.0	10.0				
Lane LOS	А		В				
Approach Delay (s)	0.5	0.0	10.0				
Approach LOS			В				
Intersection Summarv							
Average Delav			0.9				
Intersection Capacity Utiliza	ation		26.0%	IC	U Level o	of Service	A
Analysis Period (min)			15		5.0/(

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1	-	41	_
Traffic Volume (veh/h)	10	31	97	5	5	102	
Future Volume (Veh/h)	10	31	97	5	5	102	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	12	38	120	6	6	126	
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	195	120			126		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	195	120			126		
tC, single (s)	6.9	7.0			4.3		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	98	96			100		
cM capacity (veh/h)	764	899			1388		
Direction. Lane #	WB 1	NB 1	NB 2	SB 1	SB 2		
Volume Total	50	120	6	48	84		
Volume Left	12	0	0 0	6	0		
Volume Right	38	0	6	0	0		
cSH	863	1700	1700	1388	1700		
Volume to Capacity	0.06	0.07	0.00	0.00	0.05		
Queue Length 95th (m)	1.5	0.0	0.0	0.00	0.0		
Control Delay (s)	9.4	0.0	0.0	1.0	0.0		
Lane LOS	Δ	0.0	0.0	Α	0.0		
Approach Delay (s)	94	0.0		0.4			
Approach LOS	A	0.0		0.1			
Interception Summery							
			4 7				
Average Delay	ation.		1.7	10	111	of Consider	
Analysis Deried (min)	allon		10.3%	iC	U Level	UI SELVICE	
Analysis Period (min)			15				

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HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			ę	1		र्स	1
Traffic Volume (veh/h)	11	68	0	80	23	46	11	46	68	74	51	11
Future Volume (Veh/h)	11	68	0	80	23	46	11	46	68	74	51	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	14	85	0	100	29	58	14	58	85	92	64	14
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	406	419	64	376	348	58	78			143		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	406	419	64	376	348	58	78			143		
tC, single (s)	7.4	6.6	6.2	7.2	6.6	6.3	4.6			4.1		
tC, 2 stage (s)												
tF (s)	3.8	4.1	3.3	3.6	4.1	3.4	2.7			2.2		
p0 queue free %	97	82	100	79	94	94	99			94		
cM capacity (veh/h)	428	475	1006	468	516	978	1265			1452		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	99	187	72	85	156	14						
Volume Left	14	100	14	0	92	0						
Volume Right	0	58	0	85	0	14						
cSH	468	568	1265	1700	1452	1700						
Volume to Capacity	0.21	0.33	0.01	0.05	0.06	0.01						
Queue Length 95th (m)	6.3	11.4	0.3	0.0	1.6	0.0						
Control Delay (s)	14.7	14.4	1.6	0.0	4.7	0.0						
Lane LOS	В	В	А		А							
Approach Delay (s)	14.7	14.4	0.7		4.3							
Approach LOS	В	В										
Intersection Summary												
Average Delav			8.2									
Intersection Capacity Utiliza	tion		35.2%	IC	U Level o	of Service			А			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	ţ,		M		
Traffic Volume (veh/h)	23	177	131	68	23	6	
Future Volume (Veh/h)	23	177	131	68	23	6	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	29	221	164	85	29	8	
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	249				486	206	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	249				486	206	
tC, single (s)	4.3				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	98				95	99	
cM capacity (veh/h)	1239				532	839	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	250	249	37				
Volume Left	29	0	29				
Volume Right	0	85	8				
cSH	1239	1700	577				
Volume to Capacity	0.02	0.15	0.06				
Queue Length 95th (m)	0.6	0.0	1.6				
Control Delay (s)	1.1	0.0	11.7				
Lane LOS	А		В				
Approach Delay (s)	1.1	0.0	11.7				
Approach LOS			В				
Intersection Summary							
Average Delav			1.3				
Intersection Capacity Utiliza	ation		35.0%	IC	U Level o	of Service	A
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	ţ,		¥		
Traffic Volume (veh/h)	11	182	137	17	17	46	
Future Volume (Veh/h)	11	182	137	17	17	46	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	14	228	171	21	21	58	
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	192				438	182	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	192				438	182	
tC, single (s)	4.1				6.6	6.4	
tC, 2 stage (s)							
tF (s)	2.2				3.7	3.5	
p0 queue free %	99				96	93	
cM capacity (veh/h)	1370				540	819	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	242	192	79				
Volume Left	14	0	21				
Volume Right	0	21	58				
cSH	1370	1700	720				
Volume to Capacity	0.01	0.11	0.11				
Queue Length 95th (m)	0.2	0.0	2.9				
Control Delay (s)	0.5	0.0	10.6				
Lane LOS	А		В				
Approach Delay (s)	0.5	0.0	10.6				
Approach LOS			В				
Intersection Summarv							
Average Delav			1.9				
Intersection Capacity Utiliz	zation		29.0%	IC	U Level o	of Service	A
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	W.		*	1		41	_
Traffic Volume (veh/h)	6	6	97	6	11	131	
Future Volume (Veh/h)	6	6	97	6	11	131	
Sign Control	Stop	-	Free	-		Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (yph)	8	8	121	8	14	164	
Pedestrians	Ŭ	Ű		Ű			
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)			None				
Unstream signal (m)							
nX nlatoon unblocked							
vC conflicting volume	231	121			129		
vC1_stage 1 conf vol	201	121			120		
vC2 stage 2 conf vol							
	231	121			129		
tC single (s)	68	69			4.3		
tC, 2 stage (s)	0.0	0.0			4.0		
tF (s)	35	33			23		
n0 queue free %	99	99			99		
cM canacity (veh/h)	735	914			1412		
	100	014			1712		
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2		
Volume Total	16	121	8	69	109		
Volume Left	8	0	0	14	0		
Volume Right	8	0	8	0	0		
cSH	815	1700	1700	1412	1700		
Volume to Capacity	0.02	0.07	0.00	0.01	0.06		
Queue Length 95th (m)	0.5	0.0	0.0	0.2	0.0		
Control Delay (s)	9.5	0.0	0.0	1.6	0.0		
Lane LOS	А			А			
Approach Delay (s)	9.5	0.0		0.6			
Approach LOS	А						
Intersection Summary							
Average Delav			0.8				
Intersection Capacity Utiliz	ation		17.3%	IC	U Level	of Service	
Analysis Period (min)			15				

2030 PM

HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			ę	1		र्स	1
Traffic Volume (veh/h)	6	29	6	80	40	51	11	57	80	46	74	6
Future Volume (Veh/h)	6	29	6	80	40	51	11	57	80	46	74	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	7	36	7	99	49	63	14	70	99	57	91	7
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	390	402	91	328	310	70	98			169		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	390	402	91	328	310	70	98			169		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.4			2.2		
p0 queue free %	99	93	99	83	92	94	99			96		
cM capacity (veh/h)	482	513	972	569	578	979	1406			1421		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	50	211	84	99	148	7						
Volume Left	7	99	14	0	57	0						
Volume Right	7	63	0	99	0	7						
cSH	544	653	1406	1700	1421	1700						
Volume to Capacity	0.09	0.32	0.01	0.06	0.04	0.00						
Queue Length 95th (m)	2.4	11.2	0.2	0.0	1.0	0.0						
Control Delay (s)	12.3	13.1	1.3	0.0	3.1	0.0						
Lane LOS	В	В	А		А							
Approach Delay (s)	12.3	13.1	0.6		3.0							
Approach LOS	В	В										
Intersection Summary												
Average Delay			6.6									
Intersection Capacity Utiliza	ation		36.1%	IC	CU Level of	of Service			А			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	ţ,		- M		
Traffic Volume (veh/h)	6	148	131	17	34	40	
Future Volume (Veh/h)	6	148	131	17	34	40	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	7	183	162	21	42	49	
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	183				370	172	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	183				370	172	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	99				93	94	
cM capacity (veh/h)	1374				624	866	
Direction. Lane #	EB 1	WB 1	SB 1				
Volume Total	190	183	91				-
Volume Left	7	0	42				
Volume Right	0	21	49				
cSH	1374	1700	734				
Volume to Canacity	0.01	0 11	0.12				
Queue Length 95th (m)	0.1	0.0	34				
Control Delay (s)	0.3	0.0	10.6				
Lane LOS	A	0.0	B				
Approach Delay (s)	0.3	0.0	10.6				
Approach LOS	010	0.0	В				
Internection Our			_				
Intersection Summary			0.0				
Average Delay	- ation		2.2	10		f Canilar	
Intersection Capacity Utili	zation		23.1%	IC		or Service	
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	ţ,		¥.		
Traffic Volume (veh/h)	11	165	131	23	11	11	
Future Volume (Veh/h)	11	165	131	23	11	11	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	14	204	162	28	14	14	
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	190				408	176	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	190				408	176	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	99				98	98	
cM capacity (veh/h)	1372				597	872	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	218	190	28				
Volume Left	14	0	14				
Volume Right	0	28	14				
cSH	1372	1700	709				
Volume to Capacity	0.01	0.11	0.04				
Queue Length 95th (m)	0.2	0.0	1.0				
Control Delay (s)	0.6	0.0	10.3				
Lane LOS	А		В				
Approach Delay (s)	0.6	0.0	10.3				
Approach LOS			В				
Intersection Summary							
Average Delay			0.9				
Intersection Capacity Utilizat	tion		27.7%	IC	U Level o	of Service	А
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥.		*	1	-	41	Γ
Traffic Volume (veh/h)	11	34	108	6	6	114	
Future Volume (Veh/h)	11	34	108	6	6	114	
Sign Control	Stop		Free	-	-	Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (yph)	14	42	133	7	7	141	
Pedestrians		15	100	,	,		
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)							
Instream signal (m)							
nX nlatoon unblocked							
vC conflicting volume	218	122			1/0		
vC1_stage 1_conf_vol	210	155			140		
vC1, stage 1 contivol							
	210	122			1/0		
tC single (s)	60	7.0			140		
tC, single (s) $tC = 2 \text{ stage}(s)$	0.9	7.0			4.5		
tC, Z stage (s)	2.5	2.2			0.0		
$\Gamma(S)$	0.0	0.5			2.3		
p0 queue nee %	90 720	90			1271		
civi capacity (ven/n)	139	002			13/1		
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2		
Volume Total	56	133	7	54	94		
Volume Left	14	0	0	7	0		
Volume Right	42	0	7	0	0		
cSH	841	1700	1700	1371	1700		
Volume to Capacity	0.07	0.08	0.00	0.01	0.06		
Queue Length 95th (m)	1.7	0.0	0.0	0.1	0.0		
Control Delay (s)	9.6	0.0	0.0	1.0	0.0		
Lane LOS	А			А			
Approach Delay (s)	9.6	0.0		0.4			
Approach LOS	А						
Intersection Summary							
			17				
Intersection Canacity Litilia	vation		17 0%	10		of Sonvice	
Analysis Period (min)			17.070	10			
Analysis Period (min)			15				

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HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			र्स	1		र्भ	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	13	80	0	94	27	54	13	54	80	87	60	13
Future Volume (vph)	13	80	0	94	27	54	13	54	80	87	60	13
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	16	100	0	118	34	68	16	68	100	109	75	16
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	116	220	84	100	184	16						
Volume Left (vph)	16	118	16	0	109	0						
Volume Right (vph)	0	68	0	100	0	16						
Hadj (s)	0.25	0.08	0.52	-0.63	0.32	-0.70						
Departure Headway (s)	5.5	5.2	6.3	5.1	6.0	5.0						
Degree Utilization, x	0.18	0.32	0.15	0.14	0.31	0.02						
Capacity (veh/h)	597	646	541	658	564	675						
Control Delay (s)	9.7	10.6	9.1	7.7	10.5	6.9						
Approach Delay (s)	9.7	10.6	8.4		10.2							
Approach LOS	А	В	А		В							
Intersection Summary												
Delay			9.8									
Level of Service			А									
Intersection Capacity Utiliza	ation		37.9%	IC	U Level o	of Service			A			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	ţ,		Y		
Traffic Volume (veh/h)	27	208	154	80	27	7	
Future Volume (Veh/h)	27	208	154	80	27	7	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	34	260	192	100	34	9	
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	292				570	242	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	292				570	242	
tC, single (s)	4.3				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	97				93	99	
cM capacity (veh/h)	1194				472	802	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	294	292	43				
Volume Left	34	0	34				
Volume Right	0	100	9				
cSH	1194	1700	517				
Volume to Capacity	0.03	0.17	0.08				
Queue Length 95th (m)	0.7	0.0	2.2				
Control Delay (s)	1.2	0.0	12.6				
Lane LOS	А		В				
Approach Delay (s)	1.2	0.0	12.6				
Approach LOS			В				
Intersection Summary							
Average Delay			1.4				
Intersection Capacity Utilizati	on		38.8%	IC	U Level o	of Service	А
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	f,		¥		
Traffic Volume (veh/h)	13	214	161	20	20	54	
Future Volume (Veh/h)	13	214	161	20	20	54	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	16	268	201	25	25	68	
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	226				514	214	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	226				514	214	
tC, single (s)	4.1				6.6	6.4	
tC, 2 stage (s)							
tF (s)	2.2				3.7	3.5	
p0 queue free %	99				95	91	
cM capacity (veh/h)	1331				486	786	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	284	226	93				
Volume Left	16	0	25				
Volume Right	0	25	68				
cSH	1331	1700	674				
Volume to Capacity	0.01	0.13	0.14				
Queue Length 95th (m)	0.3	0.0	3.8				
Control Delay (s)	0.5	0.0	11.2				
Lane LOS	А		В				
Approach Delay (s)	0.5	0.0	11.2				
Approach LOS			В				
Intersection Summary							
Average Delav			2.0				
Intersection Capacity Utiliz	zation		33.0%	IC	U Level o	of Service	A
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1	-	41	Ī
Traffic Volume (veh/h)	7	7	114	7	13	154	
Future Volume (Veh/h)	7	7	114	7	13	154	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	9	9	142	9	16	192	
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	270	142			151		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	270	142			151		
tC, single (s)	6.8	6.9			4.3		
tC. 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	99	99			99		
cM capacity (veh/h)	694	886			1385		
Direction Lane #	WB 1	NR 1	NR 2	SB 1	SB 2		
Volume Total	18	142	9	80	128		
Volume Left	q	0	0	16	120		
Volume Right	0 0	0	Q	0	0		
CH	770	1700	1700	1385	1700		
Volume to Canacity	0.02	0.08	0.01	0.01	0.08		
Ouque Length 95th (m)	0.02	0.00	0.01	0.01	0.00		
Control Delay (c)	0.0	0.0	0.0	1.6	0.0		
Lang LOS	J.1 A	0.0	0.0	1.0	0.0		
Approach Delay (c)	07	0.0		л 0.6			
Approach LOS	J.1 A	0.0		0.0			
	A						
Intersection Summary			0.0				
Average Delay			0.8			(0)	
Intersection Capacity Utiliz	ation		18.0%	IC	U Level	of Service	
Analysis Period (min)			15				
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HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			\$			ર્સ	1		ર્સ	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	7	34	7	94	47	60	13	67	94	54	87	7
Future Volume (vph)	7	34	7	94	47	60	13	67	94	54	87	7
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	9	42	9	116	58	74	16	83	116	67	107	9
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	60	248	99	116	174	9						
Volume Left (vph)	9	116	16	0	67	0						
Volume Right (vph)	9	74	0	116	0	9						
Hadj (s)	-0.06	-0.05	0.21	-0.58	0.24	-0.70						
Departure Headway (s)	5.2	4.9	5.8	5.0	5.8	4.9						
Degree Utilization, x	0.09	0.34	0.16	0.16	0.28	0.01						
Capacity (veh/h)	619	681	590	679	583	689						
Control Delay (s)	8.7	10.5	8.7	7.7	9.9	6.7						
Approach Delay (s)	8.7	10.5	8.1		9.7							
Approach LOS	А	В	А		А							
Intersection Summary												
Delay			9.4									
Level of Service			А									
Intersection Capacity Utiliza	ation		38.9%	IC	U Level o	of Service			А			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	4Î		Y		
Traffic Volume (veh/h)	7	174	154	20	40	47	
Future Volume (Veh/h)	7	174	154	20	40	47	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	9	215	190	25	49	58	
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	215				436	202	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	215				436	202	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	99				91	93	
cM capacity (veh/h)	1337				570	833	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	224	215	107				
Volume Left	9	0	49				
Volume Right	0	25	58				
cSH	1337	1700	688				
Volume to Capacity	0.01	0.13	0.16				
Queue Length 95th (m)	0.2	0.0	4.4				
Control Delay (s)	0.4	0.0	11.2				
Lane LOS	A	0.0	B				
Approach Delay (s)	0.4	0.0	11.2				
Approach LOS	•	0.0	В				
Interportion Summer							
			0.0				
Interception Consoity Litilia	ration		2.3	10		of Sonvice	
Analysis Period (min)	Lauon		20.0%	iU		Service	
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		र्स	f,		Y			
Traffic Volume (veh/h)	13	194	154	27	13	13		
Future Volume (Veh/h)	13	194	154	27	13	13		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81		
Hourly flow rate (vph)	16	240	190	33	16	16		
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	223				478	206		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	223				478	206		
tC, single (s)	4.1				6.4	6.2		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	99				97	98		
cM capacity (veh/h)	1334				543	839		
Direction, Lane #	EB 1	WB 1	SB 1					
Volume Total	256	223	32					
Volume Left	16	0	16					
Volume Right	0	33	16					
cSH	1334	1700	659					
Volume to Capacity	0.01	0.13	0.05					
Queue Length 95th (m)	0.3	0.0	1.2					
Control Delay (s)	0.6	0.0	10.7					
Lane LOS	А		В					
Approach Delay (s)	0.6	0.0	10.7					
Approach LOS			В					
Intersection Summary								
Average Delay			1.0					
Intersection Capacity Utiliz	ation		30.9%	IC	U Level o	of Service	A	
Analysis Period (min)			15					

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥.		*	1	-	41	_
Traffic Volume (veh/h)	13	40	127	7	7	134	
Future Volume (Veh/h)	13	40	127	7	7	134	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	16	49	157	9	9	165	
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	258	157			166		
vC1. stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	258	157			166		
tC, single (s)	6.9	7.0			4.3		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	98	94			99		
cM capacity (veh/h)	696	851			1339		
Direction. Lane #	WB 1	NB 1	NB 2	SB 1	SB 2		
Volume Total	65	157	9	64	110		
Volume Left	16	0	0	9	0		
Volume Right	49	0	9	0	0		
cSH	807	1700	1700	1339	1700		
Volume to Capacity	0.08	0.09	0.01	0.01	0.06		
Queue Length 95th (m)	21	0.0	0.0	0.01	0.0		
Control Delay (s)	9.9	0.0	0.0	1 1	0.0		
Lane LOS	Δ	0.0	0.0	Α	0.0		
Approach Delay (s)	99	0.0		0.4			
Approach LOS	0.0 A	0.0		0.4			
Interpretion Cummers							
Auersection Summary			1.0				
Average Delay			1.8			- (O	
Intersection Capacity Utiliz	ation		18.9%	IC	U Level	or Service	
Analysis Period (min)			15				

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HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			\$			र्स	1		નુ	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	15	92	0	108	31	62	15	62	92	100	69	15
Future Volume (vph)	15	92	0	108	31	62	15	62	92	100	69	15
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	19	115	0	135	39	78	19	78	115	125	86	19
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	134	252	97	115	211	19						
Volume Left (vph)	19	135	19	0	125	0						
Volume Right (vph)	0	78	0	115	0	19						
Hadj (s)	0.25	0.08	0.52	-0.63	0.32	-0.70						
Departure Headway (s)	5.8	5.5	6.5	5.4	6.3	5.2						
Degree Utilization, x	0.22	0.38	0.18	0.17	0.37	0.03						
Capacity (veh/h)	564	617	516	621	541	639						
Control Delay (s)	10.4	11.8	9.7	8.3	11.7	7.2						
Approach Delay (s)	10.4	11.8	8.9		11.3							
Approach LOS	В	В	А		В							
Intersection Summary												
Delay			10.7									
Level of Service			В									
Intersection Capacity Utiliza	tion		40.6%	IC	U Level o	of Service			А			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	4Î		¥		
Traffic Volume (veh/h)	31	239	177	92	31	8	
Future Volume (Veh/h)	31	239	177	92	31	8	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	39	299	221	115	39	10	
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	336				656	278	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	336				656	278	
tC, single (s)	4.3				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	97				91	99	
cM capacity (veh/h)	1149				419	765	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	338	336	49				
Volume Left	39	0	39				
Volume Right	0	115	10				
cSH	1149	1700	462				
Volume to Capacity	0.03	0.20	0.11				
Queue Length 95th (m)	0.8	0.0	2.8				
Control Delay (s)	1.3	0.0	13.7				
Lane LOS	А		В				
Approach Delay (s)	1.3	0.0	13.7				
Approach LOS			В				
Intersection Summary							
Average Delay			1.5				
Intersection Capacity Utilization	on		42.5%	IC	U Level o	of Service	А
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		ર્સ	f,		Y		
Traffic Volume (veh/h)	15	246	185	23	23	62	
Future Volume (Veh/h)	15	246	185	23	23	62	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	19	308	231	29	29	78	
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	260				592	246	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	260				592	246	
tC, single (s)	4.1				6.6	6.4	
tC, 2 stage (s)							
tF (s)	2.2				3.7	3.5	
p0 queue free %	99				93	90	
cM capacity (veh/h)	1293				436	753	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	327	260	107				
Volume Left	19	0	29				
Volume Right	0	29	78				
cSH	1293	1700	629				
Volume to Capacity	0.01	0.15	0.17				
Queue Length 95th (m)	0.4	0.0	4.9				
Control Delay (s)	0.6	0.0	11.9				
Lane LOS	А		В				
Approach Delay (s)	0.6	0.0	11.9				
Approach LOS			В				
Intersection Summary							
Average Delay			2.1				
Intersection Capacity Utiliz	zation		37.0%	IC	U Level o	of Service	A
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1	-	41	
Traffic Volume (veh/h)	8	8	131	8	15	177	
Future Volume (Veh/h)	8	8	131	8	15	177	
Sian Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	10	10	164	10	19	221	
Pedestrians	10	10	101	10	10		
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)			110110			110110	
Unstream signal (m)							
nX platoon unblocked							
vC. conflicting volume	312	164			174		
vC1_stage 1 conf vol	012	104			174		
vC1, stage 1 confive							
	312	164			174		
tC single (s)	68	60			43		
tC, 2 stage (s)	0.0	0.5			т.5		
tF (e)	35	22			23		
n 0 queue free %	0.0	0.0			2.0		
cM canacity (yeh/h)	652	858			1357		
	002	000			1007		
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2		
Volume Total	20	164	10	93	147		
Volume Left	10	0	0	19	0		
Volume Right	10	0	10	0	0		
cSH	741	1700	1700	1357	1700		
Volume to Capacity	0.03	0.10	0.01	0.01	0.09		
Queue Length 95th (m)	0.7	0.0	0.0	0.3	0.0		
Control Delay (s)	10.0	0.0	0.0	1.7	0.0		
Lane LOS	А			А			
Approach Delay (s)	10.0	0.0		0.6			
Approach LOS	А						
Intersection Summary							
Average Delay			0.8				
Intersection Capacity Utiliza	ation		25.6%	IC	Ulevel	of Service	
Analysis Period (min)			15	10	0 20101		

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HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			ę	1		ę	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	8	39	8	108	54	69	15	77	108	62	100	8
Future Volume (vph)	8	39	8	108	54	69	15	77	108	62	100	8
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	10	48	10	133	67	85	19	95	133	77	123	10
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	68	285	114	133	200	10						
Volume Left (vph)	10	133	19	0	77	0						
Volume Right (vph)	10	85	0	133	0	10						
Hadj (s)	-0.06	-0.05	0.22	-0.58	0.24	-0.70						
Departure Headway (s)	5.5	5.2	6.0	5.2	6.1	5.1						
Degree Utilization, x	0.10	0.41	0.19	0.19	0.34	0.01						
Capacity (veh/h)	581	654	564	647	559	655						
Control Delay (s)	9.2	11.7	9.2	8.2	10.9	7.0						
Approach Delay (s)	9.2	11.7	8.7		10.7							
Approach LOS	А	В	А		В							
Intersection Summary												
Delay			10.3									
Level of Service			В									
Intersection Capacity Utiliza	tion		41.7%	IC	U Level	of Service			А			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	4Î		¥		
Traffic Volume (veh/h)	8	200	177	23	46	54	
Future Volume (Veh/h)	8	200	177	23	46	54	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	10	247	219	28	57	67	
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	247				500	233	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	247				500	233	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	99				89	92	
cM capacity (veh/h)	1302				523	801	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	257	247	124				
Volume Left	10	0	57				
Volume Right	0	28	67				
cSH	1302	1700	644				
Volume to Capacity	0.01	0.15	0.19				
Queue Length 95th (m)	0.2	0.0	5.7				
Control Delay (s)	0.4	0.0	11.9				
Lane LOS	А		В				
Approach Delay (s)	0.4	0.0	11.9				
Approach LOS			В				
Intersection Summary							
Average Delay			2.5				
Intersection Capacity Utilization	on		29.5%	IC	U Level o	of Service	А
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	f,		¥		
Traffic Volume (veh/h)	15	223	177	31	15	15	
Future Volume (Veh/h)	15	223	177	31	15	15	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	19	275	219	38	19	19	
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	257				551	238	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	257				551	238	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	99				96	98	
cM capacity (veh/h)	1296				492	806	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	294	257	38				
Volume Left	19	0	19				
Volume Right	0	38	19				
cSH	1296	1700	611				
Volume to Capacity	0.01	0.15	0.06				
Queue Length 95th (m)	0.4	0.0	1.6				
Control Delay (s)	0.6	0.0	11.3				
Lane LOS	А		В				
Approach Delay (s)	0.6	0.0	11.3				
Approach LOS			В				
Intersection Summary							
Average Delay			1.0				
Intersection Capacity Utiliz	ation		34.0%	IC	U Level o	of Service	A
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	W.		*	1	-		Ī
Traffic Volume (veh/h)	15	46	146	8	8	154	
Future Volume (Veh/h)	15	46	146	8	8	154	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	19	57	180	10	10	190	
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	295	180			190		
vC1. stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	295	180			190		
tC, single (s)	6.9	7.0			4.3		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	97	93			99		
cM capacity (veh/h)	659	822			1311		
Direction. Lane #	WB 1	NB 1	NB 2	SB 1	SB 2		
Volume Total	76	180	10	73	127		
Volume Left	19	0	0	10	0		
Volume Right	57	0	10	0	0		
cSH	774	1700	1700	1311	1700		
Volume to Capacity	0.10	0 11	0.01	0.01	0.07		
Queue Length 95th (m)	26	0.0	0.0	0.01	0.0		
Control Delay (s)	10.2	0.0	0.0	1 1	0.0		
Lane LOS	B	0.0	0.0	Α	0.0		
Approach Delay (s)	10.2	0.0		0.4			
Approach LOS	B	0.0		0.1			
Interception Summery	5						
			1.0				
Average Delay	- otion		1.ŏ	10	111	of Consider	
Analysis Daried (min)	allon		20.3%	IC	U Level	UI SEIVICE	
Analysis Period (min)			15				

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HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			र्स	1		र्स	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	17	104	0	122	35	70	17	70	104	113	78	17
Future Volume (vph)	17	104	0	122	35	70	17	70	104	113	78	17
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	21	130	0	152	44	88	21	88	130	141	98	21
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	151	284	109	130	239	21						
Volume Left (vph)	21	152	21	0	141	0						
Volume Right (vph)	0	88	0	130	0	21						
Hadj (s)	0.25	0.08	0.52	-0.63	0.32	-0.70						
Departure Headway (s)	6.1	5.7	6.8	5.6	6.5	5.5						
Degree Utilization, x	0.26	0.45	0.21	0.20	0.43	0.03						
Capacity (veh/h)	530	590	492	587	518	605						
Control Delay (s)	11.3	13.3	10.4	8.9	13.3	7.5						
Approach Delay (s)	11.3	13.3	9.6		12.8							
Approach LOS	В	В	А		В							
Intersection Summary												
Delay			11.9									
Level of Service			В									
Intersection Capacity Utiliza	tion		43.2%	IC	U Level o	of Service			А			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	4Î		Y		
Traffic Volume (veh/h)	35	270	200	104	35	9	
Future Volume (Veh/h)	35	270	200	104	35	9	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	44	338	250	130	44	11	
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	380				741	315	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	380				741	315	
tC, single (s)	4.3				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	96				88	98	
cM capacity (veh/h)	1106				371	730	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	382	380	55				
Volume Left	44	0	44				
Volume Right	0	130	11				
cSH	1106	1700	412				
Volume to Capacity	0.04	0.22	0.13				
Queue Length 95th (m)	1.0	0.0	3.7				
Control Delay (s)	1.3	0.0	15.1				
Lane LOS	А		С				
Approach Delay (s)	1.3	0.0	15.1				
Approach LOS			С				
Intersection Summary							
Average Delay			1.6				
Intersection Capacity Utilization	on		46.3%	IC	U Level o	of Service	A
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	ţ,		Y		
Traffic Volume (veh/h)	17	278	209	26	29	70	
Future Volume (Veh/h)	17	278	209	26	29	70	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	21	348	261	32	36	88	
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	293				667	277	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	293				667	277	
tC, single (s)	4.1				6.6	6.4	
tC, 2 stage (s)							
tF (s)	2.2				3.7	3.5	
p0 queue free %	98				91	88	
cM capacity (veh/h)	1257				392	723	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	369	293	124				
Volume Left	21	0	36				
Volume Right	0	32	88				
cSH	1257	1700	581				
Volume to Capacity	0.02	0.17	0.21				
Queue Length 95th (m)	0.4	0.0	6.4				
Control Delay (s)	0.6	0.0	12.9				
Lane LOS	A		В				
Approach Delay (s)	0.6	0.0	12.9				
Approach LOS			В				
Intersection Summary							
Average Delay			2.3				
Intersection Capacity Utilization	ation		41.1%	IC	U Level o	of Service	A
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1	-	41	-
Traffic Volume (veh/h)	9	9	148	9	17	200	
Future Volume (Veh/h)	9	9	148	9	17	200	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	11	11	185	11	21	250	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)							
Upstream signal (m)							
pX. platoon unblocked							
vC. conflicting volume	352	185			196		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	352	185			196		
tC, single (s)	6.8	6.9			4.3		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	98	99			98		
cM capacity (veh/h)	615	832			1331		
Direction. Lane #	WB 1	NB 1	NB 2	SB 1	SB 2		
Volume Total	22	185	11	104	167		
Volume Left	11	0	0	21	0		
Volume Right	11	0	11	0	0		
cSH	707	1700	1700	1331	1700		
Volume to Canacity	0.03	0 11	0.01	0.02	0 10		
Queue Length 95th (m)	0.00	0.0	0.0	0.4	0.0		
Control Delay (s)	10.3	0.0	0.0	17	0.0		
Lane LOS	- B	0.0	0.0	Δ	0.0		
Approach Delay (s)	10.3	0.0		0.6			
Approach LOS	B	0.0		0.0			
Interception Summery	5						
Average Delevi			0.0				
Average Delay	ation .		0.0 07.40/	10	111	of Consider	
Analysis Daried (min)	allon		21.1%	IC	U Level	JI Service	
Analysis Period (min)			15				

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HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			ર્સ	1		નુ	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	44	9	122	61	78	17	87	122	70	113	9
Future Volume (vph)	9	44	9	122	61	78	17	87	122	70	113	9
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	11	54	11	151	75	96	21	107	151	86	140	11
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	76	322	128	151	226	11						
Volume Left (vph)	11	151	21	0	86	0						
Volume Right (vph)	11	96	0	151	0	11						
Hadj (s)	-0.06	-0.05	0.21	-0.58	0.24	-0.70						
Departure Headway (s)	5.8	5.4	6.3	5.5	6.3	5.4						
Degree Utilization, x	0.12	0.48	0.22	0.23	0.40	0.02						
Capacity (veh/h)	542	630	540	616	537	623						
Control Delay (s)	9.7	13.3	9.8	8.9	12.2	7.2						
Approach Delay (s)	9.7	13.3	9.3		12.0							
Approach LOS	А	В	А		В							
Intersection Summary												
Delay			11.4									
Level of Service			В									
Intersection Capacity Utiliza	tion		44.5%	IC	U Level	of Service			А			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	4Î		- M		
Traffic Volume (veh/h)	9	226	200	26	52	61	
Future Volume (Veh/h)	9	226	200	26	52	61	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	11	279	247	32	64	75	
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	279				564	263	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	279				564	263	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	99				87	90	
cM capacity (veh/h)	1267				479	771	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	290	279	139				
Volume Left	11	0	64				
Volume Right	0	32	75				
cSH	1267	1700	602				
Volume to Capacity	0.01	0.16	0.23				
Queue Length 95th (m)	0.2	0.0	7.1				
Control Delay (s)	0.4	0.0	12.8				
Lane LOS	А		В				
Approach Delay (s)	0.4	0.0	12.8				
Approach LOS			В				
Intersection Summary							
Average Delay			27				
Intersection Capacity Utilizati	on		32.5%	IC	U Level o	of Service	
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	1⇒		¥		
Traffic Volume (veh/h)	17	252	200	35	17	17	
Future Volume (Veh/h)	17	252	200	35	17	17	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	21	311	247	43	21	21	
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	290				622	268	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	290				622	268	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	98				95	97	
cM capacity (veh/h)	1260				446	775	
Direction Lane #	FR 1	WR 1	SB 1				
Volume Total	330	200	/12				
	00Z 01	290	4Z 21				
Volume Right	21 0	13	21				
	1260	1700	566				
Volume to Canacity	0.02	0 17	0.07				
Oueue Length 95th (m)	0.02	0.17	1 0				
Control Delay (s)	0.4	0.0	11.9				
	0.7	0.0	11.9 R				
Approach Delay (s)	07	0.0	11 0				
Approach LOS	0.7	0.0	R				
			D				
Intersection Summary							
Average Delay			1.1				
Intersection Capacity Utiliza	tion		37.2%	IC	U Level o	of Service	A
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1	-	41	
Traffic Volume (veh/h)	17	52	165	9	9	174	
Future Volume (Veh/h)	17	52	165	9	9	174	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	21	64	204	11	11	215	
Pedestrians		01	201			2.0	
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)			110110			110110	
Linstream signal (m)							
nX nlatoon unblocked							
vC conflicting volume	334	204			215		
vC1_stage 1 conf vol	001	201			210		
vC2_stage 2 conf vol							
vCu, unblocked vol	334	204			215		
tC single (s)	6.9	7.0			4.3		
tC, 2 stage (s)	0.0	1.0			1.0		
tE(s)	35	33			23		
n0 queue free %	97	92			99		
cM capacity (veh/h)	623	794			1282		
	020			a- <i>i</i>	1202		
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2		
Volume Total	85	204	11	83	143		
Volume Left	21	0	0	11	0		
Volume Right	64	0	11	0	0		
cSH	743	1700	1700	1282	1700		
Volume to Capacity	0.11	0.12	0.01	0.01	0.08		
Queue Length 95th (m)	3.1	0.0	0.0	0.2	0.0		
Control Delay (s)	10.5	0.0	0.0	1.1	0.0		
Lane LOS	В			А			
Approach Delay (s)	10.5	0.0		0.4			
Approach LOS	В						
Intersection Summary							
Average Delav			1.9				
Intersection Capacity Utiliz	ation		22.3%	IC	U Level	of Service	
Analysis Period (min)			15				

Appendix E Synchro Results – Development Traffic





PHASE 1 - 2030 AM

HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			ť.	1		ŧ	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	16	69	0	91	25	56	11	55	76	77	51	13
Future Volume (vph)	16	69	0	91	25	56	11	55	76	77	51	13
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	20	86	0	114	31	70	14	69	95	96	64	16
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	106	215	83	95	160	16						
Volume Left (vph)	20	114	14	0	96	0						
Volume Right (vph)	0	70	0	95	0	16						
Hadj (s)	0.28	0.07	0.50	-0.63	0.33	-0.70						
Departure Headway (s)	5.4	5.1	6.1	5.0	5.9	4.9						
Degree Utilization, x	0.16	0.30	0.14	0.13	0.26	0.02						
Capacity (veh/h)	608	666	555	675	572	685						
Control Delay (s)	9.5	10.2	8.9	7.5	9.8	6.8						
Approach Delay (s)	9.5	10.2	8.2		9.6							
Approach LOS	А	В	А		А							
Intersection Summary												
Delay			9.4									
Level of Service			А									
Intersection Capacity Utiliza	tion		36.7%	IC	U Level o	of Service			А			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	4Î		¥		
Traffic Volume (veh/h)	30	182	145	78	26	12	
Future Volume (Veh/h)	30	182	145	78	26	12	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	38	228	181	98	32	15	
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	279				534	230	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	279				534	230	
tC, single (s)	4.3				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	97				94	98	
cM capacity (veh/h)	1207				494	814	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	266	279	47				
Volume Left	38	0	32				
Volume Right	0	98	15				
cSH	1207	1700	565				
Volume to Capacity	0.03	0.16	0.08				
Queue Length 95th (m)	0.8	0.0	2.2				
Control Delay (s)	1.4	0.0	11.9				
Lane LOS	А		В				
Approach Delay (s)	1.4	0.0	11.9				
Approach LOS			В				
Intersection Summary							
Average Delay			16				
Intersection Capacity Utilizat	tion		37.0%	IC	ULevelo	of Service	
Analysis Period (min)			15	.0			

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Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		र्स	ţ,		Y			
Traffic Volume (veh/h)	13	188	156	19	23	51		
Future Volume (Veh/h)	13	188	156	19	23	51		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80		
Hourly flow rate (vph)	16	235	195	24	29	64		
Pedestrians								
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type		None	None					
Median storage veh)								
Upstream signal (m)								
pX, platoon unblocked								
vC, conflicting volume	219				474	207		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	219				474	207		
tC, single (s)	4.1				6.6	6.4		
tC, 2 stage (s)								
tF (s)	2.2				3.7	3.5		
p0 queue free %	99				94	92		
cM capacity (veh/h)	1339				513	792		
Direction, Lane #	EB 1	WB 1	SB 1					
Volume Total	251	219	93					
Volume Left	16	0	29					
Volume Right	0	24	64					
cSH	1339	1700	677					
Volume to Capacity	0.01	0.13	0.14					
Queue Length 95th (m)	0.3	0.0	3.8					
Control Delay (s)	0.6	0.0	11.2					
Lane LOS	А		В					
Approach Delay (s)	0.6	0.0	11.2					
Approach LOS			В					
Intersection Summarv								
Average Delay			2.1					
Intersection Capacity Utiliza	ation		31.7%	IC	U Level o	of Service	A	
Analysis Period (min)			15		5 _ 5. 61 (

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1	-	41	
Traffic Volume (veh/h)	10	13	97	30	22	131	
Future Volume (Veh/h)	10	13	97	30	22	131	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	12	16	121	38	28	164	
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	259	121			159		
vC1. stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	259	121			159		
tC, single (s)	6.8	6.9			4.3		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	98	98			98		
cM capacity (veh/h)	699	914			1375		
Direction Lane #	WB 1	NR 1	NR 2	SB 1	SB 2		
Volume Total	28	121	38	83	109		
Volume Left	12	0	0	28	0		
Volume Right	12	0	38	20	0		
CH	807	1700	1700	1375	1700		
Volume to Canacity	0.03	0.07	0.02	0.02	0.06		
Ouque Length 95th (m)	0.00	0.07	0.02	0.02	0.00		
Control Delay (c)	0.0	0.0	0.0	0.5	0.0		
	J.U A	0.0	0.0	2.1	0.0		
Approach Delay (s)	7	0.0		12			
Approach LOS	5.0 Δ	0.0		1.2			
	A						
Intersection Summary			1.0				
Average Delay			1.3			(0	
Intersection Capacity Utiliz	zation		17.9%	IC	U Level	of Service	
Analysis Period (min)			15				

PHASE 1 - 2030 PM

HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			÷			÷	1		÷	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	8	31	6	94	41	56	11	59	91	56	78	11
Future Volume (vph)	8	31	6	94	41	56	11	59	91	56	78	11
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	10	38	7	116	51	69	14	73	112	69	96	14
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	55	236	87	112	165	14						
Volume Left (vph)	10	116	14	0	69	0						
Volume Right (vph)	7	69	0	112	0	14						
Hadj (s)	-0.04	-0.04	0.21	-0.58	0.26	-0.70						
Departure Headway (s)	5.2	4.9	5.7	4.9	5.8	4.8						
Degree Utilization, x	0.08	0.32	0.14	0.15	0.26	0.02						
Capacity (veh/h)	630	690	597	690	591	703						
Control Delay (s)	8.6	10.2	8.4	7.6	9.6	6.7						
Approach Delay (s)	8.6	10.2	7.9		9.4							
Approach LOS	А	В	А		А							
Intersection Summary												
Delay			9.2									
Level of Service			А									
Intersection Capacity Utilization	tion		38.0%	IC	U Level o	of Service			A			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	ţ,		- M		
Traffic Volume (veh/h)	12	162	139	22	44	52	
Future Volume (Veh/h)	12	162	139	22	44	52	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	15	200	172	27	54	64	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	199				416	186	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	199				416	186	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	99				91	92	
cM capacity (veh/h)	1356				583	852	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	215	199	118				
Volume Left	15	0	54				
Volume Right	0	27	64				
cSH	1356	1700	703				
Volume to Capacity	0.01	0.12	0.17				
Queue Length 95th (m)	0.3	0.0	4.8				
Control Delay (s)	0.6	0.0	11.1				
Lane LOS	А		В				
Approach Delay (s)	0.6	0.0	11.1				
Approach LOS			В				
Intersection Summarv							
Average Delay			2.7				
Intersection Capacity Utilization	on		30.7%	IC	U Level o	of Service	А
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	f)		¥		
Traffic Volume (veh/h)	16	184	141	30	15	14	
Future Volume (Veh/h)	16	184	141	30	15	14	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	20	227	174	37	19	17	
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	211				460	192	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	211				460	192	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	99				97	98	
cM capacity (veh/h)	1348				555	854	
Direction. Lane #	EB 1	WB 1	SB 1				
Volume Total	247	211	36				
Volume Left	20	0	19				
Volume Right	0	37	17				
cSH	1348	1700	665				
Volume to Capacity	0.01	0 12	0.05				
Queue Length 95th (m)	0.01	0.0	1 4				
Control Delay (s)	0.7	0.0	10.7				
Lane LOS	Δ	0.0	B				
Approach Delay (s)	0.7	0.0	10.7				
Approach LOS	0.1	0.0	B				
			5				
Intersection Summary			4.0				
Average Delay	ration		1.2	10		of Convice	٨
Analysis Deried (min)			32.9% 1E	IC		DI SEIVICE	A
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	l
Lane Configurations	¥		*	1	-	41	
Traffic Volume (veh/h)	30	45	108	15	12	114	
Future Volume (Veh/h)	30	45	108	15	12	114	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	37	56	133	19	15	141	
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	234	133			152		
vC1. stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	234	133			152		
tC, single (s)	6.9	7.0			4.3		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	95	94			99		
cM capacity (veh/h)	718	882			1356		
Direction Lane #	WB 1	NR 1	NR 2	SB 1	SB 2		
Volume Total	03	133	19	62	94		_
Volume Left	37	0	0	15	0		
Volume Right	56	0	10	0	0		
CH	808	1700	1700	1356	1700		
Volume to Canacity	0.12	0.08	0.01	0.01	0.06		
Ouque Length 95th (m)	3.1	0.00	0.01	0.01	0.00		
Control Delay (c)	10.0	0.0	0.0	1.0	0.0		
Lang LOS	10.0 R	0.0	0.0	1.5	0.0		
Approach Delay (c)	10.0	0.0		0.8			
Approach LOS	10.0 R	0.0		0.0			
	D						
Intersection Summary			0.0				
Average Delay	- P		2.6			(0)	
Intersection Capacity Utiliz	ation		18.4%	IC	U Level	of Service	
Analysis Period (min)			15				

PHASE 1 - 2040 AM

HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			4			ę	1		र्भ	7
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	18	81	0	106	29	64	13	62	89	90	59	15
Future Volume (vph)	18	81	0	106	29	64	13	62	89	90	59	15
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	22	101	0	132	36	80	16	78	111	112	74	19
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	123	248	94	111	186	19						
Volume Left (vph)	22	132	16	0	112	0						
Volume Right (vph)	0	80	0	111	0	19						
Hadj (s)	0.28	0.07	0.50	-0.63	0.33	-0.70						
Departure Headway (s)	5.7	5.3	6.4	5.2	6.2	5.1						
Degree Utilization, x	0.20	0.37	0.17	0.16	0.32	0.03						
Capacity (veh/h)	577	636	529	637	547	649						
Control Delay (s)	10.1	11.3	9.5	8.0	10.9	7.1						
Approach Delay (s)	10.1	11.3	8.7		10.5							
Approach LOS	В	В	А		В							
Intersection Summary												
Delay			10.2									
Level of Service			В									
Intersection Capacity Utiliza	tion		39.4%	IC	U Level o	of Service			А			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	ţ,		- M		
Traffic Volume (veh/h)	35	213	168	90	30	14	
Future Volume (Veh/h)	35	213	168	90	30	14	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	44	266	210	112	38	18	
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	322				620	266	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	322				620	266	
tC, single (s)	4.3				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	96				91	98	
cM capacity (veh/h)	1163				438	778	
Direction. Lane #	EB 1	WB 1	SB 1				
Volume Total	310	322	56				
Volume Left	44	0	38				
Volume Right	۰÷- ۱	112	18				
cSH	1163	1700	509				
Volume to Canacity	0.04	0 19	0.11				
Queue Length 95th (m)	0.04	0.10	2.9				
Control Delay (s)	1.5	0.0	12.0				
	1.5	0.0	12.5 R				
Approach Delay (s)	15	0.0	12.0				
Approach LOS	1.0	0.0	12.5 R				
			U				
Intersection Summary							
Average Delay			1.7			·	
Intersection Capacity Utiliz	zation		40.8%	IC	U Level c	of Service	
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	î,		¥		
Traffic Volume (veh/h)	15	220	180	22	26	59	
Future Volume (Veh/h)	15	220	180	22	26	59	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	19	275	225	28	32	74	
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	253				552	239	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	253				552	239	
tC, single (s)	4.1				6.6	6.4	
tC, 2 stage (s)							
tF (s)	2.2				3.7	3.5	
p0 queue free %	99				93	90	
cM capacity (veh/h)	1301				460	760	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	294	253	106				
Volume Left	19	0	32				
Volume Right	0	28	74				
cSH	1301	1700	635				
Volume to Capacity	0.01	0.15	0.17				
Queue Length 95th (m)	0.4	0.0	4.8				
Control Delay (s)	0.6	0.0	11.8				
Lane LOS	А		В				
Approach Delay (s)	0.6	0.0	11.8				
Approach LOS			В				
Intersection Summary							
Average Delay			2.2				
Intersection Capacity Utiliza	tion		35.6%	IC	U Level o	of Service	A
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1	-	41	Ī
Traffic Volume (veh/h)	10	14	114	30	24	154	
Future Volume (Veh/h)	10	14	114	30	24	154	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	12	18	142	38	30	192	
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	298	142			180		
vC1. stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	298	142			180		
tC, single (s)	6.8	6.9			4.3		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	98	98			98		
cM capacity (veh/h)	660	886			1350		
Direction. Lane #	WB 1	NB 1	NB 2	SB 1	SB 2		
Volume Total	30	142	38	94	128		
Volume Left	12	0	0	30	0		
Volume Right	12	0	38	0	0		
cSH	779	1700	1700	1350	1700		
Volume to Canacity	0.04	0.08	0.02	0.02	0.08		
Queue Length 95th (m)	10	0.0	0.0	0.5	0.0		
Control Delay (s)	9.8	0.0	0.0	2.6	0.0		
Lane LOS	Δ	0.0	0.0	Δ.0	0.0		
Approach Delay (s)	9.8	0.0		11			
Approach LOS	0.0 A	0.0		1.1			
Interpretion Cummon							
			4.0				
Average Delay			1.2			. ()	
Intersection Capacity Utiliz	ation		18.3%	IC	U Level	of Service	
Analysis Period (min)			15				

PHASE 1 - 2040 PM

HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			ę	1		ا	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	36	7	110	48	65	13	68	106	64	89	12
Future Volume (vph)	9	36	7	110	48	65	13	68	106	64	89	12
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	11	44	9	136	59	80	16	84	131	79	110	15
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	64	275	100	131	189	15						
Volume Left (vph)	11	136	16	0	79	0						
Volume Right (vph)	9	80	0	131	0	15						
Hadj (s)	-0.05	-0.04	0.21	-0.58	0.26	-0.70						
Departure Headway (s)	5.4	5.1	5.9	5.1	6.0	5.0						
Degree Utilization, x	0.10	0.39	0.16	0.19	0.31	0.02						
Capacity (veh/h)	594	664	572	656	566	669						
Control Delay (s)	9.0	11.3	8.9	8.1	10.5	6.9						
Approach Delay (s)	9.0	11.3	8.5		10.3							
Approach LOS	А	В	А		В							
Intersection Summary												
Delay			10.0									
Level of Service			А									
Intersection Capacity Utilizat	ion		40.8%	IC	U Level o	of Service			A			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	4Î		- M		
Traffic Volume (veh/h)	14	188	162	25	50	61	
Future Volume (Veh/h)	14	188	162	25	50	61	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	17	232	200	31	62	75	
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	231				482	216	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	231				482	216	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	99				88	91	
cM capacity (veh/h)	1319				533	819	
Direction Lane #	FR 1	WR 1	SR 1				
Volume Total	2/0	221	127				
	249	201	62				
Volume Dight	17	21	02				
	1210	ا د 1700	650				
Volume to Canacity	0.01	0.14	009				
Ouque Length Of the (m)	0.01	0.14	0.21				
Control Doloy (a)	0.5	0.0	0.2				
Control Delay (S)	0.0	0.0	II.9				
Lane LUS	A	0.0	11 O				
Approach Delay (S)	0.6	0.0	II.9 D				
Approach LOS			В				
Intersection Summary							
Average Delay			2.9				
Intersection Capacity Utilization	on		34.6%	IC	U Level o	of Service	
Analysis Period (min)			15				

Movement EBL EBT WBT WBR SBL SBR
Lane Configurations
Traffic Volume (veh/h) 18 213 164 34 17 16
Future Volume (Veh/h) 18 213 164 34 17 16
Sign Control Free Free Stop
Grade 0% 0% 0%
Peak Hour Factor 0.81 0.81 0.81 0.81 0.81 0.81
Hourly flow rate (vph) 22 263 202 42 21 20
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 244 530 223
vC1, stage 1 conf vol
vC2, stage 2 conf vol
vCu, unblocked vol 244 530 223
tC, single (s) 4.1 6.4 6.2
tC, 2 stage (s)
tF (s) 2.2 3.5 3.3
p0 queue free % 98 96 98
cM capacity (veh/h) 1311 504 822
Direction, Lane # EB 1 WB 1 SB 1
Volume Total 285 244 41
Volume Left 22 0 21
Volume Right 0 42 20
cSH 1311 1700 621
Volume to Capacity 0.02 0.14 0.07
Queue Lenath 95th (m) 0.4 0.0 1.7
Control Delay (s) 0.7 0.0 11.2
Lane LOS A B
Approach Delay (s) 0.7 0.0 11.2
Approach LOS B
Intersection Summany
Intersection Canacity Utilization 36.1% ICUL eval of Service
Analysis Period (min) 15

Movement
Lane Configurations
Traffic Volume (veh/h)
Future Volume (Veh/h)
Sign Control
Grade
Peak Hour Factor
Hourly flow rate (vph)
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
vC1_stage 1 conf vol
vC2_stage 2 conf vol
vCu, unblocked vol
tC single (s)
tC 2 stage (s)
tE(s)
n0 queue free %
cM capacity (veh/h)
Direction Lane #
Volumo Total
Volume Leit
Volumo to Consoitu
Ouque Length 05th (m)
Queue Length 95th (m)
Control Delay (S)
Lane LUS
Approach Delay (s)
Approach LOS
Intersection Summary
Average Delay
Intersection Capacity Utiliz
Analysis Period (min)

PHASE 1 - 2050 AM

HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			ę	1		र्स	7
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	93	0	121	33	72	15	69	102	103	67	17
Future Volume (vph)	20	93	0	121	33	72	15	69	102	103	67	17
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	25	116	0	151	41	90	19	86	128	129	84	21
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	141	282	105	128	213	21						
Volume Left (vph)	25	151	19	0	129	0						
Volume Right (vph)	0	90	0	128	0	21						
Hadj (s)	0.27	0.08	0.51	-0.63	0.33	-0.70						
Departure Headway (s)	6.0	5.6	6.7	5.5	6.5	5.4						
Degree Utilization, x	0.24	0.44	0.19	0.20	0.38	0.03						
Capacity (veh/h)	545	607	503	601	523	614						
Control Delay (s)	10.9	12.8	10.1	8.7	12.2	7.4						
Approach Delay (s)	10.9	12.8	9.3		11.8							
Approach LOS	В	В	А		В							
Intersection Summary												
Delay			11.3									
Level of Service			В									
Intersection Capacity Utiliza	tion		42.1%	IC	U Level o	of Service			A			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		ę	eî 🗧		Y		
Traffic Volume (veh/h)	40	244	191	102	34	16	
Future Volume (Veh/h)	40	244	191	102	34	16	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	50	305	239	128	42	20	
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	367				708	303	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	367				708	303	
tC, single (s)	4.3				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	96				89	97	
cM capacity (veh/h)	1118				386	741	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	355	367	62				
Volume Left	50	0	42				
Volume Right	0	128	20				
cSH	1118	1700	457				
Volume to Capacity	0.04	0.22	0.14				
Queue Length 95th (m)	1.1	0.0	3.7				
Control Delay (s)	1.6	0.0	14.1				
Lane LOS	А		В				
Approach Delay (s)	1.6	0.0	14.1				
Approach LOS			В				
Intersection Summarv							
Average Delay			18				
Intersection Capacity Utilizat	ion		44.7%	IC	U Level o	of Service	
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		र्स	ţ,		¥	
Traffic Volume (veh/h)	17	252	204	25	29	67
Future Volume (Veh/h)	17	252	204	25	29	67
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	21	315	255	31	36	84
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	286				628	270
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	286				628	270
tC, single (s)	4.1				6.6	6.4
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.5
p0 queue free %	98				91	88
cM capacity (veh/h)	1265				414	729
Direction Lane #	FR 1	W/R 1	SR 1			
Volume Total	336	286	120			
Volume Left	21	200	36			
Volume Pight	21	31	8/			
	1265	1700	503			
Volume to Canacity	0.02	0 17	0.20			
Ouque Length 95th (m)	0.02	0.17	6.0			
Control Delay (s)	0.4	0.0	12.6			
Lang LOS	0.0	0.0	12.0 R			
Approach Delay (s)	۲ ۵۵	0.0	12.6			
Approach LOS	0.0	0.0	12.0 R			
			U			
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utiliz	ation		39.6%	IC	U Level c	of Service
Analysis Period (min)			15			

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1	-	41.	-
Traffic Volume (veh/h)	10	15	131	30	26	177	
Future Volume (Veh/h)	10	15	131	30	26	177	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	12	19	164	38	32	221	
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	338	164			202		
vC1. stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	338	164			202		
tC, single (s)	6.8	6.9			4.3		
tC. 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	98	98			98		
cM capacity (veh/h)	621	858			1324		
Direction Lane #	WB 1	NR 1	NR 2	SB 1	SB 2		
Volume Total	31	164	38	106	147		
Volume Left	12	0	0	32	0		
Volume Right	10	0	38	0	0		
CH	7/8	1700	1700	132/	1700		
Volume to Canacity	0.04	0.10	0.02	0.02	0.00		
Ouque Length 95th (m)	1.0	0.10	0.02	0.02	0.03		
Control Delay (c)	10.0	0.0	0.0	2.5	0.0		
Lang LOS	10.0 R	0.0	0.0	2.5	0.0		
Approach Delay (c)	10.0	0.0		10			
Approach LOS	10.0 R	0.0		1.0			
	D						
Intersection Summary			4.0				
Average Delay			1.2				
Intersection Capacity Utiliz	ation		25.9%	IC	U Level	of Service	
Analysis Period (min)			15				

PHASE 1 - 2050 PM

HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			÷			र्च	1		र्च	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	41	8	126	55	74	15	77	121	72	100	13
Future Volume (vph)	10	41	8	126	55	74	15	77	121	72	100	13
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	12	51	10	156	68	91	19	95	149	89	123	16
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	73	315	114	149	212	16						
Volume Left (vph)	12	156	19	0	89	0						
Volume Right (vph)	10	91	0	149	0	16						
Hadj (s)	-0.05	-0.04	0.22	-0.58	0.26	-0.70						
Departure Headway (s)	5.7	5.3	6.2	5.4	6.2	5.3						
Degree Utilization, x	0.12	0.46	0.20	0.22	0.37	0.02						
Capacity (veh/h)	555	640	546	624	542	633						
Control Delay (s)	9.5	12.8	9.5	8.7	11.6	7.2						
Approach Delay (s)	9.5	12.8	9.1		11.3							
Approach LOS	А	В	А		В							
Intersection Summary												
Delay			11.0									
Level of Service			В									
Intersection Capacity Utilizat	ion		43.6%	IC	CU Level o	of Service			А			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		ę	eî 🗧		Y		
Traffic Volume (veh/h)	16	214	185	28	56	70	
Future Volume (Veh/h)	16	214	185	28	56	70	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	20	264	228	35	69	86	
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	263				550	246	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	263				550	246	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	98				86	89	
cM capacity (veh/h)	1284				485	788	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	284	263	155				
Volume Left	20	0	69				
Volume Right	0	35	86				
cSH	1284	1700	617				
Volume to Capacity	0.02	0.15	0.25				
Queue Length 95th (m)	0.4	0.0	7.9				
Control Delay (s)	0.7	0.0	12.8				
Lane LOS	А		В				
Approach Delay (s)	0.7	0.0	12.8				
Approach LOS			В				
Intersection Summary							
Average Delay			31				
Intersection Capacity Utilization	on		38.5%	IC	U Level o	of Service	
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	4Î		¥		
Traffic Volume (veh/h)	20	242	187	38	19	18	
Future Volume (Veh/h)	20	242	187	38	19	18	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	25	299	231	47	23	22	
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	278				604	254	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	278				604	254	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	98				95	97	
cM capacity (veh/h)	1273				456	789	
Direction Lane #	FB 1	WB 1	SB 1				
Volume Total	324	278	45				
Volume Left	- 25	0					
Volume Right	2J 0	47	20				
cSH	1273	1700	574				
Volume to Canacity	0.02	0.16	0.08				
Oueue Length 95th (m)	0.02	0.10	2.0				
Control Delay (s)	0.5	0.0	11.8				
	0.0	0.0	R				
Approach Delay (s)	0.8	0.0	11.8				
Approach LOS	0.0	0.0	R				
			U				
Intersection Summary			1.0				
Average Delay			1.2			(0)	
Intersection Capacity Utiliz	zation		39.3%	IC	U Level c	of Service	
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1	-	41	_
Traffic Volume (veh/h)	30	57	146	15	14	154	
Future Volume (Veh/h)	30	57	146	15	14	154	
Sign Control	Stop	•.	Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	37	70	180	19	17	190	
Pedestrians	01		100	10		100	
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)			None			NOTIC	
Unstream signal (m)							
nX nlatoon unblocked							
vC conflicting volume	309	180			199		
vC1_stage 1 conf vol	000	100			100		
vC2 stage 2 conf vol							
	309	180			199		
tC single (s)	69	7 0			4.3		
tC, 2 stage (s)	0.0	1.0			т. 0		
tF (s)	35	33			23		
n0 queue free %	94	91			99		
cM canacity (veh/h)	642	822			1301		
	042	022			1001		
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2		
Volume Total	107	180	19	80	127		
Volume Left	37	0	0	17	0		
Volume Right	70	0	19	0	0		
cSH	750	1700	1700	1301	1700		
Volume to Capacity	0.14	0.11	0.01	0.01	0.07		
Queue Length 95th (m)	4.0	0.0	0.0	0.3	0.0		
Control Delay (s)	10.6	0.0	0.0	1.7	0.0		
Lane LOS	В			А			
Approach Delay (s)	10.6	0.0		0.7			
Approach LOS	В						
Intersection Summary							
Average Delay			2.5				
Intersection Capacity Utiliza	ation		26.9%	IC	U Level	of Service	
Analysis Period (min)			15				

PHASE 2 - 2040 AM - NO N ACCESS

HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

1 ₹ t ٠ \$ ۶ Î ∢ ť EBL EBT EBR WBR NBL NBT NBR SBL SBR Movement WBL WBT SBT Lane Configurations 4 4 đ ۴ đ 7 Sign Control Stop Stop Stop Stop Traffic Volume (vph) 0 21 82 115 32 69 13 71 92 93 64 17 Future Volume (vph) 21 82 0 32 71 92 93 64 115 69 13 17 Peak Hour Factor 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 Hourly flow rate (vph) 26 102 0 144 40 86 16 89 115 116 80 21 Direction, Lane # EB 1 WB 1 NB 1 NB 2 SB 1 SB 2 Volume Total (vph) 128 115 270 105 196 21 Volume Left (vph) 26 144 16 0 116 0 Volume Right (vph) 0 86 0 0 21 115 Hadj (s) 0.29 0.08 0.48 -0.63 0.32 -0.70 Departure Headway (s) 5.4 6.5 5.4 5.9 6.3 5.3 Degree Utilization, x 0.21 0.41 0.19 0.17 0.34 0.03 631 Capacity (veh/h) 559 623 518 620 534 Control Delay (s) 10.4 12.1 9.8 8.3 11.4 7.2 Approach Delay (s) 10.4 12.1 9.0 11.0 Approach LOS В В А В Intersection Summary Delay 10.7 В Level of Service Intersection Capacity Utilization 40.8% ICU Level of Service А Analysis Period (min) 15

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	4Î		Y		
Traffic Volume (veh/h)	35	218	183	95	33	17	
Future Volume (Veh/h)	35	218	183	95	33	17	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	44	272	229	119	41	21	
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	348				648	288	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	348				648	288	
tC, single (s)	4.3				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	96				90	97	
cM capacity (veh/h)	1137				421	755	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	316	348	62				
Volume Left	44	0	41				
Volume Right	0	119	21				
cSH	1137	1700	495				
Volume to Capacity	0.04	0.20	0.13				
Queue Length 95th (m)	1.0	0.0	3.4				
Control Delay (s)	1.5	0.0	13.3				
Lane LOS	А		В				
Approach Delay (s)	1.5	0.0	13.3				
Approach LOS			В				
Intersection Summary							
			1.8				
Intersection Canacity Litilization	n		42.2%			f Service	
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		र्स	f,		¥			
Traffic Volume (veh/h)	14	224	191	26	26	58		
Future Volume (Veh/h)	14	224	191	26	26	58		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80		
Hourly flow rate (vph)	18	280	239	32	32	72		
Pedestrians								
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type		None	None					
Median storage veh)								
Upstream signal (m)								
pX, platoon unblocked								
vC, conflicting volume	271				571	255		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	271				571	255		
tC, single (s)	4.1				6.6	6.4		
tC, 2 stage (s)								
tF (s)	2.2				3.7	3.5		
p0 queue free %	99				93	90		
cM capacity (veh/h)	1281				448	744		
Direction, Lane #	EB 1	WB 1	SB 1					
Volume Total	298	271	104					
Volume Left	18	0	32					
Volume Right	0	32	72					
cSH	1281	1700	619					
Volume to Capacity	0.01	0.16	0.17					
Queue Length 95th (m)	0.3	0.0	4.8					
Control Delay (s)	0.6	0.0	12.0					
Lane LOS	А		В					
Approach Delay (s)	0.6	0.0	12.0					
Approach LOS			В					
Intersection Summary								
Average Delay			2.1					
Intersection Capacity Utiliz	ation		34.9%	IC	U Level o	of Service	A	
Analysis Period (min)			15					

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1	-	41.	-
Traffic Volume (veh/h)	19	22	114	47	31	154	
Future Volume (Veh/h)	19	22	114	47	31	154	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	24	28	142	59	39	192	
Pedestrians		20		00		102	
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)			110110				
Upstream signal (m)							
pX, platoon unblocked							
vC. conflicting volume	316	142			201		
vC1, stage 1 conf vol	010				201		
vC2, stage 2 conf vol							
vCu, unblocked vol	316	142			201		
tC. single (s)	6.8	6.9			4.3		
tC. 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	96	97			97		
cM capacity (veh/h)	638	886			1326		
Direction Lane #	W/R 1	NR 1	NR 2	SB 1	SR 2		
Volumo Total	52	1/2	50	103	128		
	5Z 24	142	0	30	120		
Volume Leit	24	0	50	39	0		
	20 750	1700	1700	1226	1700		
Volume to Consoity	0.07	0.09	0.02	0.02	0.09		
Ouque Length 05th (m)	0.07	0.00	0.03	0.03	0.00		
Queue Lengin 95in (m)	1.0	0.0	0.0	0.7	0.0		
Control Delay (S)	10.1	0.0	0.0	3.1	0.0		
Lane LUS	B 40.4	0.0		A			
Approach Delay (s)	10.1	0.0		1.4			
Approach LOS	В						
Intersection Summary							
Average Delay			1.7				
Intersection Capacity Utiliz	ation		18.5%	IC	U Level	of Service	
Analysis Period (min)			15				

PHASE 2 - 2040 PM - NO N ACCESS

HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			\$			ę	1		र्स	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	12	39	7	116	50	68	13	73	115	69	98	14
Future Volume (vph)	12	39	7	116	50	68	13	73	115	69	98	14
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	15	48	9	143	62	84	16	90	142	85	121	17
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	72	289	106	142	206	17						
Volume Left (vph)	15	143	16	0	85	0						
Volume Right (vph)	9	84	0	142	0	17						
Hadj (s)	-0.03	-0.04	0.21	-0.58	0.26	-0.70						
Departure Headway (s)	5.6	5.2	6.1	5.3	6.1	5.1						
Degree Utilization, x	0.11	0.42	0.18	0.21	0.35	0.02						
Capacity (veh/h)	572	647	559	639	555	650						
Control Delay (s)	9.3	11.9	9.2	8.4	11.2	7.1						
Approach Delay (s)	9.3	11.9	8.7		10.9							
Approach LOS	А	В	А		В							
Intersection Summary												
Delay			10.5									
Level of Service			В									
Intersection Capacity Utiliza	ation		42.2%	IC	U Level o	of Service			A			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	4Î		¥		
Traffic Volume (veh/h)	17	204	171	28	55	63	
Future Volume (Veh/h)	17	204	171	28	55	63	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	21	252	211	35	68	78	
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	246				522	228	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	246				522	228	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	98				86	90	
cM capacity (veh/h)	1303				503	806	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	273	246	146				
Volume Left	21	0	68				
Volume Right	0	35	78				
cSH	1303	1700	629				
Volume to Capacity	0.02	0.14	0.23				
Queue Length 95th (m)	0.4	0.0	7.1				
Control Delay (s)	0.7	0.0	12.4				
Lane LOS	А		В				
Approach Delay (s)	0.7	0.0	12.4				
Approach LOS			В				
Intersection Summary							
Average Delay			3.0				
Intersection Capacity Utiliz	zation		38.4%	IC	U Level o	of Service	A
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	ţ,		Y		
Traffic Volume (veh/h)	28	224	169	49	26	22	
Future Volume (Veh/h)	28	224	169	49	26	22	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	35	277	209	60	32	27	
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	269				586	239	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	269				586	239	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	97				93	97	
cM capacity (veh/h)	1283				463	805	
Direction, Lane #	<u>EB 1</u>	WB 1	SB 1				
Volume Total	312	269	59				
Volume Left	35	0	32				
Volume Right	0	60	27				
cSH	1283	1700	575				
Volume to Capacity	0.03	0.16	0.10				
Queue Length 95th (m)	0.7	0.0	2.7				
Control Delay (s)	1.1	0.0	12.0				
Lane LOS	А		В				
Approach Delay (s)	1.1	0.0	12.0				
Approach LOS			В				
Intersection Summary							
Average Delay			1.6				
Intersection Capacity Utilizati	ion		38.5%	IC	U Level o	of Service	А
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1	-	41	
Traffic Volume (veh/h)	46	60	127	25	25	134	
Future Volume (Veh/h)	46	60	127	25	25	134	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	57	74	157	31	31	165	
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	302	157			188		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	302	157			188		
tC. single (s)	6.9	7.0			4.3		
tC. 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	91	91			98		
cM capacity (veh/h)	642	851			1313		
Direction Lane #	\//R 1	NR 1	NR 2	SR 1	SB 2		
Volumo Total	121	157	31	88	110		
	57	157	0	21	0		
Volume Leit	57	0	21	0	0		
	74	1700	1700	1212	1700		
Volume te Canacity	740 0.10	0.00	0.02	0.02	0.06		
Ousual angth 05th (m)	0.10	0.09	0.02	0.02	0.00		
Queue Lengin 95in (m)	5.1 10.0	0.0	0.0	0.0	0.0		
Control Delay (S)	10.9	0.0	0.0	2.9	0.0		
Lane LUS	10 0	0.0		A 1.2			
Approach Delay (S)	10.9	0.0		1.3			
Approach LOS	В						
Intersection Summary							
Average Delay			3.3				
Intersection Capacity Utiliz	zation		27.3%	IC	U Level	of Service	
Analysis Period (min)			15				

PHASE 2 - 2050 AM - NO N ACCESS

HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			÷			Ę	1		÷	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	23	94	0	130	36	77	15	78	105	106	72	19
Future Volume (vph)	23	94	0	130	36	77	15	78	105	106	72	19
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	29	118	0	162	45	96	19	98	131	132	90	24
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	147	303	117	131	222	24						
Volume Left (vph)	29	162	19	0	132	0						
Volume Right (vph)	0	96	0	131	0	24						
Hadj (s)	0.29	0.08	0.49	-0.63	0.32	-0.70						
Departure Headway (s)	6.2	5.7	6.8	5.7	6.6	5.6						
Degree Utilization, x	0.25	0.48	0.22	0.21	0.41	0.04						
Capacity (veh/h)	525	595	492	584	510	596						
Control Delay (s)	11.3	13.8	10.5	8.9	12.9	7.6						
Approach Delay (s)	11.3	13.8	9.7		12.4							
Approach LOS	В	В	А		В							
Intersection Summary												
Delay			12.0									
Level of Service			В									
Intersection Capacity Utiliza	tion		43.5%	IC	CU Level o	of Service			A			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	eî 🗧		Y		
Traffic Volume (veh/h)	40	249	206	107	37	19	
Future Volume (Veh/h)	40	249	206	107	37	19	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	50	311	258	134	46	24	
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	392				736	325	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	392				736	325	
tC, single (s)	4.3				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	95				88	97	
cM capacity (veh/h)	1094				371	721	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	361	392	70				
Volume Left	50	0	46				
Volume Right	0	134	24				
cSH	1094	1700	445				
Volume to Capacity	0.05	0.23	0.16				
Queue Length 95th (m)	1.1	0.0	4.4				
Control Delay (s)	1.6	0.0	14.6				
Lane LOS	А		В				
Approach Delay (s)	1.6	0.0	14.6				
Approach LOS			В				
Intersection Summarv							_
Average Delay			19				
Intersection Capacity Utilizati	on		46.0%	IC	U Level o	of Service	
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	¢Î,		Y		
Traffic Volume (veh/h)	16	256	215	29	29	66	
Future Volume (Veh/h)	16	256	215	29	29	66	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	20	320	269	36	36	82	
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	305				647	287	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	305				647	287	
tC, single (s)	4.1				6.6	6.4	
tC, 2 stage (s)							
tF (s)	2.2				3.7	3.5	
p0 queue free %	98				91	89	
cM capacity (veh/h)	1244				403	713	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	340	305	118				
Volume Left	20	0	36				
Volume Right	0	36	82				
cSH	1244	1700	578				
Volume to Capacity	0.02	0.18	0.20				
Queue Length 95th (m)	0.4	0.0	6.1				
Control Delay (s)	0.6	0.0	12.8				
Lane LOS	А		В				
Approach Delay (s)	0.6	0.0	12.8				
Approach LOS			В				
Intersection Summary							
Average Delay			2.3				
Intersection Capacity Utiliz	ation		38.9%	IC	U Level o	of Service	A
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1	-	41	-
Traffic Volume (veh/h)	19	23	131	47	33	177	
Future Volume (Veh/h)	19	23	131	47	33	177	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	24	29	164	59	41	221	
Pedestrians		20	101	00			
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)			110110			Tiono	
Upstream signal (m)							
pX, platoon unblocked							
vC conflicting volume	356	164			223		
vC1, stage 1 conf vol					220		
vC2, stage 2 conf vol							
vCu, unblocked vol	356	164			223		
tC. single (s)	6.8	6.9			4.3		
tC. 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	96	97			97		
cM capacity (veh/h)	601	858			1300		
Direction Lane #	\//D 1	ND 1	ND 2	CD 1	000		
Volumo Total	52	16/	50	115	1/7		
	04	104	09	115	147		
Volume Leit	24	0	50	41	0		
	29	1700	1700	1200	1700		
Volume to Conseitu	/ 19	0.10	0.02	1300	0.00		
Outpacity	0.07	0.10	0.05	0.03	0.09		
Queue Lengin 95in (m)	1.9	0.0	0.0	0.0	0.0		
Control Delay (S)	10.4	0.0	0.0	3.0	0.0		
Lane LUS	B	0.0		A			
Approach Delay (s)	10.4	0.0		1.3			
Approach LOS	В						
Intersection Summary							
Average Delay			1.7				
Intersection Capacity Utiliz	ation		26.1%	IC	U Level	of Service	
Analysis Period (min)			15				

PHASE 2 - 2050 PM - NO N ACCESS

HCM Unsignalized Intersection Capacity Analysis

3: Highway 806 & Township Road 340/Central Ave W 1 ٭ ۰ t \$ 1 € ↘ Movement EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL Lane Configurations 4 4 đ ۴ Sign Control Stop Stop Stop Traffic Volume (vph) 8 132 13 44 57 77 15 82 130 77 Future Volume (vph) 13 44 8 132 57 77 82 130 77 15 Peak Hour Factor 0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81 0.81 Hourly flow rate (vph) 16 54 10 163 70 95 19 101 160 95

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total (vph)	80	328	120	160	230	19	
Volume Left (vph)	16	163	19	0	95	0	
Volume Right (vph)	10	95	0	160	0	19	
Hadj (s)	-0.03	-0.04	0.21	-0.58	0.26	-0.70	
Departure Headway (s)	5.9	5.4	6.3	5.5	6.4	5.4	
Degree Utilization, x	0.13	0.50	0.21	0.25	0.41	0.03	
Capacity (veh/h)	534	624	534	607	532	618	
Control Delay (s)	9.8	13.7	9.8	9.1	12.5	7.4	
Approach Delay (s)	9.8	13.7	9.4		12.1		
Approach LOS	А	В	А		В		
Intersection Summary							
Delay			11.6				
Level of Service			В				
Intersection Capacity Utilization	ı		45.0%	IC	U Level o	of Service	
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	4Î		- M		
Traffic Volume (veh/h)	19	230	194	31	61	72	
Future Volume (Veh/h)	19	230	194	31	61	72	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	23	284	240	38	75	89	
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	278				589	259	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	278				589	259	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	98				84	89	
cM capacity (veh/h)	1268				459	775	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	307	278	164				
Volume Left	23	0	75				
Volume Right	0	38	89				
cSH	1268	1700	589				
Volume to Capacity	0.02	0.16	0.28				
Queue Length 95th (m)	0.4	0.0	9.1				
Control Delay (s)	0.8	0.0	13.4				
Lane LOS	А		В				
Approach Delay (s)	0.8	0.0	13.4				
Approach LOS			В				
Intersection Summary							
Average Delay			3.3				
Intersection Capacity Utilizat	ion		42.3%	IC	ULevelo	of Service	Α
Analysis Period (min)			15	.0			7.

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	ţ,		- M		
Traffic Volume (veh/h)	30	253	192	53	28	24	
Future Volume (Veh/h)	30	253	192	53	28	24	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	37	312	237	65	35	30	
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	302				656	270	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	302				656	270	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	97				92	96	
cM capacity (veh/h)	1248				421	774	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	349	302	65				
Volume Left	37	0	35				
Volume Right	0	65	30				
cSH	1248	1700	533				
Volume to Capacity	0.03	0.18	0.12				
Queue Length 95th (m)	0.7	0.0	3.3				
Control Delay (s)	1.1	0.0	12.7				
Lane LOS	А		В				
Approach Delay (s)	1.1	0.0	12.7				
Approach LOS			В				
Intersection Summary							
Average Delay			1.7				
Intersection Capacity Utiliza	ation		41.6%	IC	U Level o	of Service	A
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1	-	41	
Traffic Volume (veh/h)	46	66	146	25	26	154	
Future Volume (Veh/h)	46	66	146	25	26	154	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	57	81	180	31	32	190	
Pedestrians	01	01	100	U I	UL.	100	
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage yeh)			NULLE			NULLE	
Unstroom signal (m)							
nX platoon upblocked							
vC conflicting volume	330	190			211		
vC1 stage 1 confive	339	100			211		
vC1, stage 1 conti vol							
	220	100			011		
	209	100			112		
tC, Single (S)	0.9	7.0			4.3		
I_{C} , Z stage (s)	25	2.2			0.0		
IF (S)	3.3	3.3			2.3		
pu queue free %	91	90			90 4007		
civi capacity (ven/n)	607	822			1287		
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2		
Volume Total	138	180	31	95	127		
Volume Left	57	0	0	32	0		
Volume Right	81	0	31	0	0		
cSH	718	1700	1700	1287	1700		
Volume to Capacity	0.19	0.11	0.02	0.02	0.07		
Queue Length 95th (m)	5.7	0.0	0.0	0.6	0.0		
Control Delay (s)	11.2	0.0	0.0	2.8	0.0		
Lane LOS	В			А			
Approach Delay (s)	11.2	0.0		1.2			
Approach LOS	В						
Interpretion Commence							
Intersection Summary			2.0				
Average Delay			3.2			(0)	
Intersection Capacity Utiliz	ation		29.3%	IC	U Level	or Service	
Analysis Period (min)			15				

PHASE 2 - 2060 AM - NO N ACCESS

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HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

1 ۶ t ₹ 1 ۶ Î ∢ ť NBT Movement EBL EBT EBR WBR NBL NBR SBL SBR WBL WBT SBT Lane Configurations 4 4 đ ۴ đ Sign Control Stop Stop Stop Stop Traffic Volume (vph) 25 106 0 145 40 85 17 85 118 119 80 Future Volume (vph) 25 145 40 17 106 0 85 85 118 119 80 Peak Hour Factor 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 Hourly flow rate (vph) 31 132 0 181 50 106 21 106 148 149 100 Direction, Lane # EB 1 WB 1 NB 1 NB 2 SB 1 SB 2 Volume Total (vph) 163 337 127 148 249 26 Volume Left (vph) 31 181 21 0 149 0 Volume Right (vph) 0 106 0 0 26 148 Hadj (s) 0.28 0.08 0.49 -0.63 0.33 -0.70 Departure Headway (s) 6.0 6.5 7.1 6.0 6.9 5.9 Degree Utilization, x 0.30 0.56 0.25 0.25 0.48 0.04 Capacity (veh/h) 494 569 459 548 488 565 Control Delay (s) 12.3 16.2 11.3 9.7 14.9 7.9 Approach Delay (s) 12.3 16.2 10.5 14.3 Approach LOS В С В В Intersection Summary 126

Delay	13.0			
Level of Service	В			
Intersection Capacity Utilization	46.1%	ICU Level of Service	А	
Analysis Period (min)	15			

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	4Î		Y		
Traffic Volume (veh/h)	45	280	229	119	41	21	
Future Volume (Veh/h)	45	280	229	119	41	21	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	56	350	286	149	51	26	
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	435				822	360	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	435				822	360	
tC, single (s)	4.3				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	95				84	96	
cM capacity (veh/h)	1054				328	689	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	406	435	77				
Volume Left	56	0	51				
Volume Right	0	149	26				
cSH	1054	1700	398				
Volume to Capacity	0.05	0.26	0.19				
Queue Length 95th (m)	1.3	0.0	5.7				
Control Delay (s)	1.7	0.0	16.2				
Lane LOS	А		С				
Approach Delay (s)	1.7	0.0	16.2				
Approach LOS			С				
Intersection Summary							
Average Delay			21				
Intersection Canacity Utilizati	ion		50 1%	IC	Ulevelo	of Service	
Analysis Period (min)			15				,

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	ţ,		Y		
Traffic Volume (veh/h)	18	288	239	32	32	74	
Future Volume (Veh/h)	18	288	239	32	32	74	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	22	360	299	40	40	92	
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	339				723	319	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	339				723	319	
tC, single (s)	4.1				6.6	6.4	
tC, 2 stage (s)							
tF (s)	2.2				3.7	3.5	
p0 queue free %	98				89	87	
cM capacity (veh/h)	1209				362	684	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	382	339	132				
Volume Left	22	0	40				
Volume Right	0	40	92				
cSH	1209	1700	539				
Volume to Capacity	0.02	0.20	0.24				
Queue Length 95th (m)	0.4	0.0	7.6				
Control Delay (s)	0.6	0.0	13.8				
Lane LOS	А		В				
Approach Delay (s)	0.6	0.0	13.8				
Approach LOS			В				
Intersection Summary							
Average Delay			2.4				
Intersection Capacity Utiliza	ation		42.9%	IC	U Level o	of Service	4
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	W.		*	1	-	41	
Traffic Volume (veh/h)	19	24	148	47	35	200	
Future Volume (Veh/h)	19	24	148	47	35	200	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	24	30	185	59	44	250	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)							
Upstream signal (m)							
pX. platoon unblocked							
vC. conflicting volume	398	185			244		
vC1. stage 1 conf vol							
vC2. stage 2 conf vol							
vCu, unblocked vol	398	185			244		
tC, single (s)	6.8	6.9			4.3		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	96	96			97		
cM capacity (veh/h)	565	832			1277		
Direction Lane #	WR 1	NR 1	NR 2	SB 1	SR 2		
Volume Total	5/	185	50	127	167		
	24	105	09	121	07		
Volume Right	24	0	50	44	0		
	687	1700	1700	1277	1700		
Volume to Canacity	007	0 11	0.03	0.03	0 10		
Oueue Length 05th (m)	2.00	0.11	0.03	0.03	0.10		
Control Dolay (a)	2.0	0.0	0.0	0.9	0.0		
	IU./	0.0	0.0	2.9	0.0		
Approach Delay (a)	D 10 7	0.0		4 2			
Approach LOS	IU.7	0.0		1.5			
	D						
Intersection Summary			4.0				
Average Delay			1.6				
Intersection Capacity Utiliz	zation		27.7%	IC	U Level	ot Service	
Analysis Period (min)			15				

PHASE 2 - 2060 PM - NO N ACCESS

HCM Unsignalized Intersection Capacity Analysis 3: Highway 806 & Township Road 340/Central Ave W

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		÷			\$			र्च	1		ŧ	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	14	49	9	148	64	86	17	91	145	85	120	16
Future Volume (vph)	14	49	9	148	64	86	17	91	145	85	120	16
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	17	60	11	183	79	106	21	112	179	105	148	20
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	88	368	133	179	253	20						
Volume Left (vph)	17	183	21	0	105	0						
Volume Right (vph)	11	106	0	179	0	20						
Hadj (s)	-0.04	-0.04	0.21	-0.58	0.26	-0.70						
Departure Headway (s)	6.3	5.7	6.6	5.8	6.7	5.7						
Degree Utilization, x	0.15	0.58	0.24	0.29	0.47	0.03						
Capacity (veh/h)	498	602	510	577	509	586						
Control Delay (s)	10.4	16.1	10.5	9.9	14.2	7.7						
Approach Delay (s)	10.4	16.1	10.2		13.7							
Approach LOS	В	С	В		В							
Intersection Summary												
Delay			13.2									
Level of Service			В									
Intersection Capacity Utiliza	ation		47.8%	IC	U Level o	of Service			A			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		र्स	t,		¥	
Traffic Volume (veh/h)	21	256	217	34	67	81
Future Volume (Veh/h)	21	256	217	34	67	81
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	26	316	268	42	83	100
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				657	289
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	310				657	289
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				80	87
cM capacity (veh/h)	1234				418	745
Direction Lane #	FB 1	WB 1	SB 1			
Volume Total	342	310	183			
Volume Left	26	0	83			
Volume Right	20	42	100			
cSH	1234	1700	550			
Volume to Canacity	0.02	0.18	0.33			
Oueue Length 95th (m)	0.02	0.10	11.6			
Control Delay (s)	0.5	0.0	1/ 8			
	Δ	0.0	R			
Approach Delay (s)	0.8	0.0	1/ 8			
Approach LOS	0.0	0.0	14.0 R			
			U			
Intersection Summary						
Average Delay			3.6			
Intersection Capacity Utiliz	ation		46.2%	IC	U Level o	of Service
Analysis Period (min)			15			

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Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		र्स	f,		Y			
Traffic Volume (veh/h)	32	282	215	57	30	26		
Future Volume (Veh/h)	32	282	215	57	30	26		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81		
Hourly flow rate (vph)	40	348	265	70	37	32		
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	335				728	300		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	335				728	300		
tC, single (s)	4.1				6.4	6.2		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	97				90	96		
cM capacity (veh/h)	1213				380	744		
Direction, Lane #	EB 1	WB 1	SB 1					
Volume Total	388	335	69					
Volume Left	40	0	37					
Volume Right	0	70	32					
cSH	1213	1700	492					
Volume to Capacity	0.03	0.20	0.14					
Queue Length 95th (m)	0.8	0.0	3.9					
Control Delay (s)	1.1	0.0	13.5					
Lane LOS	А		В					
Approach Delay (s)	1.1	0.0	13.5					
Approach LOS			В					
Intersection Summary								
Average Delay			1.7					
Intersection Capacity Utiliz	ation		44.7%	IC	U Level o	of Service	A	
Analysis Period (min)			15					

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	l
Lane Configurations	W.		*	1	-	41.	
Traffic Volume (veh/h)	46	72	165	25	27	174	
Future Volume (Veh/h)	46	72	165	25	27	174	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	57	89	204	31	33	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	378	204			235		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	378	204			235		
tC, single (s)	6.9	7.0			4.3		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	90	89			97		
cM capacity (veh/h)	574	794			1260		
Direction Lane #	WB 1	NR 1	NR 2	SB 1	SB 2		
Volume Total	146	204	31	105	143		
Volume Left	57	204	0	33	0		
Volume Right	20 20	0	21	0	0		
olume Night	60	1700	1700	1260	1700		
Volume to Canacity	030	0 12	0.02	0.03	0.08		
Oueue Length 05th (m)	6.4	0.12	0.02	0.03	0.00		
Control Dolay (a)	0.4 11 G	0.0	0.0	0.0	0.0		
	0.11	0.0	0.0	Z.1	0.0		
Approach Delay (a)	D 11 G	0.0		A 1 1			
Approach LOS	II.0 D	0.0		1.1			
	В						
Intersection Summary			0.4				
Average Delay			3.1				
Intersection Capacity Utiliz	ation		31.3%	IC	U Level	ot Service	
Analysis Period (min)			15				

PHASE 2 - 2040 AM - N ACCESS

HCM Unsignalized Intersection Capacity Analysis 1: Highway 806 & North Access

	4	*	Ť	1	1	ţ
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		eî.			र्स
Traffic Volume (veh/h)	8	8	128	18	6	174
Future Volume (Veh/h)	8	8	128	18	6	174
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	10	10	160	22	8	218
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	405	171			182	
vC1_stage 1 conf vol						
vC2_stage 2 conf vol						
vCu, unblocked vol	405	171			182	
tC single (s)	64	62			4 2	
tC, 2 stage (s)	0.1	0.2			1.2	
tE (s)	35	33			23	
n0 queue free %	98	90			99	
cM canacity (veh/h)	598	873			1358	
	000	0/0			1000	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	20	182	226			
Volume Left	10	0	8			
Volume Right	10	22	0			
cSH	710	1700	1358			
Volume to Capacity	0.03	0.11	0.01			
Queue Length 95th (m)	0.7	0.0	0.1			
Control Delay (s)	10.2	0.0	0.3			
Lane LOS	В		А			
Approach Delay (s)	10.2	0.0	0.3			
Approach LOS	В					
Intersection Summary						
			0.6			
Interportion Consolity Little-	ation		0.0	10		of Convior
Analysis Deried (min)			24.0%	IC	O Level (JI Service
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			\$			با	1		با	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	22	81	0	112	31	72	13	72	91	93	67	18
Future Volume (vph)	22	81	0	112	31	72	13	72	91	93	67	18
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	28	101	0	140	39	90	16	90	114	116	84	22
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	129	269	106	114	200	22						
Volume Left (vph)	28	140	16	0	116	0						
Volume Right (vph)	0	90	0	114	0	22						
Hadj (s)	0.30	0.06	0.48	-0.63	0.32	-0.70						
Departure Headway (s)	5.9	5.4	6.5	5.4	6.3	5.3						
Degree Utilization, x	0.21	0.41	0.19	0.17	0.35	0.03						
Capacity (veh/h)	556	622	518	618	535	631						
Control Delay (s)	10.5	12.1	9.8	8.3	11.5	7.3						
Approach Delay (s)	10.5	12.1	9.0		11.1							
Approach LOS	В	В	А		В							
Intersection Summary												
Delay			10.8									
Level of Service			В									
Intersection Capacity Utiliza	tion		40.9%	IC	CU Level o	of Service			А			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	4Î		- M		
Traffic Volume (veh/h)	35	218	182	92	32	17	
Future Volume (Veh/h)	35	218	182	92	32	17	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	44	272	228	115	40	21	
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	343				646	286	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	343				646	286	
tC, single (s)	4.3				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	96				91	97	
cM capacity (veh/h)	1142				423	758	
Direction Lane #	FB 1	WB 1	SB 1				
Volume Total	316	343	61				
Volume Left	44	0-0	40				
Volume Right	++ 0	115	21				
cSH	1142	1700	499				
Volume to Canacity	0.04	0.20	0.12				
Oueue Length 95th (m)	1.0	0.20	33				
Control Delay (s)	1.0	0.0	13.2				
Lang LOS	1.5	0.0	13.2 R				
Annroach Delay (s)	15	0.0	13.2				
Approach LOS	1.0	0.0	10.2 R				
			U				
Intersection Summary							
Average Delay			1.8			(A	
Intersection Capacity Utilizati	ion		41.9%	IC	U Level c	ot Service	
Analysis Period (min)			15				
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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	eî.		Y		
Traffic Volume (veh/h)	17	225	191	26	39	64	
Future Volume (Veh/h)	17	225	191	26	39	64	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	21	281	239	32	49	80	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		None	None				
Median storage veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	271				578	255	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	271				578	255	
tC, single (s)	4.1				6.6	6.4	
tC, 2 stage (s)							
tF (s)	2.2				3.7	3.5	
p0 queue free %	98				89	89	
cM capacity (veh/h)	1281				443	744	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	302	271	129				
Volume Left	21	0	49				
Volume Right	0	32	80				
cSH	1281	1700	591				
Volume to Capacity	0.02	0.16	0.22				
Queue Length 95th (m)	0.4	0.0	6.6				
Control Delay (s)	0.7	0.0	12.8				
Lane LOS	A		В				
Approach Delay (s)	0.7	0.0	12.8				
Approach LOS			В				
Intersection Summary							
			2.6				
Intersection Canacity Utilizati	ion		38.6%			of Service	
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1		41	
Traffic Volume (veh/h)	16	14	132	33	22	162	
Future Volume (Veh/h)	16	14	132	33	22	162	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (yph)	20	18	165	41	28	202	
Pedestrians	20	10	100		20	LUL	
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)			110110				
Upstream signal (m)							
pX, platoon unblocked							
vC. conflicting volume	322	165			206		
vC1_stage 1 conf vol	022	100			200		
vC2, stage 2 conf vol							
vCu, unblocked vol	322	165			206		
tC, single (s)	6.8	6.9			4.3		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	97	98			98		
cM capacity (veh/h)	638	857			1320		
Direction Lane #	\//D 1	ND 1	ND 2	CD 1	000		
Volumo Total	20	165		05	125		
	30	100	41	90	130		
Volume Leit	20	0	0	20	0		
	10	1700	41	1000	1700		
COFI Malurua ta Canaaitu	120	0.40	1700	1320	1700		
Volume to Capacity	0.05	0.10	0.02	0.02	0.08		
Queue Length 95th (m)	1.3	0.0	0.0	0.5	0.0		
Control Delay (s)	10.2	0.0	0.0	2.4	0.0		
Lane LOS	B	0.0		A			
Approach Delay (s)	10.2	0.0		1.0			
Approach LUS	В						
Intersection Summary							
Average Delay			1.3				
Intersection Capacity Utiliz	ation		25.4%	IC	U Level	of Service	
Analysis Period (min)			15				

PHASE 2 - 2040 PM - N ACCESS

HCM Unsignalized Intersection Capacity Analysis 1: Highway 806 & North Access

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	- Y		4Î			ર્સ	
Traffic Volume (veh/h)	17	10	178	8	6	147	
Future Volume (Veh/h)	17	10	178	8	6	147	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	21	12	222	10	8	184	
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	427	227			232		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	427	227			232		
tC, single (s)	6.4	6.2			4.2		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	96	99			99		
cM capacity (veh/h)	581	812			1279		
Direction Lane #	WR 1	NB 1	SB 1				
Volume Total	22	222	102				
	21	2.52	8				
Volume Right	12	10	0				
cSH	648	1700	1279				
Volume to Canacity	0.05	0 14	0.01				
Oueue Length 95th (m)	13	0.14	0.01				
Control Delay (s)	10.9	0.0	0.2				
	10.5 B	0.0	0.4				
Approach Delay (s)	10.9	0.0	0.4				
Approach LOS	R	0.0	0.4				
	U						
Intersection Summary							
Average Delay			0.9				
Intersection Capacity Utilization	n		22.6%	IC	U Level o	of Service	
Analysis Period (min)			15				

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		÷			\$			र्च	1		ŧ	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	13	38	7	114	49	68	13	76	112	72	100	15
Future Volume (vph)	13	38	7	114	49	68	13	76	112	72	100	15
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	16	47	9	141	60	84	16	94	138	89	123	19
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	72	285	110	138	212	19						
Volume Left (vph)	16	141	16	0	89	0						
Volume Right (vph)	9	84	0	138	0	19						
Hadj (s)	-0.03	-0.04	0.20	-0.58	0.26	-0.70						
Departure Headway (s)	5.6	5.2	6.1	5.3	6.1	5.1						
Degree Utilization, x	0.11	0.41	0.19	0.20	0.36	0.03						
Capacity (veh/h)	570	644	559	638	556	652						
Control Delay (s)	9.3	11.9	9.2	8.4	11.3	7.1						
Approach Delay (s)	9.3	11.9	8.8		11.0							
Approach LOS	А	В	А		В							
Intersection Summary												
Delay			10.5									
Level of Service			В									
Intersection Capacity Utiliza	ition		42.3%	IC	U Level o	of Service			A			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	ţ,		- ¥		
Traffic Volume (veh/h)	17	202	169	27	52	63	
Future Volume (Veh/h)	17	202	169	27	52	63	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	21	249	209	33	64	78	
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	242				516	226	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	242				516	226	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	98				87	90	
cM capacity (veh/h)	1307				507	809	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	270	242	142				
Volume Left	21	0	64				
Volume Right	0	33	78				
cSH	1307	1700	638				
Volume to Capacity	0.02	0.14	0.22				
Queue Length 95th (m)	0.4	0.0	6.8				
Control Delay (s)	0.7	0.0	12.3				
Lane LOS	А		В				
Approach Delay (s)	0.7	0.0	12.3				
Approach LOS			В				
Intersection Summary							
Average Delay			3.0				
Intersection Capacity Utiliz	ation		38.1%	IC	U Level o	of Service	A
Analysis Period (min)			15				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		र्स	ţ,		¥			
Traffic Volume (veh/h)	24	224	169	49	26	20		
Future Volume (Veh/h)	24	224	169	49	26	20		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81		
Hourly flow rate (vph)	30	277	209	60	32	25		
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	269				576	239		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	269				576	239		
tC, single (s)	4.1				6.4	6.2		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	98				93	97		
cM capacity (veh/h)	1283				471	805		
Direction, Lane #	EB 1	WB 1	SB 1					
Volume Total	307	269	57					
Volume Left	30	0	32					
Volume Right	0	60	25					
cSH	1283	1700	576					
Volume to Capacity	0.02	0.16	0.10					
Queue Length 95th (m)	0.6	0.0	2.6					
Control Delay (s)	1.0	0.0	11.9					
Lane LOS	А		В					
Approach Delay (s)	1.0	0.0	11.9					
Approach LOS			В					
Intersection Summary								
Average Delay			1.5					
Intersection Capacity Utiliz	zation		38.3%	IC	U Level o	of Service	A	
Analysis Period (min)			15					

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1	-	41	
Traffic Volume (veh/h)	35	50	135	22	16	151	
Future Volume (Veh/h)	35	50	135	22	16	151	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	43	62	167	27	20	186	
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	167			194		
vC1. stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	300	167			194		
tC, single (s)	6.9	7.0			4.3		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	93	93			98		
cM capacity (veh/h)	649	839			1306		
Direction Lane #	\//R 1	NR 1	NR 2	SB 1	SB 2		
Volume Total	105	167	07	80	10/		
	103	107	<u>کا</u>	20	0		
Volume Dight	40	0	27	20	0		
	740	1700	1700	1206	1700		
Volume to Canacity	0 14	0.10	0.02	0.02	0.07		
Ouque Length 05th (m)	0.14	0.10	0.02	0.02	0.07		
Control Dolov (a)	5.9 10.6	0.0	0.0	0.4	0.0		
Control Delay (S)	10.0 D	0.0	0.0	2.0	0.0		
Lane LUS	10 G	0.0		- А 0 0			
Approach LOS	10.0 D	0.0		0.0			
Approach LOS	В						
Intersection Summary							
Average Delay			2.5				
Intersection Capacity Utiliz	zation		26.8%	IC	U Level	of Service	
Analysis Period (min)			15				

PHASE 2 - 2050 AM - N ACCESS

HCM Unsignalized Intersection Capacity Analysis 1: Highway 806 & North Access

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Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		ef 🗧			र्स
Traffic Volume (veh/h)	8	8	146	18	6	199
Future Volume (Veh/h)	8	8	146	18	6	199
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	10	10	182	22	8	249
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						Tionio
Upstream signal (m)						
nX platoon unblocked						
vC. conflicting volume	458	193			204	
vC1_stage 1 conf vol	400	100			204	
vC2 stage 2 conf vol						
	458	103			204	
tC single (s)	6/	6.2			12	
to, single (s) t_{0}	0.4	0.2			٦.٢	
tC, 2 stage (s)	35	33			23	
n^{0} quote free %	0.0	00			2.5	
oM consoity (yob/b)	557	99 840			1222	
	557	049			1333	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	20	204	257			
Volume Left	10	0	8			
Volume Right	10	22	0			
cSH	673	1700	1333			
Volume to Capacity	0.03	0.12	0.01			
Queue Length 95th (m)	0.7	0.0	0.1			
Control Delay (s)	10.5	0.0	0.3			
Lane LOS	В		А			
Approach Delay (s)	10.5	0.0	0.3			
Approach LOS	В					
Intersection Summary						
Average Delay			0.6			
Average Delay	e		0.0			(0)
Intersection Capacity Utiliza	ation		25.3%	IC	U Level o	or Service
Analysis Period (min)			15			

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		÷			\$			र्च	1		ŧ	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	24	93	0	127	35	80	15	79	104	106	75	20
Future Volume (vph)	24	93	0	127	35	80	15	79	104	106	75	20
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	30	116	0	159	44	100	19	99	130	132	94	25
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	146	303	118	130	226	25						
Volume Left (vph)	30	159	19	0	132	0						
Volume Right (vph)	0	100	0	130	0	25						
Hadj (s)	0.29	0.07	0.49	-0.63	0.32	-0.70						
Departure Headway (s)	6.2	5.7	6.8	5.7	6.6	5.6						
Degree Utilization, x	0.25	0.48	0.22	0.21	0.41	0.04						
Capacity (veh/h)	523	594	492	583	511	597						
Control Delay (s)	11.3	13.8	10.6	8.9	13.0	7.6						
Approach Delay (s)	11.3	13.8	9.7		12.5							
Approach LOS	В	В	А		В							
Intersection Summary												
Delay			12.0									
Level of Service			В									
Intersection Capacity Utilization	tion		43.6%	IC	U Level o	of Service			А			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	4Î		¥		
Traffic Volume (veh/h)	40	249	205	104	36	19	
Future Volume (Veh/h)	40	249	205	104	36	19	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	50	311	256	130	45	24	
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	386				732	321	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	386				732	321	
tC, single (s)	4.3				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	95				88	97	
cM capacity (veh/h)	1100				373	724	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	361	386	69				
Volume Left	50	0	45				
Volume Right	0	130	24				
cSH	1100	1700	449				
Volume to Capacity	0.05	0.23	0.15				
Queue Length 95th (m)	1.1	0.0	4.3				
Control Delay (s)	1.6	0.0	14.5				
Lane LOS	А		В				
Approach Delay (s)	1.6	0.0	14.5				
Approach LOS			В				
Intersection Summarv							
Average Delay			19				
Intersection Canacity Utilization	n		45.8%	IC	Ulevelo	of Service	
Analysis Period (min)			15	10	5 201010		

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Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		र्स	f,		¥			
Traffic Volume (veh/h)	19	257	215	29	42	72		
Future Volume (Veh/h)	19	257	215	29	42	72		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80		
Hourly flow rate (vph)	24	321	269	36	52	90		
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	305				656	287		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	305				656	287		
tC, single (s)	4.1				6.6	6.4		
tC, 2 stage (s)								
tF (s)	2.2				3.7	3.5		
p0 queue free %	98				87	87		
cM capacity (veh/h)	1244				397	713		
Direction, Lane #	EB 1	WB 1	SB 1					
Volume Total	345	305	142					
Volume Left	24	0	52					
Volume Right	0	36	90					
cSH	1244	1700	552					
Volume to Capacity	0.02	0.18	0.26					
Queue Length 95th (m)	0.5	0.0	8.1					
Control Delay (s)	0.7	0.0	13.8					
Lane LOS	А		В					
Approach Delay (s)	0.7	0.0	13.8					
Approach LOS			В					
Intersection Summary								
Average Delay			2.8					
Intersection Capacity Utiliz	ation		42.6%	IC	U Level o	of Service	Α	
Analysis Period (min)			15					

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1	-	41.	
Traffic Volume (veh/h)	16	15	149	33	24	185	
Future Volume (Veh/h)	16	15	149	33	24	185	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	20	19	186	41	30	231	
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	362	186			227		
vC1, stage 1 conf vol							
vC2. stage 2 conf vol							
vCu, unblocked vol	362	186			227		
tC, single (s)	6.8	6.9			4.3		
tC. 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	97	98			98		
cM capacity (veh/h)	602	831			1296		
Direction Lane #	W/R 1	NR 1	NR 2	SB 1	SR 2		
Volumo Total	30	196	/11	107	15/		
	20	100	41	30	154		
Volume Leit	20	0	11	0	0		
	19	1700	41	1206	1700		
Volume to Canacity	090	0.11	0.02	0.02	0.00		
Ousual angth 05th (m)	0.00	0.11	0.02	0.02	0.09		
Queue Lengin 95in (m)	1.4	0.0	0.0	0.0	0.0		
Control Delay (S)	10.5	0.0	0.0	2.3	0.0		
Lane LUS	10 F	0.0		A			
Approach Delay (s)	10.5	0.0		1.0			
Approach LOS	В						
Intersection Summary							
Average Delay			1.3				
Intersection Capacity Utiliz	ation		27.0%	IC	U Level	of Service	
Analysis Period (min)			15				

PHASE 2 - 2050 PM - N ACCESS

HCM Unsignalized Intersection Capacity Analysis 1: Highway 806 & North Access

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Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	- Y		£,			થ
Traffic Volume (veh/h)	17	10	203	8	6	168
Future Volume (Veh/h)	17	10	203	8	6	168
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	21	12	254	10	8	210
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	485	259			264	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	485	259			264	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	96	98			99	
cM capacity (veh/h)	538	780			1244	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	33	264	218			
Volume Left	21	0	8			
Volume Right	12	10	0			
cSH	606	1700	1244			
Volume to Capacity	0.05	0.16	0.01			
Queue Length 95th (m)	1.4	0.0	0.2			
Control Delay (s)	11.3	0.0	0.3			
LaneLOS	B		A			
Approach Delay (s)	11.3	0.0	0.3			
Approach LOS	В					
Intersection Summary						
			0.0			
Intersection Consoity Litilization	n		0.9	10		of Sonvice
Analysis Period (min)	///		25.7 /0	IC.		

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		÷			\$			र्च	1		ŧ	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	14	43	8	130	56	77	15	85	127	80	111	16
Future Volume (vph)	14	43	8	130	56	77	15	85	127	80	111	16
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	17	53	10	160	69	95	19	105	157	99	137	20
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	80	324	124	157	236	20						
Volume Left (vph)	17	160	19	0	99	0						
Volume Right (vph)	10	95	0	157	0	20						
Hadj (s)	-0.03	-0.04	0.21	-0.58	0.26	-0.70						
Departure Headway (s)	5.9	5.5	6.3	5.5	6.4	5.4						
Degree Utilization, x	0.13	0.49	0.22	0.24	0.42	0.03						
Capacity (veh/h)	531	621	534	607	533	619						
Control Delay (s)	9.9	13.6	9.9	9.1	12.7	7.4						
Approach Delay (s)	9.9	13.6	9.4		12.2							
Approach LOS	А	В	А		В							
Intersection Summary												
Delay			11.7									
Level of Service			В									
Intersection Capacity Utiliza	ition		45.1%	IC	U Level o	of Service			А			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		ę	el el		Y		
Traffic Volume (veh/h)	19	228	192	30	58	72	
Future Volume (Veh/h)	19	228	192	30	58	72	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	23	281	237	37	72	89	
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	274				582	256	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	274				582	256	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	98				84	89	
cM capacity (veh/h)	1272				463	778	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	304	274	161				
Volume Left	23	0	72				
Volume Right	0	37	89				
cSH	1272	1700	597				
Volume to Capacity	0.02	0.16	0.27				
Queue Length 95th (m)	0.4	0.0	8.7				
Control Delay (s)	0.8	0.0	13.2				
Lane LOS	А		В				
Approach Delay (s)	0.8	0.0	13.2				
Approach LOS			В				
Intersection Summarv							
Average Delay			32				
Intersection Capacity Utilizat	ion		42.0%	IC	U Level o	of Service	
Analysis Period (min)			15	.0			

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	f,		¥		
Traffic Volume (veh/h)	26	253	192	53	28	22	
Future Volume (Veh/h)	26	253	192	53	28	22	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	32	312	237	65	35	27	
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	302				646	270	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	302				646	270	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	97				92	97	
cM capacity (veh/h)	1248				428	774	
Direction. Lane #	EB 1	WB 1	SB 1				
Volume Total	344	302	62				
Volume Left	32	0	35				
Volume Right	0	65	27				
cSH	1248	1700	532				
Volume to Capacity	0.03	0.18	0.12				
Queue Length 95th (m)	0.6	0.0	3.1				
Control Delav (s)	1.0	0.0	12.7				
Lane LOS	A	0.0	В				
Approach Delay (s)	1.0	0.0	12.7				
Approach LOS			В				
Intersection Summarv							
Average Delay			1.6				
Intersection Capacity Utiliz	ation		41.4%	IC	U Level o	of Service	A
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	M		*	1		41	
Traffic Volume (veh/h)	35	56	154	22	17	171	
Future Volume (Veh/h)	35	56	154	22	17	171	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	43	69	190	27	21	211	
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	338	190			217		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	338	190			217		
tC, single (s)	6.9	7.0			4.3		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	93	91			98		
cM capacity (veh/h)	614	810			1280		
Direction. Lane #	WB 1	NB 1	NB 2	SB 1	SB 2		
Volume Total	112	190	27	91	141		
Volume Left	43	0	0	21	0		
Volume Right	69	0	27	0	0		
cSH	722	1700	1700	1280	1700		
Volume to Capacity	0.16	0.11	0.02	0.02	0.08		
Queue Length 95th (m)	4.4	0.0	0.0	0.4	0.0		
Control Delay (s)	10.9	0.0	0.0	1.9	0.0		
Lane LOS	B	0.0	0.0	A	0.0		
Approach Delay (s)	10.9	0.0		0.8			
Approach LOS	В						
Intersection Summary							
Average Delav			2.5				
Intersection Capacity Utilizat	tion		28.7%	IC	U Level	of Service	
Analysis Period (min)			15				

PHASE 2 - 2060 AM - N ACCESS

HCM Unsignalized Intersection Capacity Analysis 1: Highway 806 & North Access

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		f,			स	
Traffic Volume (veh/h)	8	8	164	18	6	224	
Future Volume (Veh/h)	8	8	164	18	6	224	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	10	10	205	22	8	280	
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	512	216			227		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	512	216			227		
tC, single (s)	6.4	6.2			4.2		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	98	99			99		
cM capacity (veh/h)	519	824			1307		
Direction. Lane #	WB 1	NB 1	SB 1				
Volume Total	20	227	288				
Volume Left	10	0	8				
Volume Right	10	22	0				
cSH	637	1700	1307				
Volume to Capacity	0.03	0.13	0.01				
Queue Length 95th (m)	0.8	0.0	0.1				
Control Delay (s)	10.8	0.0	0.3				
Lane LOS	В		A				
Approach Delay (s)	10.8	0.0	0.3				
Approach LOS	В						
Intersection Summary							
			0.6				
Intersection Consoity Litilize	ation		26.6%			of Service	
			20.0%	iC			
Analysis Fenou (IIIIII)			10				

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			र्च	1		ŧ	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	26	105	0	142	39	88	17	86	117	119	83	22
Future Volume (vph)	26	105	0	142	39	88	17	86	117	119	83	22
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	32	131	0	178	49	110	21	108	146	149	104	28
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	163	337	129	146	253	28						
Volume Left (vph)	32	178	21	0	149	0						
Volume Right (vph)	0	110	0	146	0	28						
Hadj (s)	0.29	0.07	0.49	-0.63	0.32	-0.70						
Departure Headway (s)	6.6	6.0	7.2	6.0	7.0	5.9						
Degree Utilization, x	0.30	0.56	0.26	0.25	0.49	0.05						
Capacity (veh/h)	492	568	458	547	488	565						
Control Delay (s)	12.4	16.4	11.5	9.8	15.2	8.0						
Approach Delay (s)	12.4	16.4	10.6		14.5							
Approach LOS	В	С	В		В							
Intersection Summary												
Delay			13.8									
Level of Service			В									
Intersection Capacity Utiliza	tion		46.2%	IC	U Level o	of Service			A			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		સુ	eî 🗧		Y		
Traffic Volume (veh/h)	45	280	228	116	40	21	
Future Volume (Veh/h)	45	280	228	116	40	21	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	56	350	285	145	50	26	
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	430				820	358	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	430				820	358	
tC, single (s)	4.3				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.3				3.5	3.3	
p0 queue free %	95				85	96	
cM capacity (veh/h)	1059				329	691	
Direction, Lane #	EB 1	WB 1	SB 1				
Volume Total	406	430	76				
Volume Left	56	0	50				
Volume Right	0	145	26				
cSH	1059	1700	401				
Volume to Capacity	0.05	0.25	0.19				
Queue Length 95th (m)	1.3	0.0	5.5				
Control Delay (s)	1.7	0.0	16.1				
Lane LOS	А		С				
Approach Delay (s)	1.7	0.0	16.1				
Approach LOS			С				
Intersection Summary							
			21				
Intersection Canacity Litilization	n		49.8%			of Service	
Analysis Period (min)	// I		-3.078				

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Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		र्स	ţ,		¥		
Traffic Volume (veh/h)	21	289	239	32	45	80	
Future Volume (Veh/h)	21	289	239	32	45	80	
Sign Control		Free	Free		Stop		
Grade		0%	0%		0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	26	361	299	40	56	100	
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	339				732	319	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	339				732	319	
tC, single (s)	4.1				6.6	6.4	
tC, 2 stage (s)							
tF (s)	2.2				3.7	3.5	
p0 queue free %	98				84	85	
cM capacity (veh/h)	1209				357	684	
Direction, Lane #	<u>EB 1</u>	WB 1	SB 1				
Volume Total	387	339	156				
Volume Left	26	0	56				
Volume Right	0	40	100				
cSH	1209	1700	514				
Volume to Capacity	0.02	0.20	0.30				
Queue Length 95th (m)	0.5	0.0	10.2				
Control Delay (s)	0.7	0.0	15.0				
Lane LOS	А		С				
Approach Delay (s)	0.7	0.0	15.0				
Approach LOS			С				
Intersection Summary							
Average Delay			3.0				
Intersection Capacity Utilizati	ion		46.6%	IC	U Level c	of Service	А
Analysis Period (min)			15				

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	W.		*	1	-		
Traffic Volume (veh/h)	16	16	166	33	26	208	
Future Volume (Veh/h)	16	16	166	33	26	208	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	20	20	208	41	32	260	
Pedestrians	20	20	200		02	200	
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)			110110				
Unstream signal (m)							
pX, platoon unblocked							
vC conflicting volume	402	208			249		
vC1_stage 1 conf vol	102	200			2.0		
vC2_stage 2 conf vol							
vCu, unblocked vol	402	208			249		
tC, single (s)	6.8	6.9			4.3		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	96	98			97		
cM capacity (veh/h)	567	804			1271		
Direction Lane #	\//D 1	ND 1		CD 1	CD 0		
Volumo Total	40	200	11	110	172		
	40	200	41	119	1/3		
Volume Leit	20	0	0	32	0		
	20	1700	41	1074	1700		
COFI Malurua ta Canaaitu	000	0.40	1700	1271	1/00		
Volume to Capacity	0.06	0.12	0.02	0.03	0.10		
Queue Length 95th (m)	1.5	0.0	0.0	0.6	0.0		
Control Delay (s)	10.8	0.0	0.0	2.3	0.0		
Lane LOS	В			A			
Approach Delay (s)	10.8	0.0		0.9			
Approach LOS	В						
Intersection Summary							
Average Delay			1.2				
Intersection Capacity Utiliz	ation		28.6%	IC	U Level	of Service	
Analysis Period (min)			15				

PHASE 2 - 2060 PM - N ACCESS

HCM Unsignalized Intersection Capacity Analysis 1: Highway 806 & North Access

05-09-2024

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		ţ,			đ	
Traffic Volume (veh/h)	17	10	228	8	6	189	
Future Volume (Veh/h)	17	10	228	8	6	189	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Hourly flow rate (vph)	21	12	285	10	8	236	
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	542	290			295		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	542	290			295		
tC, single (s)	6.4	6.2			4.2		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.3		
p0 queue free %	96	98			99		
cM capacity (veh/h)	498	749			1211		
Direction, Lane #	WB 1	NB 1	SB 1				
Volume Total	33	295	244				
Volume Left	21	0	8				
Volume Right	12	10	0				
cSH	567	1700	1211				
Volume to Capacity	0.06	0.17	0.01				
Queue Length 95th (m)	1.5	0.0	0.2				
Control Delay (s)	11.7	0.0	0.3				
Lane LOS	В		А				
Approach Delay (s)	11.7	0.0	0.3				
Approach LOS	В						
Intersection Summary							
Average Delay			0.8				
Intersection Capacity Utiliza	ation		24.8%	IC	U Level o	of Service	Α
Analysis Period (min)			15				

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			÷	1		÷	1
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	15	48	9	146	63	86	17	94	142	88	122	17
Future Volume (vph)	15	48	9	146	63	86	17	94	142	88	122	17
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	19	59	11	180	78	106	21	116	175	109	151	21
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	89	364	137	175	260	21						
Volume Left (vph)	19	180	21	0	109	0						
Volume Right (vph)	11	106	0	175	0	21						
Hadj (s)	-0.03	-0.04	0.21	-0.58	0.26	-0.70						
Departure Headway (s)	6.3	5.7	6.6	5.8	6.7	5.7						
Degree Utilization, x	0.16	0.57	0.25	0.28	0.48	0.03						
Capacity (veh/h)	495	599	510	576	510	587						
Control Delay (s)	10.5	16.1	10.6	9.9	14.5	7.7						
Approach Delay (s)	10.5	16.1	10.2		14.0							
Approach LOS	В	С	В		В							
Intersection Summary												
Delay			13.3									
Level of Service			В									
Intersection Capacity Utiliza	tion		49.4%	IC	U Level o	of Service			A			
Analysis Period (min)			15									

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Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		र्स	4Î		¥		1	
Traffic Volume (veh/h)	21	254	215	33	64	81		
Future Volume (Veh/h)	21	254	215	33	64	81		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81		
Hourly flow rate (vph)	26	314	265	41	79	100		
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	306				652	286		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	306				652	286		
tC, single (s)	4.1				6.4	6.2		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	98				81	87		
cM capacity (veh/h)	1238				421	749		
Direction. Lane #	EB 1	WB 1	SB 1					
Volume Total	340	306	179				ſ	
Volume Left	26	0	79					
Volume Right	0	41	100					
cSH	1238	1700	557					
Volume to Capacity	0.02	0.18	0.32					
Queue Length 95th (m)	0.5	0.0	11.0					
Control Delay (s)	0.8	0.0	14.5					
Lane LOS	A	0.0	B					
Approach Delay (s)	0.8	0.0	14.5					
Approach LOS	0.0	010	В					
							1	
Intersection Summary			2.5					
Average Delay	-otion		3.5 45.00/			4 Comiles		
Intersection Capacity Utilit	zation		45.9%	IC		DI SEIVICE		
Analysis Period (min)			15					

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Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		र्स	ţ,		Y			
Traffic Volume (veh/h)	28	282	215	57	30	24		
Future Volume (Veh/h)	28	282	215	57	30	24		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81		
Hourly flow rate (vph)	35	348	265	70	37	30		
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	335				718	300		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	335				718	300		
tC, single (s)	4.1				6.4	6.2		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	97				90	96		
cM capacity (veh/h)	1213				387	744		
Direction, Lane #	EB 1	WB 1	SB 1					
Volume Total	383	335	67				 	
Volume Left	35	0	37					
Volume Right	0	70	30					
cSH	1213	1700	493					
Volume to Capacity	0.03	0.20	0.14					
Queue Length 95th (m)	0.7	0.0	3.7					
Control Delay (s)	1.0	0.0	13.4					
Lane LOS	А		В					
Approach Delay (s)	1.0	0.0	13.4					
Approach LOS			В					
Intersection Summary								
Average Delay			1.6					
Intersection Capacity Utili	zation		44.5%	IC	U Level o	of Service	А	
Analysis Period (min)			15					

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		*	1	-	41	
Traffic Volume (veh/h)	35	62	173	22	18	191	
Future Volume (Veh/h)	35	62	173	22	18	191	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	
Hourly flow rate (vph)	43	77	214	27	22	236	
Pedestrians	10					200	
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage veh)			NULLE			NUNC	
Linstream signal (m)							
nX nlatoon unblocked							
vC conflicting volume	376	214			2/1		
vC1 stage 1 confive	570	214			241		
vC1, stage 1 contivol							
	276	014			2/1		
	3/0	214			Z41 1 0		
	0.9	1.0			4.3		
$t_{\rm E}$ (a)	Э E	2.2			0.0		
rr (s) n0 queue free ⁰/	J.J 02	3.3			2.3		
pu queue free %	93	90			90		
civi capacity (ven/n)	580	182			1253		
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2		
Volume Total	120	214	27	101	157		
Volume Left	43	0	0	22	0		
Volume Right	77	0	27	0	0		
cSH	695	1700	1700	1253	1700		
Volume to Capacity	0.17	0.13	0.02	0.02	0.09		
Queue Length 95th (m)	5.0	0.0	0.0	0.4	0.0		
Control Delay (s)	11.3	0.0	0.0	1.8	0.0		
Lane LOS	В			А			
Approach Delay (s)	11.3	0.0		0.7			
Approach LOS	В						
Interpretion Cummers							
			0.5				
Average Delay	ration		2.5	10		of Convinc	
Intersection Capacity Utiliz	allon		30.1%	IC	U Level	UI SELVICE	
Analysis Period (min)			15				