TRAFFIC IMPACT STUDY
FOR

CP Lakin Park

Cotton Lane and MC 85
Goodyear, Arizona

CITY OF GOODYEAR - REPORT APPROVAL	
Hugh Bigalk	Date 6/24/2020
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Prepared for:

Clarius Partners
60 East Rio Salado Parkway, Suite 9060
Tempe, Arizona 85281

Walton Street Capital, LLC
900 N. Michigan Avenue, Suite 1900
Chicago, Illinois 60611

Prepared by:

UCG
United Civil Group

Traffic Impact Study
For

CP Lakin Park

Cotton Lane and MC 85
Goodyear, Arizona

November 12, 2018
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UCG Project Number: TR18074

Prepared for:

Clarius Partners
60 East Rio Salado Parkway, Suite 9060
Tempe, Arizona 85281

Walton Street Capital, LLC
900 N. Michigan Avenue, Suite 1900
Chicago, Illinois 60611

Prepared by:

United Civil Group
2803 N. 7th Avenue
Phoenix, Arizona 85007

Conducted by: Keith A. Winney, P.E.
Project Manager

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I. EXECUTIVE SUMMARY

A. PROJECT SUMMARY

United Civil Group (UCG) was retained by Clarius Partners and Walton Street Capital, LLC to perform this Traffic Impact Study (TIS) for the planned CP Lakin Park development located on the south half of the Cotton Lane & MC 85 intersection in Goodyear, Arizona. The overall approximate 695.6 net acre site is being requested for a rezone and is planned to consist of a mix of industrial, commercial, and multifamily residential uses. This project will be developed in phases with full build-out of the site assumed to be year 2028.

This Traffic Impact Study has been performed in general conformance with the City of Goodyear *Engineering Design Standards and Policies Manual*, Maricopa County Department of Transportation (MCDOT) *Traffic Impact Study Manual,* per scoping information provided by the City of Goodyear Engineering Department, locally accepted standards, and industry practice.

B. STUDY OBJECTIVES

This study is intended to investigate the existing and future traffic conditions and identify any potential roadway improvements necessary to serve the proposed development. Major study objectives of this traffic report are as follows:

- Analyze Cotton Lane, MC 85, the existing study area intersections, and the site accessibility for the development.

- Determine the site traffic volumes generated by the proposed development and their impacts on the surrounding study area.

- Where applicable, recommend safety, intersection and/or roadway improvements, sufficient to meet the needs of the development and adjacent roadway network due to the additional site generated traffic volumes.

C. CONCLUSIONS AND RECOMMENDATIONS

The overall plan for the 695.6 acre CP Lakin Park development consists of industrial, commercial, and multifamily residential uses. This project will be developed in phases with full build-out of the site assumed to be year 2028, driven by market conditions, industry factors, and/or business considerations.

Site access is planned via four accesses driveways on Cotton Lane (Access A [full], Access B [full], Access I [full], and Access J [ri-ro]) and six accesses on MC-85 (Access C [full], Access D [full], Access E [full], Access F [full], Access G [ri-ro], and Access H [full]). Per discussions with the City of Goodyear, full Access B is to be located at a point north of the canal (the canal is at the 1/4 mile point). Per discussions with

MCDOT, full Access C is to be located west of the end of the existing MC-85 median and accommodate a left-turn deceleration lane.

The forecasted total external peak hour trip generation estimate for the full build out of the site is 31,001 daily trips, 1,379 trips in the AM peak hour, and 1,494 trips in the PM peak hour.

In the existing and forecasted background year 2028 conditions, the signalized study area intersections of Cotton Lane/MC-85, Cotton Lane/Commerce Drive, and Sarival Avenue/MC-85 operate at acceptable levels of service, LOS C or better, during the AM and PM peak hours. At the two-way stop controlled intersection of Elwood Street/Cotton Lane, the minor legs of the intersection operate at an unacceptable level of service, while the major legs experience minimal delay.

In the forecasted total traffic conditions in year 2028 after full build out, some of the study area intersections and site accesses are forecasted to operate at levels of service of LOS E or LOS F. See Section VI.E.2 for additional details.

Left-turn and/or right-turn deceleration lanes are warranted or recommended and should be planned to be provided at all site access intersections.

Traffic signal warrants were evaluated for all full access intersections as well as the existing intersection of Cotton Lane/Elwood Street for both the full buildout year 2028 and 10-year horizon year 2038 total traffic conditions. Traffic signal warrant thresholds are met for the site access intersection of Cotton Lane/Access B in year 2028. Traffic signal warrant thresholds are not met at the remaining study area intersections in year 2028. Traffic signal warrant thresholds are met at the site access intersections of Cotton Lane/Access A, Cotton Lane/Access B, and Cotton Lane/Access I in year 2038. The warrants are based on forecasted traffic volumes; upon future development in the immediate area of the intersection and once actual land users are known and site planning is underway, traffic signal warrants should be re-analyzed.

Based on this Traffic Impact Study, the following recommendations apply:

- Proper intersection sight distance and sight triangles shall be provided and maintained at the site accesses and intersections of the proposed development to give drivers exiting the accesses a clear view of oncoming traffic. To ensure adequate sight distances and sight distance triangles, AASHTO's *A Policy on Geometric Design of Highways and Streets*, Section 6.1.13, City of Goodyear Standard Detail G-3232, and Section 7.7.5 of the MCDOT *Roadway Design Manual* should be followed when designing the accesses and landscaping.

- Provide half-street improvements on Cotton Lane adjacent to the site to the roadway section as required per City of Goodyear input.
- Provide half-street improvements on MC-85 adjacent to the site to the roadway section as required per MCDOT input.
- Right-turn deceleration lanes should be provided on Cotton Lane at the following locations:
    - SB at Access A
        - Storage length of 150 feet; taper length of 120 feet.
    - NB at Access A
        - Storage length of 150 feet; taper length of 120 feet.
    - SB at Access B
        - Storage length of 175 feet; taper length of 120 feet.
    - NB at Access B
        - Storage length of 175 feet; taper length of 120 feet.
    - SB at Access I
        - Storage length of 150 feet; taper length of 120 feet.
    - NB at Access I
        - Storage length of 150 feet; taper length of 120 feet.
    - SB at Access J
        - Storage length of 175 feet; taper length of 120 feet.
- Right-turn deceleration lanes should be provided on MC-85 at the following locations:
    - EB at Access C
        - Storage length of 225 feet; taper length of 125 feet.
    - EB at Access D
        - Storage length of 225 feet; taper length of 125 feet.
    - EB at Access E
        - Storage length of 225 feet; taper length of 125 feet.
    - EB at Access F
        - Storage length of 175 feet; taper length of 125 feet.
    - EB at Access G
        - Storage length of 225 feet; taper length of 125 feet.
    - EB at Access H
        - Storage length of 225 feet; taper length of 125 feet.
- Left-turn deceleration lanes should be provided on Cotton Lane at the following locations:
    - NB at Access A
        - Storage length of 150 feet; taper length of 120 feet.
    - SB at Access A
        - Storage length of 275 feet; taper length of 120 feet.
    - NB at Access B

        - Storage length of 150 feet; taper length of 120 feet.
    - SB at Access B
        - Storage length of 175 feet; taper length of 120 feet.
    - NB at Access I
        - Storage length of 150 feet; taper length of 120 feet.
    - SB at Access I
        - Storage length of 275 feet; taper length of 120 feet.

- Left-turn deceleration lanes should be provided on MC-85 at the following locations:
    - WB at Access C
        - Storage length of 200 feet; taper length of 125 feet.
    - WB at Access D
        - Storage length of 200 feet; taper length of 125 feet.
    - WB at Access E
        - Storage length of 200 feet; taper length of 125 feet.
    - WB at Access F
        - Storage length of 175 feet; taper length of 125 feet.
    - WB at Access H
        - Storage length of 200 feet; taper length of 125 feet.

- Provide widening/taper on MC-85 in advance of the left-turn deceleration lanes (Access F on the western side of the site, Access H on the eastern side of the site) having a distance of 660 feet, which assumes symmetrical widening, 12 foot lanes, and a 55 mph speed limit.

- Perform an updated traffic impact study(ies) once actual development users and site plans for CP Lakin Park development are known.

II. PROPOSED DEVELOPMENT

A. Site Location

The CP Lakin Park site is located on the east and west side of Cotton Lane south of MC 85 in Goodyear, Arizona. *Figure 1: Vicinity Map* and *Figure 2: Aerial View* present the location of the proposed development within the context of the immediate area.

B. Land Use

The overall plan for the 695.6 acre site consists of industrial, commercial, and multifamily residential uses. The following is a breakdown of the zoning, approximate area and intensity of each land use for the overall site:

- Existing Zoning: Agricultural Urban (AU)
- Proposed Zoning: I-2 Industrial, C-2 Commercial, and MF-18 Residential, with a PAD overlay.

- Industrial: 644.9 total acres
- Commercial/industrial: 35.3 total acres
    - Commercial parcels will have flex zoning to develop under I-2 or C-2 zoning
- Multi-Family Residential: 15.4 acres.

Figure 3: Land Use Plan presents the overall conceptual land use plan for the site. *Figure 4: Conceptual Site Plan* presents a general/conceptual site plan that has been preliminarily developed at this time for the industrial buildings within the northern portion of the site located north of the future SR-30.

C. Phasing and Timing

This project will be developed in phases with full build-out of the site assumed to be year 2028, driven by market conditions, industry factors, and/or business considerations. Because actual site plans have not been developed for the entire site, the study horizon years utilized as part of this TIS for the proposed project are the full build-out of the site (2028) and 10 years after full build-out of the site (2028) as per discussions with the City of Goodyear and MCDOT traffic engineering staff.

***Due to the future SR-30, which will bisect the site, as well as the southern extension of the Loop 303 to the west of the site, the distribution of traffic in the study area will drastically change once these new freeways open. This is expected to occur in approximately year 2029, after full build-out of the site. This Traffic Impact Study provides only the new forecasted site generated traffic/trip distribution of CP Lakin Park in the horizon year of 2038 (10 years after full build out) after the opening of the new freeways. Future year 2038 background and total traffic volumes and associated analyses are not included given the uncertainty. Future traffic impact study

updates may be required for the site and should take into account updated regional planning study information as available.

D. Site Accessibility

Specific site plans for CP Lakin Park site have not been developed at this time; however, the following is a general summary of the assumed site access points for the development:

- On Cotton Lane south of MC-85
    - North of future SR-30
        - 3 access points (Access A, Access B, Access J)
    - South of future SR-30
        - 1 access point (Access I)
- On MC-85
    - West of Cotton Lane
        - 4 access points (Access C, Access D, Access E, Access F)
    - East of Cotton Lane
        - 2 access points (Access G, Access H)

The site accesses are discussed in more detail in Section VI.B below.

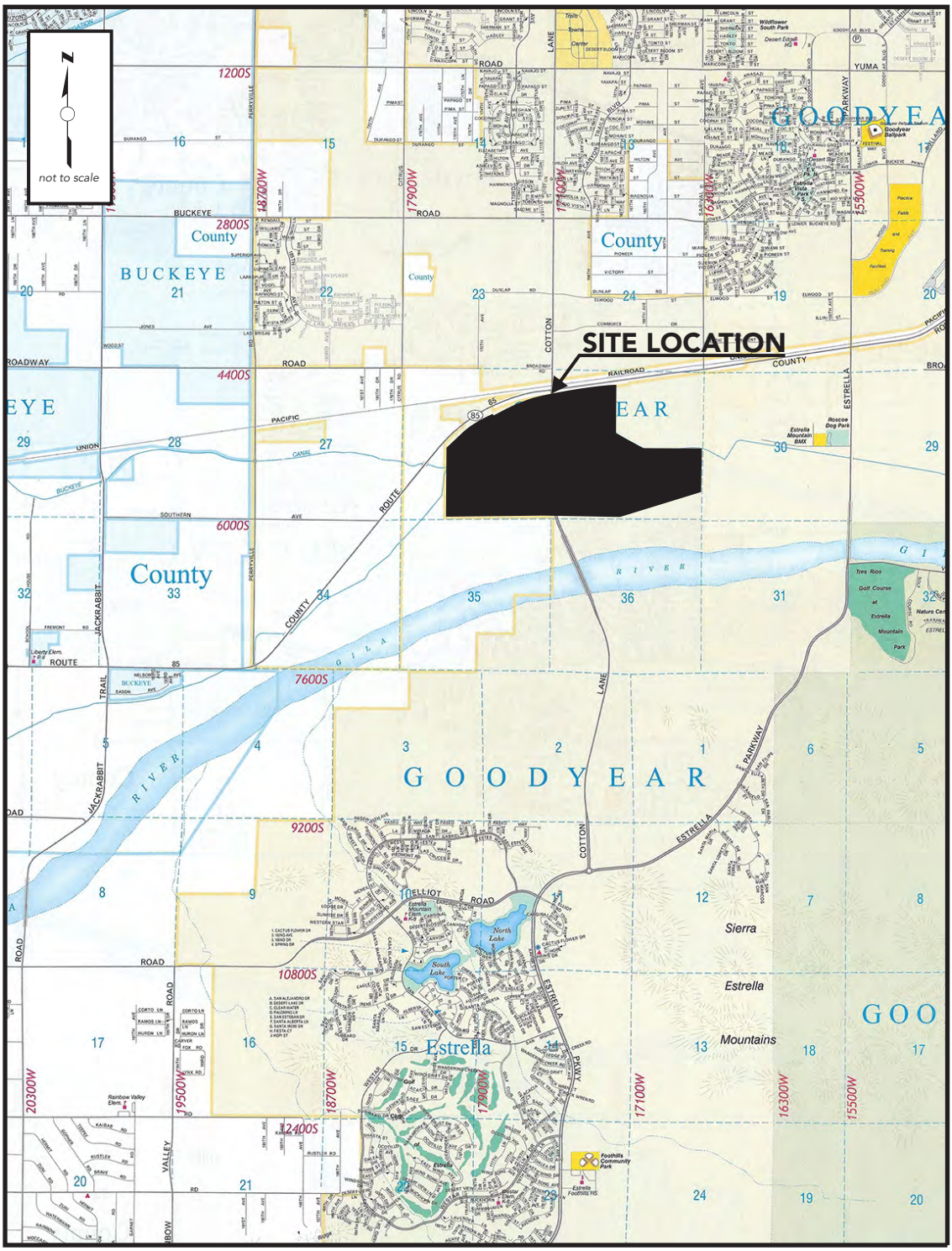

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Figure 1: Vicinity Map

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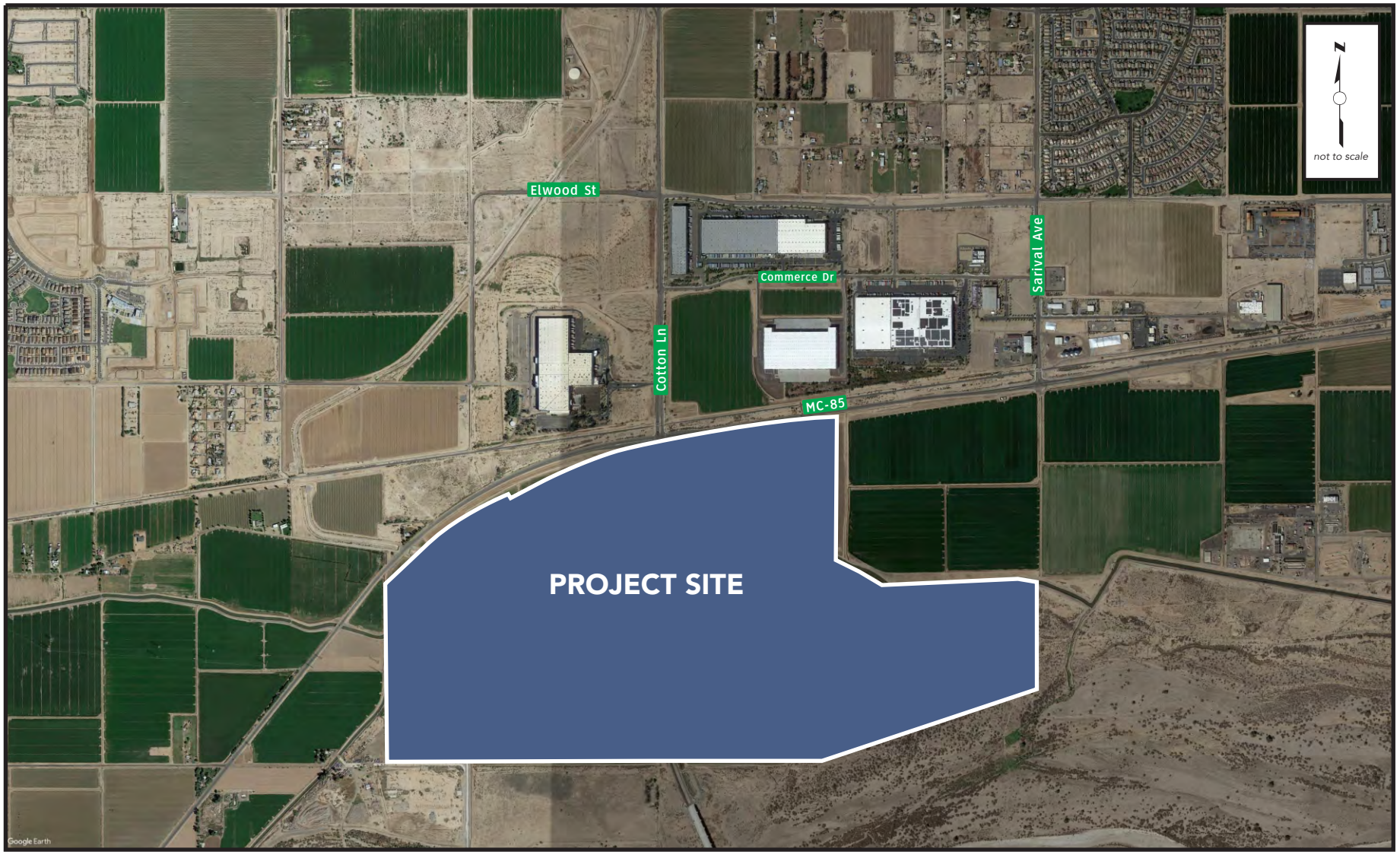

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Figure 2: Aerial View

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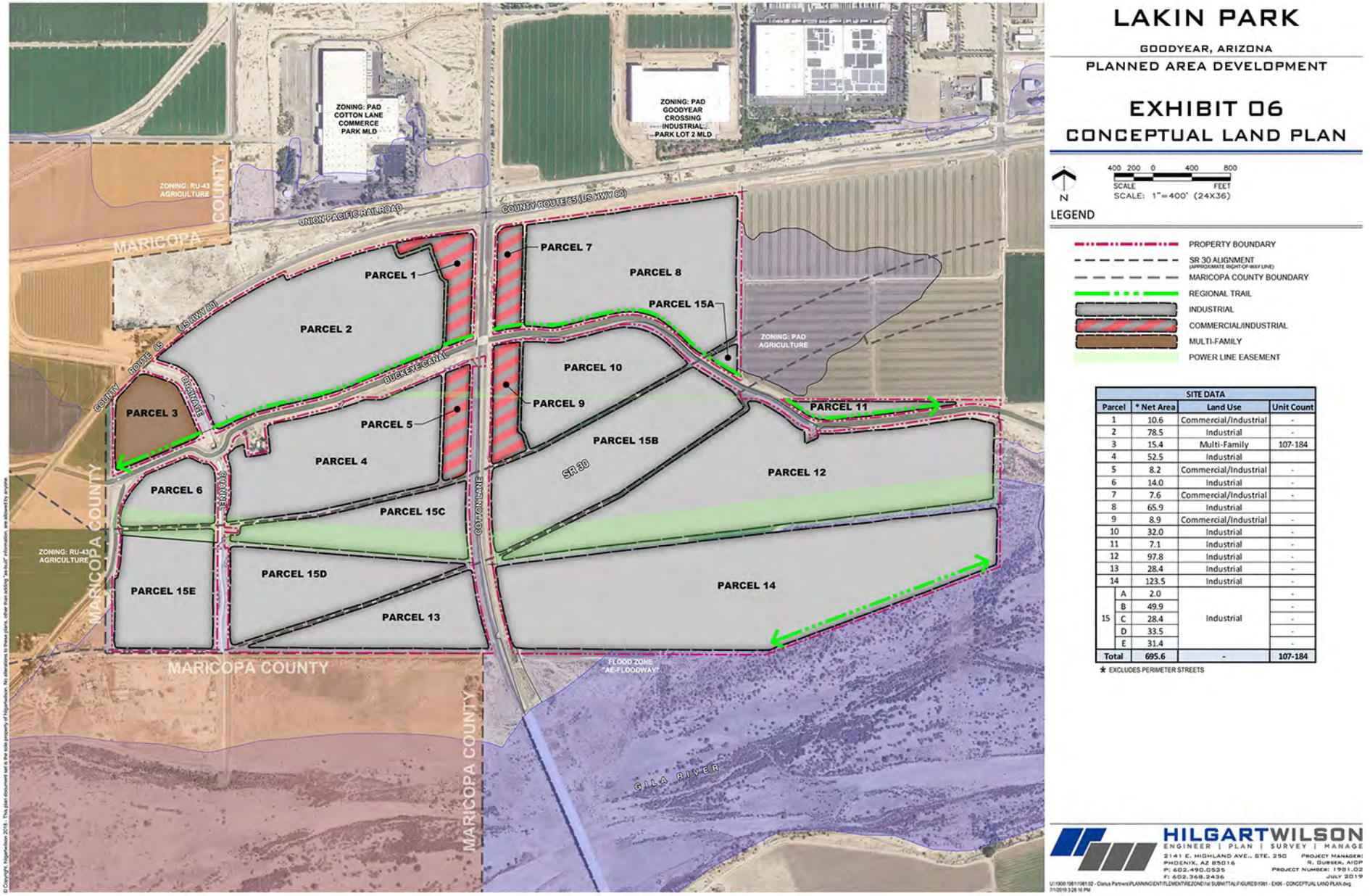

Figure 3: Land Use Plan

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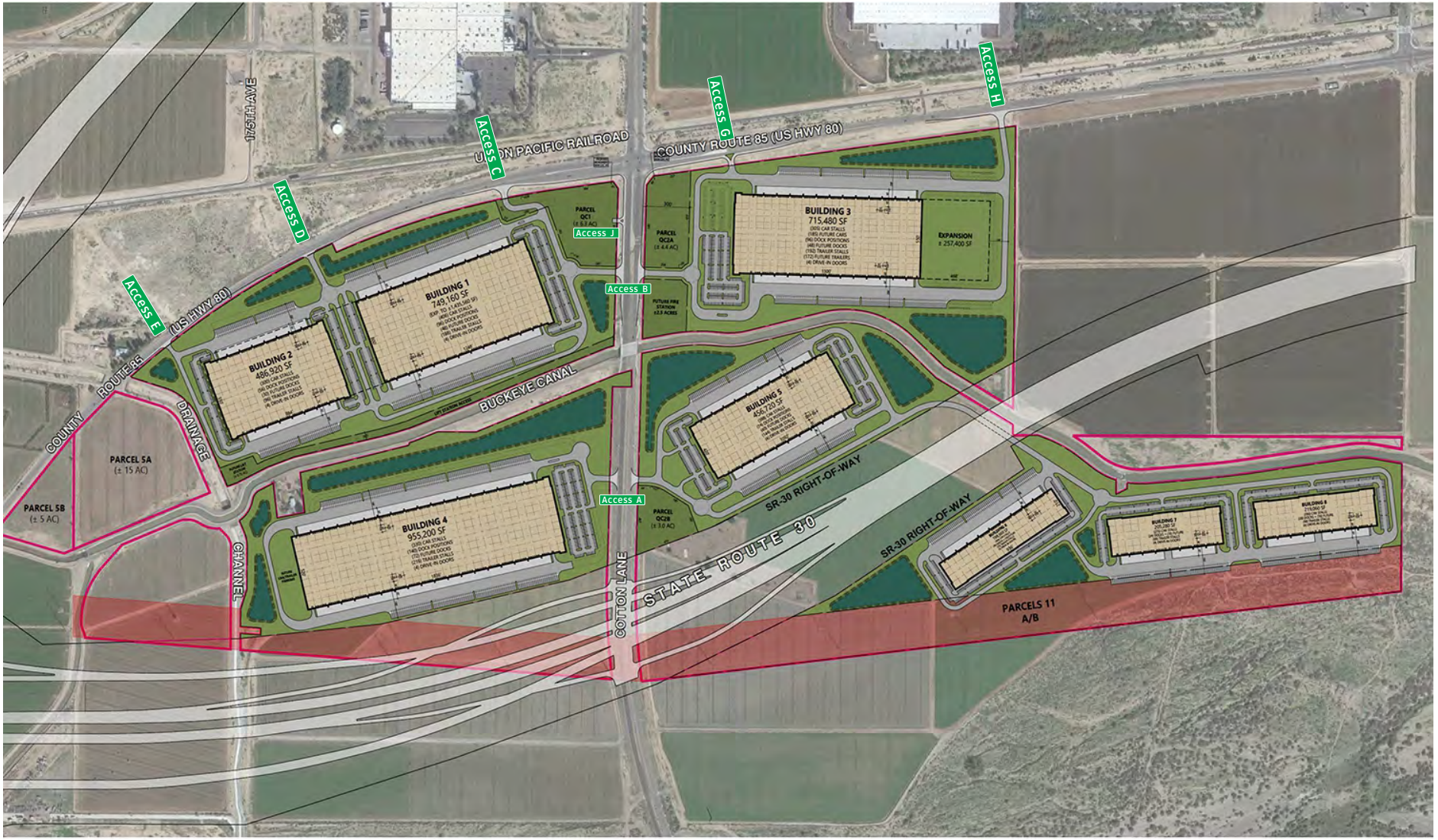

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Figure 4: Conceptual Site Plan

III. STUDY AREA CONDITIONS

A. Study Area

Based on the forecasted trip generation of CP Lakin Park (Section V.A, Table 3) and discussions with the City of Goodyear Traffic Engineering staff, the study area includes the existing intersections of Cotton Lane/MC 85, Cotton Lane/Commerce Drive, Cotton Lane/Broadway Road and Sarival Avenue & MC 85.

B. Study Area Land Use

The following describes the existing land uses of the subject site and surrounding area:
SUBJECT SITE: Agricultural land. Existing Zoning: AU (Agricultural Urban)

NORTH: MC 85 followed by agricultural land and industrial parks
SOUTH: Agricultural land
EAST: Agricultural land
WEST: Agricultural land

C. Anticipated Future Development and Planned Improvements

No known City of Goodyear capital improvement construction projects are planned within the study area along Cotton Lane. A pavement management project (Sarival Avenue from Yuma Road to MC 85) is planned to be completed by 2019, however, no additional roadway capacity or changes are included as part of this project.

As part of MCDOT's Transportation Improvement Program FY 2018 – 2022, safety improvement project No. TT0548 includes minor widening and striping for the addition of passing lanes on MC 85 between Liberty School Road and Cotton Lane. Construction is expected to be complete in year 2019.

There is one known new land development project adjacent to the study area titled Cotton Estrella Bridges. This project is located in the vicinity of Estrella Parkway south of the Gila River and is planned to ultimately consist of 6,500 single-family homes. *Appendix E: Cotton Estrella Bridges Traffic*, taken from the "Cotton Estrella Bridges Traffic Analysis, by Southwest Traffic Engineering, LLC, revised October 5, 2018, presents the site generated traffic volumes utilized as part of this study's background traffic volumes and overall analysis.

ADOT is planning the southern extension of the Loop 303 and the new SR-30 freeways in the vicinity of the project site. The alignment of the Loop 303 is expected to bring it south from the I-10 interchange and jog west of the CP Lakin Park site. The planned alignment of the SR-30 cuts across CP Lakin Park approximately ½ mile south of MC-85. For the purposes of this study, these new freeways are assumed to be in place by approximately 2029, after full build-out of the site in 2028.

IV. EXISTING ROADWAY CONDITIONS

A. PHYSICAL CHARACTERISTICS

Cotton Lane is a classified as a Major Arterial north of MC-85 and a Parkway south of MC-85 per the City of Goodyear *Transportation Master Plan*, consisting of varying stages of improvement through the study area, but generally one travel lane in the northbound and southbound direction. At the intersection with MC-85, Cotton Lane is fully improved with 2 northbound lanes (1 additional northbound lane is striped-out for future use), 3 southbound lanes, curb/gutter, sidewalk, and bicycle lanes. The posted speed limit along Cotton Lane within the vicinity of the site is 45 miles per hour.

MC-85 is a classified as a Principal Arterial per the MCDOT *Major Streets and Routes Plan*, consisting of one travel lane in the eastbound and westbound directions and lacks curb/gutter, sidewalk, and bicycle lanes. At the intersection with Cotton Lane, MC-85 widens to its ultimate configuration with 3 westbound lanes and 2 eastbound lanes. The posted speed limit along MC-85 within the vicinity of the site is 45 miles per hour east of Cotton Lane and 55 miles per hour west of Cotton Lane.

Sarival Avenue is a classified as an Arterial per the City of Goodyear *Transportation Master Plan*, consisting of one northbound lane, one southbound lane, and a center two-way left-turn lane north of MC-85. The posted speed limit of Sarival Avenue in this area is 45 miles per hour.

Elwood Street is a classified as an Arterial per the City of Goodyear *Transportation Master Plan*, consisting of one eastbound lane, one westbound lane, and a center two-way left-turn lane east of Cotton Lane; and one eastbound lane and one westbound lane only west of Cotton Lane. The posted speed limit of Elwood Street in this area is 30 miles per hour east of Cotton Lane and 35 miles per hour west of Cotton Lane. Elwood Street curves north to transition to Bullard Avenue approximately 2 miles east of Cotton Lane. Elwood Street ends at 175th Avenue approximately 1/2 mile west of Cotton Lane.

Commerce Drive is not classified within the City of Goodyear *Transportation Master Plan*, however, it acts as a collector road for the industrial area east of Cotton Lane. Commerce Drive has one eastbound lane and one westbound lane with a center two-way left-turn lane and ends at Cotton Lane. The posted speed limit of Commerce Drive in this area is 30 miles per hour.

The Cotton Lane/MC-85 intersection is a signalized intersection under MCDOT jurisdiction. The Union Pacific Railway runs parallel to MC-85 with a railway crossing on Cotton Lane approximately 100 feet north of MC-85.

The Sarival Avenue/MC-85 intersection is a signalized intersection under MCDOT jurisdiction. The south leg is unimproved with only dirt road access to the agricultural area to the south. The Union Pacific Railway runs parallel to MC-85 with a railway crossing on Sarival Avenue approximately 100 feet north of MC-85.

The Cotton Lane/Commerce Drive intersection is a signalized intersection under City of Goodyear Jurisdiction.

The Cotton Lane/Elwood Street intersection is a two-way stop-controlled intersection under City of Goodyear Jurisdiction.

Figure 5: Existing Geometry – Year 2018 graphically depicts the existing roadway and intersection geometry within the study area.

B. Existing Traffic Volumes

Existing turning movement volume counts in 15-minute intervals were collected at the study area intersections of Cotton Lane/MC-85, Cotton Lane/Commerce Drive, Cotton Lane/Elwood Street, and Sarival Avenue/MC-85 on Tuesday, November 6, 2018 during the AM (7:00AM – 9:00AM) and PM (4:00PM – 6:00PM) peak periods. The resulting AM and PM peak hour traffic volumes are presented in *Figure 6 – Existing Traffic Volumes*. In addition, UCG collected existing ADT volumes on Cotton Lane north of MC-85 and on MC-85 east of Cotton lane within the study area. The resulting ADT volumes are presented in Figure 6. Complete traffic count data can be found in *Appendix A: Traffic Data*.

Due to the proximity of industrial parks and the nature of MC-85, heavy truck volumes were collected as part of the turning movement counts. A heavy truck percentage of 8% is utilized at the study area intersections within the Vistro traffic model for analysis purposes.

C. Existing Traffic Observations

Traffic conditions and operations were observed during the study's weekday AM and PM peak periods. No major traffic issues were noted. Due to the location of the Union Pacific Railroad tracks paralleling MC-85 in the study area, traffic delays and queues are possible when a train is crossing. The railroad crossings are protected by gates and signals.

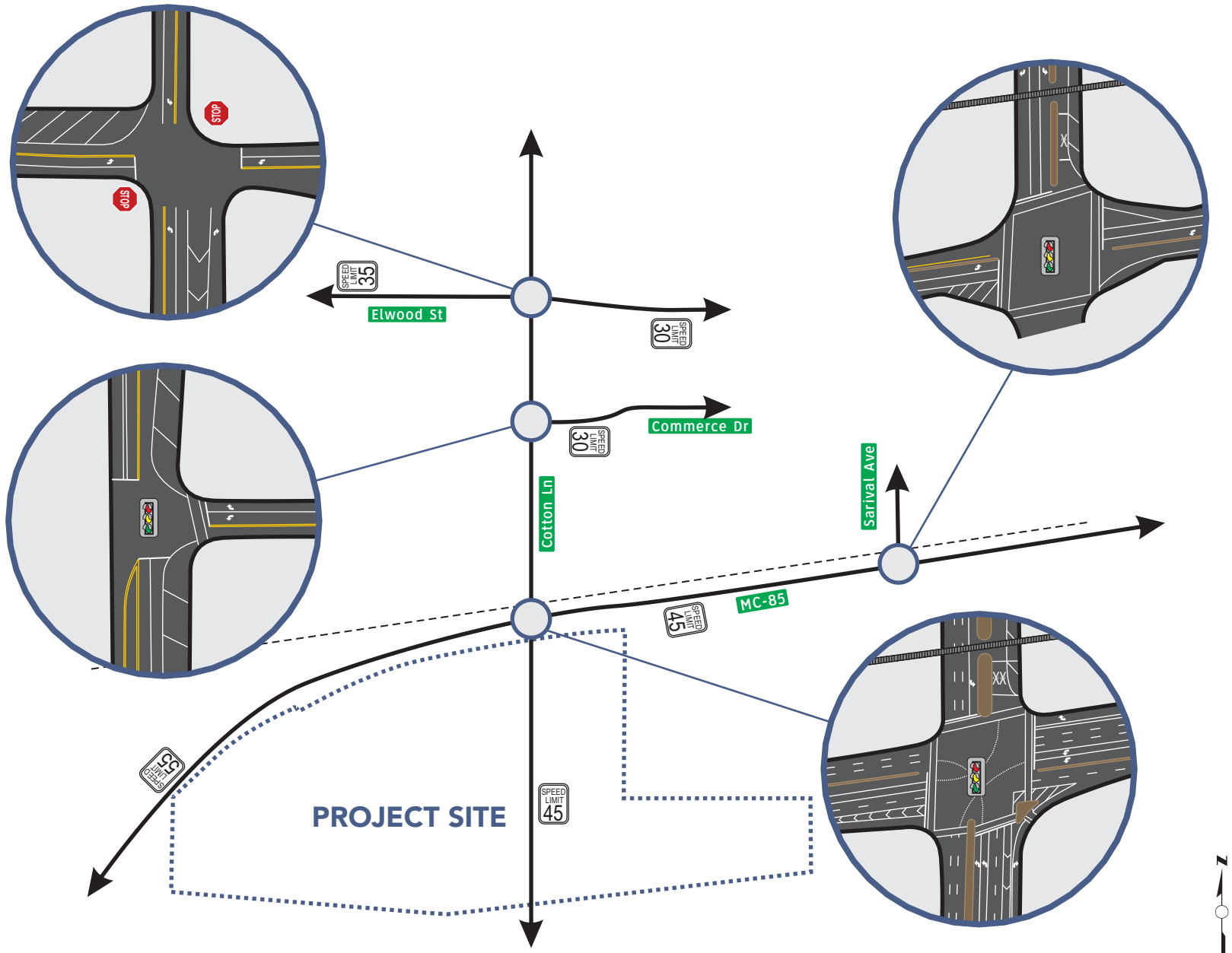
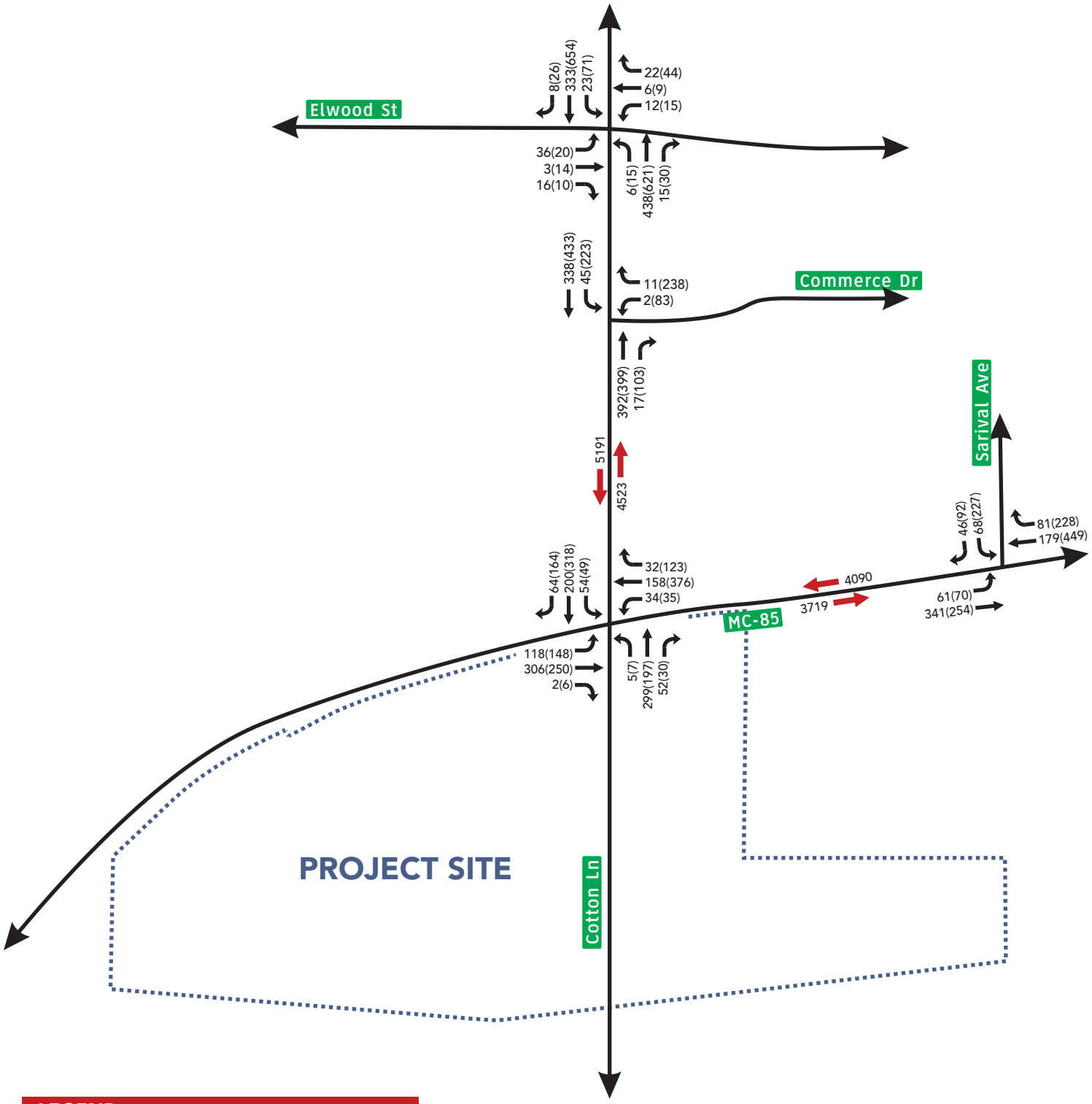


Figure 5: Existing Geometry



LEGEND

XX(XX) AM(PM) Peak Hour Traffic Volume

Average Daily Traffic

N

not to scale

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Figure 6: Existing Traffic Volumes

D. Intersection Level of Service Analyses

D.1 HCM Capacity Analyses and Levels of Service

The roadway system's ability to accommodate traffic demand is typically limited by the capacity of the intersections. Therefore, intersection capacity analysis is a principal tool used in traffic engineering to determine the adequacy of a roadway system.

The level of service (LOS) concept is used in traffic engineering to describe the degree of delay a driver can expect. The concept defines a near-capacity condition as LOS E while a free flow condition under which a driver would experience minimal delay is defined as LOS A.

The intersections level of service was determined using the methodologies presented the *Highway Capacity Manual* published by the Transportation Research Board. Per the HCM, the signalized delay and associated LOS is presented in *Table 1: Intersection Levels of Service and Delay*.

For signalized and all-way stop controlled intersections, LOS is reported for each approach and intersection as a whole. For two-way stop controlled intersections, LOS letter grade is not assigned for the overall intersection as a whole.

Table 1: Intersection Levels of Service and Delay

Level of Service	Signalized Delay (Sec/Veh)
A	$\leq$ 10
B	> 10 and $\leq$ 20
C	> 20 and $\leq$ 35
D	> 35 and $\leq$ 55
E	> 55 and $\leq$ 80
F	> 80

D.2 Existing Intersection Level of Service

The level of service (LOS) and average delay at the existing study area intersections were evaluated using the 2018 intersection volumes, lane geometry, and existing traffic control as presented in Figure 4. PTV Vistro traffic modeling software, employing the methodologies as presented in the *Highway Capacity Manual* (HCM), was utilized for the capacity analyses to obtain the existing conditions levels of service. Summaries of the Vistro output calculations are included in *Appendix C: Capacity Analyses*.

The results of the existing levels of service analysis are presented in *Table 2: 2018 Existing Conditions Intersection Levels of Service*.

TABLE 2: 2018 EXISTING CONDITIONS INTERSECTION LEVELS OF SERVICE

Intersection Location	NB LOS				SB LOS				EB LOS				WB LOS				Overall Intersection
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	AvgDelay/ LOS
Cotton Lane/MC-85 – Signalized																	
AM Peak Hour	D	C	B	**C**	D	B	B	**B**	C	C	C	**C**	D	C	C	**C**	**24.82 C**
PM Peak Hour	D	C	B	**C**	D	B	B	**B**	C	C	C	**C**	D	C	C	**C**	**25.27 C**
Cotton Lane/Commerce Drive – Signalized																	
AM Peak Hour	-	A	A	**A**	A	A	-	**A**	-	-	-	**-**	D	-	D	**D**	**1.91 A**
PM Peak Hour	-	A	A	**A**	A	A	-	**A**	-	-	-	**-**	C	-	D	**D**	**10.07 B**
Cotton Lane/Elwood Street – Two-way Stop-controlled																	
AM Peak Hour	A	A	A	**A**	A	A	A	**A**	C	C	B	**C**	C	C	B	**C**	**2.17 ***
PM Peak Hour	A	A	A	**A**	A	A	A	**A**	F	F	C	**F**	F	E	C	**D**	**3.96 ***
Sarival Avenue/MC-85 – Signalized																	
AM Peak Hour	-	-	-	**-**	C	-	C	**C**	A	A	-	**A**	-	A	A	**A**	**7.78 A**
PM Peak Hour	-	-	-	**-**	D	-	C	**D**	B	A	-	**A**	-	A	A	**A**	**13.70 B**

*Per HCM, overall LOS letter grade is not assigned for two-way stop-controlled intersections.

The existing study area intersections currently operate at acceptable levels of service, LOS C or better, during the AM and PM peak hours. The exception is on eastbound and westbound Elwood Street. Through and left-turning movements on stop-controlled minor roads and driveways that intersect with major streets typically experience greater delay for short periods of time in the peak hours due to the wait for acceptable gaps on the major street, while the free-flowing major streets experience minimal delay.

V. PROJECTED TRAFFIC

A. TRIP GENERATION

Estimates of the traffic volumes that will be generated by the development were determined from transportation planning data taken from the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition, 2017*. The ITE rates are based on studies that measure trip generation characteristics for various types of land uses. The rates are expressed in terms of trips per unit of land use type.

Although the actual end users are unknown at this time and definitive site plans have yet to be developed, the assumed land uses and corresponding total sizes utilized to forecast the trips generation of CP Lakin Park are as follows:

- Industrial: 7,763,000 total square feet (within 517.35 total acres)
    - Industrial A: Approximately 3,364,000 square feet in 5 buildings, in the northern portion of the site north of the future SR-30 (parcels 2, 4, 8, and 10 – totaling 228.9 acres) as shown in the conceptual site plan in Figure 4.
        - These have the potential to be some of the site's largest buildings. Due to their large size, the most similar ITE Land Use Code for these buildings is assumed to be ITE LUC 154 – High-Cube Transload and Short-Term Storage.
    - Industrial B: Approximately 270,000 square feet (17.65 acres at 0.35 FAR)
        - This is part of the flex zoned parcels (parcels 1, 5, 7, and 9), of which a 50-50 split between commercial uses and industrial uses is assumed. These would be at the "front door" to the overall site; therefore, the most similar ITE Land Use Code for these is assumed to be ITE LUC 130 – Industrial Park.
    - Industrial C: Approximately 4,129,000 square feet for the remainder of the industrial parcels (270.8 acres at 0.35 FAR, in parcels 6, 11, 12, 13, and 14).
        - These are potentially smaller scale buildings in these parcels; therefore, the most similar ITE Land Use Code for these buildings is assumed to be ITE LUC 110 – General Light Industrial.
    - Approximately 145.2 acres of land in Parcel 15A-E as shown in Figure 3 is requested to be rezoned Industrial. These parcels are within the future SR-30 corridor and are unlikely to be developed. If a no-build SR-30 scenario occurs, this area will be developed under its industrial zoning and an updated TIS may be required to include the additional trip generation.

- Commercial: 154,000 square feet (within 17.65 total acres at 0.20 FAR)
    - As part of the flex zoned parcels (parcels 1, 5, 7, and 9), a 50-50 split between commercial uses and industrial uses is assumed (17.65 acres for each land use).
        - The most similar ITE Land Use Code for the commercial components is assumed to be ITE LUC 820 – Shopping Center.

- Multi-Family Residential: 15.4 acres. 184 total dwelling units.
    - The most similar ITE Land Use Code for the multifamily component is assumed to be ITE LUC 220 – Multifamily Housing (Low-Rise).

A.1 Internal Capture

Given the mixture of the land uses of the development, it is expected a small portion of the site traffic will be captured internally without utilizing the external roadway network. This is expected via direct internal access (internal drive aisles/streets and/or pedestrian connections) between the parcels, specifically as interaction between the industrial buildings (employees and patrons) and the commercial areas. A 5% internal capture rate is applied to the commercial component's trip generation. Due to the conceptual nature of the land uses and site at this stage, the reduction factor is applied generally as detailed accounting and estimate of trips between land uses is not reasonable.

A.2 Pass-by Trips

An important occurrence that is addressed for land uses of this type is pass-by trips. As defined by ITE's *Trip Generation Handbook*, pass-by trips are made as an immediate stop on the way from an origin to a primary trip destination, without a route diversion. For analysis, the total amount of trips determined to be pass-by trips are subtracted from the existing through volumes on the adjacent roadways passing a given site access point, but are included in the site access driveway movements.

It is forecasted that a portion of the trips generated by the commercial components of the site will be pass-by trips due to the nature of the land use and its location along the major arterials of Cotton Lane and MC-85. According to ITE's *Trip Generation Handbook, 2017*, the average PM peak period pass-by trip percentage as provided for Shopping Center Land Use Code 820 is 34%, which has been utilized for this site. No pass-by data is provided for the AM peak period.

Table 3: Trip Generation on the following page presents the forecasted daily and peak hour vehicle trips generated by CP Lakin Park for a typical weekday upon full build out of the site, accounting for internal capture and pass-by trips.

TABLE 3: TRIP GENERATION

Land Use	ITE Code	Units	Total Size	Daily	AM Peak			PM Peak		
					In	Out	Total	In	Out	Total
CP Lakin Park Full Build-Out										
Industrial A (ITE LUC 154)	154	1000s SF	3,364	4,710	207	62	269	94	242	336
Industrial B (ITE LUC 130)	130	1000s SF	270	1,574	87	21	108	23	85	108
Industrial C (ITE LUC 110)	110	1000s SF	4,129	15,707	616	84	700	62	418	480
Multifamily (Low-rise)	220	DUs	184	1,350	19	66	85	64	38	102
Shopping Center	820	1000s SF	154	8,064	142	87	229	359	389	748
Gross Trips				31,405	1,071	320	1,391	602	1,172	1774
Internal Capture Commercial (5%)				(404)	(8)	(5)	(12)	(18)	(20)	(38)
Subtotal of External Trips				*31,001*	*1,063*	*315*	*1,379*	*584*	*1,152*	*1,736*
Pass-by Trips (Commercial, 34% PM Peak)				-	-	-	-	(116)	(126)	(242)
Total External Primary Trips				**31,001**	**1,063**	**315**	**1,379**	**468**	**1,026**	**1,494**

<u>High-Cube Transload and Short-Term Storage – ITE LUC 154</u>		
AM Peak Hour	T = 0.08(X)	77% entering, 23% exiting
PM Peak Hour	T = 0.10(X)	28% entering, 72% exiting
Daily	T = 1.40(X)	50% entering, 50% exiting
<u>Industrial Park – ITE LUC 130</u>		
AM Peak Hour	T = 0.40(X)	81% entering, 19% exiting
PM Peak Hour	T = 0.40(X)	21% entering, 79% exiting
Daily	Ln(T) = 0.52 Ln(X) + 4.45	50% entering, 50% exiting
<u>General Light Industrial – ITE LUC 110</u>		
AM Peak Hour	Ln(T) = 0.74 Ln(X) + 0.39	88% entering, 12% exiting
PM Peak Hour	Ln(T) = 0.69 Ln(X) + 0.43	13% entering, 87% exiting
Daily	T = 4.96(X)	50% entering, 50% exiting
<u>Multifamily Housing (Low Rise) – ITE LUC 220</u>		
AM Peak Hour	Ln(T) = 0.95 Ln(X) - 0.51	23% entering, 77% exiting
PM Peak Hour	Ln(T) = 0.89 Ln(X) - 0.02	63% entering, 37% exiting
Daily	T = 7.56(X) – 40.86	50% entering, 50% exiting
<u>Shopping Center – ITE LUC 820</u>		
AM Peak Hour	T = 0.50(X) + 151.78	62% entering, 38% exiting
PM Peak Hour	Ln(T) = 0.74 Ln(X) + 2.89	48% entering, 52% exiting
Daily	Ln(T) = 0.68 Ln(X) + 5.57	50% entering, 50% exiting

On a typical weekday, after full build-out of the entire site, the CP Lakin Park development is estimated to generate 1,379 new primary external trips in the AM peak hour, 1,494 new primary external trips in the PM peak hour and 31,001 daily trips.

B. Trip Distribution

The trip distribution procedure determines the general pattern of travel for vehicles entering and leaving the study area. The assumed trip distribution percentages for the development are shown in *Table 4: Trip Distribution Percentages*. These percentages are based on the location of the site within the City of Goodyear, the connectivity of the site to the region, the recently collected existing traffic volumes, and take into account the character of the types of land uses of the development, which includes two distinct generators – industrial, commercial, and residential.

For the industrial components, the connectivity to the I-10 corridor is the major factor in the projected trip distribution. For the residential component, distribution of the home-to-work trips is generally based on the roadway connectivity and MAG socio-economic employment data. For the commercial component, due to the general existing lack of commercial in this area of the City of Goodyear, the "market area" is assumed to be pulled from a larger distance than may be typical for a shopping center and generally includes the areas within approximately 5 miles of the site. Minor differences are expected in the trip distribution patterns of each component of the site (residential vs commercial).

Additionally, as the new freeway corridors of SR-30 and Loop 303 are completed and available after the full build-out of the site, trip distribution percentages are expected to change. For example, more trips are expected to utilize the SR-30 instead of MC-85 or I-10. Distribution percentages and the associated trip assignment are changed to account for the new connectivity of the site for horizon year 2038. These assumptions are taken into account to establish the trip distribution percentages provided in Table 4 on the following page. The final alignment of the Loop 303 will include an interchange with the SR-30 approximately 1 mile west of the site. For trip distribution purposes after full build out of the site, the mostly likely access route to the Loop 303 (and I-10) is assumed to be north of the site via Cotton Lane.

TABLE 4: TRIP DISTRIBUTION PERCENTAGES

Direction	Trip Distribution Percentage Arriving From and Departing To	
	Opening Through Full Build-out	Horizon Year 2038*
Industrial Components		
Cotton Lane north of Elwood Street	75%	60%
MC-85 east of Sarival Avenue	10%	5%
MC-85 west of site	10%	5%
Cotton Lane south of site	3%	3%
Sarival Ave north of MC-85	2%	2%
Elwood Street west of Cotton Lane	0%	0%
Commerce Drive east of Cotton Lane	0%	0%
Elwood Street east of Cotton Lane	0%	0%
SR-30 east of site	-	15%
SR-30 west of site	-	10%
Residential Component		
Cotton Lane north of Elwood Street	40%	25%
MC-85 east of Sarival Avenue	25%	10%
MC-85 west of site	10%	5%
Cotton Lane south of site	10%	10%
Sarival Ave north of MC-85	10%	5%
Elwood Street west of Cotton Lane	3%	3%
Commerce Drive east of Cotton Lane	2%	2%
Elwood Street east of Cotton Lane	0%	0%
SR-30 east of site	-	30%
SR-30 west of site	-	10%
Commercial Components		
Cotton Lane north of Elwood Street	25%	25%
MC-85 east of Sarival Avenue	20%	15%
MC-85 west of site	10%	5%
Cotton Lane south of site	20%	10%
Sarival Ave north of MC-85	15%	15%
Elwood Street west of Cotton Lane	5%	5%
Commerce Drive east of Cotton Lane	3%	3%
Elwood Street east of Cotton Lane	2%	2%
SR-30 east of site	-	15%
SR-30 west of site	-	5%

*SR-30 assumed to be constructed and alter regional connectivity of site by horizon year 2038.

Figure 7: Site Generated Traffic – Full Build-out (2028) presents the assigned site generated traffic to and from the development for the full build-out of the site in year 2028. *Figure 8: Site Generated Traffic – Year 2038* presents the site generated trips after the opening of SR-30, which takes into account the updated trip distribution and assignment of the site's trips due to the changed roadway connectivity of the site.

C. Projected Background and Total Traffic Volumes

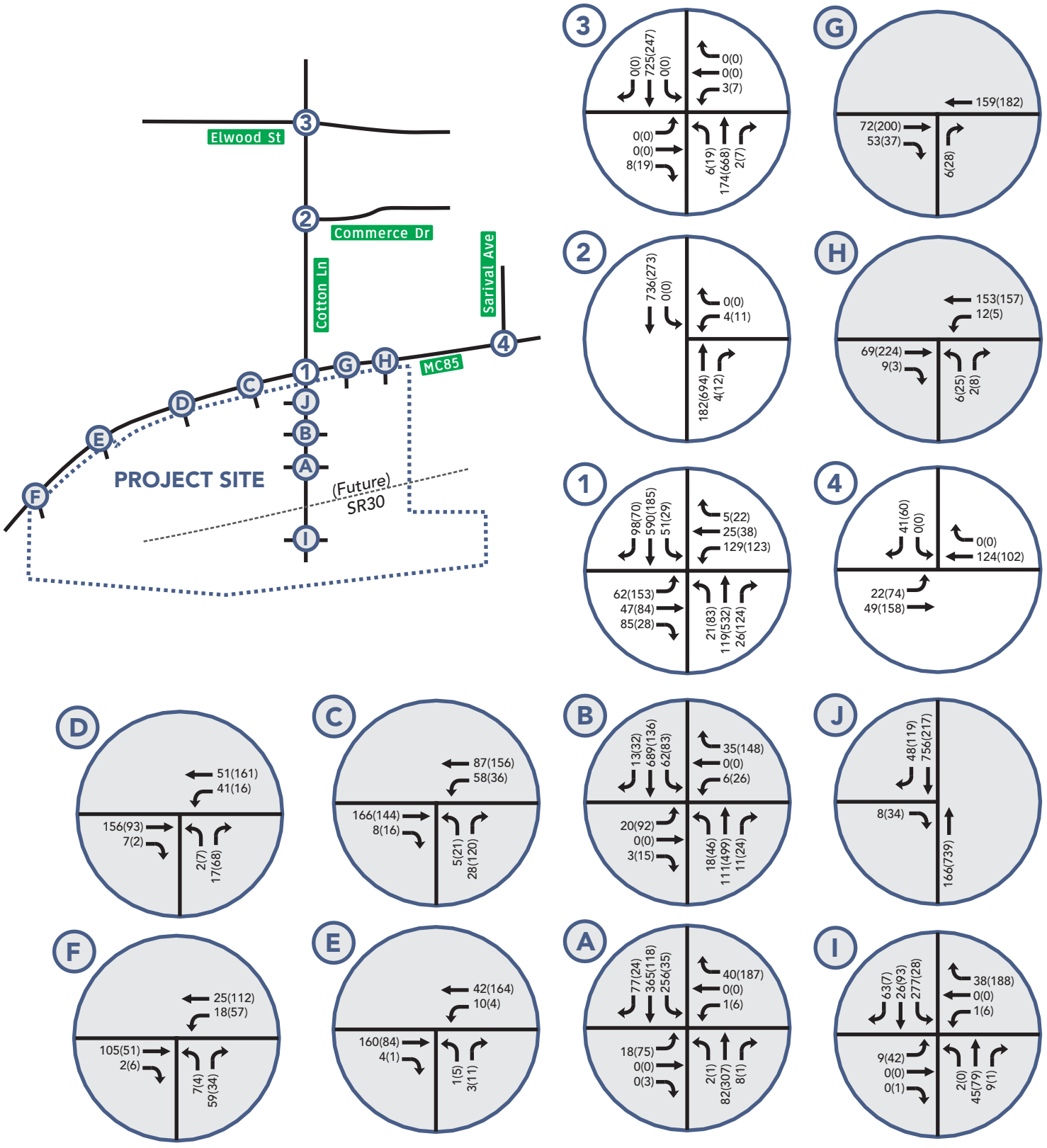
Non-site or background traffic volumes representing the amount of traffic estimated to be on the area roadway network without the proposed development within the study area are projected for the horizon years of the development, year 2028 (full build out), and year 2038 (10 years after opening). The yearly growth trends coupled with the site generated traffic of any known proposed developments in the study area are used to forecast the background traffic.

No imminent land development projects immediately adjacent to the study area are known at this time; however, the adjacent agricultural land in the study area may be developed in the future. This development may be enhanced once the SR-30 freeway is constructed and open as expected by 2029. A 2% annual ambient growth rate has been applied to the existing traffic volumes to estimate the background traffic volumes in the full build out horizon year to account for any additional development that is possible within the study area.

The background traffic volumes for the full build-out horizon year (2028) are presented in *Figure 9: Background Traffic – Year 2028.* These volumes include the traffic from the Cotton Estrella Bridges site. This site's traffic volume information is provided in Appendix E. An 8% K-factor is applied to the ADT site volumes of the Cotton Estrella Bridges to determine the peak hour trips on Cotton Lane from that site.

Total traffic projections for the horizon year of the development were determined by adding the proposed development's site generated traffic to the forecasted horizon background traffic volumes for the full build-out horizon year. The total traffic volumes are presented *Figure 10: Total Traffic – Year 2028.* Pass-by trips are accounted for in the total traffic volumes by subtracting the through volumes at the shopping center site accesses (while included in the turning movements at these accesses).

***Due to the future SR-30, which will bisect the site, as well as the southern extension of the Loop 303 to the west of the site, the distribution of traffic in the study area will drastically change once these new freeways open, especially on MC-85. This is expected to occur in approximately year 2029, after full build-out of the site. Future year 2038 background and total traffic volumes and associated analyses are not included for study area intersections along MC-85 given the uncertainty.



LEGEND

XX(XX) AM(PM) Peak Hour Traffic Volume

(X) Existing Intersections

(X) Site Accesses

N

not to scale

United Civil Group

Figure 7: Site Generated Traffic - Full Build-out (2028)

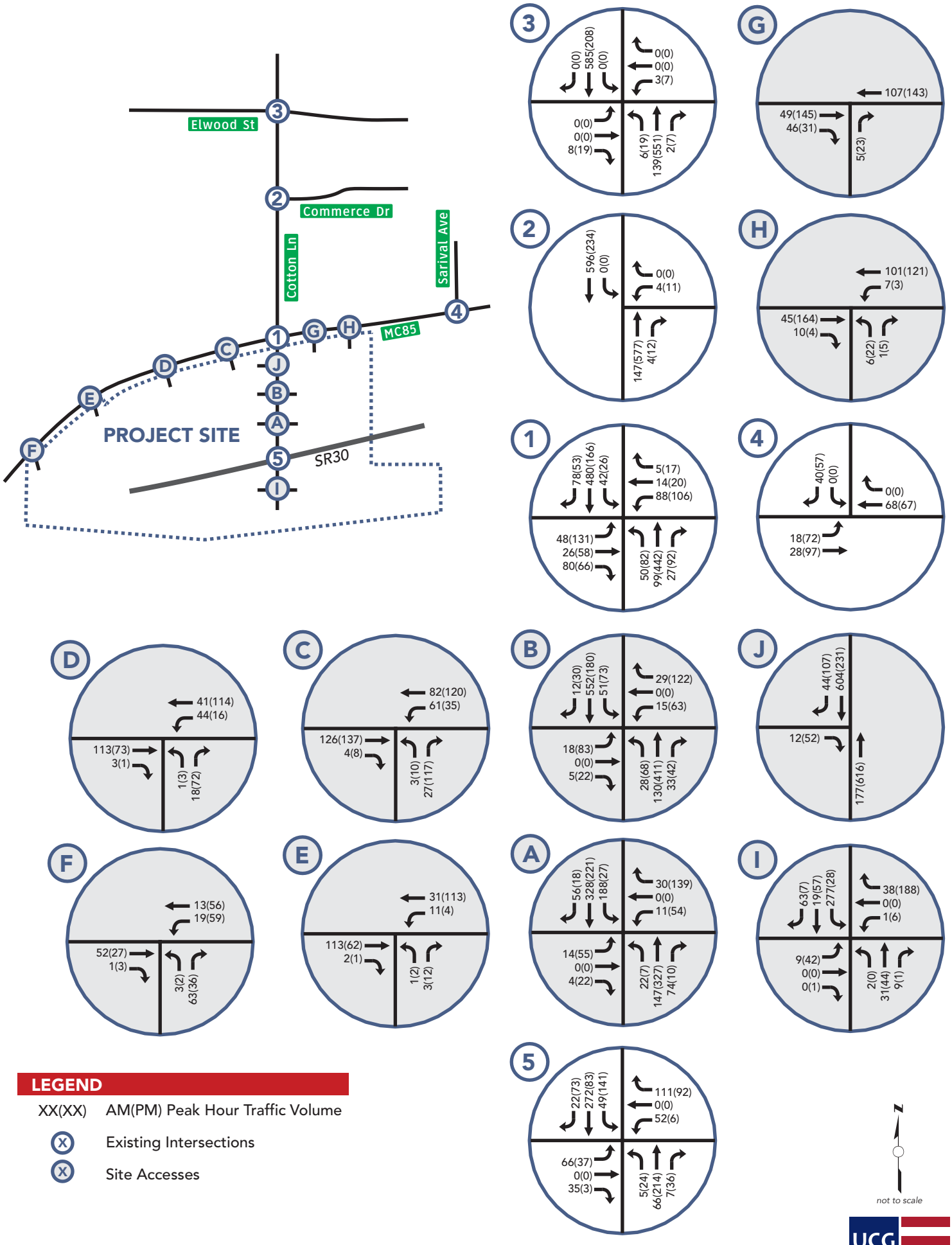
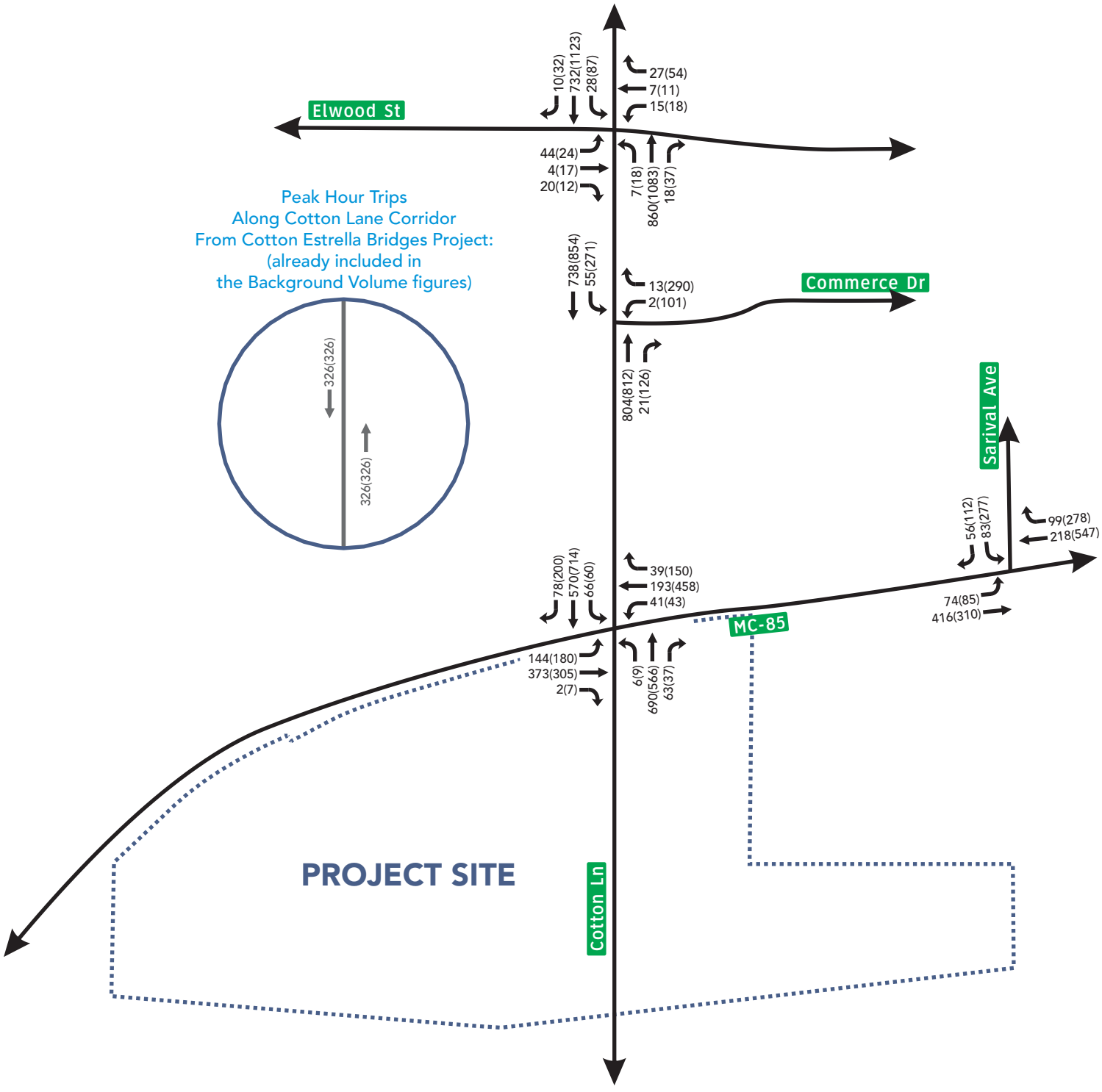


Figure 8: Site Generated Traffic - Year 2038



LEGEND

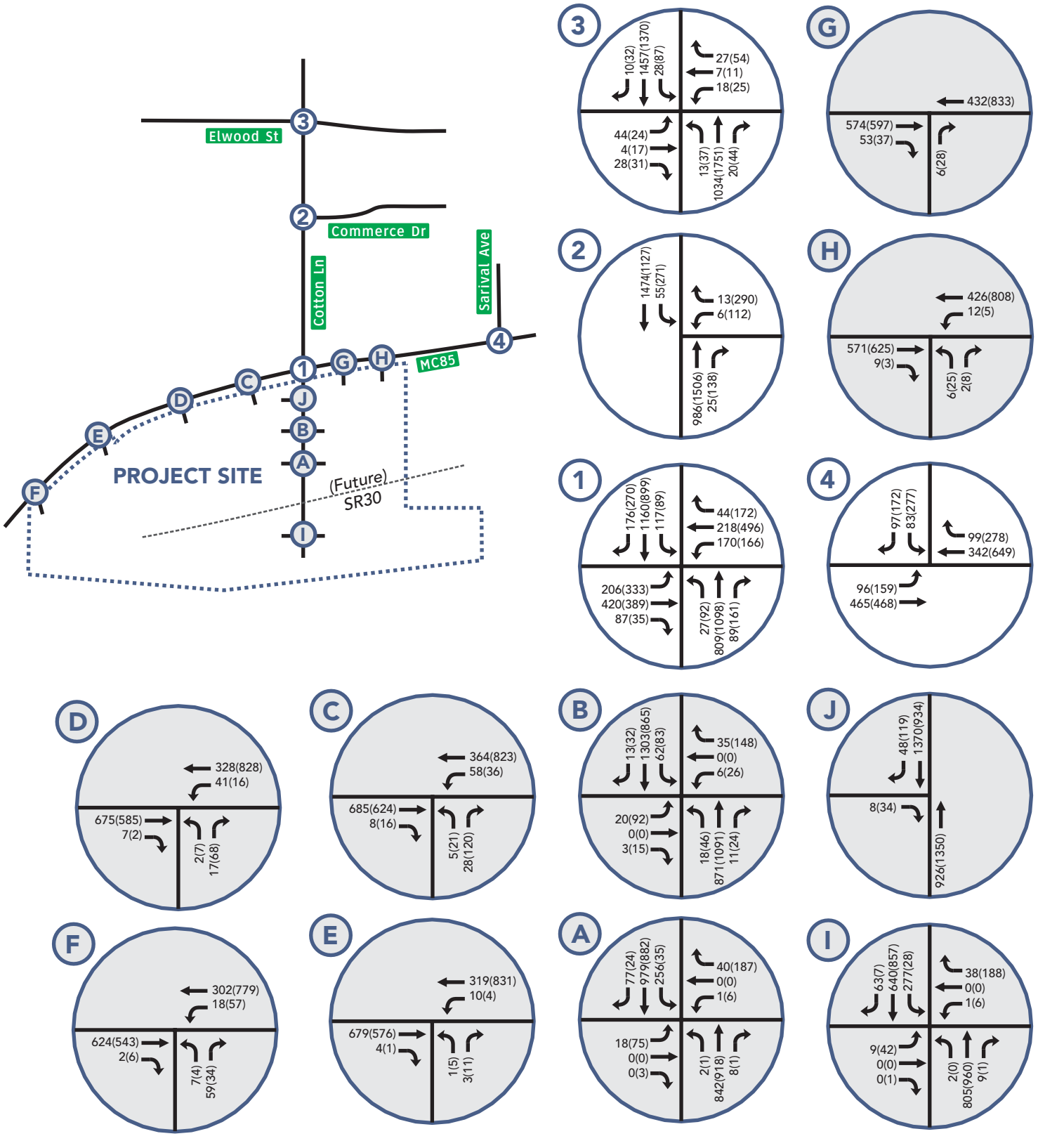
XX(XX) AM(PM) Peak Hour Traffic Volume

N

not to scale

UCG
United Civil Group

Figure 9: Background Traffic - Year 2028



LEGEND

XX(XX) AM(PM) Peak Hour Traffic Volume

(X) Existing Intersections

(X) Site Accesses

N

not to scale

Figure 10: Total Traffic - Year 2028

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VI. TRAFFIC AND IMPROVEMENT ANALYSIS

The purpose of this section is to show the relations between traffic operations and roadway geometrics; identify needs pertaining to progressive traffic flow and safety; and identify alternatives for further consideration, where applicable.

A. Roadway and Capacity Improvements

A.1. Half-street Improvements

The development of the subject site will require the completion of the half-street sections of the roadways adjacent to the property. These improvements include:

- Provide Cotton Lane half-street improvements adjacent to the site to the roadway section as required by the City of Goodyear.
    - Completed in conjunction with the development of each phase or as required by the City of Goodyear.
- Provide the MC-85 half-street improvements adjacent to the site to the roadway section as required by MCDOT.

B. Site Accessibility

B.1. Driveway Locations and Spacing

Final site planning has not been completed for the CP Lakin Park Development. The driveway location and spacing for the development should generally follow City of Goodyear Standard Detail G-3230, City of Goodyear Engineering Design Standards and Policies Manual Section 4.1.3.L.2.a, and MCDOT Roadway Design Manual Section 7.9.4 and 7.9.5. All driveways should also coordinate with planned driveways on the opposite side of the roads to coordinate future median break locations and/or avoid left-turn movement overlap.

The preliminarily planned driveway locations as assumed for this TIS are provided on the site plan in Figure 4. Not shown in Figure 4 are Access I (for Parcel 13 and Parcel 14) and Access F (for Parcel 3), which have been assumed to provide access to those parcels.

Per City of Goodyear standard detail G-3230, roads with a raised median (such as Cotton Lane) require a minimum of 170 feet between the driveway centerline to the intersecting street right-of-way. These distances should be great enough to accommodate right-turn deceleration lanes, additionally, a driveway is not allowed within the taper or storage area.

Per Section 7.9.4 of the MCDOT *Roadway Design Manual,* centerline distance for full access driveways on an arterial (MC-85) should be 360 feet.

The following are the planned driveway functionality and approximate distances or locations for the development's driveways:

- On Cotton Lane (heading south from MC-85):
  - Access J
    - Right-in, right-out access protected by existing raised median
    - Located approximately 290 feet south of MC-85 R/W.
  - Access B
    - Full Access driveway.
    - Located just north of the Buckeye Canal
      - The Buckeye Canal is located at the approximate 1/4 mile point south of MC-85. Per discussions with the City of Goodyear, Access B may be located just north of the canal and be a full access driveway.
  - Access A
    - Full Access driveway.
    - Located south of the canal & north of the future SR 30 alignment.
  - Access I
    - Full Access driveway.
    - Located south of the future SR 30 alignment.

- On MC-85:
  - Access C
    - Full Access driveway.
    - Per discussions with MCDOT, the assumed location will be in a location west of the end of the existing median in order to accommodate the new left-turn lane into Access C.
  - Access D
    - Full Access driveway
    - Located approximately 1,600 feet west of Access C.
  - Access E
    - Full Access driveway
    - Located approximately 1,200 feet west of Access D.
  - Access F
    - Full Access driveway
    - Located approximately 1,200 feet west of Access E.
  - Access G
    - Right-in, Right-out Access Driveway
    - Located approximately 600 feet east of Cotton Lane.
  - Access H
    - Full Access driveway
    - Located approximately 1,900 feet east of Access G.

C. Site Access Turn Lane Analysis

C.1. Right-Turn Deceleration Lane Warrants

Per the City of Goodyear *Engineering Design Standards and Policies Manual,* Section 4.1.3.K.6.b, *"Right turn lanes shall be provided at all new driveways that access onto arterial streets and parkways."* Therefore, right-turn deceleration lanes are required on southbound Cotton Lane at all planned site access driveways.

Per MCDOT's *Roadway Design Manual*, Section 7.15.1, right-turn deceleration lanes are warranted at driveways when three of four separate factors are met, including: (a) total daily vehicles using the adjacent street (min. 5,000 vpd), (b) the posted roadway speed (min. 35 mph), (c) the number of vehicles expected to be using the driveway (min. 1,000 vpd), and (d) the number of right-turning vehicles at the driveway within a one-hour period (min. 30 vph). Or, the outside lane has an expected volume of 250 vph or greater and the right-turn volume is greater than 55 vph. For industrial or commercial developments expecting significant heavy truck percentages, a right-turn deceleration lane may be considered even if the above criteria are not met.

Table 5: Right-turn Lane Warrants presents the right-turn deceleration lane criteria as according to MCDOT and the associated values for the proposed development's site accesses, utilizing horizon year 2028 total traffic volumes.

Table 5: Right-turn Lane Warrants

Location	Total Daily EB Traffic Volume[1] (min. 5,000)	Posted Speed (mph) (min. 35 mph)	Total Daily Vehicles Expected to Use Driveway [1] (min. 1,000)	Peak Hour Right-Turning Vehicles (min. 30)	Warranted?
Access Driveways on Eastbound MC-85					
Access C	8,562	55	2,412	16	YES
Access D	8,437	55	1,162	7	YES
Access E	8,487	55	262	4	NO*
Access F	7,800	55	1,262	6	YES
Access G	7,462	55	812	53	YES
Access H	7,812	55	512	9	NO*

1 Total daily volumes determined from peak hour traffic volumes utilizing a K-value of 8% for arterials.
*Although warrants are not quite met at this access, a dedicated right-turn lane is recommended due to higher than typical truck volumes given the planned industrial land uses.

Right-turn deceleration lanes are warranted and recommended on eastbound MC-85 at Access C, Access D, Access F, and Access G. Right-turn deceleration lane warrants are not met on eastbound MC-85 at Access E, and Access H, however, given the principal arterial classification, high posted speed of MC-85, and forecasted higher than typical truck volumes given the planned industrial uses, a right-turn deceleration lane is recommended for Access E, and Access H.

C.2. Left-Turn Deceleration Lane Warrants

City of Goodyear EDS&PM does not provide guidelines for left-turn deceleration lane warrants. However, similarly to EDS&PM Section 4.1.3.K.6.b, left-turn deceleration lanes should be provided at all site accesses that allow left-in turns on Cotton Lane.

On MC-85, left-turn deceleration lanes are warranted where left-turn volumes exceed the thresholds provided in Table 7.6 of MCDOT's *Roadway Design Manual,* as provided below.

TABLE 7.6: VOLUME WARRANTS FOR LEFT-TURN LANES

Peak Hour Traffic Volume on the Roadway in the Advancing Direction	Minimum Peak Hour Left-turn Traffic Volume			
	# of through lanes per direction			
	1		2	
	< 45 MPH Posted Speed	≥ 45 MPH Posted Speed	< 45 MPH Posted Speed	≥ 45 MPH Posted Speed
≤ 200	30	15	-	-
201-300	12	12	40	30
301-400	12	12	30	25
401-500	12	12	25	18
501-600	12	12	15	12
601-1000	12	12	10	8
1001+	12	8	10	8

Table 6: Left-turn Lane Warrants on the following page presents the left-turn deceleration lane criteria as according to MCDOT and the associated values for the proposed development's site accesses, utilizing horizon year 2028 total traffic volumes.

TABLE 6: LEFT-TURN LANE WARRANTS

Location	Number of Directional Lanes	Peak Hour Volume in Advancing Direction	Posted Speed Limit	Peak Hour Left-Turning Vehicles	Warranted?
Westbound MC-85 at:					
Access C	1	364	55	58	YES
Access D	1	328	55	41	YES
Access E	1	319	55	10	YES
Access F	1	779	55	57	YES
Access H	1	426	55	12	NO*

*Although warrants are not quite met at this access, a dedicated left-turn lane is recommended due to higher than typical truck volumes given the planned industrial land uses.

Left-turn deceleration lanes are recommended on MC-85 at all site accesses that allow left-in movements, this includes Access C, Access D, Access E, Access F, and Access H.

C.3. SITE ACCESS AUXILIARY TURN LANE LENGTH ANALYSIS

Per City of Goodyear Standard Detail G-3230, the minimum right-turn deceleration lane length is 150 feet with a taper length of 120 feet. Per MCDOT's *Roadway Design Manual*, the minimum left-turn and right-turn deceleration lane storage length is 160 feet on arterials and collectors, with a 125 foot transition taper.

To determine if the minimums above are adequate for the recommended right- and left-turn deceleration lanes on Cotton Lane and MC-85 at the site access driveways, a queue analysis was performed for full build out year 2028 forecasted traffic conditions utilizing AASHTO Green Book methodologies for unsignalized intersections. The queue length is calculated as the average number of turning peak hour vehicles likely to arrive in an average 2-minute period, utilizing a length for passenger vehicles of 25 feet. The minimum provided queue length should be 2 car lengths (50 feet), or 1 car and 1 truck (85 feet).

For signalized intersections, the queue storage length for right turns is calculated as the amount of storage space necessary to accommodate vehicles arriving at a signalized intersection during the red phase of the cycle, taking into account allowance for right-on-red. Left turns at signalized intersections are calculated as the number of turning peak hour vehicles likely to arrive for a cycle, utilizing a queue

factor of 2 and a length for passenger vehicles of 25 feet. The minimum provided queue length should be 2 car lengths (50 feet), or 1 car and 1 truck (85 feet).

Overall storage length for a deceleration lane is a combination of the minimum queue storage length plus the minimum braking distance. Per AASHTO, it is practical that part of deceleration/braking by drivers needs to be accomplished before entering the auxiliary lane (i.e., within the taper). At left-turn deceleration lanes, braking is assumed to occur 2/3 of the distance into the gap/taper, per ADOT Traffic Guidelines and Processes (TGP) 430. Whereas at right-turn deceleration lanes that are projected to be free-flowing in nature (as are movements into the unsignalized driveways of the proposed development) and traffic is assumed to slow to 10 mph to turn right, 20 feet may be deducted from the right-turn queue length (per ADOT TGP 430).

Table 7: Turn Lane Analyses and *Appendix D: Storage Analyses* presents information related to the calculated queue lengths, minimum braking distances, calculated storage lane lengths, and the City of Goodyear and MCDOT minimum storage lane lengths for the right and left-turn deceleration lanes for total traffic conditions in full buildout horizon year 2028.

TABLE 7: TURN LANE ANALYSES

Location	Calculated Unsignalized Intersection Queue Length per AASHTO	Minimum Braking Distance[1]	Overall Calculated Storage Lane Length Result[2]	Goodyear or MCDOT Desirable Min. Storage Lane Length
Right-turn Deceleration Lanes				
Access A (SB Cotton Lane)	65 ft (use 85 ft)	85 ft	150 ft	150 ft (Goodyear)
Access A (NB Cotton Lane)	7 ft (use 85 ft)	85 ft	150 ft	150 ft (Goodyear)
Access B (SB Cotton Lane)	18 ft (use 85 ft)	85 ft	175 ft	150 ft (Goodyear)
Access B (NB Cotton Lane)	13 ft (use 85 ft)	85 ft	175 ft	150 ft (Goodyear)
Access I (SB Cotton Lane)	53 ft (use 85 ft)	85 ft	150 ft	150 ft (Goodyear)
Access I (NB Cotton Lane)	8 ft (use 85 ft)	85 ft	150 ft	150 ft (Goodyear)
Access J (SB Cotton Lane)	100 ft	85 ft	175 ft	150 ft (Goodyear)
Access C (EB MC-85)	14 ft (use 85 ft)	145 ft	225 ft	160 ft (MCDOT)
Access D (EB MC-85)	6 ft (use 85 ft)	145 ft	225 ft	160 ft (MCDOT)
Access E (EB MC-85)	4 ft (use 85 ft)	145 ft	225 ft	160 ft (MCDOT)
Access F (EB MC-85)	5 ft (use 50 ft)	145 ft	175 ft	160 ft (MCDOT)
Access G (EB MC-85)	45 ft (use 85 ft)	145 ft	225 ft	160 ft (MCDOT)

Table 7 Continued

Access H (EB MC-85)	8 ft (use 85 ft)	145 ft	225 ft	160 ft (MCDOT)
Left-turn Deceleration Lanes				
Access A (NB Cotton Lane)	2 ft (use 85 ft)	85 ft	150 ft	N/A (Goodyear)
Access A (SB Cotton Lane)	214 ft	85 ft	275 ft	N/A (Goodyear)
Access B (NB Cotton Lane)	66 ft (use 85 ft)	85 ft	150 ft	N/A (Goodyear)
Access B (SB Cotton Lane)	123 ft	85 ft	175 ft	N/A (Goodyear)
Access I (NB Cotton Lane)	2 (use 85 ft)	85 ft	150 ft	N/A (Goodyear)
Access I (SB Cotton Lane)	231	85 ft	275 ft	N/A (Goodyear)
Access C (WB MC-85)	18 ft (use 85)	145 ft	200 ft	160 ft (MCDOT)
Access D (WB MC-85)	35 ft (use 85 ft min)	145 ft	200 ft	160 ft (MCDOT)
Access E (WB MC-85)	9 ft (use 85 ft)	145 ft	200 ft	160 ft (MCDOT)
Access F (WB MC-85)	48 ft (use 50 ft)	145 ft	175 ft	160 ft (MCDOT)
Access H (WB MC-85)	10 ft (use 85 ft)	145 ft	200 ft	160 ft (MCDOT)

1 Braking distance per ADOT Traffic Guidelines and Processes (TGP) Section 430, Table 430-2.
2 20 feet subtracted from queue length for right-turn lanes due to free-flowing right-turns and 1/3 of taper/gap length subtracted (120ft/3 = 40 ft) for left-turn lanes per ADOT TGP 430.

Utilizing the calculations from Table 7 above, and considering City of Goodyear or MCDOT minimum storage lengths, the following are the preliminary minimum turn lane recommendations for the site:

- Access A on Cotton Lane, provide:
  - SB right-turn: 150 feet storage length plus a 120 foot taper
  - NB right-turn: 150 feet storage length plus a 120 foot taper
  - NB left-turn: 150 feet storage length plus a 120 foot gap
  - SB left-turn: 275 feet storage length plus a 120 foot gap
- Access B on Cotton Lane, provide:
  - SB right-turn: 175 feet storage length plus a 120 foot taper
  - NB right-turn: 175 feet storage length plus a 120 foot taper
  - NB left-turn: 150 feet storage length plus a 120 foot gap
  - SB left-turn: 175 feet storage length plus a 120 foot gap
- Access I on Cotton Lane, provide:
  - SB right-turn: 150 feet storage length plus a 120 foot taper
  - NB right-turn: 150 feet storage length plus a 120 foot taper
  - NB left-turn: 150 feet storage length plus a 120 foot gap
  - SB left-turn: 275 feet storage length plus a 120 foot gap

- Access J on Cotton Lane, provide:
  - right-turn: 175 feet storage length plus a 120 foot taper
- Access C on MC-85, provide:
  - right-turn: 225 feet storage length plus a 125 foot taper
  - left-turn: 200 feet storage length plus a 125 foot gap
- Access D on MC-85, provide:
  - right-turn: 225 feet storage length plus a 125 foot taper
  - left-turn: 200 feet storage length plus a 125 foot gap
- Access E on MC-85, provide:
  - right-turn: 225 feet storage length plus a 125 foot taper
  - left-turn: 200 feet storage length plus a 125 foot gap
- Access F on MC-85, provide:
  - right-turn: 175 feet storage length plus a 125 foot taper
  - left-turn: 175 feet storage length plus a 125 foot gap
- Access G on MC-85, provide:
  - right-turn: 225 feet storage length plus a 125 foot taper
- Access H on MC-85, provide:
  - right-turn: 225 feet storage length plus a 125 foot taper
  - left-turn: 200 feet storage length plus a 125 foot gap

It is anticipated once actual site planning for CP Lakin Park occurs, updated site-specific traffic analyses will be performed to more accurately recommend the turn lane lengths required at future proposed site access driveways on Cotton Lane and MC-85.

C.4. MC-85 TAPER LENGTH

In order to accommodate the new left-turn lanes into the site accesses on MC-85, widening of MC-85 prior to the site accesses is required. Assuming symmetrical widening, a 12 foot lane width, and a posted speed limit of 55 miles per hour, the taper in advance of the left-turn deceleration lanes (Access F on the western side of the site, Access H on the eastern side of the site) shall be a minimum of 660 feet (Taper = W x S).

Figure 11: Recommendations presents the recommended improvements for the proposed development.

Turn Lane Lengths		Taper Length	Storage Length
Access A	Rt Turn Decel Lane	150'	120'
	Lt Turn Decel Lane	150'	120'
Access B	Rt Turn Decel Lane	175'	120'
	Lt Turn Decel Lane	150'	125'
Access C	Rt Turn Decel Lane	225'	125'
	Lt Turn Decel Lane	200'	125'
Access D	Rt Turn Decel Lane	225'	125'
	Lt Turn Decel Lane	200'	125'
Access E	Rt Turn Decel Lane	225'	125'
	Lt Turn Decel Lane	200'	125'
Access F	Rt Turn Decel Lane	175'	125'
	Lt Turn Decel Lane	175'	125'
Access G	Rt Turn Decel Lane	225'	125'
Access H	Rt Turn Decel Lane	225'	125'
	Lt Turn Decel Lane	200'	125'
Access I	Rt Turn Decel Lane	150'	120'
	Lt Turn Decel Lane	150'	120'
Access J	Rt Turn Decel Lane	175'	120'

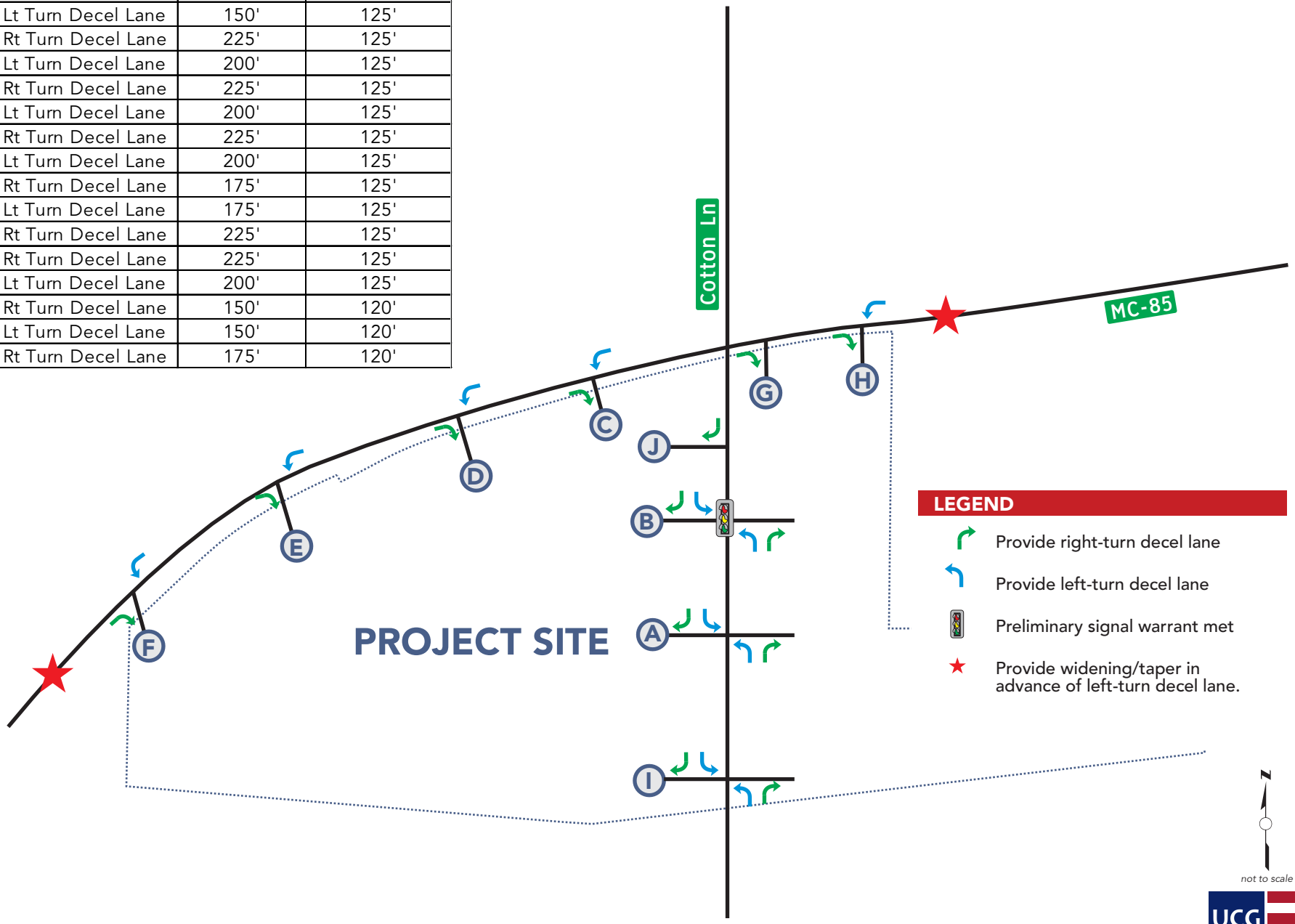


Figure 11: Recommendations

D. Traffic Signal Warrant Analysis

The 2009 *Manual on Uniform Traffic Control Devices* (MUTCD) was used as the primary tool to determine if traffic signals are warranted at the existing two-way stop-controlled intersection of Cotton Lane/Elwood Street and at the new full accesses of the project on Cotton Lane & MC-85. There are nine specific signal warrants in the MUTCD, however, not all warrants are applicable to this study. The warrants used in this analysis include:

Warrant 1 – Eight-Hour Vehicular Volume
Warrant 2 – Four-Hour Vehicular Volume
Warrant 3 – Peak Hour

Note: The traffic signal warrant analyses within this TIS are based on forecasted traffic volumes and conceptual land plans, site access, and assumed land uses. The analyses below provides warrant information based on these assumptions; however, recommendations for actual needs of traffic signals are not made as part of this TIS. Further traffic signal warrant analysis is recommended as part of future studies once actual development plans are realized.

As per paragraph 08 and 10 of Section 4C.01 of the MUTCD, engineering judgment and rationale should be used to determine what portion of right-turn traffic is subtracted from the minor street traffic count when evaluating the count against the signal warrants. Since each driveway is recommended to have two egress lanes (left turns will have a dedicated egress lane), it is expected a share of the right-turning traffic from the site accesses (specifically the non-heavy truck traffic) will be able to make their movement onto Cotton Lane and MC-85 with minimal delay. Therefore, 50% of the right-turns have been subtracted from the minor leg (driveway exiting) traffic volumes for evaluation of the volume warrants.

Warrant 1 – Eight-Hour Vehicular Volume

The Minimum Vehicular Volume, Condition A, is intended for application where the volume of intersecting traffic from a side street or driveway is the principle reason for considering installation of a traffic signal. In this condition, the warrant would be satisfied when, for each of any eight hours of an average day, the traffic volumes on the major and minor approach is equal to or exceeds specified limits located on *Table 4C-1 Warrant 1 Eight-Hour Vehicular Volume* in the *MUTCD 2009*.

The Interruption of Continuous Traffic, Condition B, is intended for application where the traffic volume on a major street is so heavy that the traffic on a minor intersection street or driveway has excessive delay or hazard in entering or crossing the major street. This warrant is met when, for each of any eight hours of an average day, the

traffic volumes on the major and minor approach is equal to or exceeds specified limits located on *Table 4C-1 Warrant 1, Eight-Hour Vehicular Volume* in the *MUTCD 2009*.

Warrant 1 Results:

- Cotton Lane & Elwood Street
  - Warrant 1 is not met for year 2028 total traffic conditions.
- Cotton Lane & Access B
  - Warrant 1 is not met for year 2028 total traffic conditions.
- Cotton Lane & Access A
  - Warrant 1 is not met for year 2028 total traffic conditions.
- Cotton Lane & Access I
  - Warrant 1 is not met for year 2028 total traffic conditions.
- Access C & MC-85
  - Warrant 1 is not met for year 2028 total traffic conditions.
- Access D & MC-85
  - Warrant 1 is not met for year 2028 total traffic conditions.
- Access E & MC-85
  - Warrant 1 is not met for year 2028 total traffic conditions.
- Access F & MC-85
  - Warrant 1 is not met for year 2028 total traffic conditions.
- Access H & MC-85
  - Warrant 1 is not met for year 2028 total traffic conditions.

Appendix B: Traffic Signal Warrant Analyses presents the results of the analysis of Warrant 1.

Warrant 2 – Four-Hour Vehicular Volume

The four-hour vehicular volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal. This warrant is satisfied when, for each of any four hours of an average day, plotted points representing vehicles per hour on the major street (total of both approaches) and the vehicles per hour on the minor street approach (one direction only) all fall above the appropriate curve located on *Figure 4C-2 Warrant 2, Four-Hour Vehicular Volume* in the *MUTCD 2009*.

Warrant 2 Results:

- Cotton Lane & Elwood Street
  - Warrant 2 is not met for year 2028 total traffic conditions.
- Cotton Lane & Access B
  - Warrant 2 is **met** for year 2028 total traffic conditions.
- Cotton Lane & Access A

    - Warrant 2 is not met for year 2028 total traffic conditions.
- Cotton Lane & Access I
    - Warrant 2 is not met for year 2028 total traffic conditions.
- Access C & MC-85
    - Warrant 2 is not met for year 2028 total traffic conditions.
- Access D & MC-85
    - Warrant 2 is not met for year 2028 total traffic conditions.
- Access E & MC-85
    - Warrant 2 is not met for year 2028 total traffic conditions.
- Access F & MC-85
    - Warrant 2 is not met for year 2028 total traffic conditions.
- Access H & MC-85
    - Warrant 2 is not met for year 2028 total traffic conditions.

Appendix B: Traffic Signal Warrant Analyses presents the results of the analysis of Warrant 2.

Warrant 3 - Peak Hour Volume

The peak hour volume warrants is intended for applications where there are relatively high volumes entering from the side street during one hour of the day. This warrant is satisfied when for any peak hour of an average day, plotted points representing vehicles per hour on the major street (total of both approaches) and the vehicles per hour on the minor street approach (one direction only) all fall above the appropriate curve located on *Figure 4C-3 Warrant 3, Peak Hour Vehicular Volume* in the *MUTCD 2009*.

Warrant 3 Results:

- Cotton Lane & Elwood Street
    - Warrant 3 is not met for year 2028 total traffic conditions.
- Cotton Lane & Access B
    - Warrant 3 is **met** for year 2028 total traffic conditions.
- Cotton Lane & Access A
    - Warrant 3 is not met for year 2028 total traffic conditions.
- Cotton Lane & Access I
    - Warrant 3 is not met for year 2028 total traffic conditions.
- Access C & MC-85
    - Warrant 3 is not met for year 2028 total traffic conditions.
- Access D & MC-85
    - Warrant 3 is not met for year 2028 total traffic conditions.
- Access E & MC-85
    - Warrant 3 is not met for year 2028 total traffic conditions.
- Access F & MC-85

  - Warrant 3 is not met for year 2028 total traffic conditions.
- Access H & MC-85
  - Warrant 3 is not met for year 2028 total traffic conditions.

Appendix B: Traffic Signal Warrant Analyses presents the results of the analysis of Warrant 3.

Based on the traffic signal warrant analyses provided above, traffic signal warrants are preliminarily met at the intersection of Cotton Lane/Access B, by the full build out year 2028 utilizing PM traffic conditions (worst case as compared to AM traffic conditions). These results are based on the forecasted traffic and assumptions made as part of this report.

Per the MUTCD, the satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic signal. Actual future development and growth of the area, and site planning may change the results of these traffic signal warrants. Once definitive land uses/users and site planning for the CP Lakin Park project is realized beyond this conceptual phase, traffic signal warrant studies for the study area intersections should be re-evaluated as part of updated traffic impact studies.

E. Intersection Level of Service Analyses

E.1. Background Traffic

Capacity analyses at the existing study area intersections of Cotton Lane/MC-85, Cotton Lane/Commerce Drive, Cotton Lane/Elwood Street, and Sarival Avenue/MC-85 were performed for the forecasted background traffic (without the CP Lakin Park development) utilizing the existing roadway geometries for the horizon year of the study (2028). Table 8 below presents the background levels of service at the study area intersections without the proposed development and without any roadway improvements, while including the Cotton Estrella Bridges development traffic and ambient growth. Due to the future construction of the SR-30 and south extension of the Loop 303 (these are assumed to be complete in approximately year 2029), which will drastically alter traffic patterns and volumes in the area, background traffic projections and capacity analyses for the 10-year after opening horizon (2038) are not included. Summaries of the Vistro output calculations are included in Appendix C. Heavy truck percentages were increased on appropriate legs of the study area intersections to account for the truck traffic collected in the area.

Table 8: 2028 Background Traffic Intersection Levels of Service

Intersection Location	NB LOS				SB LOS				EB LOS				WB LOS				Overall Intersection
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	AvgDelay/ LOS
Cotton Lane/MC-85 – Signalized																	
AM Peak Hour	D	C	B	**C**	D	B	B	**B**	D	D	D	**D**	D	D	D	**D**	28.53 **C**
PM Peak Hour	D	B	B	**B**	D	B	B	**B**	D	D	D	**D**	D	D	D	**D**	30.36 **C**
Cotton Lane/Commerce Drive – Signalized																	
AM Peak Hour	-	A	A	**A**	A	A	-	**A**	-	-	-	**-**	D	-	D	**D**	3.24 **A**
PM Peak Hour	-	A	A	**A**	E	B	-	**C**	-	-	-	**-**	C	-	D	**D**	18.58 **B**
Cotton Lane/Elwood Street – Two-way Stop-controlled																	
AM Peak Hour	A	A	A	**A**	A	A	A	**A**	F	F	C	**F**	F	F	C	**F**	9.55 *
PM Peak Hour	B	A	A	**A**	B	A	A	**A**	F	F	F	**F**	F	F	F	**F**	126.95 *
Sarival Avenue/MC-85 – Signalized																	
AM Peak Hour	-	-	-	**-**	C	-	C	**C**	A	A	-	**A**	-	A	A	**A**	9.02 **A**
PM Peak Hour	-	-	-	**-**	D	-	C	**C**	B	A	-	**A**	-	A	A	**A**	15.53 **B**

*Per HCM, overall LOS letter grade is not assigned for two-way stop-controlled intersections.

For background traffic conditions in year 2028, the existing study area intersections are forecasted to operate at acceptable levels of service, LOS C or better, during the AM and PM peak hours. The exception is on eastbound and westbound Elwood Street at the Cotton Lane/Elwood Street intersection. Through and left-turning movements on stop-controlled minor roads and driveways that intersect with major streets typically experience greater delay for short periods of time in the peak hours

due to the wait for acceptable gaps on the major street, while the free-flowing major streets experience minimal delay. Elwood Street is the 1/2 mile point along Cotton Lane. Once future development occurs in the vicinity of the intersection, which is likely prior to year 2028, traffic signal warrants and lane improvements at the intersection should be analyzed, which would improve the level of service of the intersection.

E.2. Total Traffic

Capacity analyses at the existing study area intersections and at the site accesses assumed as part of this TIS per initial conceptual planning were performed for the forecasted total traffic and recommended roadway geometries for the horizon year of the study (2028).

Table 9 presents the total traffic levels of service at the study area intersections with the proposed development and with any recommended roadway improvements. Due to the future construction of the SR-30 and south extension of the Loop 303 (these are assumed to be complete in approximately year 2029), which will drastically alter traffic patterns and volumes in the area, background traffic projections and capacity analyses for the 10-year after opening horizon (2038) are not included. Summaries of the Vistro output calculations are included in Appendix C. Heavy truck percentages were increased on appropriate legs of the study area intersections to account for the truck traffic collected in the area.

Table 9: 2028 Total Traffic Levels of Service

Intersection Location	NB LOS				SB LOS				EB LOS				WB LOS				Overall Intersection
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	AvgDelay/ LOS*
Cotton Lane/MC-85 – Signalized																	
AM Peak Hour	D	C	B	**C**	E	C	C	**C**	D	D	D	**D**	D	D	D	**D**	32.51 **C**
PM Peak Hour	D	C	C	**C**	D	C	C	**C**	D	D	D	**D**	D	D	D	**D**	36.61 **D**
Cotton Lane/Commerce Drive – Signalized																	
AM Peak Hour	-	A	A	**A**	A	F	-	**D**	-	-	-	**-**	D	-	D	**D**	27.91 **C**
PM Peak Hour	-	F	A	**F**	F	C	-	**F**	-	-	-	**-**	C	-	D	**D**	168.68 **F**
Cotton Lane/Elwood Street – Two-way Stop-controlled																	
AM Peak Hour	B	A	A	**A**	B	A	A	**A**	F	F	F	**F**	F	F	F	**F**	99.22 *
PM Peak Hour	B	A	A	**A**	C	A	A	**A**	F	F	F	**F**	F	F	F	**F**	266.61 *
Sarival Avenue/MC-85 – Signalized																	
AM Peak Hour	-	-	-	**-**	C	-	D	**C**	A	A	-	**A**	-	A	A	**A**	9.76 **A**
PM Peak Hour	-	-	-	**-**	D	-	C	**C**	C	A	-	**B**	-	B	A	**B**	17.01 **B**
Cotton Lane/Access J – Two-way stop-controlled																	
AM Peak Hour	-	A	-	**A**	-	A	A	**A**	-	-	C	**C**	-	-	-	**-**	0.05 *

Table 9 continued																	
PM Peak Hour	-	A	-	**A**	-	A	A	**A**	-	-	B	**B**	-	-	-	**-**	**0.18 ***
Cotton Lane/Access A – Two-way stop-controlled																	
AM Peak Hour	B	A	A	**A**	B	A	A	**A**	F	F	B	**F**	F	F	B	**C**	**7.33 ***
PM Peak Hour	B	A	A	**A**	B	A	A	**A**	F	F	B	**F**	F	F	C	**C**	**28.28 ***
Cotton Lane/Access B – Two-way stop-controlled																	
AM Peak Hour	A	B	A	**A**	A	B	A	**B**	C	C	C	**C**	C	C	C	**C**	**11.01 B**
PM Peak Hour	A	B	B	**B**	B	B	A	**B**	C	B	B	**B**	C	C	C	**C**	**16.29 B**
Cotton Lane/Access I – Two-way stop-controlled																	
AM Peak Hour	A	A	A	**A**	B	A	A	**A**	F	F	B	**F**	F	A	B	**C**	**3.40 ***
PM Peak Hour	B	A	A	**A**	A	A	A	**A**	F	F	B	**F**	E	F	B	**C**	**5.67 ***
MC-85/Access C – Two-way stop-controlled																	
AM Peak Hour	D	-	B	**C**	-	-	-	**-**	-	A	A	**A**	-	A	-	**A**	**0.93 ***
PM Peak Hour	F	-	C	**C**	-	-	-	**-**	-	A	A	**A**	-	A	-	**A**	**2.04 ***
MC-85/Access D – Two-way stop-controlled																	
AM Peak Hour	C	-	B	**C**	-	-	-	**-**	-	A	A	**A**	A	A	-	**A**	**0.64 ***
PM Peak Hour	E	-	B	**C**	-	-	-	**-**	-	A	A	**A**	A	A	-	**A**	**0.94 ***
MC-85/Access E – Two-way stop-controlled																	
AM Peak Hour	C	-	B	**C**	-	-	-	**-**	-	A	A	**A**	A	A	-	**A**	**0.15 ***
PM Peak Hour	E	-	B	**C**	-	-	-	**-**	-	A	A	**A**	A	A	-	**A**	**0.24 ***
MC-85/Access F – Two-way stop-controlled																	
AM Peak Hour	C	-	B	**B**	-	-	-	**-**	-	A	A	**A**	A	A	-	**A**	**1.13 ***
PM Peak Hour	E	-	B	**B**	-	-	-	**-**	-	A	A	**A**	A	A	-	**A**	**0.75 ***
MC-85/Access G – Two-way stop-controlled																	
AM Peak Hour	-	-	B	**B**	-	-	-	**-**	-	A	A	**A**	-	A	-	**A**	**0.08 ***
PM Peak Hour	-	-	B	**B**	-	-	-	**-**	-	A	A	**A**	-	A	-	**A**	**0.25 ***
MC-85/Access H – Two-way stop-controlled																	
AM Peak Hour	C	-	B	**C**	-	-	-	**-**	-	A	A	**A**	A	A	-	**A**	**0.27 ***
PM Peak Hour	E	-	B	**E**	-	-	-	**-**	-	A	A	**A**	A	A	-	**A**	**0.89 ***

*Per HCM, overall LOS letter grade not assigned for two-way stop-controlled intersections. The LOS of the worst-case movement is reported in the output reports in Appendix C.

Several locations are forecasted to operate at levels of service of LOS E or LOS F in total traffic conditions in year 2028 after full build out. These locations include:

- Cotton Lane/MC-85:
  - Cotton Lane/MC-85 is forecasted to operate at LOS D or better. However, the northbound leg of Cotton Lane has 2 through lanes in the current conditions, but the section contains width for 3 through lanes (3rd lane is currently closed via striping). If development to the north of MC-85 on the east side of Cotton Lane were to occur with additional half street improvements, the NB leg at Cotton Lane/MC-85 would be

able to utilize 3 northbound lanes, which would further improve the overall level of service of the intersection. These improvements may be likely by 2028, however, any development is unknown at this time.

- Cotton Lane/Commerce Drive (specifically due to NB and SB through movements)
    - As additional future development occurs in the area and Cotton Lane is improved with additional through lanes to accommodate the future traffic volumes, the LOS will improve to acceptable values.
- Eastbound and westbound Elwood Street at the Cotton Lane/Elwood Street intersection.
    - Through and left-turning movements on stop-controlled minor roads and driveways that intersect with major streets typically experience greater delay for short periods of time in the peak hours due to the wait for acceptable gaps on the major street, while the free-flowing major streets experience minimal delay. Elwood Street is the 1/2 mile point along Cotton Lane. Once future development occurs in the vicinity of the intersection, which is likely prior to year 2028, traffic signal warrants and lane improvements at the intersection should be analyzed, which would improve the level of service of the intersection.
- The left-out movements from the full access driveways to Cotton Lane or MC-85.
    - Through and left-turning movements on stop-controlled minor roads and driveways that intersect with major streets typically experience greater delay for short periods of time in the peak hours due to the wait for acceptable gaps on the major street, while the free-flowing major streets experience minimal delay.

E.3 Commercial and Industrial Driveways/Throat Length

The developments driveways should be type D-4 (or D-8 for the industrial/commercial driveways) to provide a dedicated left-turn egress lane.

To account for the potential for exiting queuing on driveways due to the lack of gaps that may occur from time to time on the adjacent major streets, site accesses should be designed with adequate throat lengths to prevent on-site blockages, which may lead to issues on the adjacent roadways. Per City of Goodyear EDS&PM Section 4.1.4.E.2.b site accesses driveways shall be provided with an inbound throat length of at least 80 feet. The forecasted 95th percentile exiting queue lengths in year 2028 at the two stop-controlled full accesses on Cotton Lane (Access A and Access I) exceed 80 feet. Additional throat length should be planned for at these accesses. All accesses should be re-evaluated once actual site planning occurs. Greater than the minimum throat length should be planned for at all full accesses, especially those which will have higher than typical truck volumes.

F. Intersection Sight Distance

Proper intersection sight distance and sight triangles shall be provided and maintained at the site accesses and intersections of the proposed development to give drivers exiting the accesses a clear view of oncoming traffic. The landscape and hardscape within the sight triangles must not obstruct the driver's view of the adjacent travel lanes. To ensure adequate sight distances and sight distance triangles, AASHTO's *A Policy on Geometric Design of Highways and Streets*, Section 9.5, City of Goodyear Standard Detail G-3232, and Section 7.7.5 of the MCDOT *Roadway Design Manual* should be followed as appropriate when designing the accesses and landscaping.

VIII. COTTON LANE TRAFFIC ANALYSES – HORIZON YEAR 2038

Due to the future SR-30, which will bisect the site, as well as the southern extension of the Loop 303 to the west of the site, the traffic patterns in the study area may significantly change once these new freeways open. This is expected to occur in approximately year 2029, after full build-out of the site. After the freeway opens, it is expected that Cotton Lane will continue to operate as a major north-south route for the communities south of the Gila River as well as the study area, while MC-85 traffic volumes may be more drastically altered with the new SR-30 freeway available for east-west traffic use. This section presents the traffic analyses for horizon year 2038 for the study area intersections and site access intersections on Cotton Lane.

A. Projected Background and Total Traffic Volumes

A.1 Projected Background Traffic Volumes – Year 2038

It is assumed by the horizon year 2028, a majority of the land in the study area will have been developed and a lower annual growth rate from 2029 through the horizon year 2038 is appropriate (as compared to the 2% growth rate utilized from the existing conditions through horizon year 2028). Therefore, to estimate year 2038 background traffic volumes along Cotton Lane within the study area, a 1% annual ambient growth rate has been applied between 2029 and 2038.

The background traffic volumes along Cotton Lane for the 10-year horizon year (2038) are presented in *Figure 12: Background Traffic – Year 2038 – Cotton Lane*. These volumes include the traffic from the Cotton Estrella Bridges site south of the Gila River. This site's traffic volume information is provided in Appendix E. An 8% K-factor is applied to the ADT site volumes of the Cotton Estrella Bridges to determine the peak hour trips on Cotton Lane from that site.

A.2 Projected Total Traffic Volumes – Year 2038

Total traffic projections for horizon year 2038 were determined by adding the forecasted year 2038 background traffic volumes to the proposed development's forecasted year 2038 site generated traffic in Figure 8, which takes into account the updated trip distribution and assignment of the site's trips due to the changed roadway connectivity of the site after the SR-30 and Loop 303 openings in the study area. The total traffic volumes along Cotton Lane for the 10-year horizon year (2038) are presented in *Figure 13: Total Traffic – Year 2038 – Cotton Lane.*

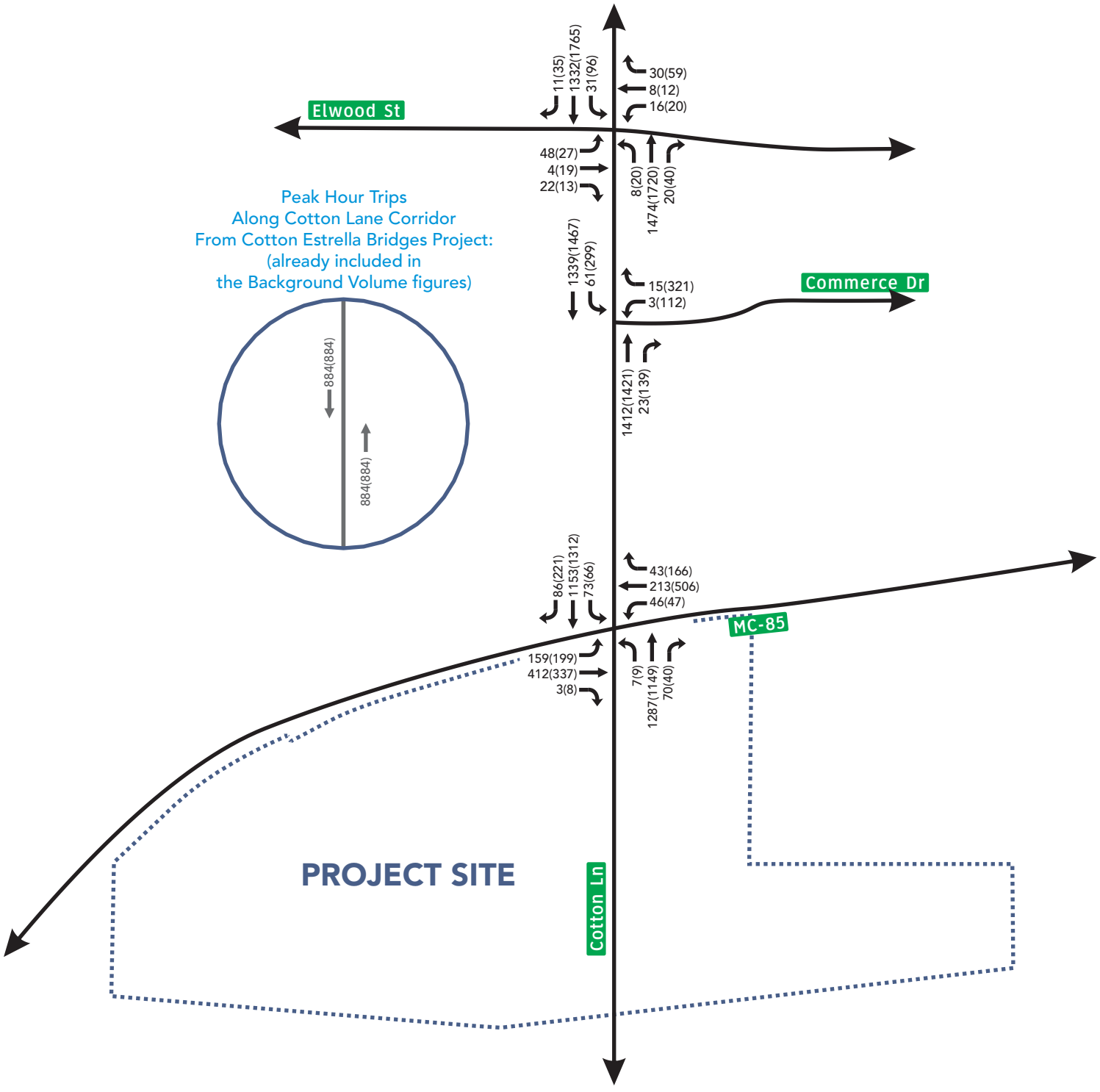
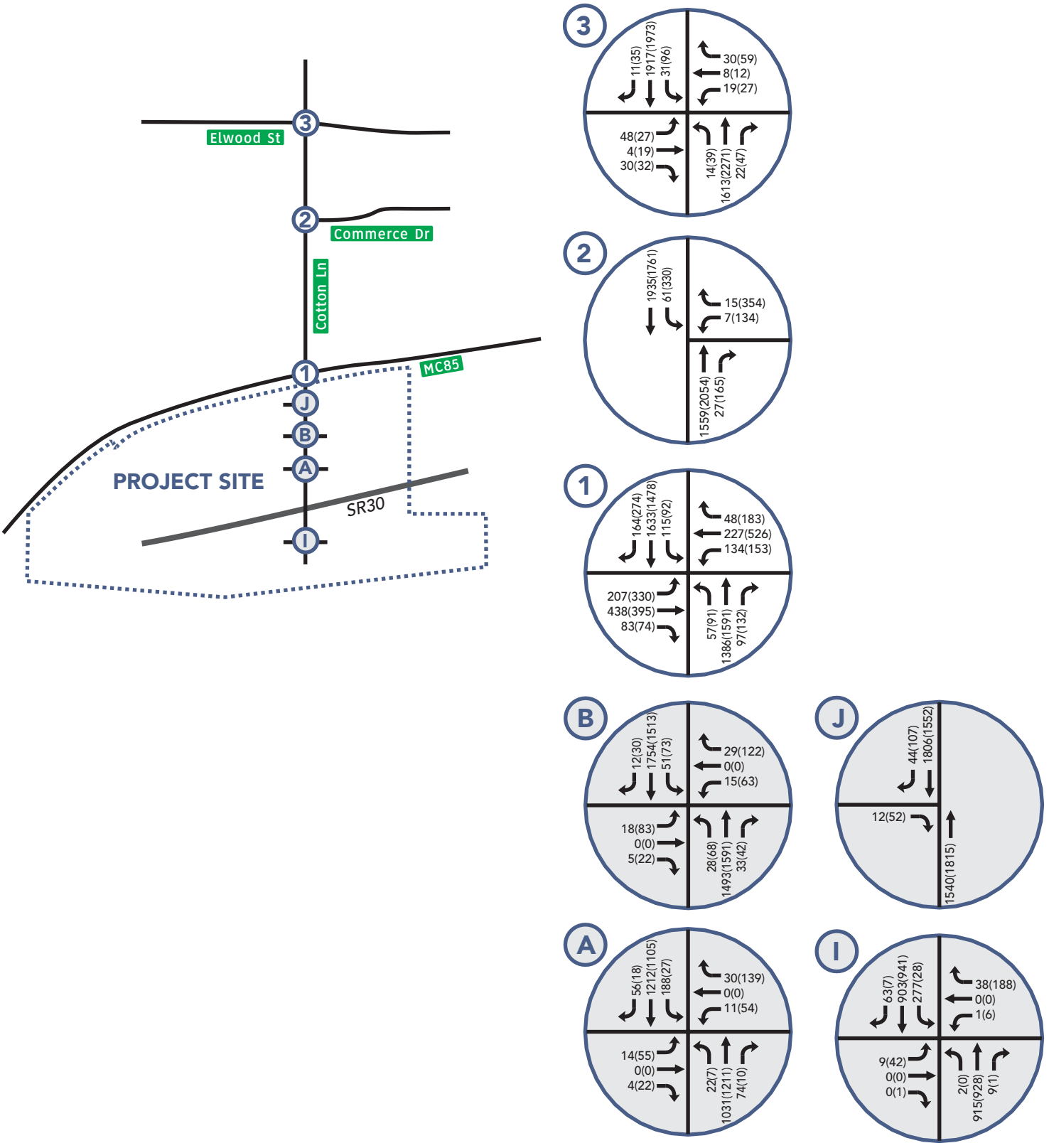


Figure 12: Background Traffic - Year 2038 - Cotton Lane



LEGEND

XX(XX) AM(PM) Peak Hour Traffic Volume

(X) Existing Intersections

(X) Site Accesses

N

not to scale

UCG
United Civil Group

Figure 13: Total Traffic - Year 2038 - Cotton Lane

B. Horizon Year 2038 Site Access Turn Lane Analysis On Cotton Lane

The warranted and recommended turn lanes at the site accesses, as well as their required storage and taper lengths based on year 2028 full buildout total traffic conditions are presented in previous Section VI.C. *Table 10: Turn Lane Analyses – Year 2038* presents information related to the calculated queue lengths, minimum braking distances, calculated storage lane lengths, and the City of Goodyear minimum storage lane lengths for the warranted right and left-turn deceleration lanes on Cotton Lane at Access A, Access B, Access I, and Access J utilizing the horizon year 2038 updated site trip distribution after opening of SR-30. The turn lane analyses are presented in detail in Appendix D.

Table 10: Turn Lane Analyses – Year 2038

Location	Calculated Unsignalized Intersection Queue Length per AASHTO	Minimum Braking Distance[1]	Overall Calculated Storage Lane Length Result[2]	Goodyear or MCDOT Desirable Min. Storage Lane Length
Right-turn Deceleration Lanes				
Access A (SB Cotton Lane)	31 ft (use 85 ft)	85 ft	175 ft	150 ft (Goodyear)
Access A (NB Cotton Lane)	40 ft (use 85 ft)	85 ft	175 ft	150 ft (Goodyear)
Access B (SB Cotton Lane)	17 ft (use 85 ft)	85 ft	175 ft	150 ft (Goodyear)
Access B (NB Cotton Lane)	23 ft (use 85 ft)	85 ft	175 ft	150 ft (Goodyear)
Access I (SB Cotton Lane)	34 ft (use 85 ft)	85 ft	175 ft	150 ft (Goodyear)
Access I (NB Cotton Lane)	5 ft (use 85 ft)	85 ft	175 ft	150 ft (Goodyear)
Access J (SB Cotton Lane)	90 ft	85 ft	175 ft	150 ft (Goodyear)
Left-turn Deceleration Lanes				
Access A (NB Cotton Lane)	32 ft (use 85 ft)	85 ft	150 ft	N/A (Goodyear)
Access A (SB Cotton Lane)	271 ft	85 ft	275 ft	N/A (Goodyear)
Access B (NB Cotton Lane)	98 ft	85 ft	150 ft	N/A (Goodyear)
Access B (SB Cotton Lane)	105 ft	85 ft	175 ft	N/A (Goodyear)
Access I (NB Cotton Lane)	2 (use 85 ft)	85 ft	150 ft	N/A (Goodyear)
Access I (SB Cotton Lane)	231 ft	85 ft	275 ft	N/A (Goodyear)

1 Braking distance per ADOT Traffic Guidelines and Processes (TGP) Section 430, Table 430-2.
2 20 feet subtracted from queue length for right-turn lanes due to free-flowing right-turns and 1/3 of taper/gap length subtracted (120ft/3 = 40 ft) for left-turn lanes per ADOT TGP 430.

It is anticipated once actual site planning for CP Lakin Park occurs, updated site-specific traffic analyses will be performed to more accurately recommend the turn lane lengths required at future proposed site access driveways on Cotton Lane. For

the purposes of this study, the full build out horizon year 2028 turn lane analyses are the recommended lengths at this conceptual stage.

C. Horizon Year 2038 Traffic Signal Warrant Analysis On Cotton Lane

Traffic signal warrants were conducted for the forecasted total traffic conditions in horizon year 2038 for the Cotton Lane intersections within the study area, including at Cotton Lane/Elwood Street, Cotton Lane/Access A, Cotton Lane/Access B, and Cotton Lane/Access I. The results are summarized below, *Appendix B: Traffic Signal Warrant Analyses* presents the full results of the warrant analyses.

Warrant 1 Results:

- Cotton Lane & Elwood Street
  - Warrant 1 is not met for year 2038 total traffic conditions.
- Cotton Lane & Access B
  - Warrant 1 is **met** for year 2038 total traffic conditions.
- Cotton Lane & Access A
  - Warrant 1 is **met** for year 2038 total traffic conditions.
- Cotton Lane & Access I
  - Warrant 1 is **met** for year 2038 total traffic conditions.

Warrant 2 Results:

- Cotton Lane & Elwood Street
  - Warrant 2 is not met for year 2038 total traffic conditions.
- Cotton Lane & Access B
  - Warrant 2 is **met** for year 2038 total traffic conditions.
- Cotton Lane & Access A
  - Warrant 2 is **met** for year 2038 total traffic conditions.
- Cotton Lane & Access I
  - Warrant 2 is **met** for year 2038 total traffic conditions.

Warrant 3 Results:

- Cotton Lane & Elwood Street
  - Warrant 3 is not met for year 2038 total traffic conditions.
- Cotton Lane & Access B
  - Warrant 3 is **met** for year 2038 total traffic conditions.
- Cotton Lane & Access A
  - Warrant 3 is **met** for year 2038 total traffic conditions.
- Cotton Lane & Access I
  - Warrant 3 is **met** for year 2038 total traffic conditions.

Based on the traffic signal warrant analyses provided above, traffic signal warrants are preliminarily met at the intersection of Cotton Lane/Access A, Cotton Lane/Access B, and Cotton Lane/Access I, by the 10-year horizon year 2038 utilizing PM traffic conditions (worst case as compared to AM traffic conditions). These results are based on the forecasted traffic and assumptions made as part of this report.

Per the MUTCD, the satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic signal. Actual future development and growth of the area, and site planning may change the results of these traffic signal warrants. Once definitive land uses/users and site planning for the CP Lakin Park project is realized beyond this conceptual phase, traffic signal warrant studies for the study area intersections should be re-evaluated as part of updated traffic impact studies.

D. Intersection Level of Service Analyses

D.1. Background Traffic

Capacity analyses at the existing study area intersections along Cotton Lane (including Cotton Lane/MC-85, Cotton Lane/Commerce Drive, and Cotton Lane/Elwood Street) were performed for the forecasted background traffic (without the CP Lakin Park development) utilizing the existing roadway geometries for the 10-year horizon year of the study (2038). Table 11 below presents the background levels of service at the study area intersections without the proposed development and without any roadway improvements, while including the Cotton Estrella Bridges development traffic and ambient growth. Summaries of the Vistro output calculations are included in Appendix C.

Table 11: 2038 Background Traffic Intersection Levels of Service

Intersection Location	NB LOS				SB LOS				EB LOS				WB LOS				Overall Intersection
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	AvgDelay/ LOS
Cotton Lane/MC-85 – Signalized																	
AM Peak Hour	D	C	B	**C**	D	B	B	**B**	D	D	D	**D**	D	D	D	**D**	30.87 **C**
PM Peak Hour	D	C	B	**C**	D	B	B	**C**	D	D	D	**D**	D	D	D	**D**	31.09 **C**
Cotton Lane/Commerce Drive – Signalized																	
AM Peak Hour	-	F	A	**C**	F	B	-	**C**	-	-	-	**-**	D	-	D	**D**	25.96 **C**
PM Peak Hour	-	F	A	**F**	F	F	-	**F**	-	-	-	**-**	C	-	D	**C**	218.19 **F**
Cotton Lane/Elwood Street – Two-way Stop-controlled																	
AM Peak Hour	B	A	A	**A**	C	A	A	**A**	F	F	F	**F**	F	F	E	**F**	187.90 *
PM Peak Hour	C	A	A	**A**	C	A	A	**A**	F	F	F	**F**	F	F	F	**F**	392.70 *

*Per HCM, overall LOS letter grade is not assigned for two-way stop-controlled intersections.

For background traffic conditions in year 2038, the existing study area intersection of Cotton Lane/MC 85 is forecasted to operate at acceptable levels of service, LOS C, during the AM and PM peak hours. Failing levels of service are forecasted at Cotton Lane/Commerce Drive and on eastbound and westbound Elwood Street at the Cotton Lane/Elwood Street intersection.

Capacity analyses at the existing study area intersections and at the site accesses along Cotton Lane were performed for the forecasted total traffic and roadway geometries (including signalization of intersections which met traffic signal warrants) for the 10-year horizon year of the study (2038) and are presented below in Table 12.

TABLE 12: 2038 TOTAL TRAFFIC LEVELS OF SERVICE

Intersection Location	NB LOS				SB LOS				EB LOS				WB LOS				Overall Intersection
	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	L	T	R	Tot	AvgDelay/ LOS*
Cotton Lane/MC-85 – Signalized																	
AM Peak Hour	D	D	B	**D**	E	C	C	**C**	D	D	D	**D**	D	D	D	**D**	41.97 **D**
PM Peak Hour	D	F	B	**F**	D	C	C	**C**	E	D	D	**E**	D	D	D	**D**	57.56 **E**
Cotton Lane/Commerce Drive – Signalized																	
AM Peak Hour	-	F	A	**E**	F	F	-	**F**	-	-	-	**-**	D	-	D	**D**	130.51 **F**
PM Peak Hour	-	F	A	**F**	F	F	-	**F**	-	-	-	**-**	C	-	D	**C**	395.18 **F**
Cotton Lane/Elwood Street – Two-way Stop-controlled																	
AM Peak Hour	C	A	A	**A**	C	A	A	**A**	F	F	F	**F**	F	F	F	**F**	218.02 *
PM Peak Hour	C	A	A	**A**	F	A	A	**A**	F	F	F	**F**	F	F	F	**F**	380.38 *
Cotton Lane/Access J – Two-way stop-controlled																	
AM Peak Hour	-	A	-	**A**	-	A	A	**A**	-	-	C	**C**	-	-	-	**-**	0.07 *
PM Peak Hour	-	A	-	**A**	-	A	A	**A**	-	-	C	**C**	-	-	-	**-**	0.29 *
Cotton Lane/Access A – Signalized																	
AM Peak Hour	A	A	A	**A**	A	A	A	**A**	D	D	D	**D**	D	E	E	**D**	5.20 **A**
PM Peak Hour	A	B	A	**B**	A	A	A	**A**	D	C	C	**D**	D	D	D	**D**	12.63 **B**
Cotton Lane/Access B – Signalized																	
AM Peak Hour	B	B	A	**B**	B	F	A	**C**	C	C	C	**C**	C	C	C	**C**	25.39 **C**
PM Peak Hour	B	F	A	**E**	B	F	A	**D**	C	C	C	**C**	C	C	C	**C**	46.99 **D**
Cotton Lane/Access I – Signalized																	
AM Peak Hour	A	A	A	**A**	A	A	A	**A**	D	A	A	**D**	D	E	E	**E**	5.13 **A**
PM Peak Hour	A	A	A	**A**	A	A	A	**A**	D	C	C	**D**	C	D	D	**D**	12.42 **B**

*Per HCM, overall LOS letter grade not assigned for two-way stop-controlled intersections. The LOS of the worst-case movement is reported in the output reports in Appendix C.

Several locations are forecasted to operate at levels of service of LOS E or LOS F in total traffic conditions in year 2028 after full build out. Refer to Section VI.E.2 for total traffic conditions level of service discussion and potential improvements to the forecasted levels of service.

VIII. CONCLUSIONS AND RECOMMENDATIONS

The overall plan for the 695.6 acre CP Lakin Park development consists of industrial, commercial, and multifamily residential uses. This project will be developed in phases with full build-out of the site assumed to be year 2028, driven by market conditions, industry factors, and/or business considerations.

Site access is planned via four accesses driveways on Cotton Lane (Access A [full], Access B [full], Access I [full], and Access J [ri-ro]) and six accesses on MC-85 (Access C [full], Access D [full], Access E [full], Access F [full], Access G [ri-ro], and Access H [full]). Per discussions with the City of Goodyear, full Access B is to be located at a point north of the canal (the canal is at the 1/4 mile point). Per discussions with MCDOT, full Access C is to be located west of the end of the existing MC-85 median and accommodate a left-turn deceleration lane.

The forecasted total external peak hour trip generation estimate for the full build out of the site is 31,001 daily trips, 1,379 trips in the AM peak hour, and 1,494 trips in the PM peak hour.

In the existing and forecasted background year 2028 conditions, the signalized study area intersections of Cotton Lane/MC-85, Cotton Lane/Commerce Drive, and Sarival Avenue/MC-85 operate at acceptable levels of service, LOS C or better, during the AM and PM peak hours. At the two-way stop controlled intersection of Elwood Street/Cotton Lane, the minor legs of the intersection operate at an unacceptable level of service, while the major legs experience minimal delay.

In the forecasted total traffic conditions in year 2028 after full build out, some of the study area intersections and site accesses are forecasted to operate at levels of service of LOS E or LOS F. See Section VI.E.2 for additional details.

Left-turn and/or right-turn deceleration lanes are warranted or recommended and should be planned to be provided at all site access intersections.

Traffic signal warrants were evaluated for all full access intersections as well as the existing intersection of Cotton Lane/Elwood Street for both the full buildout year 2028 and 10-year horizon year 2038 total traffic conditions. Traffic signal warrant thresholds are met for the site access intersection of Cotton Lane/Access B in year 2028. Traffic signal warrant thresholds are not met at the remaining study area intersections in year 2028. Traffic signal warrant thresholds are met at the site access intersections of Cotton Lane/Access A, Cotton Lane/Access B, and Cotton Lane/Access I in year 2038. The warrants are based on forecasted traffic volumes; upon future development in the immediate area of the intersection and once actual land users are known and site planning is underway, traffic signal warrants should be re-analyzed.

Based on this Traffic Impact Study, the following recommendations apply:

- Proper intersection sight distance and sight triangles shall be provided and maintained at the site accesses and intersections of the proposed development to give drivers exiting the accesses a clear view of oncoming traffic. To ensure adequate sight distances and sight distance triangles, AASHTO's *A Policy on Geometric Design of Highways and Streets*, Section 6.1.13, City of Goodyear Standard Detail G-3232, and Section 7.7.5 of the MCDOT *Roadway Design Manual* should be followed when designing the accesses and landscaping.
- Provide half-street improvements on Cotton Lane adjacent to the site to the roadway section as required per City of Goodyear input.
- Provide half-street improvements on MC-85 adjacent to the site to the roadway section as required per MCDOT input.
- Right-turn deceleration lanes should be provided on Cotton Lane at the following locations:
    - SB at Access A
        - Storage length of 150 feet; taper length of 120 feet.
    - NB at Access A
        - Storage length of 150 feet; taper length of 120 feet.
    - SB at Access B
        - Storage length of 175 feet; taper length of 120 feet.
    - NB at Access B
        - Storage length of 175 feet; taper length of 120 feet.
    - SB at Access I
        - Storage length of 150 feet; taper length of 120 feet.
    - NB at Access I
        - Storage length of 150 feet; taper length of 120 feet.
    - SB at Access J
        - Storage length of 175 feet; taper length of 120 feet.
- Right-turn deceleration lanes should be provided on MC-85 at the following locations:
    - EB at Access C
        - Storage length of 225 feet; taper length of 125 feet.
    - EB at Access D
        - Storage length of 225 feet; taper length of 125 feet.
    - EB at Access E
        - Storage length of 225 feet; taper length of 125 feet.
    - EB at Access F
        - Storage length of 175 feet; taper length of 125 feet.
    - EB at Access G

        - Storage length of 225 feet; taper length of 125 feet.
    - EB at Access H
        - Storage length of 225 feet; taper length of 125 feet.

- Left-turn deceleration lanes should be provided on Cotton Lane at the following locations:
    - NB at Access A
        - Storage length of 150 feet; taper length of 120 feet.
    - SB at Access A
        - Storage length of 275 feet; taper length of 120 feet.
    - NB at Access B
        - Storage length of 150 feet; taper length of 120 feet.
    - SB at Access B
        - Storage length of 175 feet; taper length of 120 feet.
    - NB at Access I
        - Storage length of 150 feet; taper length of 120 feet.
    - SB at Access I
        - Storage length of 275 feet; taper length of 120 feet.
- Left-turn deceleration lanes should be provided on MC-85 at the following locations:
    - WB at Access C
        - Storage length of 200 feet; taper length of 125 feet.
    - WB at Access D
        - Storage length of 200 feet; taper length of 125 feet.
    - WB at Access E
        - Storage length of 200 feet; taper length of 125 feet.
    - WB at Access F
        - Storage length of 175 feet; taper length of 125 feet.
    - WB at Access H
        - Storage length of 200 feet; taper length of 125 feet.
- Provide widening/taper on MC-85 in advance of the left-turn deceleration lanes (Access F on the western side of the site, Access H on the eastern side of the site) having a distance of 660 feet, which assumes symmetrical widening, 12 foot lanes, and a 55 mph speed limit.
- Perform an updated traffic impact study(ies) once actual development users and site plans for CP Lakin Park development are known.

IX. LIMITATIONS

Our professional services have been performed using the degree of skill ordinarily exercised, under similar circumstances, by reputable transportation engineering firms practicing in this locality. No other warranty, expressed or implied, is made.

The contents of this report are intended for the sole use of the addressee and his/her designees. In completing this report, data was obtained from a variety of sources (i.e. City, County, State and Federal sources); United Civil Group has assumed these sources to be reliable and accurate. Should deviations from this report be noted, this firm shall be contacted for review of the area of concern.

Every reasonable attempt was made to acquire recent traffic impact studies, traffic projections and/or data that may be helpful in more accurately projecting traffic volumes. United Civil Group is not responsible for incorporating data made available after this document has been finalized.

This report is issued with the understanding that it is the responsibility of the owner to see that its provisions are carried out or brought to the attention of those concerned. In the event that any changes of the proposed project are planned, the conclusions and recommendations contained in this report shall be reviewed and the report shall be modified or supplemented as necessary.

X. SOURCES

A Policy on Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials, 2011.

Engineering Design Standards and Policies Manual, City of Goodyear, 2017

Manual on Uniform Traffic Control Devices, Federal Highway Administration, MUTCD 2009.

Highway Capacity Manual, HCM, Transportation Research Board.

Roadway Design Manual, MCDOT, most recent updates.

Traffic Guidelines and Processes, ADOT, most recent updates.

Traffic Impact Study Manual, MCDOT, 2017.

Trip Generation, 10th Edition, Institute of Transportation Engineers, 2017.

APPENDIX A

Traffic Data

United Civil Group

Turning Movement Count

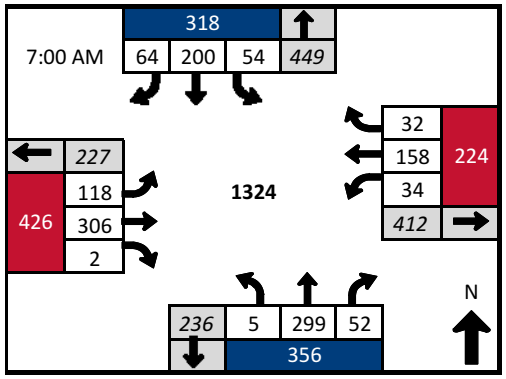
Project No: TR18074

Location: Cotton Lane and MC85

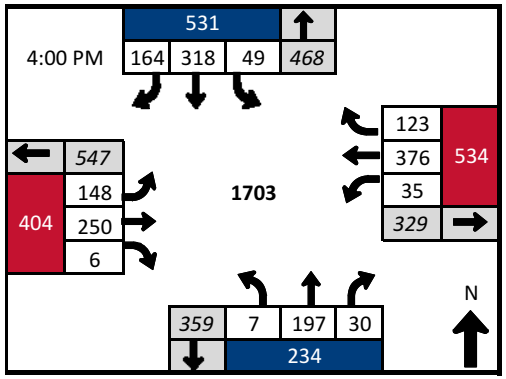
Intersection Configuration: Signalized

Nov-6-2018 (Tuesday)

	Speed Limit	Lt	Lt\T	T	T/Rt	Rt	Lt/T/Rt	Lt/Rt
Northbound	45	2		2		1		
Southbound	45	1		2	1			
Eastbound	55	2		2		1		
Westbound	45	2		3		1		



	Cotton Lane				Cotton Lane				MC85				MC85				Total	Peak Hour
	Northbound				Southbound				Eastbound				Westbound					
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds		
7:00 AM	1	72	6	0	21	53	13	0	31	81	0	0	13	38	9	0	338	
7:15 AM	0	90	12	0	13	60	19	0	34	70	0	0	6	25	5	0	334	
7:30 AM	3	70	20	0	7	47	18	0	31	81	1	0	10	59	11	0	358	
7:45 AM	1	67	14	0	13	40	14	0	22	74	1	0	5	36	7	0	294	1324
8:00 AM	0	47	1	0	13	40	22	0	12	58	1	0	8	30	10	0	242	1228
8:15 AM	0	39	6	0	7	23	13	0	23	43	0	0	9	26	13	0	202	1096
8:30 AM	2	45	8	0	11	33	14	0	20	66	1	0	4	28	5	0	237	975
8:45 AM	1	51	8	0	8	41	12	0	12	55	0	0	8	30	4	0	230	911
Peak Hour Total	**5**	**299**	**52**	**0**	**54**	**200**	**64**	**0**	**118**	**306**	**2**	**0**	**34**	**158**	**32**	**0**	**1324**	



	Cotton Lane				Cotton Lane				MC85				MC85				Total	Peak Hour
	Northbound				Southbound				Eastbound				Westbound					
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds		
4:00 PM	4	46	7	0	3	83	29	0	27	60	3	0	11	91	29	0	393	
4:15 PM	0	46	8	0	9	73	31	0	31	61	2	0	5	74	28	0	368	
4:30 PM	1	43	6	0	19	77	44	0	45	78	1	0	12	93	28	0	447	
4:45 PM	2	62	9	0	18	85	60	0	45	51	0	0	7	118	38	0	495	1703
5:00 PM	1	46	6	0	7	64	37	0	24	57	1	0	9	87	18	0	357	1667
5:15 PM	0	52	5	0	3	97	31	0	16	46	1	0	14	106	30	0	401	1700
5:30 PM	2	33	11	0	13	95	40	0	20	48	1	0	10	99	24	0	396	1649
5:45 PM	1	51	9	0	12	72	35	0	16	46	0	0	8	58	14	0	322	1476
Peak Hour Total	**7**	**197**	**30**	**0**	**49**	**318**	**164**	**0**	**148**	**250**	**6**	**0**	**35**	**376**	**123**	**0**	**1703**	

United Civil Group

Turning Movement Count

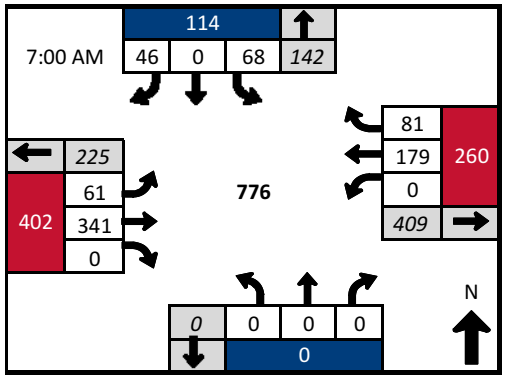
	Speed Limit	Lt	Lt\T	T	T/Rt	Rt	Lt/T/Rt	Lt/Rt
Northbound	N/A							
Southbound	45	1		1		1		
Eastbound	45	1		1				
Westbound	45	1		1		1		

Project No: TR18074

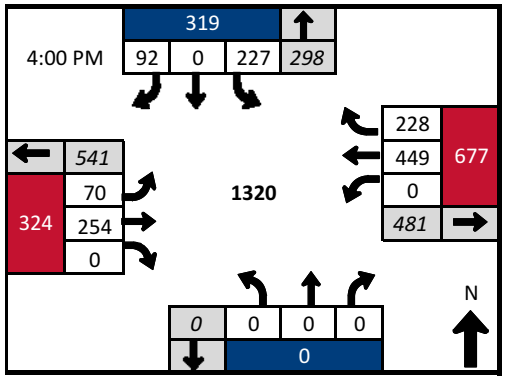
Nov-6-2018 (Tuesday)

Location: Sarival Avenue and MC85

Intersection Configuration: Signalized



	Sarival Avenue				Sarival Avenue				MC85				MC85				Total	Peak Hour
	Northbound				Southbound				Eastbound				Westbound					
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds		
7:00 AM	0	0	0	0	11	0	10	0	5	90	0	0	0	41	22	0	179	
7:15 AM	0	0	0	0	28	0	15	0	22	96	0	0	0	44	28	0	233	
7:30 AM	0	0	0	0	15	0	8	0	20	73	0	0	0	58	15	0	189	
7:45 AM	0	0	0	0	14	0	13	0	14	82	0	0	0	36	16	0	175	776
8:00 AM	0	0	0	0	18	0	10	0	4	55	0	0	0	39	12	0	138	735
8:15 AM	0	0	0	0	17	0	6	0	13	57	0	0	0	31	15	0	139	641
8:30 AM	0	0	0	0	14	0	9	0	11	63	0	0	0	31	10	0	138	590
8:45 AM	0	0	0	0	9	0	11	0	11	65	0	0	0	30	19	0	145	560
Peak Hour Total	**0**	**0**	**0**	**0**	**68**	**0**	**46**	**0**	**61**	**341**	**0**	**0**	**0**	**179**	**81**	**0**	**776**	



	Sarival Avenue				Sarival Avenue				MC85				MC85				Total	Peak Hour
	Northbound				Southbound				Eastbound				Westbound					
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds		
4:00 PM	0	0	0	0	34	0	17	0	17	53	0	0	0	106	37	0	264	
4:15 PM	0	0	0	0	28	0	13	0	22	58	0	0	0	110	67	0	298	
4:30 PM	0	0	0	0	94	0	31	0	16	77	0	0	0	105	64	0	387	
4:45 PM	0	0	0	0	71	0	31	0	15	66	0	0	0	128	60	0	371	1320
5:00 PM	0	0	0	0	30	0	16	0	10	62	0	0	0	84	33	0	235	1291
5:15 PM	0	0	0	0	9	0	13	0	9	51	0	0	0	143	27	0	252	1245
5:30 PM	0	0	0	0	26	0	12	0	15	48	0	0	0	113	42	0	256	1114
5:45 PM	0	0	0	0	17	0	6	0	11	55	0	0	0	72	24	0	185	928
Peak Hour Total	**0**	**0**	**0**	**0**	**227**	**0**	**92**	**0**	**70**	**254**	**0**	**0**	**0**	**449**	**228**	**0**	**1320**	

United Civil Group

Turning Movement Count

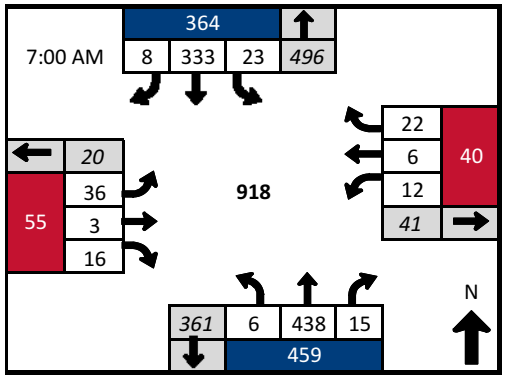
	Speed Limit	Lt	Lt\T	T	T/Rt	Rt	Lt/T/Rt	Lt/Rt
Northbound	45	1		1		1		
Southbound	45	1			1			
Eastbound	35	1			1			
Westbound	30	1			1			

Project No: TR18074

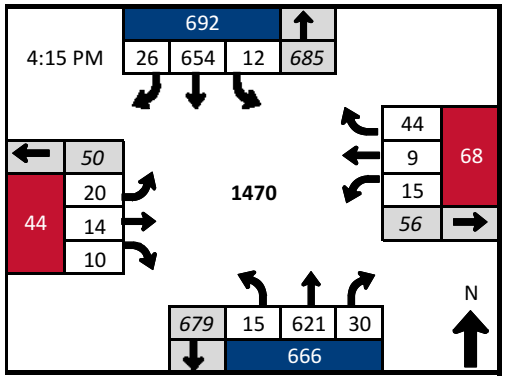
Nov-6-2018 (Tuesday)

Location: Cotton Lane
and Elwood Street

Intersection Configuration: Unsignalized



	Cotton Lane				Cotton Lane				Elwood Street				Elwood Street				Total	Peak Hour
	Northbound				Southbound				Eastbound				Westbound					
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds		
7:00 AM	1	115	4	0	6	95	2	0	10	2	6	0	7	3	11	0	262	
7:15 AM	1	113	3	0	11	87	1	0	12	0	5	0	2	1	7	0	243	
7:30 AM	1	113	6	0	2	77	3	0	12	1	3	0	1	2	1	0	222	
7:45 AM	3	97	2	0	4	74	2	0	2	0	2	0	2	0	3	0	191	918
8:00 AM	5	79	1	0	1	48	1	0	1	3	1	0	1	0	3	0	144	800
8:15 AM	1	78	1	0	3	62	2	0	3	0	0	0	0	2	1	0	153	710
8:30 AM	0	64	0	0	1	69	3	0	2	1	1	0	0	1	1	0	143	631
8:45 AM	1	67	3	0	2	69	1	0	1	1	2	0	1	0	4	0	152	592
Peak Hour Total	**6**	**438**	**15**	**0**	**23**	**333**	**8**	**0**	**36**	**3**	**16**	**0**	**12**	**6**	**22**	**0**	**918**	



	Cotton Lane				Cotton Lane				Elwood Street				Elwood Street				Total	Peak Hour
	Northbound				Southbound				Eastbound				Westbound					
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds		
4:00 PM	1	125	2	0	4	116	5	0	7	4	3	0	6	1	8	0	282	
4:15 PM	4	134	6	0	6	133	3	0	4	8	3	0	8	0	12	0	321	
4:30 PM	6	143	12	0	2	188	8	0	7	2	5	0	4	3	15	0	395	
4:45 PM	2	189	4	0	3	203	11	0	3	3	1	0	2	4	11	0	436	1434
5:00 PM	3	155	8	0	1	130	4	0	6	1	1	0	1	2	6	0	318	1470
5:15 PM	1	91	8	0	2	132	12	0	2	3	2	0	0	1	5	0	259	1408
5:30 PM	3	110	1	0	0	134	8	0	3	1	1	0	3	0	2	0	266	1279
5:45 PM	0	112	3	0	1	169	6	0	2	0	2	0	2	1	1	0	299	1142
Peak Hour Total	**15**	**621**	**30**	**0**	**12**	**654**	**26**	**0**	**20**	**14**	**10**	**0**	**15**	**9**	**44**	**0**	**1470**	

United Civil Group

Turning Movement Count

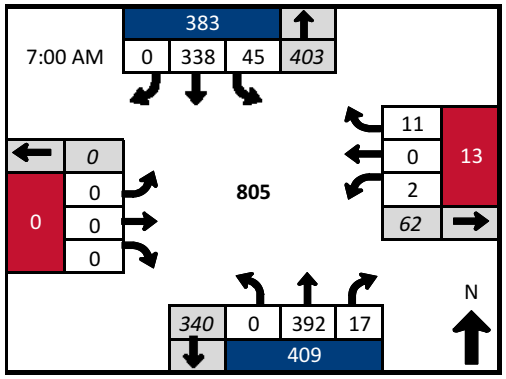
	Speed Limit	Lt	Lt\T	T	T/Rt	Rt	Lt/T/Rt	Lt/Rt
Northbound	45			1		1		
Southbound	45	1		1				
Eastbound								
Westbound	30	1				1		

Project No: TR18074

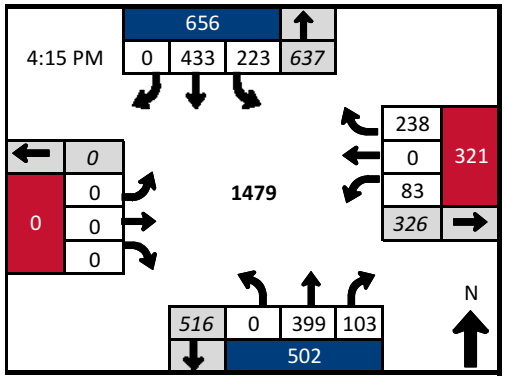
Nov-6-2018 (Tuesday)

Location: Cotton Lane and Commerce Drive

Intersection Configuration: Signalized



	Cotton Lane Northbound				Cotton Lane Southbound				Commerce Drive Eastbound				Commerce Drive Westbound				Total	Peak Hour
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds		
7:00 AM	0	111	8	0	7	103	0	0	0	0	0	0	0	0	2	0	231	
7:15 AM	0	119	6	0	27	85	0	0	0	0	0	0	1	0	5	0	243	
7:30 AM	0	90	3	0	7	79	0	0	0	0	0	0	1	0	0	0	180	
7:45 AM	0	72	0	0	4	71	0	0	0	0	0	0	0	0	4	0	151	805
8:00 AM	0	77	1	0	12	45	0	0	0	0	0	0	0	0	2	0	137	711
8:15 AM	0	73	1	0	11	54	0	0	0	0	0	0	0	0	2	0	141	609
8:30 AM	0	68	0	0	11	64	0	0	0	0	0	0	0	0	3	0	146	575
8:45 AM	0	64	4	0	2	60	0	0	0	0	0	0	0	0	5	0	135	559
Peak Hour Total	**0**	**392**	**17**	**0**	**45**	**338**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**11**	**0**	**805**	



	Cotton Lane Northbound				Cotton Lane Southbound				Commerce Drive Eastbound				Commerce Drive Westbound				Total	Peak Hour
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds		
4:00 PM	0	83	1	0	14	103	0	0	0	0	0	0	10	0	31	2	242	
4:15 PM	0	108	11	0	28	111	0	0	0	0	0	0	4	0	25	0	287	
4:30 PM	0	84	44	0	74	107	0	0	0	0	0	0	20	0	54	0	383	
4:45 PM	0	107	40	0	93	111	0	0	0	0	0	0	36	0	101	0	488	1400
5:00 PM	0	100	8	0	28	104	0	0	0	0	0	0	23	0	58	0	321	1479
5:15 PM	0	108	0	0	14	118	0	0	0	0	0	0	4	0	13	0	257	1449
5:30 PM	0	67	3	0	23	124	0	0	0	0	0	0	5	0	39	0	261	1327
5:45 PM	0	86	5	0	47	122	0	0	0	0	0	0	4	0	29	0	293	1132
Peak Hour Total	**0**	**399**	**103**	**0**	**223**	**433**	**0**	**0**	**0**	**0**	**0**	**0**	**83**	**0**	**238**	**0**	**1479**	

United Civil Group

2803 N. 7th Avenue
Phoenix, Az 85007

Street : Cotton Lane
Location : Between Broadway Road & Commerce Drive

Site: 07192
10/16/2018
Tuesday

24 Hour Volume

Interval Start	SB		NB		Combined	
12:00	71	302	76	240	147	542
12:15	74		67		141	
12:30	72		47		119	
12:45	85		50		135	
13:00	69	297	70	283	139	580
13:15	85		71		156	
13:30	76		79		155	
13:45	67		63		130	
14:00	94	395	60	272	154	667
14:15	99		51		150	
14:30	104		66		170	
14:45	98		95		193	
15:00	74	301	110	363	184	664
15:15	81		89		170	
15:30	70		90		160	
15:45	76		74		150	
16:00	108	470	93	404	201	874
16:15	101		121		222	
16:30	137		91		228	
16:45	124		99		223	
17:00	124	457	69	296	193	753
17:15	115		86		201	
17:30	124		66		190	
17:45	94		75		169	
18:00	115	354	60	223	175	577
18:15	87		72		159	
18:30	60		52		112	
18:45	92		39		131	
19:00	78	267	48	149	126	416
19:15	70		30		100	
19:30	55		41		96	
19:45	64		30		94	
20:00	51	174	21	83	72	257
20:15	49		19		68	
20:30	35		26		61	
20:45	39		17		56	
21:00	43	158	13	61	56	219
21:15	50		14		64	
21:30	34		19		53	
21:45	31		15		46	
22:00	28	105	8	37	36	142
22:15	23		17		40	
22:30	18		9		27	
22:45	36		3		39	
23:00	10	35	20	51	30	86
23:15	7		21		28	
23:30	14		9		23	
23:45	4		1		5	

Interval Start	SB		NB		Combined	
10/17/2018 00:00	12	31	5	13	17	44
00:15	5		5		10	
00:30	8		3		11	
00:45	6		0		6	
01:00	5	9	2	9	7	18
01:15	0		4		4	
01:30	1		1		2	
01:45	3		2		5	
02:00	4	16	3	15	7	31
02:15	4		5		9	
02:30	4		3		7	
02:45	4		4		8	
03:00	2	57	7	34	9	91
03:15	3		10		13	
03:30	26		7		33	
03:45	26		10		36	
04:00	6	59	13	103	19	162
04:15	8		27		35	
04:30	18		28		46	
04:45	27		35		62	
05:00	34	156	35	175	69	331
05:15	27		39		66	
05:30	37		44		81	
05:45	58		57		115	
06:00	57	274	70	296	127	570
06:15	51		63		114	
06:30	74		70		144	
06:45	92		93		185	
07:00	98	355	83	372	181	727
07:15	101		106		207	
07:30	79		94		173	
07:45	77		89		166	
08:00	53	244	67	278	120	522
08:15	70		78		148	
08:30	51		61		112	
08:45	70		72		142	
09:00	57	213	95	282	152	495
09:15	57		60		117	
09:30	45		53		98	
09:45	54		74		128	
10:00	49	213	56	262	105	475
10:15	55		60		115	
10:30	58		84		142	
10:45	51		62		113	
11:00	60	249	54	222	114	471
11:15	58		48		106	
11:30	64		57		121	
11:45	67		63		130	

Volume Totals

	SB	NB	Combined
00:00 - 12:00	1876 (47.7%)	2061 (52.3%)	3937
12:00 - 00:00	3315 (57.4%)	2462 (42.6%)	5777
24 Hours	5191 (53.4%)	4523 (46.6%)	9714

Peak Hours

00:00 - 12:00

	SB	NB	Combined
Started	06:45	06:45	06:45
Volume	370	376	746
Factor	0.92	0.89	0.90

12:00 - 00:00

	SB	NB	Combined
Started	16:30	16:00	16:00
Volume	500	404	874
Factor	0.91	0.83	0.96

United Civil Group

2803 N. 7th Avenue
Phoenix, Az 85007

Street : MC85
Location : Between Cotton Lane & Sarival Avenue

Site: 07338
10/16/2018
Tuesday

24 Hour Volume

Interval Start	EB		WB		Combined	
12:00	38	163	51	176	89	339
12:15	29		36		65	
12:30	46		39		85	
12:45	50		50		100	
13:00	30	151	56	235	86	386
13:15	38		53		91	
13:30	44		60		104	
13:45	39		66		105	
14:00	63	226	59	302	122	528
14:15	50		81		131	
14:30	45		77		122	
14:45	68		85		153	
15:00	57	258	86	383	143	641
15:15	62		104		166	
15:30	57		102		159	
15:45	82		91		173	
16:00	60	248	91	449	151	697
16:15	72		132		204	
16:30	71		107		178	
16:45	45		119		164	
17:00	50	219	106	443	156	662
17:15	62		128		190	
17:30	54		100		154	
17:45	53		109		162	
18:00	41	186	101	342	142	528
18:15	54		96		150	
18:30	45		83		128	
18:45	46		62		108	
19:00	38	121	50	171	88	292
19:15	39		46		85	
19:30	23		33		56	
19:45	21		42		63	
20:00	23	79	29	114	52	193
20:15	24		28		52	
20:30	14		25		39	
20:45	18		32		50	
21:00	20	56	21	84	41	140
21:15	14		24		38	
21:30	10		23		33	
21:45	12		16		28	
22:00	8	45	22	61	30	106
22:15	14		15		29	
22:30	11		14		25	
22:45	12		10		22	
23:00	8	25	9	51	17	76
23:15	8		10		18	
23:30	3		16		19	
23:45	6		16		22	

Interval Start	EB		WB		Combined	
10/17/2018 00:00	5	18	8	25	13	43
00:15	3		7		10	
00:30	4		4		8	
00:45	6		6		12	
01:00	3	17	5	16	8	33
01:15	1		5		6	
01:30	8		5		13	
01:45	5		1		6	
02:00	5	34	5	16	10	50
02:15	16		3		19	
02:30	9		4		13	
02:45	4		4		8	
03:00	8	46	4	31	12	77
03:15	10		8		18	
03:30	17		10		27	
03:45	11		9		20	
04:00	21	148	11	94	32	242
04:15	24		18		42	
04:30	50		34		84	
04:45	53		31		84	
05:00	58	247	26	94	84	341
05:15	48		16		64	
05:30	77		24		101	
05:45	64		28		92	
06:00	64	309	34	185	98	494
06:15	71		30		101	
06:30	80		58		138	
06:45	94		63		157	
07:00	90	341	50	208	140	549
07:15	92		48		140	
07:30	82		58		140	
07:45	77		52		129	
08:00	62	228	44	174	106	402
08:15	53		37		90	
08:30	61		57		118	
08:45	52		36		88	
09:00	54	201	37	143	91	344
09:15	44		39		83	
09:30	51		25		76	
09:45	52		42		94	
10:00	55	198	32	153	87	351
10:15	44		42		86	
10:30	49		38		87	
10:45	50		41		91	
11:00	31	155	29	140	60	295
11:15	40		40		80	
11:30	41		33		74	
11:45	43		38		81	

Volume Totals

	EB	WB	Combined
00:00 - 12:00	1942 (60.3%)	1279 (39.7%)	3221
12:00 - 00:00	1777 (38.7%)	2811 (61.3%)	4588
24 Hours	3719 (47.6%)	4090 (52.4%)	7809

Peak Hours

00:00 - 12:00

	EB	WB	Combined
Started	06:45	06:30	06:45
Volume	358	219	577
Factor	0.95	0.87	0.92

12:00 - 00:00

	EB	WB	Combined
Started	15:45	16:15	15:45
Volume	285	464	706
Factor	0.87	0.88	0.87

APPENDIX B

Traffic Signal Warrant Analyses

Signal Warrants Report For Intersection 3: Cotton Lane & Elwood Street

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	1570	1489	90	72
2	1507	1429	86	69
3	1476	1400	85	68
4	1256	1191	72	58
5	1193	1132	68	55
6	1068	1013	61	49
7	989	938	57	45
8	942	893	54	43
9	754	715	43	35
10	707	670	41	32
11	707	670	41	32
12	675	640	39	31
13	612	581	35	28
14	565	536	32	26
15	565	536	32	26
16	550	521	31	25
17	314	298	18	14
18	173	164	10	8
19	157	149	9	7
20	63	60	4	3
21	47	45	3	2
22	47	45	3	2
23	31	30	2	1
24	31	30	2	1

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	5	3059	4	162	No	No	No	No	No	Yes	Yes	Yes	Yes	No
2	5	2936	4	155	No	No	No	No	No	Yes	Yes	Yes	Yes	No
3	5	2876	4	153	No	No	No	No	No	Yes	Yes	Yes	Yes	No
4	5	2447	4	130	No	No	No	No	No	No	Yes	Yes	No	No
5	5	2325	4	123	No	No	No	No	No	No	No	Yes	No	No
6	5	2081	4	110	No	No	No	No	No	No	No	Yes	No	No
7	5	1927	4	102	No	No	No	No	No	No	No	Yes	No	No
8	5	1835	4	97	No	No	No	No	No	No	No	No	No	No
9	5	1469	4	78	No	No	No	No	No	No	No	No	No	No
10	5	1377	4	73	No	No	No	No	No	No	No	No	No	No
11	5	1377	4	73	No	No	No	No	No	No	No	No	No	No
12	5	1315	4	70	No	No	No	No	No	No	No	No	No	No
13	5	1193	4	63	No	No	No	No	No	No	No	No	No	No
14	5	1101	4	58	No	No	No	No	No	No	No	No	No	No
15	5	1101	4	58	No	No	No	No	No	No	No	No	No	No
16	5	1071	4	56	No	No	No	No	No	No	No	No	No	No
17	5	612	4	32	No	No	No	No	No	No	No	No	No	No
18	5	337	4	18	No	No	No	No	No	No	No	No	No	No
19	5	306	4	16	No	No	No	No	No	No	No	No	No	No
20	5	123	4	7	No	No	No	No	No	No	No	No	No	No
21	5	92	4	5	No	No	No	No	No	No	No	No	No	No
22	5	92	4	5	No	No	No	No	No	No	No	No	No	No
23	5	61	4	3	No	No	No	No	No	No	No	No	No	No
24	5	61	4	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	3	4	7	3	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	3702	4760.4
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	92:33	95:12
Delay Condition Met	Yes	Yes
Volume on Minor Street Approach During Same Hour	90	72
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	3221	3221
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 5: Cotton Lane & Access B

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E, W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	N	S	E	W
1	980	970	100	107
2	941	931	96	103
3	921	912	94	101
4	784	776	80	86
5	745	737	76	81
6	666	660	68	73
7	617	611	63	67
8	588	582	60	64
9	470	466	48	51
10	441	437	45	48
11	441	437	45	48
12	421	417	43	46
13	382	378	39	42
14	353	349	36	39
15	353	349	36	39
16	343	340	35	37
17	196	194	20	21
18	108	107	11	12
19	98	97	10	11
20	39	39	4	4
21	29	29	3	3
22	29	29	3	3
23	20	19	2	2
24	20	19	2	2

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	1950	4	207	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
2	8	1872	4	199	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
3	8	1833	4	195	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
4	8	1560	4	166	No	No	No	No	No	Yes	Yes	Yes	Yes	No
5	8	1482	4	157	No	No	No	No	No	Yes	Yes	Yes	Yes	No
6	8	1326	4	141	No	No	No	No	No	No	Yes	Yes	No	No
7	8	1228	4	130	No	No	No	No	No	No	No	Yes	No	No
8	8	1170	4	124	No	No	No	No	No	No	No	Yes	No	No
9	8	936	4	99	No	No	No	No	No	No	No	No	No	No
10	8	878	4	93	No	No	No	No	No	No	No	No	No	No
11	8	878	4	93	No	No	No	No	No	No	No	No	No	No
12	8	838	4	89	No	No	No	No	No	No	No	No	No	No
13	8	760	4	81	No	No	No	No	No	No	No	No	No	No
14	8	702	4	75	No	No	No	No	No	No	No	No	No	No
15	8	702	4	75	No	No	No	No	No	No	No	No	No	No
16	8	683	4	72	No	No	No	No	No	No	No	No	No	No
17	8	390	4	41	No	No	No	No	No	No	No	No	No	No
18	8	215	4	23	No	No	No	No	No	No	No	No	No	No
19	8	195	4	21	No	No	No	No	No	No	No	No	No	No
20	8	78	4	8	No	No	No	No	No	No	No	No	No	No
21	8	58	4	6	No	No	No	No	No	No	No	No	No	No
22	8	58	4	6	No	No	No	No	No	No	No	No	No	No
23	8	39	4	4	No	No	No	No	No	No	No	No	No	No
24	8	39	4	4	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	3	5	6	8	5	3

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	56.9	797.2
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	1:34	23:41
Delay Condition Met	No	Yes
Volume on Minor Street Approach During Same Hour	100	107
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	2157	2157
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 7: Access C & MC-85

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	829	609	82
2	796	585	79
3	779	572	77
4	663	487	66
5	630	463	62
6	564	414	56
7	522	384	52
8	497	365	49
9	398	292	39
10	373	274	37
11	373	274	37
12	356	262	35
13	323	238	32
14	298	219	30
15	298	219	30
16	290	213	29
17	166	122	16
18	91	67	9
19	83	61	8
20	33	24	3
21	25	18	2
22	25	18	2
23	17	12	2
24	17	12	2

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	1438	2	82	No	No	No	No	No	Yes	Yes	Yes	Yes	No
2	4	1381	2	79	No	No	No	No	No	No	Yes	Yes	No	No
3	4	1351	2	77	No	No	No	No	No	No	Yes	Yes	No	No
4	4	1150	2	66	No	No	No	No	No	No	No	Yes	No	No
5	4	1093	2	62	No	No	No	No	No	No	No	Yes	No	No
6	4	978	2	56	No	No	No	No	No	No	No	Yes	No	No
7	4	906	2	52	No	No	No	No	No	No	No	No	No	No
8	4	862	2	49	No	No	No	No	No	No	No	No	No	No
9	4	690	2	39	No	No	No	No	No	No	No	No	No	No
10	4	647	2	37	No	No	No	No	No	No	No	No	No	No
11	4	647	2	37	No	No	No	No	No	No	No	No	No	No
12	4	618	2	35	No	No	No	No	No	No	No	No	No	No
13	4	561	2	32	No	No	No	No	No	No	No	No	No	No
14	4	517	2	30	No	No	No	No	No	No	No	No	No	No
15	4	517	2	30	No	No	No	No	No	No	No	No	No	No
16	4	503	2	29	No	No	No	No	No	No	No	No	No	No
17	4	288	2	16	No	No	No	No	No	No	No	No	No	No
18	4	158	2	9	No	No	No	No	No	No	No	No	No	No
19	4	144	2	8	No	No	No	No	No	No	No	No	No	No
20	4	57	2	3	No	No	No	No	No	No	No	No	No	No
21	4	43	2	2	No	No	No	No	No	No	No	No	No	No
22	4	43	2	2	No	No	No	No	No	No	No	No	No	No
23	4	29	2	2	No	No	No	No	No	No	No	No	No	No
24	4	29	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	1	3	6	1	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	22.1
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:30
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	82
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1520
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 8: Access D & MC-85

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	815	587	44
2	782	564	42
3	766	552	41
4	652	470	35
5	619	446	33
6	554	399	30
7	513	370	28
8	489	352	26
9	391	282	21
10	367	264	20
11	367	264	20
12	350	252	19
13	318	229	17
14	293	211	16
15	293	211	16
16	285	205	15
17	163	117	9
18	90	65	5
19	82	59	4
20	33	23	2
21	24	18	1
22	24	18	1
23	16	12	1
24	16	12	1

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	1402	2	44	No	No	No	No	No	No	No	No	No	No
2	4	1346	2	42	No	No	No	No	No	No	No	No	No	No
3	4	1318	2	41	No	No	No	No	No	No	No	No	No	No
4	4	1122	2	35	No	No	No	No	No	No	No	No	No	No
5	4	1065	2	33	No	No	No	No	No	No	No	No	No	No
6	4	953	2	30	No	No	No	No	No	No	No	No	No	No
7	4	883	2	28	No	No	No	No	No	No	No	No	No	No
8	4	841	2	26	No	No	No	No	No	No	No	No	No	No
9	4	673	2	21	No	No	No	No	No	No	No	No	No	No
10	4	631	2	20	No	No	No	No	No	No	No	No	No	No
11	4	631	2	20	No	No	No	No	No	No	No	No	No	No
12	4	602	2	19	No	No	No	No	No	No	No	No	No	No
13	4	547	2	17	No	No	No	No	No	No	No	No	No	No
14	4	504	2	16	No	No	No	No	No	No	No	No	No	No
15	4	504	2	16	No	No	No	No	No	No	No	No	No	No
16	4	490	2	15	No	No	No	No	No	No	No	No	No	No
17	4	280	2	9	No	No	No	No	No	No	No	No	No	No
18	4	155	2	5	No	No	No	No	No	No	No	No	No	No
19	4	141	2	4	No	No	No	No	No	No	No	No	No	No
20	4	56	2	2	No	No	No	No	No	No	No	No	No	No
21	4	42	2	1	No	No	No	No	No	No	No	No	No	No
22	4	42	2	1	No	No	No	No	No	No	No	No	No	No
23	4	28	2	1	No	No	No	No	No	No	No	No	No	No
24	4	28	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	17.7
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:13
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	44
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1446
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 9: Access E & MC-85

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	806	577	16
2	774	554	15
3	758	542	15
4	645	462	13
5	613	439	12
6	548	392	11
7	508	364	10
8	484	346	10
9	387	277	8
10	363	260	7
11	363	260	7
12	347	248	7
13	314	225	6
14	290	208	6
15	290	208	6
16	282	202	6
17	161	115	3
18	89	63	2
19	81	58	2
20	32	23	1
21	24	17	0
22	24	17	0
23	16	12	0
24	16	12	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	1383	2	16	No	No	No	No	No	No	No	No	No	No
2	4	1328	2	15	No	No	No	No	No	No	No	No	No	No
3	4	1300	2	15	No	No	No	No	No	No	No	No	No	No
4	4	1107	2	13	No	No	No	No	No	No	No	No	No	No
5	4	1052	2	12	No	No	No	No	No	No	No	No	No	No
6	4	940	2	11	No	No	No	No	No	No	No	No	No	No
7	4	872	2	10	No	No	No	No	No	No	No	No	No	No
8	4	830	2	10	No	No	No	No	No	No	No	No	No	No
9	4	664	2	8	No	No	No	No	No	No	No	No	No	No
10	4	623	2	7	No	No	No	No	No	No	No	No	No	No
11	4	623	2	7	No	No	No	No	No	No	No	No	No	No
12	4	595	2	7	No	No	No	No	No	No	No	No	No	No
13	4	539	2	6	No	No	No	No	No	No	No	No	No	No
14	4	498	2	6	No	No	No	No	No	No	No	No	No	No
15	4	498	2	6	No	No	No	No	No	No	No	No	No	No
16	4	484	2	6	No	No	No	No	No	No	No	No	No	No
17	4	276	2	3	No	No	No	No	No	No	No	No	No	No
18	4	152	2	2	No	No	No	No	No	No	No	No	No	No
19	4	139	2	2	No	No	No	No	No	No	No	No	No	No
20	4	55	2	1	No	No	No	No	No	No	No	No	No	No
21	4	41	2	0	No	No	No	No	No	No	No	No	No	No
22	4	41	2	0	No	No	No	No	No	No	No	No	No	No
23	4	28	2	0	No	No	No	No	No	No	No	No	No	No
24	4	28	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	19.6
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:05
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	16
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1399
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 10: Access F & MC-85

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	806	549	38
2	774	527	36
3	758	516	36
4	645	439	30
5	613	417	29
6	548	373	26
7	508	346	24
8	484	329	23
9	387	264	18
10	363	247	17
11	363	247	17
12	347	236	16
13	314	214	15
14	290	198	14
15	290	198	14
16	282	192	13
17	161	110	8
18	89	60	4
19	81	55	4
20	32	22	2
21	24	16	1
22	24	16	1
23	16	11	1
24	16	11	1

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	1355	2	38	No	No	No	No	No	No	No	No	No	No
2	4	1301	2	36	No	No	No	No	No	No	No	No	No	No
3	4	1274	2	36	No	No	No	No	No	No	No	No	No	No
4	4	1084	2	30	No	No	No	No	No	No	No	No	No	No
5	4	1030	2	29	No	No	No	No	No	No	No	No	No	No
6	4	921	2	26	No	No	No	No	No	No	No	No	No	No
7	4	854	2	24	No	No	No	No	No	No	No	No	No	No
8	4	813	2	23	No	No	No	No	No	No	No	No	No	No
9	4	651	2	18	No	No	No	No	No	No	No	No	No	No
10	4	610	2	17	No	No	No	No	No	No	No	No	No	No
11	4	610	2	17	No	No	No	No	No	No	No	No	No	No
12	4	583	2	16	No	No	No	No	No	No	No	No	No	No
13	4	528	2	15	No	No	No	No	No	No	No	No	No	No
14	4	488	2	14	No	No	No	No	No	No	No	No	No	No
15	4	488	2	14	No	No	No	No	No	No	No	No	No	No
16	4	474	2	13	No	No	No	No	No	No	No	No	No	No
17	4	271	2	8	No	No	No	No	No	No	No	No	No	No
18	4	149	2	4	No	No	No	No	No	No	No	No	No	No
19	4	136	2	4	No	No	No	No	No	No	No	No	No	No
20	4	54	2	2	No	No	No	No	No	No	No	No	No	No
21	4	40	2	1	No	No	No	No	No	No	No	No	No	No
22	4	40	2	1	No	No	No	No	No	No	No	No	No	No
23	4	27	2	1	No	No	No	No	No	No	No	No	No	No
24	4	27	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	14.8
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:09
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	38
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1393
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 11: Cotton Lane & Access A

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	N	S	E	W
1	941	825	98	78
2	903	792	94	75
3	885	776	92	73
4	753	660	78	62
5	715	627	74	59
6	640	561	67	53
7	593	520	62	49
8	565	495	59	47
9	452	396	47	37
10	423	371	44	35
11	423	371	44	35
12	405	355	42	34
13	367	322	38	30
14	339	297	35	28
15	339	297	35	28
16	329	289	34	27
17	188	165	20	16
18	104	91	11	9
19	94	83	10	8
20	38	33	4	3
21	28	25	3	2
22	28	25	3	2
23	19	17	2	2
24	19	17	2	2

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	1766	4	176	No	No	No	No	No	Yes	Yes	Yes	No	No
2	8	1695	4	169	No	No	No	No	No	Yes	Yes	Yes	No	No
3	8	1661	4	165	No	No	No	No	No	Yes	Yes	Yes	No	No
4	8	1413	4	140	No	No	No	No	No	No	Yes	Yes	No	No
5	8	1342	4	133	No	No	No	No	No	No	Yes	Yes	No	No
6	8	1201	4	120	No	No	No	No	No	No	No	Yes	No	No
7	8	1113	4	111	No	No	No	No	No	No	No	Yes	No	No
8	8	1060	4	106	No	No	No	No	No	No	No	Yes	No	No
9	8	848	4	84	No	No	No	No	No	No	No	No	No	No
10	8	794	4	79	No	No	No	No	No	No	No	No	No	No
11	8	794	4	79	No	No	No	No	No	No	No	No	No	No
12	8	760	4	76	No	No	No	No	No	No	No	No	No	No
13	8	689	4	68	No	No	No	No	No	No	No	No	No	No
14	8	636	4	63	No	No	No	No	No	No	No	No	No	No
15	8	636	4	63	No	No	No	No	No	No	No	No	No	No
16	8	618	4	61	No	No	No	No	No	No	No	No	No	No
17	8	353	4	36	No	No	No	No	No	No	No	No	No	No
18	8	195	4	20	No	No	No	No	No	No	No	No	No	No
19	8	177	4	18	No	No	No	No	No	No	No	No	No	No
20	8	71	4	7	No	No	No	No	No	No	No	No	No	No
21	8	53	4	5	No	No	No	No	No	No	No	No	No	No
22	8	53	4	5	No	No	No	No	No	No	No	No	No	No
23	8	36	4	4	No	No	No	No	No	No	No	No	No	No
24	8	36	4	4	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	3	5	8	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	16.3	353.2
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:26	7:39
Delay Condition Met	No	Yes
Volume on Minor Street Approach During Same Hour	98	78
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	1942	1942
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 13: Access G & MC 85

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	833	574	28
2	800	551	27
3	783	540	26
4	666	459	22
5	633	436	21
6	566	390	19
7	525	362	18
8	500	344	17
9	400	276	13
10	375	258	13
11	375	258	13
12	358	247	12
13	325	224	11
14	300	207	10
15	300	207	10
16	292	201	10
17	167	115	6
18	92	63	3
19	83	57	3
20	33	23	1
21	25	17	1
22	25	17	1
23	17	11	1
24	17	11	1

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1407	1	28	No	No	No	No	No	No	No	No	No	No
2	3	1351	1	27	No	No	No	No	No	No	No	No	No	No
3	3	1323	1	26	No	No	No	No	No	No	No	No	No	No
4	3	1125	1	22	No	No	No	No	No	No	No	No	No	No
5	3	1069	1	21	No	No	No	No	No	No	No	No	No	No
6	3	956	1	19	No	No	No	No	No	No	No	No	No	No
7	3	887	1	18	No	No	No	No	No	No	No	No	No	No
8	3	844	1	17	No	No	No	No	No	No	No	No	No	No
9	3	676	1	13	No	No	No	No	No	No	No	No	No	No
10	3	633	1	13	No	No	No	No	No	No	No	No	No	No
11	3	633	1	13	No	No	No	No	No	No	No	No	No	No
12	3	605	1	12	No	No	No	No	No	No	No	No	No	No
13	3	549	1	11	No	No	No	No	No	No	No	No	No	No
14	3	507	1	10	No	No	No	No	No	No	No	No	No	No
15	3	507	1	10	No	No	No	No	No	No	No	No	No	No
16	3	493	1	10	No	No	No	No	No	No	No	No	No	No
17	3	282	1	6	No	No	No	No	No	No	No	No	No	No
18	3	155	1	3	No	No	No	No	No	No	No	No	No	No
19	3	140	1	3	No	No	No	No	No	No	No	No	No	No
20	3	56	1	1	No	No	No	No	No	No	No	No	No	No
21	3	42	1	1	No	No	No	No	No	No	No	No	No	No
22	3	42	1	1	No	No	No	No	No	No	No	No	No	No
23	3	28	1	1	No	No	No	No	No	No	No	No	No	No
24	3	28	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	12.9
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:06
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	28
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1435
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 16: Access H & MC 85

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	813	569	33
2	780	546	32
3	764	535	31
4	650	455	26
5	618	432	25
6	553	387	22
7	512	358	21
8	488	341	20
9	390	273	16
10	366	256	15
11	366	256	15
12	350	245	14
13	317	222	13
14	293	205	12
15	293	205	12
16	285	199	12
17	163	114	7
18	89	63	4
19	81	57	3
20	33	23	1
21	24	17	1
22	24	17	1
23	16	11	1
24	16	11	1

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	1382	2	33	No	No	No	No	No	No	No	No	No	No
2	4	1326	2	32	No	No	No	No	No	No	No	No	No	No
3	4	1299	2	31	No	No	No	No	No	No	No	No	No	No
4	4	1105	2	26	No	No	No	No	No	No	No	No	No	No
5	4	1050	2	25	No	No	No	No	No	No	No	No	No	No
6	4	940	2	22	No	No	No	No	No	No	No	No	No	No
7	4	870	2	21	No	No	No	No	No	No	No	No	No	No
8	4	829	2	20	No	No	No	No	No	No	No	No	No	No
9	4	663	2	16	No	No	No	No	No	No	No	No	No	No
10	4	622	2	15	No	No	No	No	No	No	No	No	No	No
11	4	622	2	15	No	No	No	No	No	No	No	No	No	No
12	4	595	2	14	No	No	No	No	No	No	No	No	No	No
13	4	539	2	13	No	No	No	No	No	No	No	No	No	No
14	4	498	2	12	No	No	No	No	No	No	No	No	No	No
15	4	498	2	12	No	No	No	No	No	No	No	No	No	No
16	4	484	2	12	No	No	No	No	No	No	No	No	No	No
17	4	277	2	7	No	No	No	No	No	No	No	No	No	No
18	4	152	2	4	No	No	No	No	No	No	No	No	No	No
19	4	138	2	3	No	No	No	No	No	No	No	No	No	No
20	4	56	2	1	No	No	No	No	No	No	No	No	No	No
21	4	41	2	1	No	No	No	No	No	No	No	No	No	No
22	4	41	2	1	No	No	No	No	No	No	No	No	No	No
23	4	27	2	1	No	No	No	No	No	No	No	No	No	No
24	4	27	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	34.6
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:19
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	33
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1415
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 17: Cotton Lane & Access I

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	691	892	98	43
2	663	856	94	41
3	650	838	92	40
4	553	714	78	34
5	525	678	74	33
6	470	607	67	29
7	435	562	62	27
8	415	535	59	26
9	332	428	47	21
10	311	401	44	19
11	311	401	44	19
12	297	384	42	18
13	269	348	38	17
14	249	321	35	15
15	249	321	35	15
16	242	312	34	15
17	138	178	20	9
18	76	98	11	5
19	69	89	10	4
20	28	36	4	2
21	21	27	3	1
22	21	27	3	1
23	14	18	2	1
24	14	18	2	1

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	1583	4	141	No	No	No	No	No	Yes	Yes	Yes	No	No
2	8	1519	4	135	No	No	No	No	No	Yes	Yes	Yes	No	No
3	8	1488	4	132	No	No	No	No	No	Yes	Yes	Yes	No	No
4	8	1267	4	112	No	No	No	No	No	No	Yes	Yes	No	No
5	8	1203	4	107	No	No	No	No	No	No	Yes	Yes	No	No
6	8	1077	4	96	No	No	No	No	No	No	No	Yes	No	No
7	8	997	4	89	No	No	No	No	No	No	No	Yes	No	No
8	8	950	4	85	No	No	No	No	No	No	No	Yes	No	No
9	8	760	4	68	No	No	No	No	No	No	No	No	No	No
10	8	712	4	63	No	No	No	No	No	No	No	No	No	No
11	8	712	4	63	No	No	No	No	No	No	No	No	No	No
12	8	681	4	60	No	No	No	No	No	No	No	No	No	No
13	8	617	4	55	No	No	No	No	No	No	No	No	No	No
14	8	570	4	50	No	No	No	No	No	No	No	No	No	No
15	8	570	4	50	No	No	No	No	No	No	No	No	No	No
16	8	554	4	49	No	No	No	No	No	No	No	No	No	No
17	8	316	4	29	No	No	No	No	No	No	No	No	No	No
18	8	174	4	16	No	No	No	No	No	No	No	No	No	No
19	8	158	4	14	No	No	No	No	No	No	No	No	No	No
20	8	64	4	6	No	No	No	No	No	No	No	No	No	No
21	8	48	4	4	No	No	No	No	No	No	No	No	No	No
22	8	48	4	4	No	No	No	No	No	No	No	No	No	No
23	8	32	4	3	No	No	No	No	No	No	No	No	No	No
24	8	32	4	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	3	5	8	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	14.3	105.9
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:23	1:15
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	98	43
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	1724	1724
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 3: Cotton Lane & Elwood Street

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	2357	2104	98	78
2	2263	2020	94	75
3	2216	1978	92	73
4	1886	1683	78	62
5	1791	1599	74	59
6	1603	1431	67	53
7	1485	1326	62	49
8	1414	1262	59	47
9	1131	1010	47	37
10	1061	947	44	35
11	1061	947	44	35
12	1014	905	42	34
13	919	821	38	30
14	849	757	35	28
15	849	757	35	28
16	825	736	34	27
17	471	421	20	16
18	259	231	11	9
19	236	210	10	8
20	94	84	4	3
21	71	63	3	2
22	71	63	3	2
23	47	42	2	2
24	47	42	2	2

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	5	4461	4	176	No	No	No	No	No	Yes	Yes	Yes	Yes	No
2	5	4283	4	169	No	No	No	No	No	Yes	Yes	Yes	Yes	No
3	5	4194	4	165	No	No	No	No	No	Yes	Yes	Yes	Yes	No
4	5	3569	4	140	No	No	No	No	No	No	Yes	Yes	No	No
5	5	3390	4	133	No	No	No	No	No	No	Yes	Yes	No	No
6	5	3034	4	120	No	No	No	No	No	No	No	Yes	No	No
7	5	2811	4	111	No	No	No	No	No	No	No	Yes	No	No
8	5	2676	4	106	No	No	No	No	No	No	No	Yes	No	No
9	5	2141	4	84	No	No	No	No	No	No	No	No	No	No
10	5	2008	4	79	No	No	No	No	No	No	No	No	No	No
11	5	2008	4	79	No	No	No	No	No	No	No	No	No	No
12	5	1919	4	76	No	No	No	No	No	No	No	No	No	No
13	5	1740	4	68	No	No	No	No	No	No	No	No	No	No
14	5	1606	4	63	No	No	No	No	No	No	No	No	No	No
15	5	1606	4	63	No	No	No	No	No	No	No	No	No	No
16	5	1561	4	61	No	No	No	No	No	No	No	No	No	No
17	5	892	4	36	No	No	No	No	No	No	No	No	No	No
18	5	490	4	20	No	No	No	No	No	No	No	No	No	No
19	5	446	4	18	No	No	No	No	No	No	No	No	No	No
20	5	178	4	7	No	No	No	No	No	No	No	No	No	No
21	5	134	4	5	No	No	No	No	No	No	No	No	No	No
22	5	134	4	5	No	No	No	No	No	No	No	No	No	No
23	5	89	4	4	No	No	No	No	No	No	No	No	No	No
24	5	89	4	4	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	3	5	8	3	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	10000	10000
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	272:13	216:40
Delay Condition Met	Yes	Yes
Volume on Minor Street Approach During Same Hour	98	78
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	4637	4637
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 5: Cotton Lane & Access B

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E, W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	N	S	E	W
1	1616	1701	185	105
2	1551	1633	178	101
3	1519	1599	174	99
4	1293	1361	148	84
5	1228	1293	141	80
6	1099	1157	126	71
7	1018	1072	117	66
8	970	1021	111	63
9	776	816	89	50
10	727	765	83	47
11	727	765	83	47
12	695	731	80	45
13	630	663	72	41
14	582	612	67	38
15	582	612	67	38
16	566	595	65	37
17	323	340	37	21
18	178	187	20	12
19	162	170	19	11
20	65	68	7	4
21	48	51	6	3
22	48	51	6	3
23	32	34	4	2
24	32	34	4	2

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	3317	4	290	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	8	3184	4	279	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	8	3118	4	273	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	8	2654	4	232	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	8	2521	4	221	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	8	2256	4	197	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	8	2090	4	183	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	8	1991	4	174	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
9	8	1592	4	139	No	No	No	No	No	Yes	Yes	Yes	Yes	No
10	8	1492	4	130	No	No	No	No	No	Yes	Yes	Yes	Yes	No
11	8	1492	4	130	No	No	No	No	No	Yes	Yes	Yes	Yes	No
12	8	1426	4	125	No	No	No	No	No	Yes	Yes	Yes	No	No
13	8	1293	4	113	No	No	No	No	No	No	Yes	Yes	No	No
14	8	1194	4	105	No	No	No	No	No	No	No	Yes	No	No
15	8	1194	4	105	No	No	No	No	No	No	No	Yes	No	No
16	8	1161	4	102	No	No	No	No	No	No	No	Yes	No	No
17	8	663	4	58	No	No	No	No	No	No	No	No	No	No
18	8	365	4	32	No	No	No	No	No	No	No	No	No	No
19	8	332	4	30	No	No	No	No	No	No	No	No	No	No
20	8	133	4	11	No	No	No	No	No	No	No	No	No	No
21	8	99	4	9	No	No	No	No	No	No	No	No	No	No
22	8	99	4	9	No	No	No	No	No	No	No	No	No	No
23	8	66	4	6	No	No	No	No	No	No	No	No	No	No
24	8	66	4	6	No	No	No	No	No	No	No	No	No	No
Hours Met					0	3	5	7	8	12	13	16	11	8

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	2776.9	7898.5
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	142:42	230:22
Delay Condition Met	Yes	Yes
Volume on Minor Street Approach During Same Hour	185	105
High Minor Volume Condition Met	Yes	No
Total Entering Volume on All Approaches During Same Hour	3607	3607
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	Yes	No
Warrant Met for Intersection	**Yes**	

Signal Warrants Report For Intersection 11: Cotton Lane & Access A

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	N	S	E	W
1	1150	1228	193	77
2	1104	1179	185	74
3	1081	1154	181	72
4	920	982	154	62
5	874	933	147	59
6	782	835	131	52
7	725	774	122	49
8	690	737	116	46
9	552	589	93	37
10	518	553	87	35
11	518	553	87	35
12	495	528	83	33
13	449	479	75	30
14	414	442	69	28
15	414	442	69	28
16	403	430	68	27
17	230	246	39	15
18	127	135	21	8
19	115	123	19	8
20	46	49	8	3
21	35	37	6	2
22	35	37	6	2
23	23	25	4	2
24	23	25	4	2

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	2378	4	270	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	8	2283	4	259	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	8	2235	4	253	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	8	1902	4	216	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	8	1807	4	206	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
6	8	1617	4	183	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
7	8	1499	4	171	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
8	8	1427	4	162	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
9	8	1141	4	130	No	No	No	No	No	Yes	Yes	Yes	No	No
10	8	1071	4	122	No	No	No	No	No	Yes	Yes	Yes	No	No
11	8	1071	4	122	No	No	No	No	No	Yes	Yes	Yes	No	No
12	8	1023	4	116	No	No	No	No	No	Yes	Yes	Yes	No	No
13	8	928	4	105	No	No	No	No	No	No	Yes	Yes	No	No
14	8	856	4	97	No	No	No	No	No	No	No	Yes	No	No
15	8	856	4	97	No	No	No	No	No	No	No	Yes	No	No
16	8	833	4	95	No	No	No	No	No	No	No	Yes	No	No
17	8	476	4	54	No	No	No	No	No	No	No	No	No	No
18	8	262	4	29	No	No	No	No	No	No	No	No	No	No
19	8	238	4	27	No	No	No	No	No	No	No	No	No	No
20	8	95	4	11	No	No	No	No	No	No	No	No	No	No
21	8	72	4	8	No	No	No	No	No	No	No	No	No	No
22	8	72	4	8	No	No	No	No	No	No	No	No	No	No
23	8	48	4	6	No	No	No	No	No	No	No	No	No	No
24	8	48	4	6	No	No	No	No	No	No	No	No	No	No
Hours Met					0	3	5	8	8	12	13	16	8	4

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	252.4	981.7
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	13:31	20:59
Delay Condition Met	Yes	Yes
Volume on Minor Street Approach During Same Hour	193	77
High Minor Volume Condition Met	Yes	No
Total Entering Volume on All Approaches During Same Hour	2648	2648
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	Yes	No
Warrant Met for Intersection	**Yes**	

Signal Warrants Report For Intersection 17: Cotton Lane & Access I

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	929	976	194	43
2	892	937	186	41
3	873	917	182	40
4	743	781	155	34
5	706	742	147	33
6	632	664	132	29
7	585	615	122	27
8	557	586	116	26
9	446	468	93	21
10	418	439	87	19
11	418	439	87	19
12	399	420	83	18
13	362	381	76	17
14	334	351	70	15
15	334	351	70	15
16	325	342	68	15
17	186	195	39	9
18	102	107	21	5
19	93	98	19	4
20	37	39	8	2
21	28	29	6	1
22	28	29	6	1
23	19	20	4	1
24	19	20	4	1

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	8	1905	4	237	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	8	1829	4	227	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	8	1790	4	222	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	8	1524	4	189	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
5	8	1448	4	180	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
6	8	1296	4	161	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
7	8	1200	4	149	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No
8	8	1143	4	142	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No
9	8	914	4	114	No	No	No	No	No	Yes	Yes	Yes	No	No
10	8	857	4	106	No	No	No	No	No	Yes	Yes	Yes	No	No
11	8	857	4	106	No	No	No	No	No	Yes	Yes	Yes	No	No
12	8	819	4	101	No	No	No	No	No	Yes	Yes	Yes	No	No
13	8	743	4	93	No	No	No	No	No	No	Yes	Yes	No	No
14	8	685	4	85	No	No	No	No	No	No	Yes	Yes	No	No
15	8	685	4	85	No	No	No	No	No	No	Yes	Yes	No	No
16	8	667	4	83	No	No	No	No	No	No	No	Yes	No	No
17	8	381	4	48	No	No	No	No	No	No	No	No	No	No
18	8	209	4	26	No	No	No	No	No	No	No	No	No	No
19	8	191	4	23	No	No	No	No	No	No	No	No	No	No
20	8	76	4	10	No	No	No	No	No	No	No	No	No	No
21	8	57	4	7	No	No	No	No	No	No	No	No	No	No
22	8	57	4	7	No	No	No	No	No	No	No	No	No	No
23	8	39	4	5	No	No	No	No	No	No	No	No	No	No
24	8	39	4	5	No	No	No	No	No	No	No	No	No	No
Hours Met					0	3	5	8	8	12	15	16	6	3

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	19.7	422
Number of Lanes on Minor Street Approach	2	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	1:03	5:02
Delay Condition Met	No	Yes
Volume on Minor Street Approach During Same Hour	194	43
High Minor Volume Condition Met	Yes	No
Total Entering Volume on All Approaches During Same Hour	2142	2142
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

APPENDIX C
Capacity Analyses

Intersection Level Of Service Report
Intersection 1: Cotton Lane & MC-85

Control Type:	Signalized	Delay (sec / veh):	24.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.240

Intersection Setup

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	1	0	0	2	0	1	2	0	1
Pocket Length [ft]	340.00	100.00	340.00	400.00	100.00	100.00	430.00	100.00	430.00	360.00	100.00	275.00
Speed [mph]	45.00			45.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Base Volume Input [veh/h]	5	299	52	54	200	64	118	306	2	34	158	32
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	25	0	0	32	0	0	1	0	0	15
Total Hourly Volume [veh/h]	5	299	27	54	200	32	118	306	1	34	158	17
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	81	7	15	54	9	32	83	0	9	43	5
Total Analysis Volume [veh/h]	5	325	29	59	217	35	128	333	1	37	172	18
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	10	15	0	10	15	0	10	15	0	10	15	0
Maximum Green [s]	20	30	0	20	30	0	20	30	0	20	30	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Split [s]	15	22	0	15	22	0	21	28	0	15	22	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	6.50	6.50	5.00	6.50	6.50	5.00	7.00	7.00	5.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	4.50	4.50	3.00	4.50	4.50	3.00	5.00	5.00	3.00	5.00	5.00
g_i, Effective Green Time [s]	1	25	25	7	31	31	9	19	19	6	15	15
g / C, Green / Cycle	0.01	0.31	0.31	0.09	0.39	0.39	0.12	0.23	0.23	0.07	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.00	0.10	0.02	0.03	0.05	0.05	0.04	0.10	0.00	0.01	0.04	0.01
s, saturation flow rate [veh/h]	3292	3389	1513	1695	3389	1660	3292	3389	1513	3292	4849	1513
c, Capacity [veh/h]	50	1051	469	158	1316	644	391	786	351	238	899	280
d1, Uniform Delay [s]	39.01	21.14	19.49	34.22	15.81	15.85	32.46	26.29	23.72	34.97	27.64	26.98
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.86	0.76	0.25	1.46	0.20	0.43	0.48	0.36	0.00	0.30	0.10	0.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.31	0.06	0.37	0.13	0.13	0.33	0.42	0.00	0.16	0.19	0.06
d, Delay for Lane Group [s/veh]	39.87	21.90	19.74	35.68	16.01	16.28	32.94	26.65	23.73	35.27	27.74	27.08
Lane Group LOS	D	C	B	D	B	B	C	C	C	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.05	2.23	0.38	1.08	0.92	0.98	1.07	2.45	0.01	0.33	0.88	0.27
50th-Percentile Queue Length [ft/ln]	1.30	55.70	9.53	27.04	22.91	24.44	26.65	61.37	0.33	8.26	21.88	6.83
95th-Percentile Queue Length [veh/ln]	0.09	4.01	0.69	1.95	1.65	1.76	1.92	4.42	0.02	0.59	1.58	0.49
95th-Percentile Queue Length [ft/ln]	2.34	100.26	17.15	48.67	41.23	44.00	47.97	110.47	0.60	14.86	39.39	12.29

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.87	21.90	19.74	35.68	16.07	16.28	32.94	26.65	23.73	35.27	27.74	27.08
Movement LOS	D	C	B	D	B	B	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	21.98			19.82			28.39			28.92		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	24.82											
Intersection LOS	C											
Intersection V/C	0.240											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.696	2.881	2.868
Crosswalk LOS	F	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	388	388	525	375
d_b, Bicycle Delay [s]	26.00	26.00	21.76	26.41
l_b,int, Bicycle LOS Score for Intersection	1.876	1.748	1.942	1.693
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Cotton Lane & Commerce Drive

Control Type:	Signalized	Delay (sec / veh):	1.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.244

Intersection Setup

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	260.00	250.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		Yes	

Volumes

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Base Volume Input [veh/h]	392	17	45	338	2	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	10	0	0	0	5
Total Hourly Volume [veh/h]	392	7	45	338	2	6
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	107	2	12	92	1	2
Total Analysis Volume [veh/h]	426	8	49	367	2	7
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	6	0	0	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	25	0	0	25	5	0
Maximum Green [s]	45	0	0	45	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.5	0.0	0.0	1.5	1.5	0.0
Split [s]	70	0	0	70	10	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	0.0	0.0	3.0	3.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	69	69	69	69	1	1
g / C, Green / Cycle	0.86	0.86	0.86	0.86	0.01	0.01
(v / s)_i Volume / Saturation Flow Rate	0.24	0.01	0.05	0.21	0.00	0.00
s, saturation flow rate [veh/h]	1780	1513	915	1780	1695	1513
c, Capacity [veh/h]	1535	1305	810	1535	22	19
d1, Uniform Delay [s]	1.00	0.76	1.91	0.96	39.04	39.18
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.45	0.01	0.14	0.37	1.82	11.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.01	0.06	0.24	0.09	0.36
d, Delay for Lane Group [s/veh]	1.45	0.77	2.05	1.32	40.86	50.20
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.19	0.00	0.12	0.16	0.05	0.19
50th-Percentile Queue Length [ft/ln]	4.80	0.08	2.96	3.92	1.23	4.83
95th-Percentile Queue Length [veh/ln]	0.35	0.01	0.21	0.28	0.09	0.35
95th-Percentile Queue Length [ft/ln]	8.63	0.14	5.33	7.06	2.21	8.70

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	1.45	0.77	2.05	1.32	40.86	50.20
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	1.44		1.41		48.13	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	1.91					
Intersection LOS	A					
Intersection V/C	0.244					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	31.51
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.039
Crosswalk LOS	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	40.00	40.00	40.00
I_b,int, Bicycle LOS Score for Intersection	4.865	4.819	4.132
Bicycle LOS	E	E	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Cotton Lane & Elwood Street

Control Type:	Two-way stop	Delay (sec / veh):	24.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.176

Intersection Setup

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	325.00	250.00	100.00	100.00	250.00	100.00	100.00	220.00	100.00	100.00
Speed [mph]	45.00			45.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Base Volume Input [veh/h]	6	438	15	23	333	8	36	3	16	12	6	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	438	15	23	333	8	36	3	16	12	6	22
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	119	4	6	90	2	10	1	4	3	2	6
Total Analysis Volume [veh/h]	7	476	16	25	362	9	39	3	17	13	7	24
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.02	0.00	0.00	0.18	0.01	0.03	0.06	0.03	0.04
d_M, Delay for Movement [s/veh]	8.14	0.00	0.00	8.54	0.00	0.00	24.69	19.33	10.67	21.38	19.43	11.83
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.02	0.00	0.00	0.07	0.00	0.00	0.62	0.12	0.12	0.18	0.22	0.22
95th-Percentile Queue Length [ft/ln]	0.46	0.00	0.00	1.84	0.00	0.00	15.60	2.90	2.90	4.41	5.50	5.50
d_A, Approach Delay [s/veh]	0.11			0.54			20.38			15.86		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	2.17											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 4: Sarival Ave & MC-85

Control Type:	Signalized	Delay (sec / veh):	7.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.252

Intersection Setup

Name	Sarival Ave		MC-85		MC-85	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	1
Pocket Length [ft]	100.00	100.00	230.00	100.00	100.00	140.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Sarival Ave		MC-85		MC-85	
Base Volume Input [veh/h]	68	46	61	341	179	81
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	23	0	0	0	40
Total Hourly Volume [veh/h]	68	23	61	341	179	41
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	6	17	93	49	11
Total Analysis Volume [veh/h]	74	25	66	371	195	45
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	7	0	0	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	10	0	0	30	30	0
Maximum Green [s]	35	0	0	60	60	0
Amber [s]	4.0	0.0	0.0	4.5	4.5	0.0
All red [s]	2.0	0.0	0.0	2.0	2.0	0.0
Split [s]	21	0	0	59	59	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	4.0	0.0	0.0	4.5	4.5	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	6.00	6.00	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.50	4.50	4.50	4.50
g_i, Effective Green Time [s]	9	9	59	59	59	59
g / C, Green / Cycle	0.11	0.11	0.73	0.73	0.73	0.73
(v / s)_i Volume / Saturation Flow Rate	0.04	0.02	0.06	0.21	0.11	0.03
s, saturation flow rate [veh/h]	1695	1513	1130	1780	1780	1513
c, Capacity [veh/h]	191	170	849	1302	1302	1107
d1, Uniform Delay [s]	32.99	32.08	4.58	3.65	3.24	2.98
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.29	0.39	0.18	0.55	0.24	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.15	0.08	0.28	0.15	0.04
d, Delay for Lane Group [s/veh]	34.27	32.47	4.76	4.20	3.49	3.05
Lane Group LOS	C	C	A	A	A	A
Critical Lane Group	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.32	0.43	0.30	1.32	0.61	0.13
50th-Percentile Queue Length [ft/ln]	33.01	10.75	7.57	33.03	15.31	3.31
95th-Percentile Queue Length [veh/ln]	2.38	0.77	0.54	2.38	1.10	0.24
95th-Percentile Queue Length [ft/ln]	59.42	19.35	13.62	59.46	27.56	5.95

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.27	32.47	4.76	4.20	3.49	3.05
Movement LOS	C	C	A	A	A	A
d_A, Approach Delay [s/veh]	33.82		4.28		3.41	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	7.78					
Intersection LOS	A					
Intersection V/C	0.252					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.196	2.267	2.346
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	40.00	40.00	40.00
l_b,int, Bicycle LOS Score for Intersection	4.132	4.853	4.594
Bicycle LOS	D	E	E

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 1: Cotton Lane & MC-85

Control Type:	Signalized	Delay (sec / veh):	25.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.228

Intersection Setup

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	1	0	0	2	0	1	2	0	1
Pocket Length [ft]	340.00	100.00	340.00	400.00	100.00	100.00	430.00	100.00	430.00	360.00	100.00	275.00
Speed [mph]	45.00			45.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Base Volume Input [veh/h]	7	197	30	49	318	164	148	250	6	35	376	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	15	0	0	82	0	0	3	0	0	61
Total Hourly Volume [veh/h]	7	197	15	49	318	82	148	250	3	35	376	62
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	54	4	13	86	22	40	68	1	10	102	17
Total Analysis Volume [veh/h]	8	214	16	53	346	89	161	272	3	38	409	67
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	10	15	0	10	15	0	10	15	0	10	15	0
Maximum Green [s]	20	30	0	20	30	0	20	30	0	20	30	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Split [s]	15	22	0	15	22	0	15	24	0	19	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	6.50	6.50	5.00	6.50	6.50	5.00	7.00	7.00	5.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	4.50	4.50	3.00	4.50	4.50	3.00	5.00	5.00	3.00	5.00	5.00
g_i, Effective Green Time [s]	2	25	25	7	30	30	10	19	19	6	15	15
g / C, Green / Cycle	0.02	0.31	0.31	0.09	0.38	0.38	0.12	0.24	0.24	0.07	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.00	0.06	0.01	0.03	0.09	0.09	0.05	0.08	0.00	0.01	0.08	0.04
s, saturation flow rate [veh/h]	3292	3389	1513	1695	3389	1605	3292	3389	1513	3292	4849	1513
c, Capacity [veh/h]	74	1047	467	150	1271	602	403	802	358	242	910	284
d1, Uniform Delay [s]	38.47	20.48	19.39	34.45	17.17	17.24	32.54	25.46	23.46	34.89	28.94	27.73
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.63	0.44	0.14	1.41	0.42	0.94	0.64	0.25	0.01	0.30	0.35	0.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.20	0.03	0.35	0.23	0.24	0.40	0.34	0.01	0.16	0.45	0.24
d, Delay for Lane Group [s/veh]	39.11	20.92	19.52	35.86	17.59	18.18	33.18	25.70	23.47	35.19	29.29	28.15
Lane Group LOS	D	C	B	D	B	B	C	C	C	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.08	1.41	0.21	0.98	1.72	1.79	1.35	1.95	0.04	0.34	2.19	1.05
50th-Percentile Queue Length [ft/ln]	1.99	35.32	5.22	24.38	42.97	44.81	33.77	48.64	1.00	8.46	54.80	26.29
95th-Percentile Queue Length [veh/ln]	0.14	2.54	0.38	1.76	3.09	3.23	2.43	3.50	0.07	0.61	3.95	1.89
95th-Percentile Queue Length [ft/ln]	3.58	63.57	9.39	43.89	77.34	80.66	60.78	87.54	1.80	15.24	98.65	47.32

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.11	20.92	19.52	35.86	17.68	18.18	33.18	25.70	23.47	35.19	29.29	28.15
Movement LOS	D	C	B	D	B	B	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	21.44			19.75			28.45			29.58		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	25.27											
Intersection LOS	C											
Intersection V/C	0.228											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.827	2.955	2.978
Crosswalk LOS	F	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	388	388	425	525
d_b, Bicycle Delay [s]	26.00	26.00	24.81	21.76
l_b,int, Bicycle LOS Score for Intersection	1.768	1.873	1.922	1.876
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Cotton Lane & Commerce Drive

Control Type:	Signalized	Delay (sec / veh):	10.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.354

Intersection Setup

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	260.00	250.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		Yes	

Volumes

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Base Volume Input [veh/h]	399	103	222	433	83	238
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	75	0	0	0	115
Total Hourly Volume [veh/h]	399	28	222	433	83	123
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	108	8	60	118	23	33
Total Analysis Volume [veh/h]	434	30	241	471	90	134
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	6	0	0	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	25	0	0	25	5	0
Maximum Green [s]	45	0	0	45	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.5	0.0	0.0	1.5	1.5	0.0
Split [s]	30	0	0	30	50	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	0.0	0.0	3.0	3.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	61	61	61	61	9	9
g / C, Green / Cycle	0.76	0.76	0.76	0.76	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.24	0.02	0.27	0.26	0.05	0.09
s, saturation flow rate [veh/h]	1780	1513	908	1780	1695	1513
c, Capacity [veh/h]	1347	1145	674	1347	200	179
d1, Uniform Delay [s]	3.13	2.41	6.95	3.22	32.87	34.15
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.63	0.04	1.48	0.72	1.57	6.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.03	0.36	0.35	0.45	0.75
d, Delay for Lane Group [s/veh]	3.76	2.45	8.43	3.93	34.44	40.32
Lane Group LOS	A	A	A	A	C	D
Critical Lane Group	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.29	0.07	1.71	1.44	1.68	2.77
50th-Percentile Queue Length [ft/ln]	32.13	1.73	42.68	35.94	41.94	69.16
95th-Percentile Queue Length [veh/ln]	2.31	0.12	3.07	2.59	3.02	4.98
95th-Percentile Queue Length [ft/ln]	57.83	3.12	76.83	64.70	75.50	124.48

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.76	2.45	8.43	3.93	34.44	40.32
Movement LOS	A	A	A	A	C	D
d_A, Approach Delay [s/veh]	3.68		5.45		37.96	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	10.07					
Intersection LOS	B					
Intersection V/C	0.354					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	31.51
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.665
Crosswalk LOS	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	40.00	40.00	40.00
l_b,int, Bicycle LOS Score for Intersection	5.022	5.307	4.132
Bicycle LOS	F	F	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Cotton Lane & Elwood Street

Control Type:	Two-way stop	Delay (sec / veh):	98.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.372

Intersection Setup

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	325.00	250.00	100.00	100.00	250.00	100.00	100.00	220.00	100.00	100.00
Speed [mph]	45.00			45.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Base Volume Input [veh/h]	15	621	30	71	654	26	20	14	10	15	9	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	621	30	71	654	26	20	14	10	15	9	44
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	169	8	19	178	7	5	4	3	4	2	12
Total Analysis Volume [veh/h]	16	675	33	77	711	28	22	15	11	16	10	48
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.00	0.09	0.01	0.00	0.37	0.17	0.03	0.25	0.11	0.11
d_M, Delay for Movement [s/veh]	9.37	0.00	0.00	9.58	0.00	0.00	98.35	51.68	20.05	78.06	47.92	16.81
Movement LOS	A	A	A	A	A	A	F	F	C	F	E	C
95th-Percentile Queue Length [veh/ln]	0.06	0.00	0.00	0.29	0.00	0.00	1.37	0.69	0.69	0.86	0.81	0.81
95th-Percentile Queue Length [ft/ln]	1.45	0.00	0.00	7.32	0.00	0.00	34.32	17.22	17.22	21.59	20.18	20.18
d_A, Approach Delay [s/veh]	0.21			0.90			65.82			34.26		
Approach LOS	A			A			F			D		
d_I, Intersection Delay [s/veh]	3.96											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 4: Sarival Ave & MC-85

Control Type:	Signalized	Delay (sec / veh):	13.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.420

Intersection Setup

Name	Sarival Ave		MC-85		MC-85	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	1
Pocket Length [ft]	100.00	100.00	230.00	100.00	100.00	140.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Sarival Ave		MC-85		MC-85	
Base Volume Input [veh/h]	227	92	70	254	449	228
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	45	0	0	0	115
Total Hourly Volume [veh/h]	227	47	70	254	449	113
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	62	13	19	69	122	31
Total Analysis Volume [veh/h]	247	51	76	276	488	123
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	7	0	0	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	10	0	0	30	30	0
Maximum Green [s]	35	0	0	60	60	0
Amber [s]	4.0	0.0	0.0	4.5	4.5	0.0
All red [s]	2.0	0.0	0.0	2.0	2.0	0.0
Split [s]	43	0	0	37	37	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	4.0	0.0	0.0	4.5	4.5	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	6.00	6.00	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.50	4.50	4.50	4.50
g_i, Effective Green Time [s]	14	14	54	54	54	54
g / C, Green / Cycle	0.18	0.18	0.67	0.67	0.67	0.67
(v / s)_i Volume / Saturation Flow Rate	0.15	0.03	0.09	0.16	0.27	0.08
s, saturation flow rate [veh/h]	1695	1513	864	1780	1780	1513
c, Capacity [veh/h]	298	266	532	1189	1189	1011
d1, Uniform Delay [s]	31.88	28.19	10.47	5.23	6.08	4.81
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.84	0.35	0.56	0.46	1.05	0.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.19	0.14	0.23	0.41	0.12
d, Delay for Lane Group [s/veh]	37.72	28.53	11.03	5.68	7.13	5.05
Lane Group LOS	D	C	B	A	A	A
Critical Lane Group	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.76	0.81	0.69	1.39	2.90	0.58
50th-Percentile Queue Length [ft/ln]	119.02	20.16	17.24	34.82	72.57	14.46
95th-Percentile Queue Length [veh/ln]	8.34	1.45	1.24	2.51	5.22	1.04
95th-Percentile Queue Length [ft/ln]	208.48	36.28	31.04	62.68	130.62	26.02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.72	28.53	11.03	5.68	7.13	5.05
Movement LOS	D	C	B	A	A	A
d_A, Approach Delay [s/veh]	36.15		6.84		6.71	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	13.70					
Intersection LOS	B					
Intersection V/C	0.420					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.428	2.392	2.708
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	40.00	40.00	40.00
l_b,int, Bicycle LOS Score for Intersection	4.132	4.713	5.330
Bicycle LOS	D	E	F

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 1: Cotton Lane & MC-85

Control Type:	Signalized	Delay (sec / veh):	28.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.397

Intersection Setup

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	1	0	0	2	0	1	2	0	1
Pocket Length [ft]	340.00	100.00	340.00	400.00	100.00	100.00	430.00	100.00	430.00	360.00	100.00	275.00
Speed [mph]	45.00			45.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Base Volume Input [veh/h]	5	299	52	54	200	64	118	306	2	34	158	32
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	326	0	0	326	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	25	0	0	32	0	0	1	0	0	15
Total Hourly Volume [veh/h]	6	690	38	66	570	46	144	373	1	41	193	24
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	188	10	18	155	13	39	101	0	11	52	7
Total Analysis Volume [veh/h]	7	750	41	72	620	50	157	405	1	45	210	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	10	15	0	10	15	0	10	15	0	10	15	0
Maximum Green [s]	20	30	0	20	30	0	20	30	0	20	30	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Split [s]	41	53	0	15	27	0	17	26	0	16	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	5.00	6.50	6.50	5.00	6.50	6.50	5.00	7.00	7.00	5.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	4.50	4.50	3.00	4.50	4.50	3.00	5.00	5.00	3.00	5.00	5.00
g_i, Effective Green Time [s]	2	53	53	9	60	60	10	17	17	8	15	15
g / C, Green / Cycle	0.02	0.48	0.48	0.08	0.54	0.54	0.09	0.16	0.16	0.07	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.00	0.22	0.03	0.04	0.13	0.13	0.05	0.12	0.00	0.01	0.04	0.02
s, saturation flow rate [veh/h]	3292	3389	1513	1695	3389	1713	3292	3389	1513	3292	4849	1513
c, Capacity [veh/h]	60	1620	723	138	1834	927	298	537	240	225	662	207
d1, Uniform Delay [s]	53.16	19.24	15.40	48.51	13.33	13.34	47.80	44.24	38.98	48.41	42.88	41.74
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.86	0.95	0.15	3.05	0.31	0.63	1.45	2.17	0.01	0.43	0.27	0.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.46	0.06	0.52	0.24	0.24	0.53	0.75	0.00	0.20	0.32	0.13
d, Delay for Lane Group [s/veh]	54.01	20.20	15.55	51.55	13.64	13.97	49.24	46.41	38.99	48.84	43.15	42.01
Lane Group LOS	D	C	B	D	B	B	D	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.10	6.17	0.55	1.96	2.74	2.88	2.02	5.15	0.02	0.58	1.69	0.62
50th-Percentile Queue Length [ft/ln]	2.50	154.29	13.78	49.01	68.60	72.08	50.50	128.80	0.55	14.54	42.18	15.49
95th-Percentile Queue Length [veh/ln]	0.18	10.25	0.99	3.53	4.94	5.19	3.64	8.87	0.04	1.05	3.04	1.12
95th-Percentile Queue Length [ft/ln]	4.50	256.14	24.81	88.22	123.48	129.74	90.91	221.86	1.00	26.18	75.92	27.88

Movement, Approach, & Intersection Results

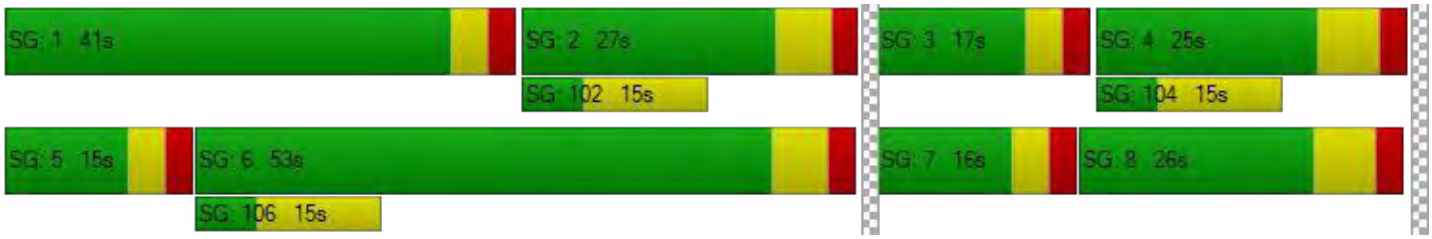
d_M, Delay for Movement [s/veh]	54.01	20.20	15.55	51.55	13.73	13.97	49.24	46.41	38.99	48.84	43.15	42.01
Movement LOS	D	C	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	20.25			17.42			47.19			43.96		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	28.53											
Intersection LOS	C											
Intersection V/C	0.397											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	46.37	46.37	46.37
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.929	2.931	2.911
Crosswalk LOS	F	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	845	373	345	327
d_b, Bicycle Delay [s]	18.33	36.41	37.64	38.47
l_b,int, Bicycle LOS Score for Intersection	2.239	1.985	2.025	1.722
Bicycle LOS	B	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Cotton Lane & Commerce Drive

Control Type:	Signalized	Delay (sec / veh):	3.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.497

Intersection Setup

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	260.00	250.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		Yes	

Volumes

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Base Volume Input [veh/h]	392	17	45	338	2	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	326	0	0	326	0	0
Right-Turn on Red Volume [veh/h]	0	10	0	0	0	5
Total Hourly Volume [veh/h]	804	11	55	738	2	8
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	218	3	15	201	1	2
Total Analysis Volume [veh/h]	874	12	60	802	2	9
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	25	0	0	25	5	0
Maximum Green [s]	45	0	0	45	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.5	0.0	0.0	1.5	1.5	0.0
Split [s]	70	0	0	70	10	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	0.0	0.0	3.0	3.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	69	69	69	69	1	1
g / C, Green / Cycle	0.86	0.86	0.86	0.86	0.01	0.01
(v / s)_i Volume / Saturation Flow Rate	0.49	0.01	0.10	0.45	0.00	0.01
s, saturation flow rate [veh/h]	1780	1513	604	1780	1695	1513
c, Capacity [veh/h]	1531	1301	505	1531	25	23
d1, Uniform Delay [s]	1.54	0.79	4.33	1.43	38.87	39.05
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.55	0.01	0.48	1.29	1.30	10.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.01	0.12	0.52	0.08	0.40
d, Delay for Lane Group [s/veh]	3.09	0.80	4.81	2.71	40.17	49.92
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.66	0.00	0.32	0.55	0.05	0.24
50th-Percentile Queue Length [ft/ln]	16.50	0.12	8.06	13.67	1.18	6.02
95th-Percentile Queue Length [veh/ln]	1.19	0.01	0.58	0.98	0.09	0.43
95th-Percentile Queue Length [ft/ln]	29.70	0.21	14.51	24.61	2.13	10.83

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.09	0.80	4.81	2.71	40.17	49.92
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	3.06		2.86		48.14	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	3.24					
Intersection LOS	A					
Intersection V/C	0.497					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	31.51
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.060
Crosswalk LOS	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	40.00	40.00	40.00
l_b,int, Bicycle LOS Score for Intersection	5.611	5.555	4.132
Bicycle LOS	F	F	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Cotton Lane & Elwood Street

Control Type:	Two-way stop	Delay (sec / veh):	303.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.080

Intersection Setup

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	325.00	250.00	100.00	100.00	250.00	100.00	100.00	220.00	100.00	100.00
Speed [mph]	45.00			45.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Base Volume Input [veh/h]	6	438	15	23	333	8	36	3	16	12	6	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	326	0	0	326	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	860	18	28	732	10	44	4	20	15	7	27
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	234	5	8	199	3	12	1	5	4	2	7
Total Analysis Volume [veh/h]	8	935	20	30	796	11	48	4	22	16	8	29
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.04	0.01	0.00	1.08	0.06	0.06	0.32	0.11	0.09
d_M, Delay for Movement [s/veh]	9.59	0.00	0.00	10.40	0.00	0.00	303.15	58.74	16.70	109.32	60.64	21.54
Movement LOS	A	A	A	B	A	A	F	F	C	F	F	C
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.13	0.00	0.00	4.47	0.39	0.39	1.13	0.74	0.74
95th-Percentile Queue Length [ft/ln]	0.76	0.00	0.00	3.37	0.00	0.00	111.76	9.69	9.69	28.24	18.55	18.55
d_A, Approach Delay [s/veh]	0.08			0.37			204.78			53.94		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	9.55											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 4: Sarival Ave & MC-85

Control Type:	Signalized	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.307

Intersection Setup

Name	Sarival Ave		MC-85		MC-85	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	1
Pocket Length [ft]	100.00	100.00	230.00	100.00	100.00	140.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Sarival Ave		MC-85		MC-85	
Base Volume Input [veh/h]	68	46	61	341	179	81
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	40
Total Hourly Volume [veh/h]	83	56	74	416	218	59
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	15	20	113	59	16
Total Analysis Volume [veh/h]	90	61	80	452	237	64
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	7	0	0	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	10	0	0	30	30	0
Maximum Green [s]	35	0	0	60	60	0
Amber [s]	4.0	0.0	0.0	4.5	4.5	0.0
All red [s]	2.0	0.0	0.0	2.0	2.0	0.0
Split [s]	21	0	0	59	59	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	4.0	0.0	0.0	4.5	4.5	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	6.00	6.00	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.50	4.50	4.50	4.50
g_i, Effective Green Time [s]	10	10	58	58	58	58
g / C, Green / Cycle	0.12	0.12	0.72	0.72	0.72	0.72
(v / s)_i Volume / Saturation Flow Rate	0.05	0.04	0.07	0.25	0.13	0.04
s, saturation flow rate [veh/h]	1695	1513	1088	1780	1780	1513
c, Capacity [veh/h]	207	184	800	1285	1285	1093
d1, Uniform Delay [s]	32.62	32.19	5.20	4.15	3.57	3.23
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.45	1.04	0.25	0.76	0.32	0.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.33	0.10	0.35	0.18	0.06
d, Delay for Lane Group [s/veh]	34.07	33.23	5.45	4.90	3.88	3.33
Lane Group LOS	C	C	A	A	A	A
Critical Lane Group	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.60	1.07	0.41	1.85	0.82	0.21
50th-Percentile Queue Length [ft/ln]	40.03	26.72	10.32	46.19	20.62	5.13
95th-Percentile Queue Length [veh/ln]	2.88	1.92	0.74	3.33	1.48	0.37
95th-Percentile Queue Length [ft/ln]	72.06	48.09	18.58	83.15	37.11	9.23

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.07	33.23	5.45	4.90	3.88	3.33
Movement LOS	C	C	A	A	A	A
d_A, Approach Delay [s/veh]	33.73		4.99		3.77	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	9.02					
Intersection LOS	A					
Intersection V/C	0.307					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.213	2.340	2.423
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	40.00	40.00	40.00
l_b,int, Bicycle LOS Score for Intersection	4.132	5.010	4.695
Bicycle LOS	D	F	E

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 1: Cotton Lane & MC-85

Control Type:	Signalized	Delay (sec / veh):	30.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.382

Intersection Setup

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	1	0	0	2	0	1	2	0	1
Pocket Length [ft]	340.00	100.00	340.00	400.00	100.00	100.00	430.00	100.00	430.00	360.00	100.00	275.00
Speed [mph]	45.00			45.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Base Volume Input [veh/h]	7	197	30	49	318	164	148	250	6	35	376	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	326	0	0	326	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	15	0	0	82	0	0	3	0	0	61
Total Hourly Volume [veh/h]	9	566	22	60	714	118	180	305	4	43	458	89
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	154	6	16	194	32	49	83	1	12	124	24
Total Analysis Volume [veh/h]	10	615	24	65	776	128	196	332	4	47	498	97
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	10	15	0	10	15	0	10	15	0	10	15	0
Maximum Green [s]	20	30	0	20	30	0	20	30	0	20	30	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Split [s]	27	48	0	15	36	0	20	32	0	15	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	5.00	6.50	6.50	5.00	6.50	6.50	5.00	7.00	7.00	5.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	4.50	4.50	3.00	4.50	4.50	3.00	5.00	5.00	3.00	5.00	5.00
g_i, Effective Green Time [s]	3	53	53	9	59	59	10	17	17	8	15	15
g / C, Green / Cycle	0.02	0.48	0.48	0.08	0.53	0.53	0.09	0.16	0.16	0.07	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.00	0.18	0.02	0.04	0.18	0.18	0.06	0.10	0.00	0.01	0.10	0.06
s, saturation flow rate [veh/h]	3292	3389	1513	1695	3389	1655	3292	3389	1513	3292	4849	1513
c, Capacity [veh/h]	81	1626	726	134	1810	884	300	536	239	230	663	207
d1, Uniform Delay [s]	52.51	18.19	15.13	48.55	14.55	14.57	48.35	43.25	39.11	48.30	45.69	43.81
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.67	0.67	0.08	2.72	0.50	1.03	2.42	1.18	0.03	0.43	1.74	1.65
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.38	0.03	0.49	0.33	0.34	0.65	0.62	0.02	0.20	0.75	0.47
d, Delay for Lane Group [s/veh]	53.19	18.87	15.22	51.27	15.05	15.61	50.77	44.42	39.14	48.74	47.43	45.45
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.14	4.78	0.32	1.76	4.06	4.13	2.58	4.08	0.09	0.61	4.33	2.46
50th-Percentile Queue Length [ft/ln]	3.48	119.48	7.94	44.08	101.40	103.23	64.43	102.10	2.22	15.17	108.23	61.50
95th-Percentile Queue Length [veh/ln]	0.25	8.36	0.57	3.17	7.30	7.43	4.64	7.35	0.16	1.09	7.74	4.43
95th-Percentile Queue Length [ft/ln]	6.27	209.11	14.29	79.35	182.53	185.82	115.97	183.78	4.00	27.31	193.53	110.70

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.19	18.87	15.22	51.27	15.17	15.61	50.77	44.42	39.14	48.74	47.43	45.45
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	19.26			17.65			46.72			47.23		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	30.36											
Intersection LOS	C											
Intersection V/C	0.382											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	46.37	46.37	46.37
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.073	3.021	3.032
Crosswalk LOS	F	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	755	536	455	364
d_b, Bicycle Delay [s]	21.33	29.46	32.84	36.82
l_b,int, Bicycle LOS Score for Intersection	2.107	2.138	2.001	1.946
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Cotton Lane & Commerce Drive

Control Type:	Signalized	Delay (sec / veh):	18.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.647

Intersection Setup

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	260.00	250.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		Yes	

Volumes

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Base Volume Input [veh/h]	399	103	222	433	83	238
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	326	0	0	326	0	0
Right-Turn on Red Volume [veh/h]	0	75	0	0	0	115
Total Hourly Volume [veh/h]	812	51	271	854	101	175
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	221	14	74	232	27	48
Total Analysis Volume [veh/h]	883	55	295	928	110	190
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	25	0	0	25	5	0
Maximum Green [s]	45	0	0	45	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.5	0.0	0.0	1.5	1.5	0.0
Split [s]	30	0	0	30	50	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	0.0	0.0	3.0	3.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	58	58	58	58	13	13
g / C, Green / Cycle	0.72	0.72	0.72	0.72	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.50	0.04	0.49	0.52	0.06	0.13
s, saturation flow rate [veh/h]	1780	1513	598	1780	1695	1513
c, Capacity [veh/h]	1278	1086	327	1278	267	238
d1, Uniform Delay [s]	6.33	3.31	27.26	6.66	30.41	32.52
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.08	0.09	30.00	3.63	1.02	6.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.05	0.90	0.73	0.41	0.80
d, Delay for Lane Group [s/veh]	9.41	3.40	57.27	10.29	31.43	38.58
Lane Group LOS	A	A	E	B	C	D
Critical Lane Group	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	5.81	0.18	8.23	6.51	1.94	3.85
50th-Percentile Queue Length [ft/ln]	145.27	4.51	205.86	162.69	48.56	96.23
95th-Percentile Queue Length [veh/ln]	9.76	0.32	12.94	10.69	3.50	6.93
95th-Percentile Queue Length [ft/ln]	244.10	8.11	323.52	267.28	87.41	173.22

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	9.41	3.40	57.27	10.29	31.43	38.58
Movement LOS	A	A	E	B	C	D
d_A, Approach Delay [s/veh]	9.06		21.62		35.96	
Approach LOS	A		C		D	
d_I, Intersection Delay [s/veh]	18.58					
Intersection LOS	B					
Intersection V/C	0.647					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	31.51
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.792
Crosswalk LOS	F	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	40.00	40.00	40.00
l_b,int, Bicycle LOS Score for Intersection	5.804	6.150	4.132
Bicycle LOS	F	F	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Cotton Lane & Elwood Street

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	325.00	250.00	100.00	100.00	250.00	100.00	100.00	220.00	100.00	100.00
Speed [mph]	45.00			45.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Base Volume Input [veh/h]	15	621	30	71	654	26	20	14	10	15	9	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	326	0	0	326	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	1083	37	87	1123	32	24	17	12	18	11	54
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	294	10	24	305	9	7	5	3	5	3	15
Total Analysis Volume [veh/h]	20	1177	40	95	1221	35	26	18	13	20	12	59
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.00	0.17	0.01	0.00	7.06	1.08	0.06	0.00	0.70	0.26
d_M, Delay for Movement [s/veh]	12.01	0.00	0.00	12.86	0.00	0.00	4572.36	519.45	319.81	10000.0	350.96	157.18
Movement LOS	B	A	A	B	A	A	F	F	F	F	F	F
95th-Percentile Queue Length [veh/ln]	0.12	0.00	0.00	0.62	0.00	0.00	4.81	3.67	3.67	4.26	4.98	4.98
95th-Percentile Queue Length [ft/ln]	2.91	0.00	0.00	15.41	0.00	0.00	120.36	91.68	91.68	106.51	124.45	124.45
d_A, Approach Delay [s/veh]	0.19			0.90			2322.62			2345.99		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	126.95											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 4: Sarival Ave & MC-85

Control Type:	Signalized	Delay (sec / veh):	15.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.512

Intersection Setup

Name	Sarival Ave		MC-85		MC-85	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	1
Pocket Length [ft]	100.00	100.00	230.00	100.00	100.00	140.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Sarival Ave		MC-85		MC-85	
Base Volume Input [veh/h]	227	92	70	254	449	228
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	115
Total Hourly Volume [veh/h]	277	112	85	310	547	163
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	75	30	23	84	149	44
Total Analysis Volume [veh/h]	301	122	92	337	595	177
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	7	0	0	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	10	0	0	30	30	0
Maximum Green [s]	35	0	0	60	60	0
Amber [s]	4.0	0.0	0.0	4.5	4.5	0.0
All red [s]	2.0	0.0	0.0	2.0	2.0	0.0
Split [s]	43	0	0	37	37	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	4.0	0.0	0.0	4.5	4.5	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	6.00	6.00	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.50	4.50	4.50	4.50
g_i, Effective Green Time [s]	17	17	51	51	51	51
g / C, Green / Cycle	0.21	0.21	0.63	0.63	0.63	0.63
(v / s)_i Volume / Saturation Flow Rate	0.18	0.08	0.12	0.19	0.33	0.12
s, saturation flow rate [veh/h]	1695	1513	783	1780	1780	1513
c, Capacity [veh/h]	356	318	418	1129	1129	959
d1, Uniform Delay [s]	30.43	27.22	15.34	6.63	8.07	6.08
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.52	0.76	1.21	0.68	1.76	0.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.38	0.22	0.30	0.53	0.18
d, Delay for Lane Group [s/veh]	35.94	27.98	16.55	7.30	9.83	6.51
Lane Group LOS	D	C	B	A	A	A
Critical Lane Group	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.68	1.93	1.12	2.11	4.63	1.03
50th-Percentile Queue Length [ft/ln]	142.02	48.22	27.90	52.74	115.79	25.69
95th-Percentile Queue Length [veh/ln]	9.59	3.47	2.01	3.80	8.16	1.85
95th-Percentile Queue Length [ft/ln]	239.74	86.80	50.21	94.93	204.03	46.25

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.94	27.98	16.55	7.30	9.83	6.51
Movement LOS	D	C	B	A	A	A
d_A, Approach Delay [s/veh]	33.65		9.29		9.07	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	15.53					
Intersection LOS	B					
Intersection V/C	0.512					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.460	2.495	2.843
Crosswalk LOS	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	40.00	40.00	40.00
l_b,int, Bicycle LOS Score for Intersection	4.132	4.840	5.596
Bicycle LOS	D	E	F

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 1: Cotton Lane & MC-85

Control Type:	Signalized	Delay (sec / veh):	32.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.525

Intersection Setup

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	1	0	0	2	0	1	2	0	1
Pocket Length [ft]	340.00	100.00	340.00	400.00	100.00	100.00	430.00	100.00	430.00	360.00	100.00	275.00
Speed [mph]	45.00			45.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Base Volume Input [veh/h]	5	299	52	54	200	64	118	306	2	34	158	32
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	21	119	26	51	590	98	62	47	85	129	25	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	326	0	0	326	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	25	0	0	32	0	0	1	0	0	15
Total Hourly Volume [veh/h]	27	809	64	117	1160	144	206	420	86	170	218	29
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	220	17	32	315	39	56	114	23	46	59	8
Total Analysis Volume [veh/h]	29	879	70	127	1261	157	224	457	93	185	237	32
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	10	15	0	10	15	0	10	15	0	10	15	0
Maximum Green [s]	20	30	0	20	30	0	20	30	0	20	30	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Split [s]	30	37	0	33	40	0	18	25	0	15	22	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	5.00	6.50	6.50	5.00	6.50	6.50	5.00	7.00	7.00	5.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	4.50	4.50	3.00	4.50	4.50	3.00	5.00	5.00	3.00	5.00	5.00
g_i, Effective Green Time [s]	6	50	50	10	54	54	10	17	17	10	17	17
g / C, Green / Cycle	0.05	0.45	0.45	0.09	0.49	0.49	0.09	0.15	0.15	0.09	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.01	0.26	0.05	0.07	0.28	0.28	0.07	0.13	0.06	0.06	0.05	0.02
s, saturation flow rate [veh/h]	3292	3389	1513	1695	3389	1681	3292	3389	1513	3292	4849	1513
c, Capacity [veh/h]	180	1527	682	157	1656	821	301	516	230	300	737	230
d1, Uniform Delay [s]	49.65	22.43	17.42	49.01	19.99	19.99	48.76	45.74	42.17	48.17	41.63	40.45
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.42	1.58	0.30	9.49	1.44	2.89	3.64	5.33	1.14	2.05	0.25	0.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.58	0.10	0.81	0.57	0.57	0.74	0.89	0.40	0.62	0.32	0.14
d, Delay for Lane Group [s/veh]	50.06	24.02	17.72	58.50	21.43	22.88	52.41	51.07	43.31	50.23	41.88	40.73
Lane Group LOS	D	C	B	E	C	C	D	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.38	8.18	1.03	3.73	8.26	8.53	3.01	6.16	2.24	2.46	1.87	0.75
50th-Percentile Queue Length [ft/ln]	9.53	204.51	25.68	93.35	206.54	213.18	75.20	154.08	56.05	61.50	46.84	18.70
95th-Percentile Queue Length [veh/ln]	0.69	12.87	1.85	6.72	12.98	13.32	5.41	10.23	4.04	4.43	3.37	1.35
95th-Percentile Queue Length [ft/ln]	17.16	321.78	46.23	168.04	324.38	332.91	135.37	255.86	100.89	110.70	84.31	33.67

Movement, Approach, & Intersection Results

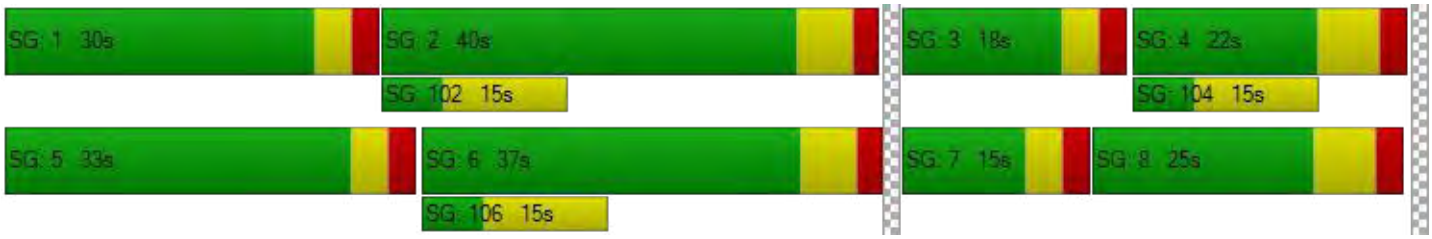
d_M, Delay for Movement [s/veh]	50.06	24.02	17.72	58.50	21.79	22.88	52.41	51.07	43.31	50.23	41.88	40.73
Movement LOS	D	C	B	E	C	C	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	24.34			24.92			50.53			45.20		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	32.51											
Intersection LOS	C											
Intersection V/C	0.525											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	46.37	46.37	46.37
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.174	3.013	2.968
Crosswalk LOS	F	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	555	609	327	273
d_b, Bicycle Delay [s]	28.73	26.60	38.47	41.02
l_b,int, Bicycle LOS Score for Intersection	2.387	2.427	2.199	1.818
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Cotton Lane & Commerce Drive

Control Type:	Signalized	Delay (sec / veh):	24.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.906

Intersection Setup

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	260.00	250.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		Yes	

Volumes

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Base Volume Input [veh/h]	392	17	45	338	2	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	182	4	0	736	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	326	0	0	326	0	0
Right-Turn on Red Volume [veh/h]	0	10	0	0	0	5
Total Hourly Volume [veh/h]	986	15	55	1474	6	8
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	268	4	15	401	2	2
Total Analysis Volume [veh/h]	1072	16	60	1602	7	9
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	25	0	0	25	5	0
Maximum Green [s]	45	0	0	45	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.5	0.0	0.0	1.5	1.5	0.0
Split [s]	79	0	0	79	11	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	0.0	0.0	3.0	3.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	78	78	78	78	2	2
g / C, Green / Cycle	0.87	0.87	0.87	0.87	0.02	0.02
(v / s)_i Volume / Saturation Flow Rate	0.60	0.01	0.12	0.90	0.00	0.01
s, saturation flow rate [veh/h]	1780	1513	501	1780	1695	1513
c, Capacity [veh/h]	1547	1315	397	1547	33	30
d1, Uniform Delay [s]	1.93	0.78	6.88	5.88	43.43	43.51
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.58	0.02	0.81	32.55	3.12	5.66
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.01	0.15	1.04	0.21	0.30
d, Delay for Lane Group [s/veh]	4.51	0.79	7.69	38.42	46.55	49.17
Lane Group LOS	A	A	A	F	D	D
Critical Lane Group	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	1.11	0.01	0.49	13.99	0.18	0.24
50th-Percentile Queue Length [ft/ln]	27.67	0.15	12.28	349.72	4.52	6.06
95th-Percentile Queue Length [veh/ln]	1.99	0.01	0.88	20.74	0.33	0.44
95th-Percentile Queue Length [ft/ln]	49.81	0.28	22.11	518.45	8.14	10.91

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	4.51	0.79	7.69	38.42	46.55	49.17
Movement LOS	A	A	A	F	D	D
d_A, Approach Delay [s/veh]	4.45		37.31		48.03	
Approach LOS	A		D		D	
d_I, Intersection Delay [s/veh]	24.45					
Intersection LOS	C					
Intersection V/C	0.906					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.069
Crosswalk LOS	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
l_b,int, Bicycle LOS Score for Intersection	5.944	6.875	4.132
Bicycle LOS	F	F	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Cotton Lane & Elwood Street

Control Type:	Two-way stop	Delay (sec / veh):	4,971.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	9.080

Intersection Setup

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	325.00	250.00	100.00	100.00	250.00	100.00	100.00	220.00	100.00	100.00
Speed [mph]	45.00			45.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Base Volume Input [veh/h]	6	438	15	23	333	8	36	3	16	12	6	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	174	2	0	725	0	0	0	8	3	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	326	0	0	326	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	1034	20	28	1457	10	44	4	28	18	7	27
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	281	5	8	396	3	12	1	8	5	2	7
Total Analysis Volume [veh/h]	14	1124	22	30	1584	11	48	4	30	20	8	29
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.00	0.05	0.02	0.00	9.08	0.26	0.23	3.21	0.51	0.12
d_M, Delay for Movement [s/veh]	14.46	0.00	0.00	11.45	0.00	0.00	4971.48	281.66	75.95	2122.27	304.51	91.35
Movement LOS	B	A	A	B	A	A	F	F	F	F	F	F
95th-Percentile Queue Length [veh/ln]	0.11	0.00	0.00	0.16	0.00	0.00	7.68	2.00	2.00	3.73	2.59	2.59
95th-Percentile Queue Length [ft/ln]	2.75	0.00	0.00	4.02	0.00	0.00	192.06	50.09	50.09	93.29	64.78	64.78
d_A, Approach Delay [s/veh]	0.17			0.21			2951.66			833.87		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	99.22											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 4: Sarival Ave & MC-85

Control Type:	Signalized	Delay (sec / veh):	9.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.353

Intersection Setup

Name	Sarival Ave		MC-85		MC-85	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	1
Pocket Length [ft]	100.00	100.00	230.00	100.00	100.00	140.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Sarival Ave		MC-85		MC-85	
Base Volume Input [veh/h]	68	46	61	341	179	81
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	41	22	49	124	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	40
Total Hourly Volume [veh/h]	83	97	96	465	342	59
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	26	26	126	93	16
Total Analysis Volume [veh/h]	90	105	104	505	372	64
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	7	0	0	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	10	0	0	30	30	0
Maximum Green [s]	35	0	0	60	60	0
Amber [s]	4.0	0.0	0.0	4.5	4.5	0.0
All red [s]	2.0	0.0	0.0	2.0	2.0	0.0
Split [s]	21	0	0	59	59	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	4.0	0.0	0.0	4.5	4.5	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	6.00	6.00	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.50	4.50	4.50	4.50
g_i, Effective Green Time [s]	10	10	58	58	58	58
g / C, Green / Cycle	0.12	0.12	0.72	0.72	0.72	0.72
(v / s)_i Volume / Saturation Flow Rate	0.05	0.07	0.11	0.28	0.21	0.04
s, saturation flow rate [veh/h]	1695	1513	962	1780	1780	1513
c, Capacity [veh/h]	211	188	684	1281	1281	1089
d1, Uniform Delay [s]	32.42	32.99	6.54	4.40	3.98	3.29
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.36	2.57	0.47	0.91	0.57	0.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.56	0.15	0.39	0.29	0.06
d, Delay for Lane Group [s/veh]	33.79	35.56	7.01	5.31	4.56	3.39
Lane Group LOS	C	D	A	A	A	A
Critical Lane Group	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.59	1.93	0.66	2.20	1.46	0.21
50th-Percentile Queue Length [ft/ln]	39.82	48.26	16.56	55.05	36.42	5.23
95th-Percentile Queue Length [veh/ln]	2.87	3.47	1.19	3.96	2.62	0.38
95th-Percentile Queue Length [ft/ln]	71.67	86.86	29.81	99.08	65.55	9.41

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.79	35.56	7.01	5.31	4.56	3.39
Movement LOS	C	D	A	A	A	A
d_A, Approach Delay [s/veh]	34.74		5.60		4.39	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	9.76					
Intersection LOS	A					
Intersection V/C	0.353					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.280	2.465	2.515
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	40.00	40.00	40.00
l_b,int, Bicycle LOS Score for Intersection	4.132	5.137	4.918
Bicycle LOS	D	F	E

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Cotton Lane & Access B

Control Type:	Signalized	Delay (sec / veh):	11.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.448

Intersection Setup

Name	Cotton Ln			Cotton Ln			Access A					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	200.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			15.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Cotton Ln			Cotton Ln			Access A					
Base Volume Input [veh/h]	0	356	0	0	236	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.0000	1.2189	1.0000	1.0000	1.2189	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	111	11	62	689	13	20	0	3	6	0	35
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	326	0	0	326	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	871	11	62	1303	13	20	0	3	6	0	35
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	237	3	17	354	4	5	0	1	2	0	10
Total Analysis Volume [veh/h]	20	947	12	67	1416	14	22	0	3	7	0	38
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	15	0	5	15	0	0	10	0	0	10	0
Maximum Green [s]	30	30	0	30	30	0	0	20	0	0	20	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	5.0	0.0	0.0	5.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	32	29	0	32	29	0	0	29	0	0	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	49	49	49	49	49	49	49	49	49	49
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	7.00	7.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	5.00	5.00	5.00	5.00
g_i, Effective Green Time [s]	31	23	23	31	25	25	5	5	5	5
g / C, Green / Cycle	0.63	0.47	0.47	0.63	0.50	0.50	0.09	0.09	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.04	0.28	0.01	0.09	0.42	0.01	0.02	0.00	0.01	0.03
s, saturation flow rate [veh/h]	544	3389	1513	785	3389	1513	1303	1513	1345	1513
c, Capacity [veh/h]	429	1577	704	594	1703	760	189	143	220	143
d1, Uniform Delay [s]	6.71	9.71	7.05	4.68	10.41	6.12	23.32	20.10	22.01	20.58
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.04	0.37	0.01	0.08	1.11	0.01	0.27	0.06	0.06	0.97
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.05	0.60	0.02	0.11	0.83	0.02	0.12	0.02	0.03	0.26
d, Delay for Lane Group [s/veh]	6.76	10.08	7.06	4.76	11.52	6.13	23.58	20.16	22.07	21.56
Lane Group LOS	A	B	A	A	B	A	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.03	2.51	0.05	0.12	4.14	0.05	0.26	0.03	0.07	0.41
50th-Percentile Queue Length [ft/ln]	0.87	62.67	1.16	2.90	103.56	1.18	6.47	0.81	1.84	10.13
95th-Percentile Queue Length [veh/ln]	0.06	4.51	0.08	0.21	7.46	0.08	0.47	0.06	0.13	0.73
95th-Percentile Queue Length [ft/ln]	1.57	112.81	2.09	5.22	186.41	2.12	11.64	1.47	3.31	18.24

Movement, Approach, & Intersection Results

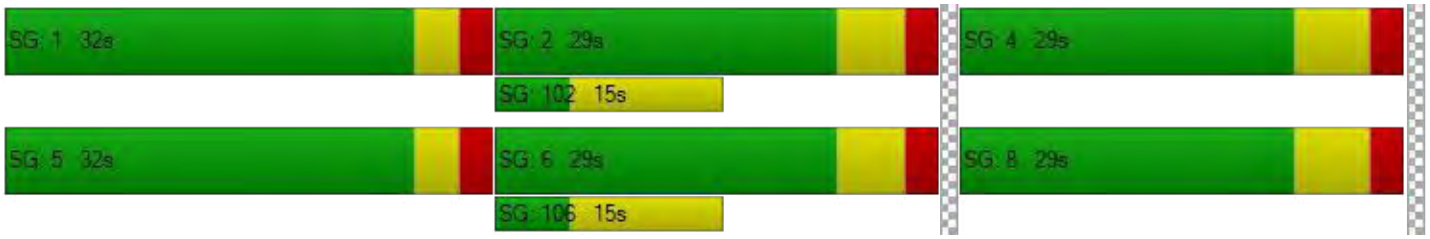
d_M, Delay for Movement [s/veh]	6.76	10.08	7.06	4.76	11.52	6.13	23.58	20.16	20.16	22.07	21.56	21.56
Movement LOS	A	B	A	A	B	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	9.97			11.17			23.17			21.64		
Approach LOS	A			B			C			C		
d_I, Intersection Delay [s/veh]	11.01											
Intersection LOS	B											
Intersection V/C	0.448											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.967	2.030
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	500	489	489
d_b, Bicycle Delay [s]	25.31	25.31	25.69	25.69
l_b,int, Bicycle LOS Score for Intersection	2.367	2.795	1.601	1.634
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Cotton Lane & Access J

Control Type:	Two-way stop	Delay (sec / veh):	15.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.025

Intersection Setup

Name	Cotton Ln		Cotton Ln		Access B	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00
Speed [mph]	45.00		45.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Cotton Ln		Cotton Ln		Access B	
Base Volume Input [veh/h]	0	356	236	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	8.00	2.00	8.00	2.00	2.00
Growth Factor	1.0000	1.2189	1.2189	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	166	756	48	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	326	326	0	0	0
Total Hourly Volume [veh/h]	0	926	1370	48	0	8
Peak Hour Factor	1.0000	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	252	372	13	0	2
Total Analysis Volume [veh/h]	0	1007	1489	52	0	9
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	15.35
Movement LOS		A	A	A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.08
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	1.94
d_A, Approach Delay [s/veh]	0.00		0.00		15.35	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.05					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 7: Access C & MC-85

Control Type:	Two-way stop	Delay (sec / veh):	27.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.030

Intersection Setup

Name	Access C		MC-85		MC-85	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	160.00	100.00	100.00
Speed [mph]	15.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Access C		MC-85		MC-85	
Base Volume Input [veh/h]	0	0	426	0	0	227
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	15.00	15.00	8.00	15.00	15.00	8.00
Growth Factor	1.0000	1.0000	1.2189	1.0000	1.0000	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	28	166	8	58	87
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	28	685	8	58	364
Peak Hour Factor	1.0000	0.9200	0.9200	0.9200	1.0000	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	8	186	2	15	99
Total Analysis Volume [veh/h]	5	30	745	9	58	396
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.08	0.01	0.00	0.07	0.00
d_M, Delay for Movement [s/veh]	27.54	14.90	0.00	0.00	9.85	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.09	0.25	0.00	0.00	0.23	0.00
95th-Percentile Queue Length [ft/ln]	2.34	6.16	0.00	0.00	5.84	0.00
d_A, Approach Delay [s/veh]	16.71		0.00		1.26	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.93					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 8: Access D & MC-85

Control Type:	Two-way stop	Delay (sec / veh):	24.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name	Access D		MC-85		MC-85	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	160.00	160.00	100.00
Speed [mph]	25.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Access D		MC-85		MC-85	
Base Volume Input [veh/h]	0	0	426	0	0	227
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	15.00	15.00	8.00	15.00	15.00	8.00
Growth Factor	1.0000	1.0000	1.2189	1.0000	1.0000	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	17	156	7	41	51
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	17	675	7	41	328
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	5	183	2	11	89
Total Analysis Volume [veh/h]	2	18	734	8	45	357
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.05	0.01	0.00	0.06	0.00
d_M, Delay for Movement [s/veh]	24.49	14.44	0.00	0.00	9.71	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.03	0.14	0.00	0.00	0.18	0.00
95th-Percentile Queue Length [ft/ln]	0.81	3.53	0.00	0.00	4.41	0.00
d_A, Approach Delay [s/veh]	15.44		0.00		1.09	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.64					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 9: Access E & MC-85

Control Type:	Two-way stop	Delay (sec / veh):	21.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Access E		MC-85		MC-85	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	160.00	160.00	100.00
Speed [mph]	25.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Access E		MC-85		MC-85	
Base Volume Input [veh/h]	0	0	426	0	0	227
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	15.00	15.00	8.00	15.00	15.00	8.00
Growth Factor	1.0000	1.0000	1.2189	1.0000	1.0000	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	3	160	4	10	42
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	3	679	4	10	319
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	185	1	3	87
Total Analysis Volume [veh/h]	1	3	738	4	11	347
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	21.70	14.13	0.00	0.00	9.51	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.02	0.00	0.00	0.04	0.00
95th-Percentile Queue Length [ft/ln]	0.35	0.57	0.00	0.00	1.03	0.00
d_A, Approach Delay [s/veh]	16.03		0.00		0.29	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.15					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 10: Access F & MC-85

Control Type:	Two-way stop	Delay (sec / veh):	19.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.032

Intersection Setup

Name	Access F		MC-85		MC-85	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	160.00	160.00	100.00
Speed [mph]	25.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Access F		MC-85		MC-85	
Base Volume Input [veh/h]	0	0	426	0	0	227
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	0.00	8.00
Growth Factor	1.0000	1.0000	1.2189	1.0000	1.0000	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	59	105	2	18	25
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	59	624	2	18	302
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	16	170	1	5	82
Total Analysis Volume [veh/h]	8	64	678	2	20	328
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.14	0.01	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	19.90	14.19	0.00	0.00	8.99	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.49	0.00	0.00	0.07	0.00
95th-Percentile Queue Length [ft/ln]	2.47	12.13	0.00	0.00	1.66	0.00
d_A, Approach Delay [s/veh]	14.82		0.00		0.52	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.13					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 11: Cotton Lane & Access A

Control Type:	Two-way stop	Delay (sec / veh):	647.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.252

Intersection Setup

Name				Cotton Ln								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Cotton Ln								
Base Volume Input [veh/h]	0	356	0	0	236	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	15.00	8.00	15.00	15.00	8.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Growth Factor	1.0000	1.2189	1.0000	1.0000	1.2189	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	82	8	256	365	77	18	0	0	1	0	40
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	326	0	0	326	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	842	8	256	979	77	18	0	0	1	0	40
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	229	2	70	266	21	5	0	0	0	0	11
Total Analysis Volume [veh/h]	2	915	9	278	1064	84	20	0	0	1	0	43
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.42	0.01	0.00	1.25	0.00	0.00	0.05	0.00	0.08
d_M, Delay for Movement [s/veh]	11.75	0.00	0.00	14.38	0.00	0.00	647.88	290.81	12.83	194.66	327.00	12.61
Movement LOS	B	A	A	B	A	A	F	F	B	F	F	B
95th-Percentile Queue Length [veh/ln]	0.01	0.00	0.00	2.09	0.00	0.00	3.00	0.00	0.00	0.15	0.27	0.27
95th-Percentile Queue Length [ft/ln]	0.28	0.00	0.00	52.36	0.00	0.00	75.04	0.00	0.00	3.72	6.78	6.78
d_A, Approach Delay [s/veh]	0.03			2.80			647.88			16.74		
Approach LOS	A			A			F			C		
d_I, Intersection Delay [s/veh]	7.33											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 13: Access G & MC 85

Control Type:	Two-way stop	Delay (sec / veh):	12.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.015

Intersection Setup

Name			MC-85		MC-85	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name			MC-85		MC-85	
Base Volume Input [veh/h]	0	0	412	0	0	224
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	15.00	15.00	8.00	15.00	15.00	8.00
Growth Factor	1.0000	1.0000	1.2189	1.0000	1.0000	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	72	53	0	159
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	6	574	53	0	432
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	156	14	0	117
Total Analysis Volume [veh/h]	0	7	624	58	0	470
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	12.90	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.05	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	1.15	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.90		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.08					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 16: Access H & MC 85

Control Type:	Two-way stop	Delay (sec / veh):	22.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name			MC-85		MC-85	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name			MC-85		MC-85	
Base Volume Input [veh/h]	0	0	412	0	0	224
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	15.00	15.00	8.00	15.00	15.00	8.00
Growth Factor	1.0000	1.0000	1.2189	1.0000	1.0000	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	2	69	9	12	153
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	2	571	9	12	426
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	1	155	2	3	116
Total Analysis Volume [veh/h]	7	2	621	10	13	463
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.01	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	22.28	12.78	0.00	0.00	9.10	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.01	0.00	0.00	0.04	0.00
95th-Percentile Queue Length [ft/ln]	2.51	0.32	0.00	0.00	1.11	0.00
d_A, Approach Delay [s/veh]	20.17		0.00		0.25	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.27					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 17: Cotton Lane & Access I

Control Type:	Two-way stop	Delay (sec / veh):	182.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.342

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	356	0	0	236	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	15.00	8.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Growth Factor	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	45	9	277	26	63	9	0	0	1	0	38
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	326	0	0	326	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	805	9	277	640	63	9	0	0	1	0	38
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	219	2	75	174	17	2	0	0	0	0	10
Total Analysis Volume [veh/h]	2	875	10	301	696	68	10	0	0	1	0	41
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.44	0.01	0.00	0.34	0.00	0.00	0.04	0.00	0.08
d_M, Delay for Movement [s/veh]	9.48	0.00	0.00	14.34	0.00	0.00	182.04	173.73	10.88	143.54	190.01	12.32
Movement LOS	A	A	A	B	A	A	F	F	B	F	F	B
95th-Percentile Queue Length [veh/ln]	0.01	0.00	0.00	2.25	0.00	0.00	1.08	0.00	0.00	0.11	0.25	0.25
95th-Percentile Queue Length [ft/ln]	0.19	0.00	0.00	56.33	0.00	0.00	26.91	0.00	0.00	2.79	6.23	6.23
d_A, Approach Delay [s/veh]	0.02			4.05			182.04			15.45		
Approach LOS	A			A			F			C		
d_I, Intersection Delay [s/veh]	3.40											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 1: Cotton Lane & MC-85

Control Type:	Signalized	Delay (sec / veh):	36.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.630

Intersection Setup

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	1	0	0	2	0	1	2	0	1
Pocket Length [ft]	340.00	100.00	340.00	400.00	100.00	100.00	430.00	100.00	430.00	360.00	100.00	275.00
Speed [mph]	45.00			45.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Base Volume Input [veh/h]	7	197	30	49	318	164	148	250	6	35	376	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	83	532	124	29	185	70	153	84	28	123	38	22
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	326	0	0	326	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	15	0	0	82	0	0	3	0	0	61
Total Hourly Volume [veh/h]	92	1098	146	89	899	188	333	389	32	166	496	111
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	298	40	24	244	51	90	106	9	45	135	30
Total Analysis Volume [veh/h]	100	1193	159	97	977	204	362	423	35	180	539	121
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	10	15	0	10	15	0	10	15	0	10	15	0
Maximum Green [s]	20	30	0	20	30	0	20	30	0	20	30	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Split [s]	31	52	0	17	38	0	19	26	0	15	22	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	5.00	6.50	6.50	5.00	6.50	6.50	5.00	7.00	7.00	5.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	4.50	4.50	3.00	4.50	4.50	3.00	5.00	5.00	3.00	5.00	5.00
g_i, Effective Green Time [s]	10	48	48	10	48	48	14	19	19	10	15	15
g / C, Green / Cycle	0.09	0.44	0.44	0.09	0.44	0.44	0.13	0.17	0.17	0.09	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.03	0.35	0.11	0.06	0.24	0.24	0.11	0.12	0.02	0.05	0.11	0.08
s, saturation flow rate [veh/h]	3292	3389	1513	1695	3389	1627	3292	3389	1513	3292	4849	1513
c, Capacity [veh/h]	288	1484	663	147	1483	712	417	577	258	300	653	204
d1, Uniform Delay [s]	47.29	26.83	19.43	48.68	22.77	22.78	47.16	43.29	38.79	48.10	46.37	44.80
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.72	4.71	0.86	4.92	1.40	2.91	5.56	1.82	0.24	1.92	2.71	2.74
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.80	0.24	0.66	0.54	0.54	0.87	0.73	0.14	0.60	0.82	0.59
d, Delay for Lane Group [s/veh]	48.01	31.54	20.28	53.60	24.17	25.69	52.72	45.11	39.02	50.02	49.08	47.54
Lane Group LOS	D	C	C	D	C	C	D	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.28	13.51	2.58	2.71	7.40	7.42	4.93	5.30	0.78	2.39	4.79	3.16
50th-Percentile Queue Length [ft/ln]	32.10	337.81	64.45	67.69	185.00	185.39	123.37	132.41	19.52	59.67	119.63	79.05
95th-Percentile Queue Length [veh/ln]	2.31	19.54	4.64	4.87	11.86	11.88	8.58	9.07	1.41	4.30	8.37	5.69
95th-Percentile Queue Length [ft/ln]	57.79	488.52	116.00	121.84	296.53	297.04	214.45	226.77	35.13	107.40	209.31	142.29

Movement, Approach, & Intersection Results

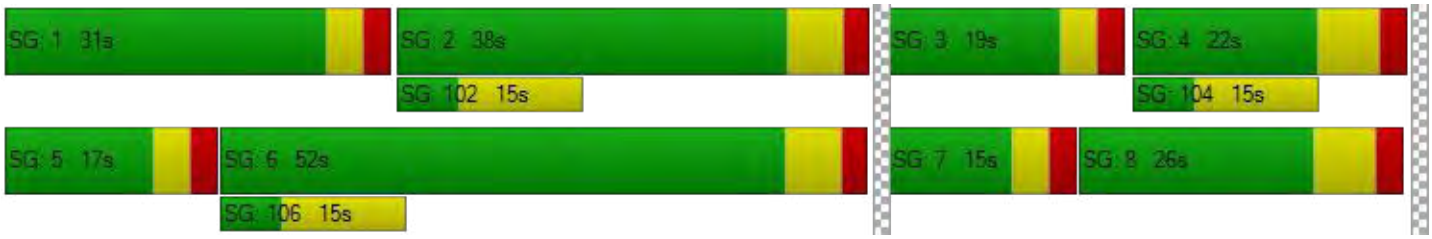
d_M, Delay for Movement [s/veh]	48.01	31.54	20.28	53.60	24.45	25.69	52.72	45.11	39.02	50.02	49.08	47.54
Movement LOS	D	C	C	D	C	C	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	31.44			26.86			48.21			49.06		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	36.61											
Intersection LOS	D											
Intersection V/C	0.630											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	46.37	46.37	46.37
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.336	3.131	3.115
Crosswalk LOS	F	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	827	573	345	273
d_b, Bicycle Delay [s]	18.91	28.01	37.64	41.02
l_b,int, Bicycle LOS Score for Intersection	2.770	2.308	2.239	2.055
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Cotton Lane & Commerce Drive

Control Type:	Signalized	Delay (sec / veh):	168.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.137

Intersection Setup

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	260.00	250.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		Yes	

Volumes

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Base Volume Input [veh/h]	399	103	222	433	83	238
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	694	12	0	273	11	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	326	0	0	326	0	0
Right-Turn on Red Volume [veh/h]	0	75	0	0	0	115
Total Hourly Volume [veh/h]	1506	63	271	1127	112	175
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	409	17	74	306	30	48
Total Analysis Volume [veh/h]	1637	68	295	1225	122	190
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	25	0	0	25	5	0
Maximum Green [s]	45	0	0	45	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.5	0.0	0.0	1.5	1.5	0.0
Split [s]	30	0	0	30	50	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	0.0	0.0	3.0	3.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	57	57	57	57	13	13
g / C, Green / Cycle	0.72	0.72	0.72	0.72	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.92	0.04	1.01	0.69	0.07	0.13
s, saturation flow rate [veh/h]	1780	1513	292	1780	1695	1513
c, Capacity [veh/h]	1277	1085	91	1277	267	239
d1, Uniform Delay [s]	11.31	3.35	40.04	10.25	30.61	32.49
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	132.96	0.11	1029.32	17.15	1.22	5.99
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.28	0.06	3.23	0.96	0.46	0.80
d, Delay for Lane Group [s/veh]	144.27	3.46	1069.35	27.40	31.83	38.48
Lane Group LOS	F	A	F	C	C	D
Critical Lane Group	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	59.37	0.23	27.86	16.69	2.18	3.84
50th-Percentile Queue Length [ft/ln]	1484.17	5.64	696.39	417.25	54.39	96.09
95th-Percentile Queue Length [veh/ln]	87.50	0.41	50.14	23.39	3.92	6.92
95th-Percentile Queue Length [ft/ln]	2187.48	10.15	1253.51	584.74	97.90	172.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	144.27	3.46	1069.35	27.40	31.83	38.48
Movement LOS	F	A	F	C	C	D
d_A, Approach Delay [s/veh]	138.65		229.62		35.88	
Approach LOS	F		F		D	
d_I, Intersection Delay [s/veh]	168.68					
Intersection LOS	F					
Intersection V/C	1.137					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	31.51
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.800
Crosswalk LOS	F	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	40.00	40.00	40.00
l_b,int, Bicycle LOS Score for Intersection	7.069	6.640	4.132
Bicycle LOS	F	F	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Cotton Lane & Elwood Street

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	325.00	250.00	100.00	100.00	250.00	100.00	100.00	220.00	100.00	100.00
Speed [mph]	45.00			45.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Base Volume Input [veh/h]	15	621	30	71	654	26	20	14	10	15	9	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	668	7	0	247	0	0	0	19	7	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	326	0	0	326	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	1751	44	87	1370	32	24	17	31	25	11	54
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	476	12	24	372	9	7	5	8	7	3	15
Total Analysis Volume [veh/h]	40	1903	48	95	1489	35	26	18	34	27	12	59
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.02	0.00	0.33	0.01	0.00	0.00	8.95	0.24	0.00	5.69	0.71
d_M, Delay for Movement [s/veh]	14.46	0.00	0.00	23.72	0.00	0.00	10000.0	6089.94	4325.20	10000.0	4477.96	2815.69
Movement LOS	B	A	A	C	A	A	F	F	F	F	F	F
95th-Percentile Queue Length [veh/ln]	0.31	0.00	0.00	1.41	0.00	0.00	5.15	8.18	8.18	5.29	10.12	10.12
95th-Percentile Queue Length [ft/ln]	7.84	0.00	0.00	35.23	0.00	0.00	128.63	204.43	204.43	132.23	252.98	252.98
d_A, Approach Delay [s/veh]	0.29			1.39			6624.05			4998.59		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	266.61											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 4: Sarival Ave & MC-85

Control Type:	Signalized	Delay (sec / veh):	17.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.574

Intersection Setup

Name	Sarival Ave		MC-85		MC-85	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	1
Pocket Length [ft]	100.00	100.00	230.00	100.00	100.00	140.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Sarival Ave		MC-85		MC-85	
Base Volume Input [veh/h]	227	92	70	254	449	228
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.2189	1.2189	1.2189	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	60	74	158	102	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	115
Total Hourly Volume [veh/h]	277	172	159	468	649	163
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	75	47	43	127	176	44
Total Analysis Volume [veh/h]	301	187	173	509	705	177
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	7	0	0	2	6	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	10	0	0	30	30	0
Maximum Green [s]	35	0	0	60	60	0
Amber [s]	4.0	0.0	0.0	4.5	4.5	0.0
All red [s]	2.0	0.0	0.0	2.0	2.0	0.0
Split [s]	43	0	0	37	37	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	4.0	0.0	0.0	4.5	4.5	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	L	C	C	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	6.00	6.00	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.50	4.50	4.50	4.50
g_i, Effective Green Time [s]	17	17	51	51	51	51
g / C, Green / Cycle	0.21	0.21	0.63	0.63	0.63	0.63
(v / s)_i Volume / Saturation Flow Rate	0.18	0.12	0.24	0.29	0.40	0.12
s, saturation flow rate [veh/h]	1695	1513	707	1780	1780	1513
c, Capacity [veh/h]	359	321	343	1125	1125	956
d1, Uniform Delay [s]	30.28	28.42	21.87	7.60	8.99	6.15
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.21	1.68	5.22	1.31	2.64	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.58	0.50	0.45	0.63	0.19
d, Delay for Lane Group [s/veh]	35.48	30.09	27.08	8.92	11.63	6.57
Lane Group LOS	D	C	C	A	B	A
Critical Lane Group	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.64	3.13	2.95	3.69	6.20	1.04
50th-Percentile Queue Length [ft/ln]	140.98	78.36	73.75	92.35	155.07	25.92
95th-Percentile Queue Length [veh/ln]	9.53	5.64	5.31	6.65	10.29	1.87
95th-Percentile Queue Length [ft/ln]	238.34	141.05	132.74	166.24	257.18	46.65

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.48	30.09	27.08	8.92	11.63	6.57
Movement LOS	D	C	C	A	B	A
d_A, Approach Delay [s/veh]	33.42		13.52		10.61	
Approach LOS	C		B		B	
d_I, Intersection Delay [s/veh]	17.01					
Intersection LOS	B					
Intersection V/C	0.574					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	31.51	31.51
l_p,int, Pedestrian LOS Score for Intersection	2.647	2.703	2.980
Crosswalk LOS	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	40.00	40.00	40.00
l_b,int, Bicycle LOS Score for Intersection	4.132	5.258	5.777
Bicycle LOS	D	F	F

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Cotton Lane & Access B

Control Type:	Signalized	Delay (sec / veh):	16.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.486

Intersection Setup

Name	Cotton Ln			Cotton Ln			Access A					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	200.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			15.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Cotton Ln			Cotton Ln			Access A					
Base Volume Input [veh/h]	0	234	0	0	359	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.0000	1.2189	1.0000	1.0000	1.2189	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	46	499	24	83	136	32	92	0	15	26	0	148
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	-19	0	0	-35	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	326	0	0	326	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	1091	24	83	865	32	92	0	15	26	0	148
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	296	7	23	235	9	25	0	4	7	0	40
Total Analysis Volume [veh/h]	50	1186	26	90	940	35	100	0	16	28	0	161
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	15	0	5	15	0	0	10	0	0	10	0
Maximum Green [s]	30	30	0	30	30	0	0	20	0	0	20	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	5.0	0.0	0.0	5.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	12	52	0	17	57	0	0	21	0	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	59	59	59	59	59	59	59	59	59	59
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	7.00	7.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	5.00	5.00	5.00	5.00
g_i, Effective Green Time [s]	33	24	24	33	25	25	12	12	12	12
g / C, Green / Cycle	0.56	0.41	0.41	0.56	0.43	0.43	0.21	0.21	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.07	0.35	0.02	0.13	0.28	0.02	0.09	0.01	0.02	0.11
s, saturation flow rate [veh/h]	766	3389	1513	709	3389	1513	1166	1513	1330	1513
c, Capacity [veh/h]	484	1389	620	433	1450	647	221	320	350	320
d1, Uniform Delay [s]	7.44	15.84	10.48	9.77	13.40	9.91	27.07	18.59	20.71	20.58
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.09	1.59	0.03	0.24	0.49	0.03	1.44	0.06	0.10	1.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.85	0.04	0.21	0.65	0.05	0.45	0.05	0.08	0.50
d, Delay for Lane Group [s/veh]	7.53	17.43	10.51	10.00	13.89	9.95	28.51	18.65	20.81	21.81
Lane Group LOS	A	B	B	B	B	A	C	B	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.20	5.89	0.17	0.38	3.89	0.21	1.49	0.18	0.32	1.92
50th-Percentile Queue Length [ft/ln]	5.02	147.25	4.17	9.39	97.21	5.37	37.19	4.48	7.88	47.95
95th-Percentile Queue Length [veh/ln]	0.36	9.87	0.30	0.68	7.00	0.39	2.68	0.32	0.57	3.45
95th-Percentile Queue Length [ft/ln]	9.03	246.75	7.50	16.90	174.97	9.67	66.94	8.06	14.18	86.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.53	17.43	10.51	10.00	13.89	9.95	28.51	18.65	18.65	20.81	21.81	21.81
Movement LOS	A	B	B	B	B	A	C	B	B	C	C	C
d_A, Approach Delay [s/veh]	16.90			13.44			27.15			21.66		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	16.29											
Intersection LOS	B											
Intersection V/C	0.486											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.007	2.098
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1011	1122	311	311
d_b, Bicycle Delay [s]	11.00	8.67	32.09	32.09
l_b,int, Bicycle LOS Score for Intersection	2.601	2.438	1.751	1.871
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Cotton Lane & Access J

Control Type:	Two-way stop	Delay (sec / veh):	12.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.072

Intersection Setup

Name	Cotton Ln		Cotton Ln		Access B	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00
Speed [mph]	45.00		45.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Cotton Ln		Cotton Ln		Access B	
Base Volume Input [veh/h]	0	234	359	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	8.00	2.00	8.00	2.00	2.00
Growth Factor	1.0000	1.2189	1.2189	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	739	217	119	0	34
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-47	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	326	326	0	0	0
Total Hourly Volume [veh/h]	0	1350	934	119	0	34
Peak Hour Factor	1.0000	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	367	254	32	0	9
Total Analysis Volume [veh/h]	0	1467	1015	129	0	37
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.07
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	12.60
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.23
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	5.84
d_A, Approach Delay [s/veh]	0.00		0.00		12.60	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.18					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 7: Access C & MC-85

Control Type:	Two-way stop	Delay (sec / veh):	51.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.215

Intersection Setup

Name	Access C		MC-85		MC-85	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	160.00	100.00	100.00
Speed [mph]	15.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Access C		MC-85		MC-85	
Base Volume Input [veh/h]	0	0	404	0	0	547
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	15.00	15.00	8.00	15.00	15.00	8.00
Growth Factor	1.0000	1.0000	1.2189	1.0000	1.0000	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	21	120	144	16	36	156
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-12	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	120	624	16	36	823
Peak Hour Factor	1.0000	0.9200	0.9200	0.9200	1.0000	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	33	170	4	9	224
Total Analysis Volume [veh/h]	21	130	678	17	36	895
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.22	0.30	0.01	0.00	0.04	0.01
d_M, Delay for Movement [s/veh]	51.81	16.94	0.00	0.00	9.46	0.00
Movement LOS	F	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.76	1.26	0.00	0.00	0.13	0.00
95th-Percentile Queue Length [ft/ln]	19.08	31.40	0.00	0.00	3.34	0.00
d_A, Approach Delay [s/veh]	21.79		0.00		0.37	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	2.04					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 8: Access D & MC-85

Control Type:	Two-way stop	Delay (sec / veh):	39.8
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.072

Intersection Setup

Name	Access D		MC-85		MC-85	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	160.00	160.00	100.00
Speed [mph]	25.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Access D		MC-85		MC-85	
Base Volume Input [veh/h]	0	0	404	0	0	547
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	15.00	15.00	8.00	15.00	15.00	8.00
Growth Factor	1.0000	1.0000	1.2189	1.0000	1.0000	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	68	93	2	16	161
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	68	585	2	16	828
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	18	159	1	4	225
Total Analysis Volume [veh/h]	8	74	636	2	17	900
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.16	0.01	0.00	0.02	0.01
d_M, Delay for Movement [s/veh]	39.84	14.44	0.00	0.00	9.14	0.00
Movement LOS	E	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.23	0.58	0.00	0.00	0.06	0.00
95th-Percentile Queue Length [ft/ln]	5.71	14.38	0.00	0.00	1.47	0.00
d_A, Approach Delay [s/veh]	16.91		0.00		0.17	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.94					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 9: Access E & MC-85

Control Type:	Two-way stop	Delay (sec / veh):	36.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.042

Intersection Setup

Name	Access E		MC-85		MC-85	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	160.00	160.00	100.00
Speed [mph]	25.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Access E		MC-85		MC-85	
Base Volume Input [veh/h]	0	0	404	0	0	547
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	15.00	15.00	8.00	15.00	15.00	8.00
Growth Factor	1.0000	1.0000	1.2189	1.0000	1.0000	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	11	84	1	4	164
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	11	576	1	4	831
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	157	0	1	226
Total Analysis Volume [veh/h]	5	12	626	1	4	903
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.03	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	36.72	13.01	0.00	0.00	9.04	0.00
Movement LOS	E	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.13	0.08	0.00	0.00	0.01	0.00
95th-Percentile Queue Length [ft/ln]	3.27	2.00	0.00	0.00	0.34	0.00
d_A, Approach Delay [s/veh]	19.98		0.00		0.04	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.24					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 10: Access F & MC-85

Control Type:	Two-way stop	Delay (sec / veh):	36.9
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.034

Intersection Setup

Name	Access F		MC-85		MC-85	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	160.00	160.00	100.00
Speed [mph]	25.00		55.00		55.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Access F		MC-85		MC-85	
Base Volume Input [veh/h]	0	0	404	0	0	547
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	8.00	0.00	0.00	8.00
Growth Factor	1.0000	1.0000	1.2189	1.0000	1.0000	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	34	51	6	57	112
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	34	543	6	57	779
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	9	148	2	15	212
Total Analysis Volume [veh/h]	4	37	590	7	62	847
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.07	0.01	0.00	0.06	0.01
d_M, Delay for Movement [s/veh]	36.90	12.59	0.00	0.00	8.88	0.00
Movement LOS	E	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.11	0.23	0.00	0.00	0.20	0.00
95th-Percentile Queue Length [ft/ln]	2.64	5.83	0.00	0.00	5.00	0.00
d_A, Approach Delay [s/veh]	14.96		0.00		0.61	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.75					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 11: Cotton Lane & Access A

Control Type:	Two-way stop	Delay (sec / veh):	743.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.127

Intersection Setup

Name				Cotton Ln								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Cotton Ln								
Base Volume Input [veh/h]	0	234	0	0	359	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	15.00	8.00	15.00	15.00	8.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Growth Factor	1.0000	1.2189	1.0000	1.0000	1.2189	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	307	1	35	118	24	75	0	3	6	0	187
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	326	0	0	326	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	918	1	35	882	24	75	0	3	6	0	187
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	249	0	10	240	7	20	0	1	2	0	51
Total Analysis Volume [veh/h]	1	998	1	38	959	26	82	0	3	7	0	203
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.06	0.01	0.00	2.13	0.00	0.01	0.11	0.00	0.42
d_M, Delay for Movement [s/veh]	10.79	0.00	0.00	11.24	0.00	0.00	743.88	84.93	12.26	68.31	93.25	17.71
Movement LOS	B	A	A	B	A	A	F	F	B	F	F	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.20	0.00	0.00	8.89	0.02	0.02	0.35	2.05	2.05
95th-Percentile Queue Length [ft/ln]	0.12	0.00	0.00	4.93	0.00	0.00	222.24	0.45	0.45	8.81	51.21	51.21
d_A, Approach Delay [s/veh]	0.01			0.42			718.06			19.40		
Approach LOS	A			A			F			C		
d_I, Intersection Delay [s/veh]	28.28											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 13: Access G & MC 85

Control Type:	Two-way stop	Delay (sec / veh):	13.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.067

Intersection Setup

Name			MC-85		MC-85	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name			MC-85		MC-85	
Base Volume Input [veh/h]	0	0	329	0	0	534
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	15.00	15.00	8.00	15.00	15.00	8.00
Growth Factor	1.0000	1.0000	1.2189	1.0000	1.0000	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	200	37	0	182
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-4	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	28	597	37	0	833
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	8	162	10	0	226
Total Analysis Volume [veh/h]	0	30	649	40	0	905
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.07	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	13.62	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.21	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	5.37	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.62		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.25					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 16: Access H & MC 85

Control Type:	Two-way stop	Delay (sec / veh):	46.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.238

Intersection Setup

Name			MC-85		MC-85	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	1	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name			MC-85		MC-85	
Base Volume Input [veh/h]	0	0	329	0	0	534
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	15.00	15.00	8.00	15.00	15.00	8.00
Growth Factor	1.0000	1.0000	1.2189	1.0000	1.0000	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	25	8	224	3	5	157
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	8	625	3	5	808
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	2	170	1	1	220
Total Analysis Volume [veh/h]	27	9	679	3	5	878
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.24	0.02	0.01	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	46.44	13.55	0.00	0.00	9.25	0.00
Movement LOS	E	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.87	0.06	0.00	0.00	0.02	0.00
95th-Percentile Queue Length [ft/ln]	21.72	1.60	0.00	0.00	0.44	0.00
d_A, Approach Delay [s/veh]	38.22		0.00		0.05	
Approach LOS	E		A		A	
d_I, Intersection Delay [s/veh]	0.89					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 17: Cotton Lane & Access I

Control Type:	Two-way stop	Delay (sec / veh):	167.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.771

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	234	0	0	359	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	15.00	8.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Growth Factor	1.0000	1.2189	1.0000	1.0000	1.2189	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	79	1	28	93	7	42	0	1	6	0	188
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	326	0	0	326	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	690	1	28	857	7	42	0	1	6	0	188
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	188	0	8	233	2	11	0	0	2	0	51
Total Analysis Volume [veh/h]	0	750	1	30	932	8	46	0	1	7	0	204
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.04	0.01	0.00	0.77	0.00	0.00	0.07	0.00	0.35
d_M, Delay for Movement [s/veh]	10.23	0.00	0.00	9.84	0.00	0.00	167.29	55.07	12.08	40.89	58.82	14.37
Movement LOS	B	A	A	A	A	A	F	F	B	E	F	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.12	0.00	0.00	3.39	0.01	0.01	0.21	1.55	1.55
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	3.02	0.00	0.00	84.63	0.15	0.15	5.15	38.72	38.72
d_A, Approach Delay [s/veh]	0.00			0.30			163.99			15.25		
Approach LOS	A			A			F			C		
d_I, Intersection Delay [s/veh]	5.67											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 1: Cotton Lane & MC-85

Control Type:	Signalized	Delay (sec / veh):	30.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.607

Intersection Setup

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	1	0	0	2	0	1	2	0	1
Pocket Length [ft]	340.00	100.00	340.00	400.00	100.00	100.00	430.00	100.00	430.00	360.00	100.00	275.00
Speed [mph]	45.00			45.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Base Volume Input [veh/h]	5	299	52	54	200	64	118	306	2	34	158	32
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	884	0	0	884	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	25	0	0	32	0	0	1	0	0	15
Total Hourly Volume [veh/h]	7	1287	45	73	1153	54	159	412	2	46	213	28
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	350	12	20	313	15	43	112	1	13	58	8
Total Analysis Volume [veh/h]	8	1399	49	79	1253	59	173	448	2	50	232	30
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	10	15	0	10	15	0	10	15	0	10	15	0
Maximum Green [s]	20	30	0	20	30	0	20	30	0	20	30	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Split [s]	35	58	0	15	38	0	15	22	0	15	22	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	5.00	6.50	6.50	5.00	6.50	6.50	5.00	7.00	7.00	5.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	4.50	4.50	3.00	4.50	4.50	3.00	5.00	5.00	3.00	5.00	5.00
g_i, Effective Green Time [s]	2	52	52	9	59	59	10	17	17	8	15	15
g / C, Green / Cycle	0.02	0.48	0.48	0.08	0.54	0.54	0.09	0.16	0.16	0.07	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.00	0.41	0.03	0.05	0.26	0.26	0.05	0.13	0.00	0.02	0.05	0.02
s, saturation flow rate [veh/h]	3292	3389	1513	1695	3389	1739	3292	3389	1513	3292	4849	1513
c, Capacity [veh/h]	66	1618	722	141	1831	940	298	524	234	235	656	205
d1, Uniform Delay [s]	52.96	25.58	15.52	48.52	15.62	15.62	48.02	45.31	39.38	48.17	43.19	41.96
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.81	6.43	0.18	3.48	0.88	1.71	1.78	4.13	0.01	0.45	0.32	0.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.86	0.07	0.56	0.47	0.47	0.58	0.86	0.01	0.21	0.35	0.15
d, Delay for Lane Group [s/veh]	53.77	32.01	15.71	52.00	16.50	17.33	49.80	49.44	39.39	48.61	43.52	42.29
Lane Group LOS	D	C	B	D	B	B	D	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.11	16.23	0.66	2.16	6.33	6.72	2.24	5.93	0.04	0.64	1.87	0.72
50th-Percentile Queue Length [ft/ln]	2.83	405.79	16.62	54.07	158.35	167.95	56.11	148.19	1.11	16.11	46.87	17.94
95th-Percentile Queue Length [veh/ln]	0.20	22.84	1.20	3.89	10.46	10.97	4.04	9.92	0.08	1.16	3.37	1.29
95th-Percentile Queue Length [ft/ln]	5.10	570.98	29.92	97.33	261.53	274.22	100.99	248.01	2.01	29.00	84.37	32.30

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.77	32.01	15.71	52.00	16.75	17.33	49.80	49.44	39.39	48.61	43.52	42.29
Movement LOS	D	C	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	31.58			18.78			49.51			44.22		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	30.87											
Intersection LOS	C											
Intersection V/C	0.607											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	46.37	46.37	46.37
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.251	2.951	2.928
Crosswalk LOS	F	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	936	573	273	273
d_b, Bicycle Delay [s]	15.56	28.01	41.02	41.02
l_b,int, Bicycle LOS Score for Intersection	2.781	2.342	2.074	1.739
Bicycle LOS	C	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Cotton Lane & Commerce Drive

Control Type:	Signalized	Delay (sec / veh):	26.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.870

Intersection Setup

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	260.00	250.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		Yes	

Volumes

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Base Volume Input [veh/h]	392	17	45	338	2	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	884	0	0	884	0	0
Right-Turn on Red Volume [veh/h]	0	10	0	0	0	5
Total Hourly Volume [veh/h]	1412	13	61	1339	3	10
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	384	4	17	364	1	3
Total Analysis Volume [veh/h]	1535	14	66	1455	3	11
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	25	0	0	25	5	0
Maximum Green [s]	45	0	0	45	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.5	0.0	0.0	1.5	1.5	0.0
Split [s]	70	0	0	70	10	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	0.0	0.0	3.0	3.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	69	69	69	69	1	1
g / C, Green / Cycle	0.86	0.86	0.86	0.86	0.02	0.02
(v / s)_i Volume / Saturation Flow Rate	0.86	0.01	0.20	0.82	0.00	0.01
s, saturation flow rate [veh/h]	1780	1513	322	1780	1695	1513
c, Capacity [veh/h]	1525	1296	90	1525	31	27
d1, Uniform Delay [s]	5.73	0.83	40.01	4.49	38.64	38.85
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	24.61	0.02	40.76	14.42	1.36	9.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.01	0.01	0.73	0.95	0.10	0.40
d, Delay for Lane Group [s/veh]	30.33	0.84	80.77	18.91	40.00	48.03
Lane Group LOS	F	A	F	B	D	D
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	10.43	0.01	2.28	6.11	0.07	0.28
50th-Percentile Queue Length [ft/ln]	260.64	0.14	56.97	152.73	1.72	7.00
95th-Percentile Queue Length [veh/ln]	15.81	0.01	4.10	10.16	0.12	0.50
95th-Percentile Queue Length [ft/ln]	395.15	0.25	102.54	254.06	3.09	12.60

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	30.33	0.84	80.77	18.91	40.00	48.03
Movement LOS	F	A	F	B	D	D
d_A, Approach Delay [s/veh]	30.07		21.59		46.31	
Approach LOS	C		C		D	
d_I, Intersection Delay [s/veh]	25.96					
Intersection LOS	C					
Intersection V/C	0.870					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	31.51
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.072
Crosswalk LOS	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	40.00	40.00	40.00
l_b,int, Bicycle LOS Score for Intersection	6.705	6.642	4.132
Bicycle LOS	F	F	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Cotton Lane & Elwood Street

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	159.093

Intersection Setup

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	325.00	250.00	100.00	100.00	250.00	100.00	100.00	220.00	100.00	100.00
Speed [mph]	45.00			45.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Base Volume Input [veh/h]	6	438	15	23	333	8	36	3	16	12	6	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	884	0	0	884	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	1474	20	31	1332	11	48	4	22	16	8	30
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	401	5	8	362	3	13	1	6	4	2	8
Total Analysis Volume [veh/h]	9	1602	22	34	1448	12	52	4	24	17	9	33
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.00	0.09	0.01	0.00	159.09	0.45	0.16	5.51	0.98	0.26
d_M, Delay for Movement [s/veh]	13.25	0.00	0.00	15.27	0.00	0.00	10000.0	489.84	109.47	4171.06	705.14	339.92
Movement LOS	B	A	A	C	A	A	F	F	F	F	F	F
95th-Percentile Queue Length [veh/ln]	0.06	0.00	0.00	0.29	0.00	0.00	8.70	2.29	2.29	3.54	4.52	4.52
95th-Percentile Queue Length [ft/ln]	1.55	0.00	0.00	7.23	0.00	0.00	217.51	57.22	57.22	88.51	113.03	113.03
d_A, Approach Delay [s/veh]	0.07			0.35			6557.33			1499.52		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	187.90											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 1: Cotton Lane & MC-85

Control Type:	Signalized	Delay (sec / veh):	31.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.590

Intersection Setup

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	1	0	0	2	0	1	2	0	1
Pocket Length [ft]	340.00	100.00	340.00	400.00	100.00	100.00	430.00	100.00	430.00	360.00	100.00	275.00
Speed [mph]	45.00			45.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Base Volume Input [veh/h]	7	197	30	49	318	164	148	250	6	35	376	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	884	0	0	884	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	15	0	0	82	0	0	3	0	0	61
Total Hourly Volume [veh/h]	9	1149	25	66	1312	139	199	337	5	47	506	105
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	312	7	18	357	38	54	92	1	13	138	29
Total Analysis Volume [veh/h]	10	1249	27	72	1426	151	216	366	5	51	550	114
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	10	15	0	10	15	0	10	15	0	10	15	0
Maximum Green [s]	20	30	0	20	30	0	20	30	0	20	30	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Split [s]	20	58	0	15	53	0	15	22	0	15	22	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	5.00	6.50	6.50	5.00	6.50	6.50	5.00	7.00	7.00	5.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	4.50	4.50	3.00	4.50	4.50	3.00	5.00	5.00	3.00	5.00	5.00
g_i, Effective Green Time [s]	3	53	53	9	59	59	10	17	17	8	15	15
g / C, Green / Cycle	0.02	0.48	0.48	0.08	0.54	0.54	0.09	0.15	0.15	0.07	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.00	0.37	0.02	0.04	0.31	0.31	0.07	0.11	0.00	0.02	0.11	0.08
s, saturation flow rate [veh/h]	3292	3389	1513	1695	3389	1694	3292	3389	1513	3292	4849	1513
c, Capacity [veh/h]	80	1624	725	137	1817	908	299	522	233	237	655	204
d1, Uniform Delay [s]	52.53	23.62	15.19	48.52	17.16	17.17	48.65	44.14	39.50	48.12	46.42	44.50
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.69	3.57	0.10	3.07	1.35	2.69	3.28	1.73	0.04	0.45	2.98	2.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.13	0.77	0.04	0.52	0.58	0.58	0.72	0.70	0.02	0.22	0.84	0.56
d, Delay for Lane Group [s/veh]	53.23	27.19	15.28	51.59	18.51	19.86	51.93	45.86	39.54	48.57	49.40	46.88
Lane Group LOS	D	C	B	D	B	B	D	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.14	13.03	0.36	1.96	8.43	8.78	2.88	4.60	0.11	0.66	4.91	2.95
50th-Percentile Queue Length [ft/ln]	3.48	325.72	8.98	49.03	210.86	219.49	72.07	115.00	2.79	16.43	122.64	73.78
95th-Percentile Queue Length [veh/ln]	0.25	18.95	0.65	3.53	13.20	13.64	5.19	8.12	0.20	1.18	8.54	5.31
95th-Percentile Queue Length [ft/ln]	6.27	473.71	16.16	88.25	329.93	340.97	129.73	202.93	5.03	29.57	213.45	132.81

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.23	27.19	15.28	51.59	18.87	19.86	51.93	45.86	39.54	48.57	49.40	46.88
Movement LOS	D	C	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	27.14			20.39			48.04			48.94		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	31.09											
Intersection LOS	C											
Intersection V/C	0.590											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	46.37	46.37	46.37
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.402	3.050	3.053
Crosswalk LOS	F	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	936	845	273	273
d_b, Bicycle Delay [s]	15.56	18.33	41.02	41.02
l_b,int, Bicycle LOS Score for Intersection	2.633	2.512	2.046	1.986
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Cotton Lane & Commerce Drive

Control Type:	Signalized	Delay (sec / veh):	218.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.167

Intersection Setup

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	260.00	250.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		Yes	

Volumes

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Base Volume Input [veh/h]	399	103	222	433	83	238
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	884	0	0	884	0	0
Right-Turn on Red Volume [veh/h]	0	75	0	0	0	115
Total Hourly Volume [veh/h]	1421	64	299	1467	112	206
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	386	17	81	399	30	56
Total Analysis Volume [veh/h]	1545	70	325	1595	122	224
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	25	0	0	25	5	0
Maximum Green [s]	45	0	0	45	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.5	0.0	0.0	1.5	1.5	0.0
Split [s]	30	0	0	30	50	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	0.0	0.0	3.0	3.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	56	56	56	56	14	14
g / C, Green / Cycle	0.70	0.70	0.70	0.70	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.87	0.05	1.02	0.90	0.07	0.15
s, saturation flow rate [veh/h]	1780	1513	319	1780	1695	1513
c, Capacity [veh/h]	1237	1051	92	1237	305	273
d1, Uniform Delay [s]	12.21	3.91	40.04	12.21	29.00	31.59
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	118.92	0.12	1174.59	136.42	0.84	6.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.25	0.07	3.55	1.29	0.40	0.82
d, Delay for Lane Group [s/veh]	131.13	4.03	1214.62	148.63	29.84	37.71
Lane Group LOS	F	A	F	F	C	D
Critical Lane Group	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	53.85	0.27	31.57	59.87	2.09	4.50
50th-Percentile Queue Length [ft/ln]	1346.36	6.77	789.31	1496.70	52.27	112.53
95th-Percentile Queue Length [veh/ln]	78.55	0.49	56.83	88.33	3.76	7.98
95th-Percentile Queue Length [ft/ln]	1963.76	12.19	1420.77	2208.13	94.08	199.51

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	131.13	4.03	1214.62	148.63	29.84	37.71
Movement LOS	F	A	F	F	C	D
d_A, Approach Delay [s/veh]	125.62		329.07		34.94	
Approach LOS	F		F		C	
d_I, Intersection Delay [s/veh]	218.19					
Intersection LOS	F					
Intersection V/C	1.167					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	31.51
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.864
Crosswalk LOS	F	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	40.00	40.00	40.00
l_b,int, Bicycle LOS Score for Intersection	6.921	7.300	4.132
Bicycle LOS	F	F	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Cotton Lane & Elwood Street

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	314.019

Intersection Setup

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	325.00	250.00	100.00	100.00	250.00	100.00	100.00	220.00	100.00	100.00
Speed [mph]	45.00			45.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Base Volume Input [veh/h]	15	621	30	71	654	26	20	14	10	15	9	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	884	0	0	884	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	1720	40	96	1765	35	27	19	13	20	12	59
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	467	11	26	480	10	7	5	4	5	3	16
Total Analysis Volume [veh/h]	22	1870	43	104	1918	38	29	21	14	22	13	64
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.02	0.00	0.35	0.02	0.00	0.00	314.02	0.18	0.00	187.09	0.74
d_M, Delay for Movement [s/veh]	18.70	0.00	0.00	23.60	0.00	0.00	10000.0	10000.0	10000.0	10000.0	10000.0	10000.0
Movement LOS	C	A	A	C	A	A	F	F	F	F	F	F
95th-Percentile Queue Length [veh/ln]	0.25	0.00	0.00	1.53	0.00	0.00	5.58	6.41	6.41	4.56	11.98	11.98
95th-Percentile Queue Length [ft/ln]	6.23	0.00	0.00	38.19	0.00	0.00	139.39	160.22	160.22	113.99	299.58	299.58
d_A, Approach Delay [s/veh]	0.21			1.19			10000.00			10000.00		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	392.70											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 1: Cotton Lane & MC-85

Control Type:	Signalized	Delay (sec / veh):	42.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.703

Intersection Setup

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	1	0	0	2	0	1	2	0	1
Pocket Length [ft]	340.00	100.00	340.00	400.00	100.00	100.00	430.00	100.00	430.00	360.00	100.00	275.00
Speed [mph]	45.00			45.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Base Volume Input [veh/h]	5	299	52	54	200	64	118	306	2	34	158	32
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	50	99	27	42	480	78	48	26	80	88	14	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	884	0	0	884	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	25	0	0	32	0	0	1	0	0	15
Total Hourly Volume [veh/h]	57	1386	72	115	1633	132	207	438	82	134	227	33
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	377	20	31	444	36	56	119	22	36	62	9
Total Analysis Volume [veh/h]	62	1507	78	125	1775	143	225	476	89	146	247	36
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	10	15	0	10	15	0	10	15	0	10	15	0
Maximum Green [s]	20	30	0	20	30	0	20	30	0	20	30	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Split [s]	15	22	0	49	56	0	17	24	0	15	22	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	5.00	6.50	6.50	5.00	6.50	6.50	5.00	7.00	7.00	5.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	4.50	4.50	3.00	4.50	4.50	3.00	5.00	5.00	3.00	5.00	5.00
g_i, Effective Green Time [s]	9	50	50	10	51	51	10	17	17	10	17	17
g / C, Green / Cycle	0.08	0.45	0.45	0.09	0.46	0.46	0.09	0.15	0.15	0.09	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.02	0.44	0.05	0.07	0.38	0.38	0.07	0.14	0.06	0.04	0.05	0.02
s, saturation flow rate [veh/h]	3292	3389	1513	1695	3389	1713	3292	3389	1513	3292	4849	1513
c, Capacity [veh/h]	255	1529	683	154	1575	796	299	522	233	296	743	232
d1, Uniform Delay [s]	47.72	29.84	17.47	49.06	25.22	25.31	48.79	45.79	41.82	47.67	41.57	40.41
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.49	19.85	0.34	9.62	4.55	8.84	3.79	6.56	1.03	1.27	0.26	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.99	0.11	0.81	0.81	0.81	0.75	0.91	0.38	0.49	0.33	0.16
d, Delay for Lane Group [s/veh]	48.21	49.70	17.81	58.68	29.77	34.16	52.59	52.35	42.85	48.94	41.83	40.72
Lane Group LOS	D	D	B	E	C	C	D	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.80	22.16	1.15	3.68	14.02	15.25	3.03	6.51	2.13	1.90	1.95	0.84
50th-Percentile Queue Length [ft/ln]	19.89	553.91	28.80	92.00	350.57	381.37	75.68	162.87	53.22	47.61	48.80	21.05
95th-Percentile Queue Length [veh/ln]	1.43	29.88	2.07	6.62	20.16	21.66	5.45	10.70	3.83	3.43	3.51	1.52
95th-Percentile Queue Length [ft/ln]	35.80	746.90	51.83	165.61	504.10	541.51	136.22	267.51	95.79	85.69	87.84	37.89

Movement, Approach, & Intersection Results

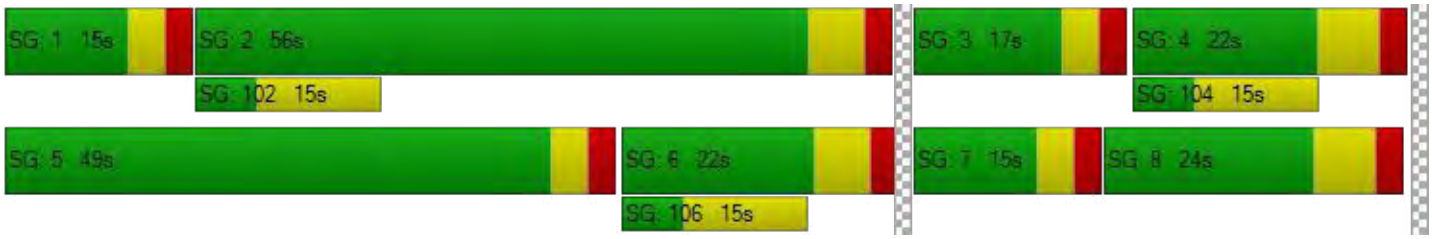
d_M, Delay for Movement [s/veh]	48.21	49.70	17.81	58.68	31.01	34.16	52.59	52.35	42.85	48.94	41.83	40.72
Movement LOS	D	D	B	E	C	C	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	48.13			32.93			51.35			44.15		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	41.97											
Intersection LOS	D											
Intersection V/C	0.703											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	46.37	46.37	46.37
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.450	3.023	2.968
Crosswalk LOS	F	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	282	900	309	273
d_b, Bicycle Delay [s]	40.59	16.64	39.31	41.02
l_b,int, Bicycle LOS Score for Intersection	2.939	2.701	2.212	1.804
Bicycle LOS	C	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Cotton Lane & Commerce Drive

Control Type:	Signalized	Delay (sec / veh):	130.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.189

Intersection Setup

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	260.00	250.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		Yes	

Volumes

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Base Volume Input [veh/h]	392	17	45	338	2	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	147	4	0	596	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	884	0	0	884	0	0
Right-Turn on Red Volume [veh/h]	0	10	0	0	0	5
Total Hourly Volume [veh/h]	1559	17	61	1935	7	10
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	424	5	17	526	2	3
Total Analysis Volume [veh/h]	1695	18	66	2103	8	11
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	25	0	0	25	5	0
Maximum Green [s]	45	0	0	45	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.5	0.0	0.0	1.5	1.5	0.0
Split [s]	70	0	0	70	10	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	0.0	0.0	3.0	3.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	68	68	68	68	2	2
g / C, Green / Cycle	0.85	0.85	0.85	0.85	0.02	0.02
(v / s)_i Volume / Saturation Flow Rate	0.95	0.01	0.24	1.18	0.00	0.01
s, saturation flow rate [veh/h]	1780	1513	276	1780	1695	1513
c, Capacity [veh/h]	1517	1289	90	1517	39	35
d1, Uniform Delay [s]	5.92	0.89	40.01	5.92	38.38	38.48
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	62.47	0.02	40.81	178.12	2.57	5.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.12	0.01	0.73	1.39	0.21	0.32
d, Delay for Lane Group [s/veh]	68.38	0.91	80.82	184.04	40.95	43.60
Lane Group LOS	F	A	F	F	D	D
Critical Lane Group	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	26.32	0.01	2.27	75.04	0.18	0.26
50th-Percentile Queue Length [ft/ln]	657.92	0.18	56.81	1876.07	4.48	6.45
95th-Percentile Queue Length [veh/ln]	38.27	0.01	4.09	115.15	0.32	0.46
95th-Percentile Queue Length [ft/ln]	956.63	0.32	102.26	2878.82	8.07	11.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	68.38	0.91	80.82	184.04	40.95	43.60
Movement LOS	F	A	F	F	D	D
d_A, Approach Delay [s/veh]	67.67		180.90		42.48	
Approach LOS	E		F		D	
d_I, Intersection Delay [s/veh]	130.51					
Intersection LOS	F					
Intersection V/C	1.189					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	31.51
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.075
Crosswalk LOS	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	40.00	40.00	40.00
l_b,int, Bicycle LOS Score for Intersection	6.975	7.711	4.132
Bicycle LOS	F	F	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Cotton Lane & Elwood Street

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	325.00	250.00	100.00	100.00	250.00	100.00	100.00	220.00	100.00	100.00
Speed [mph]	45.00			45.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Base Volume Input [veh/h]	6	438	15	23	333	8	36	3	16	12	6	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	139	2	0	585	0	0	0	8	3	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	884	0	0	884	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	1613	22	31	1917	11	48	4	30	19	8	30
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	438	6	8	521	3	13	1	8	5	2	8
Total Analysis Volume [veh/h]	15	1753	24	34	2084	12	52	4	33	21	9	33
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.02	0.00	0.10	0.02	0.00	0.00	2.10	0.52	0.00	4.59	0.32
d_M, Delay for Movement [s/veh]	20.28	0.00	0.00	16.96	0.00	0.00	10000.0	2919.00	1084.81	10000.0	4031.35	2229.01
Movement LOS	C	A	A	C	A	A	F	F	F	F	F	F
95th-Percentile Queue Length [veh/ln]	0.19	0.00	0.00	0.34	0.00	0.00	8.73	5.42	5.42	4.41	6.58	6.58
95th-Percentile Queue Length [ft/ln]	4.74	0.00	0.00	8.40	0.00	0.00	218.32	135.50	135.50	110.26	164.43	164.43
d_A, Approach Delay [s/veh]	0.17			0.27			6376.12			5076.82		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	218.02											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 5: Cotton Lane & Access B

Control Type:	Signalized	Delay (sec / veh):	25.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.591

Intersection Setup

Name	Cotton Ln			Cotton Ln			Access A					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	200.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			15.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Cotton Ln			Cotton Ln			Access A					
Base Volume Input [veh/h]	0	356	0	0	236	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.0000	1.3468	1.0000	1.0000	1.3468	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	28	130	33	51	552	12	18	0	5	15	0	29
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	884	0	0	884	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	1493	33	51	1754	12	18	0	5	15	0	29
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	406	9	14	477	3	5	0	1	4	0	8
Total Analysis Volume [veh/h]	30	1623	36	55	1907	13	20	0	5	16	0	32
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	15	0	5	15	0	0	10	0	0	10	0
Maximum Green [s]	30	30	0	30	30	0	0	20	0	0	20	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	5.0	0.0	0.0	5.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	32	29	0	32	29	0	0	29	0	0	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	56	56	56	56	56	56	56	56	56	56
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	7.00	7.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	5.00	5.00	5.00	5.00
g_i, Effective Green Time [s]	37	29	29	37	30	30	5	5	5	5
g / C, Green / Cycle	0.66	0.52	0.52	0.66	0.54	0.54	0.09	0.09	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.07	0.48	0.02	0.11	0.56	0.01	0.02	0.00	0.01	0.02
s, saturation flow rate [veh/h]	420	3389	1513	519	3389	1513	1311	1513	1343	1513
c, Capacity [veh/h]	345	1771	790	401	1832	818	185	145	209	145
d1, Uniform Delay [s]	12.31	12.30	6.56	10.20	12.91	5.98	26.09	23.06	25.11	23.48
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.11	2.28	0.02	0.15	22.83	0.01	0.25	0.10	0.15	0.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.09	0.92	0.05	0.14	1.04	0.02	0.11	0.03	0.08	0.22
d, Delay for Lane Group [s/veh]	12.42	14.57	6.59	10.35	35.74	5.99	26.35	23.16	25.26	24.25
Lane Group LOS	B	B	A	B	F	A	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.06	6.58	0.15	0.11	12.95	0.05	0.27	0.06	0.20	0.40
50th-Percentile Queue Length [ft/ln]	1.53	164.44	3.69	2.79	323.73	1.22	6.77	1.59	4.98	9.92
95th-Percentile Queue Length [veh/ln]	0.11	10.78	0.27	0.20	19.41	0.09	0.49	0.11	0.36	0.71
95th-Percentile Queue Length [ft/ln]	2.75	269.59	6.64	5.03	485.35	2.19	12.18	2.86	8.96	17.86

Movement, Approach, & Intersection Results

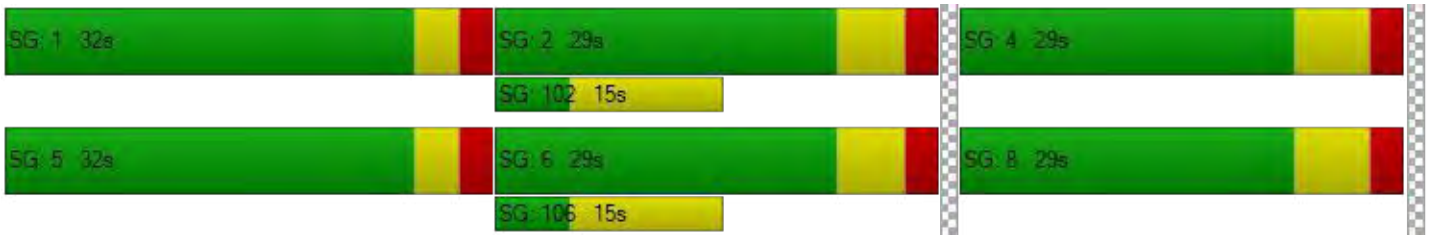
d_M, Delay for Movement [s/veh]	12.42	14.57	6.59	10.35	35.74	5.99	26.35	23.16	23.16	25.26	24.25	24.25
Movement LOS	B	B	A	B	F	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	14.37			34.84			25.71			24.58		
Approach LOS	B			C			C			C		
d_I, Intersection Delay [s/veh]	25.39											
Intersection LOS	C											
Intersection V/C	0.591											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.977	2.031
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	500	489	489
d_b, Bicycle Delay [s]	25.31	25.31	25.69	25.69
l_b,int, Bicycle LOS Score for Intersection	2.953	3.189	1.601	1.639
Bicycle LOS	C	C	A	A

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Cotton Lane & Access J

Control Type:	Two-way stop	Delay (sec / veh):	20.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.052

Intersection Setup

Name	Cotton Ln		Cotton Ln		Access B	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00
Speed [mph]	45.00		45.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Cotton Ln		Cotton Ln		Access B	
Base Volume Input [veh/h]	0	356	236	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.49	8.00	2.00	8.00	2.00	2.00
Growth Factor	1.0000	1.3468	1.3468	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	177	604	44	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	884	884	0	0	0
Total Hourly Volume [veh/h]	0	1540	1806	44	0	12
Peak Hour Factor	1.0000	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	418	491	12	0	3
Total Analysis Volume [veh/h]	0	1674	1963	48	0	13
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.02	0.00	0.00	0.05
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	20.29
Movement LOS		A	A	A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.16
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	4.12
d_A, Approach Delay [s/veh]	0.00		0.00		20.29	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.07					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 11: Cotton Lane & Access A

Control Type:	Signalized	Delay (sec / veh):	5.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.460

Intersection Setup

Name				Cotton Ln								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Cotton Ln								
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	15.00	8.00	15.00	15.00	8.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Growth Factor	1.0000	1.3468	1.0000	1.0000	1.3468	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	22	147	74	188	328	56	14	0	4	11	0	30
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	884	0	0	884	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	1031	74	188	1212	56	14	0	4	11	0	30
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	280	20	51	329	15	4	0	1	3	0	8
Total Analysis Volume [veh/h]	24	1121	80	204	1317	61	15	0	4	12	0	33
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	60	0	9	60	0	0	21	0	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	6	0	0	9	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	79	70	70	79	72	72	3	3	3	3
g / C, Green / Cycle	0.87	0.77	0.77	0.87	0.80	0.80	0.04	0.04	0.04	0.04
(v / s)_i Volume / Saturation Flow Rate	0.06	0.37	0.06	0.41	0.43	0.05	0.01	0.00	0.01	0.03
s, saturation flow rate [veh/h]	397	3050	1281	498	3050	1281	1109	1281	1138	1281
c, Capacity [veh/h]	402	2354	989	486	2445	1027	83	50	100	50
d1, Uniform Delay [s]	2.13	3.71	2.50	2.82	3.12	1.86	45.00	41.73	43.94	42.70
k, delay calibration	0.11	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.06	0.69	0.16	2.65	0.86	0.11	1.04	0.69	0.53	14.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.06	0.48	0.08	0.42	0.54	0.06	0.18	0.08	0.12	0.67
d, Delay for Lane Group [s/veh]	2.19	4.40	2.66	5.46	3.97	1.97	46.05	42.42	44.48	56.92
Lane Group LOS	A	A	A	A	A	A	D	D	D	E
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.01	2.71	0.28	0.43	2.66	0.16	0.36	0.09	0.28	0.91
50th-Percentile Queue Length [ft/ln]	0.35	67.63	7.07	10.67	66.52	4.06	8.99	2.36	6.95	22.83
95th-Percentile Queue Length [veh/ln]	0.03	4.87	0.51	0.77	4.79	0.29	0.65	0.17	0.50	1.64
95th-Percentile Queue Length [ft/ln]	0.63	121.73	12.72	19.21	119.74	7.32	16.18	4.25	12.51	41.09

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	2.19	4.40	2.66	5.46	3.97	1.97	46.05	42.42	42.42	44.48	56.92	56.92
Movement LOS	A	A	A	A	A	A	D	D	D	D	E	E
d_A, Approach Delay [s/veh]	4.25			4.09			45.28			53.60		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	5.20											
Intersection LOS	A											
Intersection V/C	0.460											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.887	2.923	2.004	2.279
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1244	1244	378	378
d_b, Bicycle Delay [s]	6.42	6.42	29.61	29.61
l_b,int, Bicycle LOS Score for Intersection	2.570	2.865	1.591	1.634
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 17: Cotton Lane & Access I

Control Type:	Signalized	Delay (sec / veh):	5.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.401

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	15.00	8.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Growth Factor	1.0000	1.3468	1.0000	1.0000	1.3468	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	31	9	277	19	63	9	0	0	1	0	38
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	884	0	0	884	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	915	9	277	903	63	9	0	0	1	0	38
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	249	2	75	245	17	2	0	0	0	0	10
Total Analysis Volume [veh/h]	2	995	10	301	982	68	10	0	0	1	0	41
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	18	0	9	18	0	0	63	0	0	63	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	79	70	70	79	74	74	3	3	3	3
g / C, Green / Cycle	0.87	0.77	0.77	0.87	0.83	0.83	0.04	0.04	0.04	0.04
(v / s)_i Volume / Saturation Flow Rate	0.00	0.33	0.01	0.55	0.32	0.05	0.01	0.00	0.00	0.03
s, saturation flow rate [veh/h]	522	3050	1362	545	3050	1281	1101	1507	1142	1281
c, Capacity [veh/h]	521	2357	1052	531	2518	1058	82	56	101	48
d1, Uniform Delay [s]	1.16	3.45	2.34	2.97	2.02	1.45	45.00	0.00	43.39	43.10
k, delay calibration	0.11	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.56	0.02	4.35	0.46	0.12	0.65	0.00	0.04	32.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.42	0.01	0.57	0.39	0.06	0.12	0.00	0.01	0.86
d, Delay for Lane Group [s/veh]	1.16	4.01	2.36	7.31	2.48	1.57	45.65	0.00	43.42	75.54
Lane Group LOS	A	A	A	A	A	A	D	A	D	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.00	2.23	0.03	0.74	1.21	0.14	0.24	0.00	0.02	1.33
50th-Percentile Queue Length [ft/ln]	0.02	55.69	0.82	18.46	30.27	3.46	5.94	0.00	0.57	33.23
95th-Percentile Queue Length [veh/ln]	0.00	4.01	0.06	1.33	2.18	0.25	0.43	0.00	0.04	2.39
95th-Percentile Queue Length [ft/ln]	0.04	100.24	1.47	33.23	54.48	6.24	10.70	0.00	1.02	59.81

Movement, Approach, & Intersection Results

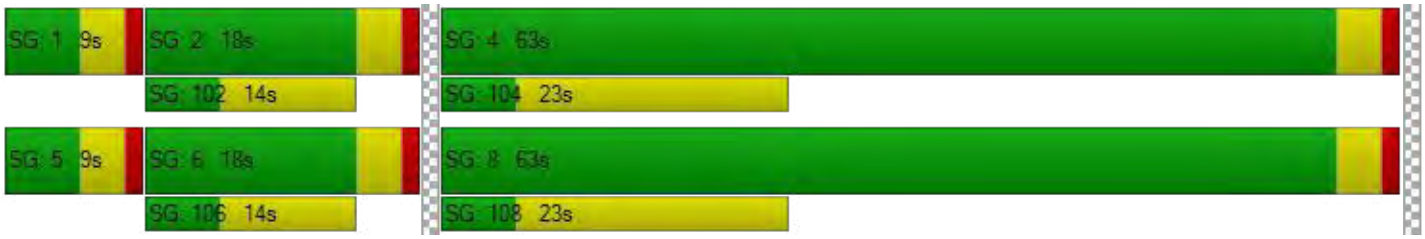
d_M, Delay for Movement [s/veh]	1.16	4.01	2.36	7.31	2.48	1.57	45.65	0.00	0.00	43.42	75.54	75.54
Movement LOS	A	A	A	A	A	A	D	A	A	D	E	E
d_A, Approach Delay [s/veh]	3.98			3.51			45.65			74.78		
Approach LOS	A			A			D			E		
d_I, Intersection Delay [s/veh]	5.13											
Intersection LOS	A											
Intersection V/C	0.401											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.779	2.858	1.970	2.397
Crosswalk LOS	C	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	311	311	1311	1311
d_b, Bicycle Delay [s]	32.09	32.09	5.34	5.34
l_b,int, Bicycle LOS Score for Intersection	2.390	2.674	1.576	1.629
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 1: Cotton Lane & MC-85

Control Type:	Signalized	Delay (sec / veh):	57.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.796

Intersection Setup

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	1	1	0	0	2	0	1	2	0	1
Pocket Length [ft]	340.00	100.00	340.00	400.00	100.00	100.00	430.00	100.00	430.00	360.00	100.00	275.00
Speed [mph]	45.00			45.00			55.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			Yes		

Volumes

Name	Cotton Ln			Cotton Ln			MC-85			MC-85		
Base Volume Input [veh/h]	7	197	30	49	318	164	148	250	6	35	376	123
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	82	442	92	26	166	53	131	58	66	106	20	17
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	884	0	0	884	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	15	0	0	82	0	0	3	0	0	61
Total Hourly Volume [veh/h]	91	1591	117	92	1478	192	330	395	71	153	526	122
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	432	32	25	402	52	90	107	19	42	143	33
Total Analysis Volume [veh/h]	99	1729	127	100	1607	209	359	429	77	166	572	133
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	10	15	0	10	15	0	10	15	0	10	15	0
Maximum Green [s]	20	30	0	20	30	0	20	30	0	20	30	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Split [s]	18	56	0	15	53	0	17	24	0	15	22	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	4.5	0.0	3.0	4.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	5.00	6.50	6.50	5.00	6.50	6.50	5.00	7.00	7.00	5.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	4.50	4.50	3.00	4.50	4.50	3.00	5.00	5.00	3.00	5.00	5.00
g_i, Effective Green Time [s]	10	50	50	10	50	50	12	17	17	10	15	15
g / C, Green / Cycle	0.09	0.46	0.46	0.09	0.46	0.46	0.11	0.15	0.15	0.09	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.03	0.51	0.08	0.06	0.36	0.36	0.11	0.13	0.05	0.05	0.12	0.09
s, saturation flow rate [veh/h]	3292	3389	1513	1695	3389	1677	3292	3389	1513	3292	4849	1513
c, Capacity [veh/h]	286	1544	689	147	1544	764	360	519	232	298	652	204
d1, Uniform Delay [s]	47.30	29.96	17.80	48.74	25.38	25.46	49.00	45.17	41.57	47.92	46.73	45.19
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.72	63.22	0.59	5.36	4.08	8.13	21.47	3.41	0.83	1.62	3.96	3.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	1.12	0.18	0.68	0.79	0.79	1.00	0.83	0.33	0.56	0.88	0.65
d, Delay for Lane Group [s/veh]	48.02	93.18	18.39	54.10	29.47	33.60	70.47	48.59	42.40	49.54	50.68	48.71
Lane Group LOS	D	F	B	D	C	C	E	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.27	32.12	1.93	2.81	13.23	14.06	5.75	5.61	1.83	2.19	5.18	3.53
50th-Percentile Queue Length [ft/ln]	31.78	802.96	48.19	70.16	330.71	351.58	143.71	140.21	45.63	54.63	129.53	88.32
95th-Percentile Queue Length [veh/ln]	2.29	44.98	3.47	5.05	19.19	20.21	9.68	9.49	3.29	3.93	8.91	6.36
95th-Percentile Queue Length [ft/ln]	57.20	1124.50	86.74	126.29	479.83	505.33	242.01	237.31	82.13	98.33	222.85	158.98

Movement, Approach, & Intersection Results

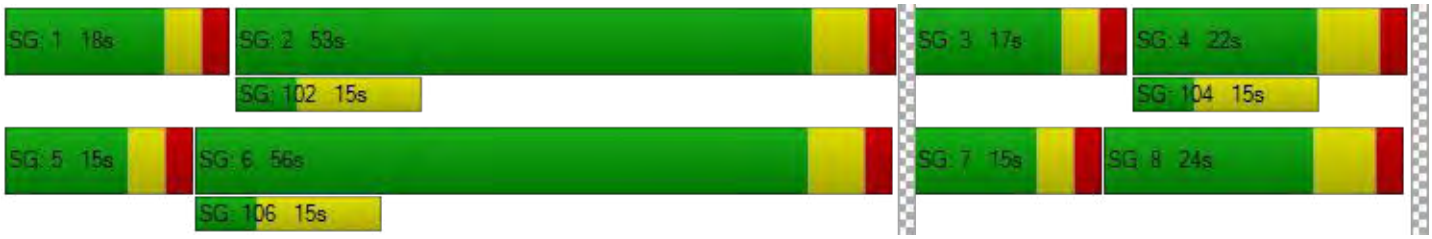
d_M, Delay for Movement [s/veh]	48.02	93.18	18.39	54.10	30.48	33.60	70.47	48.59	42.40	49.54	50.68	48.71
Movement LOS	D	F	B	D	C	C	E	D	D	D	D	D
d_A, Approach Delay [s/veh]	86.04			32.05			57.12			50.16		
Approach LOS	F			C			E			D		
d_I, Intersection Delay [s/veh]	57.56											
Intersection LOS	E											
Intersection V/C	0.796											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	46.37	46.37	46.37
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.624	3.150	3.116
Crosswalk LOS	F	D	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	845	309	273
d_b, Bicycle Delay [s]	16.64	18.33	39.31	41.02
l_b,int, Bicycle LOS Score for Intersection	3.185	2.659	2.276	2.072
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Cotton Lane & Commerce Drive

Control Type:	Signalized	Delay (sec / veh):	395.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.376

Intersection Setup

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0
Pocket Length [ft]	100.00	260.00	250.00	100.00	100.00	100.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		Yes	

Volumes

Name	Cotton Ln		Cotton Ln		Commerce Dr	
Base Volume Input [veh/h]	399	103	222	433	83	238
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.4859	1.4859	1.4859	1.4859	1.4859	1.4859
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	577	12	0	234	11	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	884	0	0	884	0	0
Right-Turn on Red Volume [veh/h]	0	75	0	0	0	115
Total Hourly Volume [veh/h]	2054	90	330	1761	134	239
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	558	24	90	479	36	65
Total Analysis Volume [veh/h]	2233	98	359	1914	146	260
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	6	0	0	2	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lead	-
Minimum Green [s]	25	0	0	25	5	0
Maximum Green [s]	45	0	0	45	30	0
Amber [s]	3.5	0.0	0.0	3.5	3.5	0.0
All red [s]	1.5	0.0	0.0	1.5	1.5	0.0
Split [s]	30	0	0	30	50	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	0.0	0.0	3.0	3.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	54	54	54	54	16	16
g / C, Green / Cycle	0.67	0.67	0.67	0.67	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	1.25	0.06	2.20	1.08	0.09	0.17
s, saturation flow rate [veh/h]	1780	1513	163	1780	1695	1513
c, Capacity [veh/h]	1192	1013	91	1192	349	311
d1, Uniform Delay [s]	13.24	4.68	40.07	13.24	27.67	30.54
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	396.32	0.19	1342.78	276.61	0.80	5.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.87	0.10	3.93	1.61	0.42	0.84
d, Delay for Lane Group [s/veh]	409.56	4.87	1382.85	289.85	28.47	36.43
Lane Group LOS	F	A	F	F	C	D
Critical Lane Group	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	144.79	0.45	35.81	105.15	2.44	5.16
50th-Percentile Queue Length [ft/ln]	3619.65	11.20	895.29	2628.84	61.09	128.95
95th-Percentile Queue Length [veh/ln]	235.31	0.81	64.46	165.70	4.40	8.88
95th-Percentile Queue Length [ft/ln]	5882.82	20.16	1611.53	4142.58	109.95	222.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	409.56	4.87	1382.85	289.85	28.47	36.43
Movement LOS	F	A	F	F	C	D
d_A, Approach Delay [s/veh]	392.55		462.48		33.57	
Approach LOS	F		F		C	
d_I, Intersection Delay [s/veh]	395.18					
Intersection LOS	F					
Intersection V/C	2.376					

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	31.51
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.952
Crosswalk LOS	F	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	40.00	40.00	40.00
l_b,int, Bicycle LOS Score for Intersection	8.102	7.883	4.132
Bicycle LOS	F	F	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Cotton Lane & Elwood Street

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.731

Intersection Setup

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	325.00	250.00	100.00	100.00	250.00	100.00	100.00	220.00	100.00	100.00
Speed [mph]	45.00			45.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Cotton Ln			Cotton Ln			Elwood St			Elwood St		
Base Volume Input [veh/h]	15	621	30	71	654	26	20	14	10	15	9	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468	1.3468
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	551	7	0	208	0	0	0	19	7	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	884	0	0	884	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	2271	47	96	1973	35	27	19	32	27	12	59
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	617	13	26	536	10	7	5	9	7	3	16
Total Analysis Volume [veh/h]	42	2468	51	104	2145	38	29	21	35	29	13	64
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.02	0.00	0.61	0.02	0.00	0.00	0.00	0.61	0.00	0.00	1.73
d_M, Delay for Movement [s/veh]	23.97	0.00	0.00	54.94	0.00	0.00	10000.0	10000.0	10000.0	10000.0	10000.0	10000.0
Movement LOS	C	A	A	F	A	A	F	F	F	F	F	F
95th-Percentile Queue Length [veh/ln]	0.65	0.00	0.00	3.36	0.00	0.00	5.58	9.27	9.27	5.58	12.03	12.03
95th-Percentile Queue Length [ft/ln]	16.19	0.00	0.00	84.09	0.00	0.00	139.39	231.66	231.66	139.39	300.65	300.65
d_A, Approach Delay [s/veh]	0.39			2.50			10000.00			10000.00		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	380.38											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 5: Cotton Lane & Access B

Control Type:	Signalized	Delay (sec / veh):	47.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.622

Intersection Setup

Name	Cotton Ln			Cotton Ln			Access A					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	1	0	0
Pocket Length [ft]	200.00	100.00	100.00	100.00	100.00	150.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			15.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Cotton Ln			Cotton Ln			Access A					
Base Volume Input [veh/h]	0	234	0	0	359	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Growth Factor	1.0000	1.3468	1.0000	1.0000	1.3468	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	68	411	42	73	180	30	83	0	22	63	0	122
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	-19	0	0	-35	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	884	0	0	884	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	1591	42	73	1513	30	83	0	22	63	0	122
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	432	11	20	411	8	23	0	6	17	0	33
Total Analysis Volume [veh/h]	74	1729	46	79	1645	33	90	0	24	68	0	133
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	15	0	5	15	0	0	10	0	0	10	0
Maximum Green [s]	30	30	0	30	30	0	0	20	0	0	20	0
Amber [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	5.0	0.0	0.0	5.0	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	32	29	0	32	29	0	0	29	0	0	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	3.0	4.5	0.0	3.0	4.5	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	64	64	64	64	64	64	64	64	64	64
L, Total Lost Time per Cycle [s]	6.50	6.50	6.50	6.50	6.50	6.50	7.00	7.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	4.50	4.50	0.00	4.50	4.50	5.00	5.00	5.00	5.00
g_i, Effective Green Time [s]	39	30	30	39	30	30	12	12	12	12
g / C, Green / Cycle	0.60	0.47	0.47	0.60	0.47	0.47	0.19	0.19	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.14	0.51	0.03	0.15	0.49	0.02	0.08	0.02	0.05	0.09
s, saturation flow rate [veh/h]	535	3389	1513	521	3389	1513	1196	1513	1320	1513
c, Capacity [veh/h]	353	1579	705	355	1585	707	205	282	302	282
d1, Uniform Delay [s]	13.15	17.19	9.47	13.13	17.14	9.33	29.62	21.67	24.88	23.38
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.29	45.47	0.04	0.31	22.25	0.03	1.49	0.13	0.37	1.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	1.10	0.07	0.22	1.04	0.05	0.44	0.09	0.23	0.47
d, Delay for Lane Group [s/veh]	13.45	62.66	9.51	13.44	39.39	9.35	31.11	21.80	25.26	24.61
Lane Group LOS	B	F	A	B	F	A	C	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.30	18.83	0.29	0.32	13.77	0.21	1.47	0.31	0.92	1.80
50th-Percentile Queue Length [ft/ln]	7.55	470.64	7.29	8.09	344.22	5.16	36.84	7.77	23.03	44.90
95th-Percentile Queue Length [veh/ln]	0.54	27.65	0.53	0.58	20.38	0.37	2.65	0.56	1.66	3.23
95th-Percentile Queue Length [ft/ln]	13.60	691.33	13.13	14.57	509.60	9.29	66.31	13.99	41.46	80.81

Movement, Approach, & Intersection Results

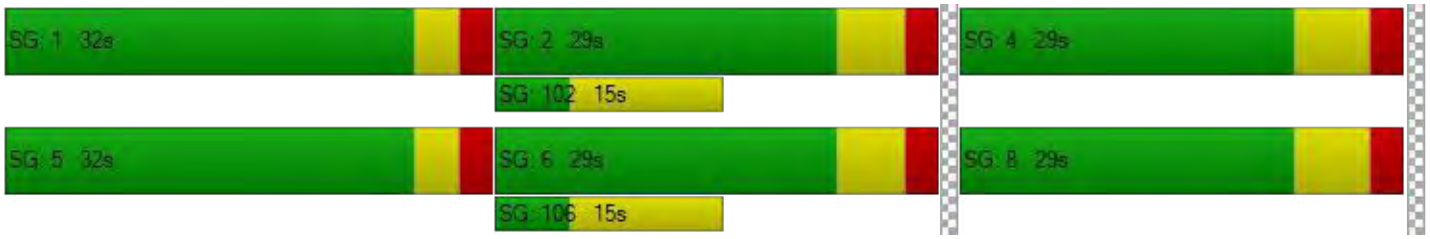
d_M, Delay for Movement [s/veh]	13.45	62.66	9.51	13.44	39.39	9.35	31.11	21.80	21.80	25.26	24.61	24.61
Movement LOS	B	F	A	B	F	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	59.37			37.66			29.15			24.83		
Approach LOS	E			D			C			C		
d_I, Intersection Delay [s/veh]	46.99											
Intersection LOS	D											
Intersection V/C	0.622											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.030	2.103
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	500	489	489
d_b, Bicycle Delay [s]	25.31	25.31	25.69	25.69
l_b,int, Bicycle LOS Score for Intersection	3.085	3.009	1.748	1.891
Bicycle LOS	C	C	A	A

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Cotton Lane & Access J

Control Type:	Two-way stop	Delay (sec / veh):	19.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.186

Intersection Setup

Name	Cotton Ln		Cotton Ln		Access B	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	150.00	100.00	100.00
Speed [mph]	45.00		45.00		15.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Cotton Ln		Cotton Ln		Access B	
Base Volume Input [veh/h]	0	234	359	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	8.00	2.00	8.00	2.00	2.00
Growth Factor	1.0000	1.3468	1.3468	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	616	231	107	0	52
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-47	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	884	884	0	0	0
Total Hourly Volume [veh/h]	0	1815	1552	107	0	52
Peak Hour Factor	1.0000	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	493	422	29	0	14
Total Analysis Volume [veh/h]	0	1973	1687	116	0	57
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.02	0.00	0.00	0.19
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	19.39
Movement LOS		A	A	A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.67
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	16.75
d_A, Approach Delay [s/veh]	0.00		0.00		19.39	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.29					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 11: Cotton Lane & Access A

Control Type:	Signalized	Delay (sec / veh):	12.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.556

Intersection Setup

Name				Cotton Ln								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Cotton Ln								
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	15.00	8.00	15.00	15.00	8.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Growth Factor	1.0000	1.3468	1.0000	1.0000	1.3468	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	327	10	27	221	18	55	0	22	54	0	139
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	884	0	0	884	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	1211	10	27	1105	18	55	0	22	54	0	139
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	329	3	7	300	5	15	0	6	15	0	38
Total Analysis Volume [veh/h]	8	1316	11	29	1201	20	60	0	24	59	0	151
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	9	56	0	9	56	0	0	25	0	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	6	0	0	6	0	0	6	0	0	9	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	66	60	60	66	61	61	16	16	16	16
g / C, Green / Cycle	0.74	0.66	0.66	0.74	0.68	0.68	0.17	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.02	0.43	0.01	0.07	0.39	0.02	0.06	0.02	0.05	0.12
s, saturation flow rate [veh/h]	423	3050	1281	413	3050	1281	996	1281	1118	1281
c, Capacity [veh/h]	343	2020	849	327	2077	872	124	224	235	224
d1, Uniform Delay [s]	5.27	9.03	5.18	6.64	7.56	4.66	43.56	31.22	35.28	34.72
k, delay calibration	0.11	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.03	1.65	0.03	0.53	1.18	0.05	2.91	0.21	0.56	3.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.02	0.65	0.01	0.09	0.58	0.02	0.48	0.11	0.25	0.67
d, Delay for Lane Group [s/veh]	5.30	10.67	5.20	7.17	8.74	4.70	46.47	31.42	35.83	38.21
Lane Group LOS	A	B	A	A	A	A	D	C	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.03	6.87	0.07	0.16	5.36	0.11	1.43	0.45	1.20	3.26
50th-Percentile Queue Length [ft/ln]	0.81	171.67	1.70	3.95	134.05	2.87	35.68	11.18	29.99	81.43
95th-Percentile Queue Length [veh/ln]	0.06	11.16	0.12	0.28	9.16	0.21	2.57	0.81	2.16	5.86
95th-Percentile Queue Length [ft/ln]	1.46	279.11	3.06	7.11	228.99	5.16	64.23	20.13	53.98	146.57

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	5.30	10.67	5.20	7.17	8.74	4.70	46.47	31.42	31.42	35.83	38.21	38.21
Movement LOS	A	B	A	A	A	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	10.60			8.64			42.17			37.54		
Approach LOS	B			A			D			D		
d_I, Intersection Delay [s/veh]	12.63											
Intersection LOS	B											
Intersection V/C	0.556											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.964	2.991	1.986	2.051
Crosswalk LOS	C	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1156	1156	467	467
d_b, Bicycle Delay [s]	8.02	8.02	26.45	26.45
l_b,int, Bicycle LOS Score for Intersection	2.661	2.591	1.698	1.906
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 17: Cotton Lane & Access I

Control Type:	Signalized	Delay (sec / veh):	12.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.497

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.00	8.00	8.00	15.00	8.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Growth Factor	1.0000	1.3468	1.0000	1.0000	1.3468	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	44	1	28	57	7	42	0	1	6	0	188
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	884	0	0	884	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	928	1	28	941	7	42	0	1	6	0	188
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	252	0	8	256	2	11	0	0	2	0	51
Total Analysis Volume [veh/h]	0	1009	1	30	1023	8	46	0	1	7	0	204
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	0	0	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	20	18	0	21	19	0	0	51	0	0	51	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	9	0	0	9	0	0	18	0	0	18	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	66	59	59	66	62	62	16	16	16	16
g / C, Green / Cycle	0.73	0.65	0.65	0.73	0.68	0.68	0.18	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.00	0.33	0.00	0.06	0.34	0.01	0.05	0.00	0.01	0.16
s, saturation flow rate [veh/h]	506	3050	1362	522	3050	1281	949	1281	1141	1281
c, Capacity [veh/h]	402	1992	889	410	2082	874	88	234	264	234
d1, Uniform Delay [s]	0.00	8.09	5.42	4.99	6.83	4.57	44.95	30.08	31.84	35.75
k, delay calibration	0.11	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.92	0.00	0.35	0.83	0.02	4.71	0.01	0.04	9.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.00	0.51	0.00	0.07	0.49	0.01	0.52	0.00	0.03	0.87
d, Delay for Lane Group [s/veh]	0.00	9.01	5.42	5.33	7.66	4.59	49.66	30.09	31.88	45.31
Lane Group LOS	A	A	A	A	A	A	D	C	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.00	4.60	0.01	0.16	4.12	0.05	1.13	0.02	0.13	4.88
50th-Percentile Queue Length [ft/ln]	0.00	115.10	0.16	3.98	102.91	1.13	28.32	0.45	3.26	122.03
95th-Percentile Queue Length [veh/ln]	0.00	8.12	0.01	0.29	7.41	0.08	2.04	0.03	0.23	8.50
95th-Percentile Queue Length [ft/ln]	0.00	203.07	0.29	7.16	185.23	2.03	50.98	0.81	5.86	212.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	9.01	5.42	5.33	7.66	4.59	49.66	30.09	30.09	31.88	45.31	45.31
Movement LOS	A	A	A	A	A	A	D	C	C	C	D	D
d_A, Approach Delay [s/veh]		9.01			7.57			49.24			44.86	
Approach LOS		A			A			D			D	
d_I, Intersection Delay [s/veh]	12.42											
Intersection LOS	B											
Intersection V/C	0.497											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.796	2.897	1.960	2.049
Crosswalk LOS	C	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	311	333	1044	1044
d_b, Bicycle Delay [s]	32.09	31.25	10.27	10.27
l_b,int, Bicycle LOS Score for Intersection	2.393	2.435	1.637	1.908
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX D
Storage Analyses

Queue Analysis

Project: CP Lakin Park Traffic Impact Study

Design Year: Full Build-out (Year 2028), 10-year Horizon (Year 2038)

Site Access Intersection Left and Right-Turn Lanes

Unsignalized intersections:

Overall Turn Lane Length = Queue Storage + Minimum Braking Distance per AASHTO

where: Queue Storage = [{(turning veh/hr)/(30 periods per hour)]*25ft}-X] for unsignalized intersection

for right-turns X = 20 feet per AASHTO and ADOT TGP 430

for left-turns X = 1/3 taper/gap length for left-turn decel lanes (120feet/3 = 40ft)

Minimum Braking Distance = per ADOT TGP 430 Table 430-2

Signalized intersections:

AASHTO/ITE Traffic Engineering Handbook Queue Storage LengthFormula for Signalized Intersections:

Left Turns:

Queue Storage Length = VKL(1+p)/Nc, where:

V= peak 15-min flow rate expressed in vph (use peak hour volume)

K= constant reflecting random arrivals (use 2)

Nc= Number of Cycles per hour (use 40 for this intersection assuming having a 90 sec c

p= percentage of trucks or buses (use 15% for this site, trucks are likely)

L= length of typical passenger vehicle (use 25 feet)

Right Turns:

Queue Storage Length = (1-G/C)VKL(1+p)/Nc, where:

V= peak 15-min flow rate expressed in vph (use peak hour volume)

K= constant reflecting random arrivals (use 1.5 for right-on-red, 2 for no right-on-red)

Nc= Number of Cycles per hour (use 40 for this intersection having assumed 90 sec cycl

C= Cycle Length in seconds (use 90 for this intersection)

G= Green time in seconds (use 45 sec)

p= percentage of trucks or buses (use 15% for this site, trucks are likely)

Full Buildout Year 2028

Direction	Turning Vol (veh/hr)	Calculated Queue Storage Length (ft)	Minimum Braking Distance (ft)	Calculated Overall Storage Length (ft)	use (ft)
		right turn decel lanes			
Access A (SB Cotton Lane) Unsignalized	77	65	85	150	150
Access A (NB Cotton Lane) Unsignalized	8	7	85	150	150
Access B (SB Cotton Lane) **Signalized**	32	18	85	170	175
Access B (NB Cotton Lane) **Signalized**	24	13	85	170	175
Access I (SB Cotton Lane) Unsignalized	63	53	85	150	150
Access I (NB Cotton Lane) Unsignalized	9	8	85	150	150
Access J (SB Cotton Lane) Unsignalized	119	100	85	165	175
Access C (EB MC-85) Unsignalized	16	14	145	210	225
Access D (EB MC-85) Unsignalized	7	6	145	210	225
Access E (EB MC-85) Unsignalized	4	4	145	210	225
Access F (EB MC-85) Unsignalized	6	5	145	175	175
Access G (EB MC-85) Unsignalized	53	45	145	210	225
Access H (EB MC-85) Unsignalized	9	8	145	210	225
		left turn decel lanes			
Access A (NB Cotton Lane) Unsignalized	2	2	85	130	150
Access A (SB Cotton Lane) Unsignalized	256	214	85	259	275
Access B (NB Cotton Lane) **Signalized**	46	66	85	130	150
Access B (SB Cotton Lane) **Signalized**	83	123	85	168	175
Access I (NB Cotton Lane) Unsignalized	2	2	85	130	150
Access I (SB Cotton Lane) Unsignalized	277	231	85	276	275
Access C (WB MC-85) Unsignalized	21	18	145	190	200
Access D (WB MC-85) Unsignalized	41	35	145	190	200
Access E (WB MC-85) Unsignalized	10	9	145	190	200
Access F (WB MC-85) Unsignalized	57	48	145	155	175

10-year Horizon Year 2038 - Cotton Lane Accesses

Direction	Turning Vol (veh/hr)	Calculated Queue Storage Length (ft)	Minimum Braking Distance (ft)	Calculated Overall Storage Length (ft)	use (ft)
		right turn decel lanes			
Access A (SB Cotton Lane) **Signalized**	56	31	85	170	175
Access A (NB Cotton Lane) **Signalized**	74	40	85	170	175
Access B (SB Cotton Lane) **Signalized**	30	17	85	170	175
Access B (NB Cotton Lane) **Signalized**	42	23	85	170	175
Access I (SB Cotton Lane) **Signalized**	63	34	85	170	175
Access I (NB Cotton Lane) **Signalized**	9	5	85	170	175
Access J (SB Cotton Lane) Unsignalized	107	90	85	155	175
		left turn decel lanes			
Access A (NB Cotton Lane) **Signalized**	22	32	85	130	150
Access A (SB Cotton Lane) **Signalized**	188	271	85	316	325
Access B (NB Cotton Lane) **Signalized**	68	98	85	143	150
Access B (SB Cotton Lane) **Signalized**	73	105	85	150	150
Access I (NB Cotton Lane) **Signalized**	2	3	85	130	150
Access I (SB Cotton Lane) **Signalized**	277	231	85	276	275

APPENDIX E
Cotton Estrella Bridges Traffic

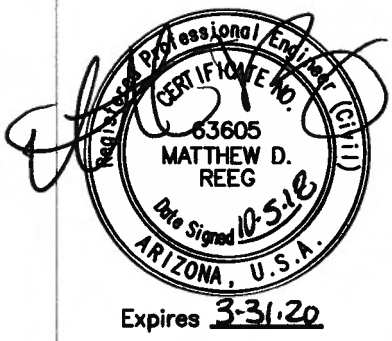
SOUTHWEST TRAFFIC ENGINEERING, LLC

TRAFFIC ANALYSIS

COTTON ESTRELLA BRIDGES

COTTON LANE AND ESTRELLA PARKWAY @ GILA RIVER

REVISED 5 OCTOBER 2018
31 AUGUST 2018

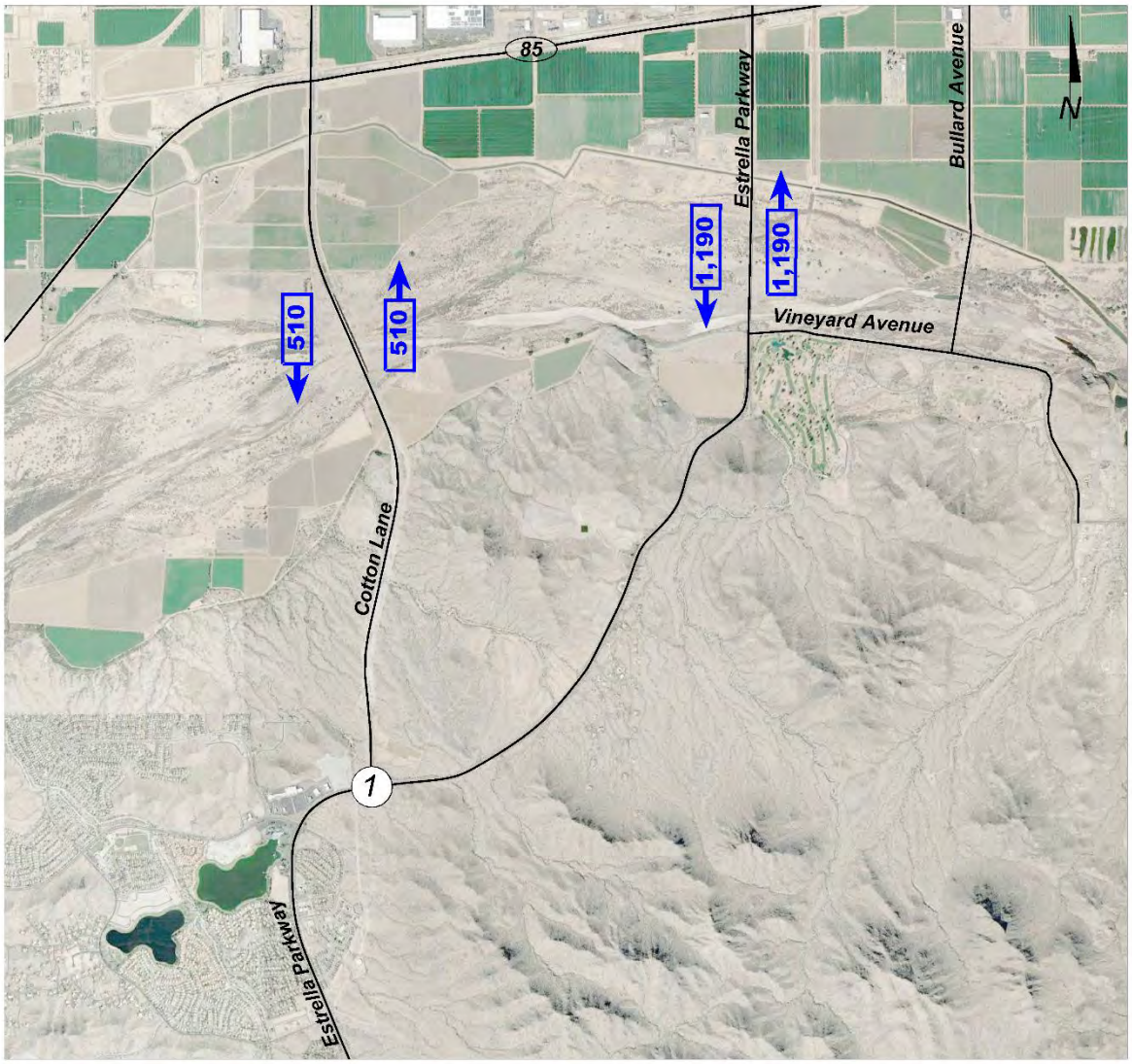


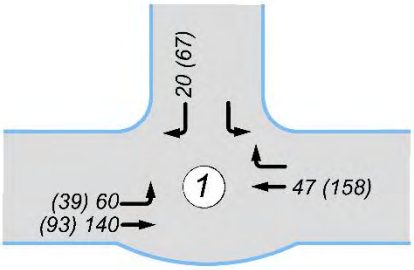
Expires 3-31-20

PREPARED FOR
NEWLAND REAL ESTATE GROUP
5090 NORTH 40TH STREET, SUITE 210
PHOENIX, ARIZONA 85018

SOUTHWEST TRAFFIC ENGINEERING, LLC
3838 NORTH CENTRAL AVENUE, SUITE 1810
PHOENIX, AZ 85012
T 602.266.SWTE (7983) F 602.266.1115

Figure 7 – Weekday Peak Hour Trip Assignment 2019

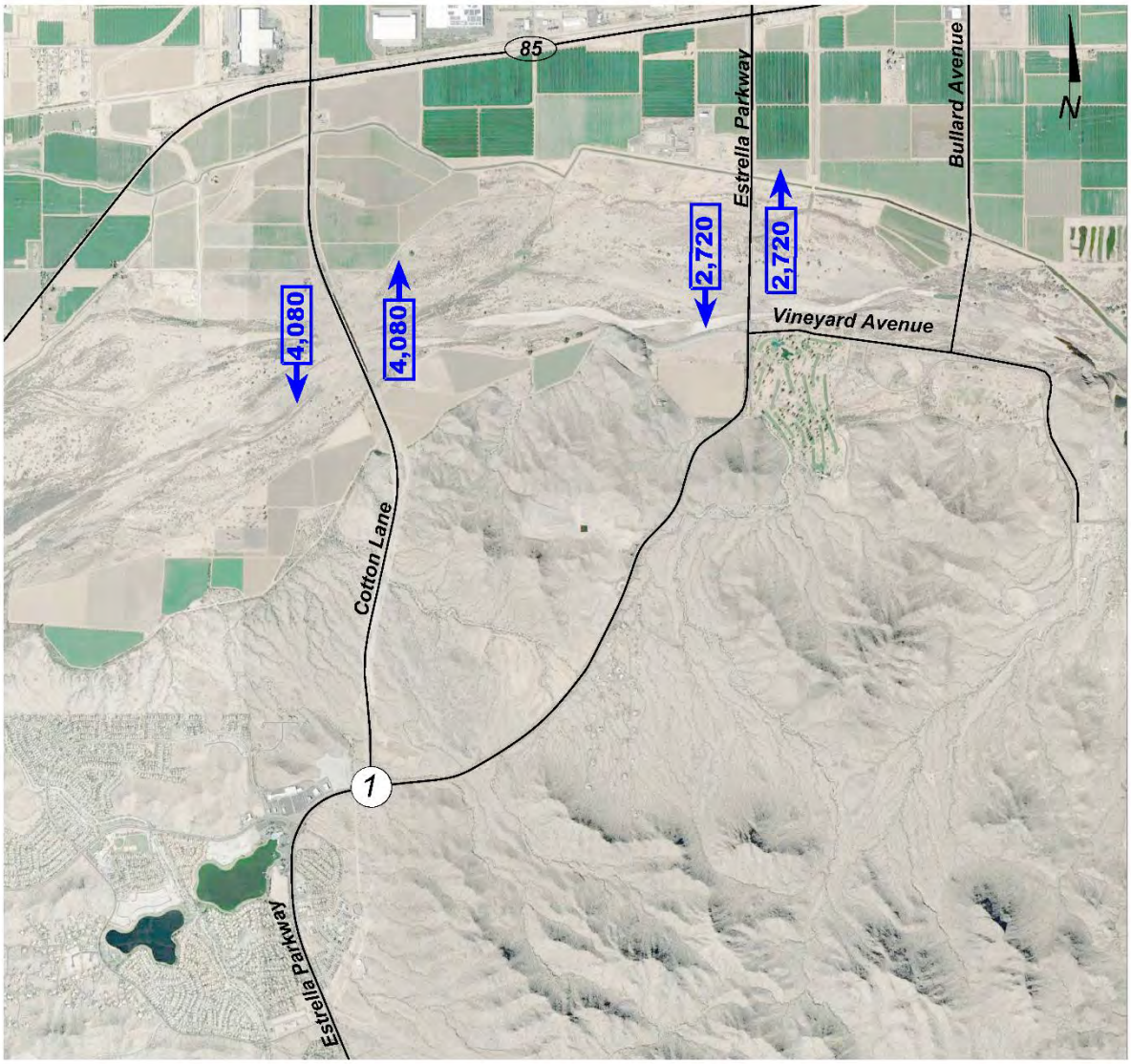


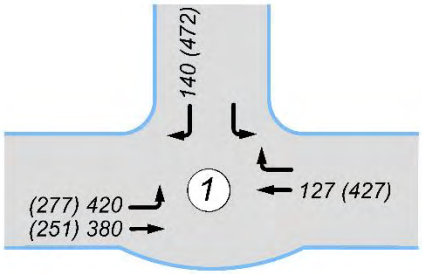


LEGEND:

###→ = Vehicles Per Day
XX = Weekday AM Peak Hour, Vehicles Per Hour
(XX) = Weekday PM Peak Hour, Vehicles Per Hour
——— = Existing Road

Figure 8 – Weekday Peak Hour Trip Assignment 2024

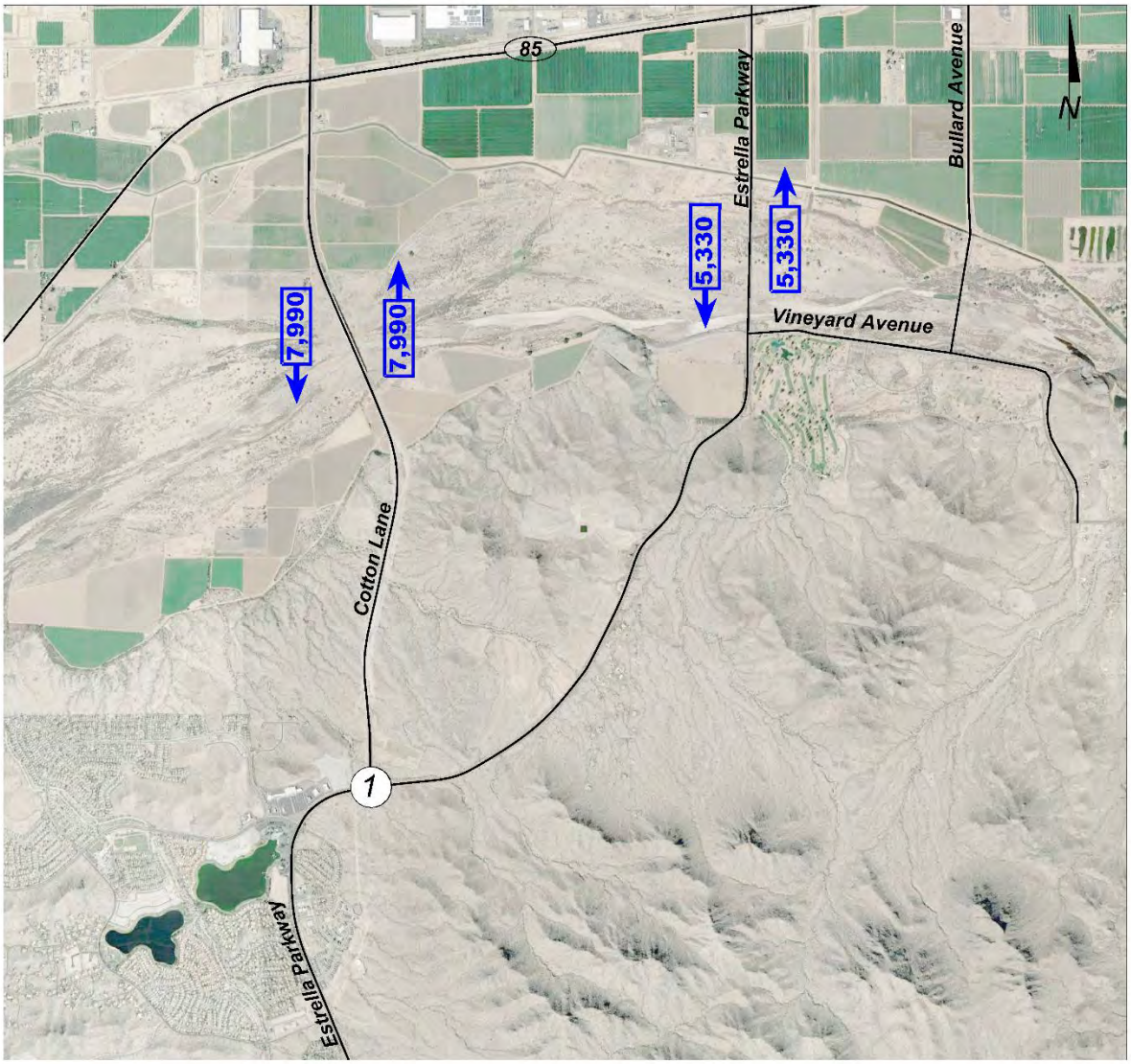


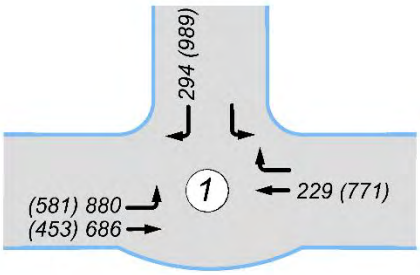


LEGEND:

###→ = Vehicles Per Day
XX = Weekday AM Peak Hour, Vehicles Per Hour
(XX) = Weekday PM Peak Hour, Vehicles Per Hour
——— = Existing Road

Figure 9 – Weekday Peak Hour Trip Assignment 2029

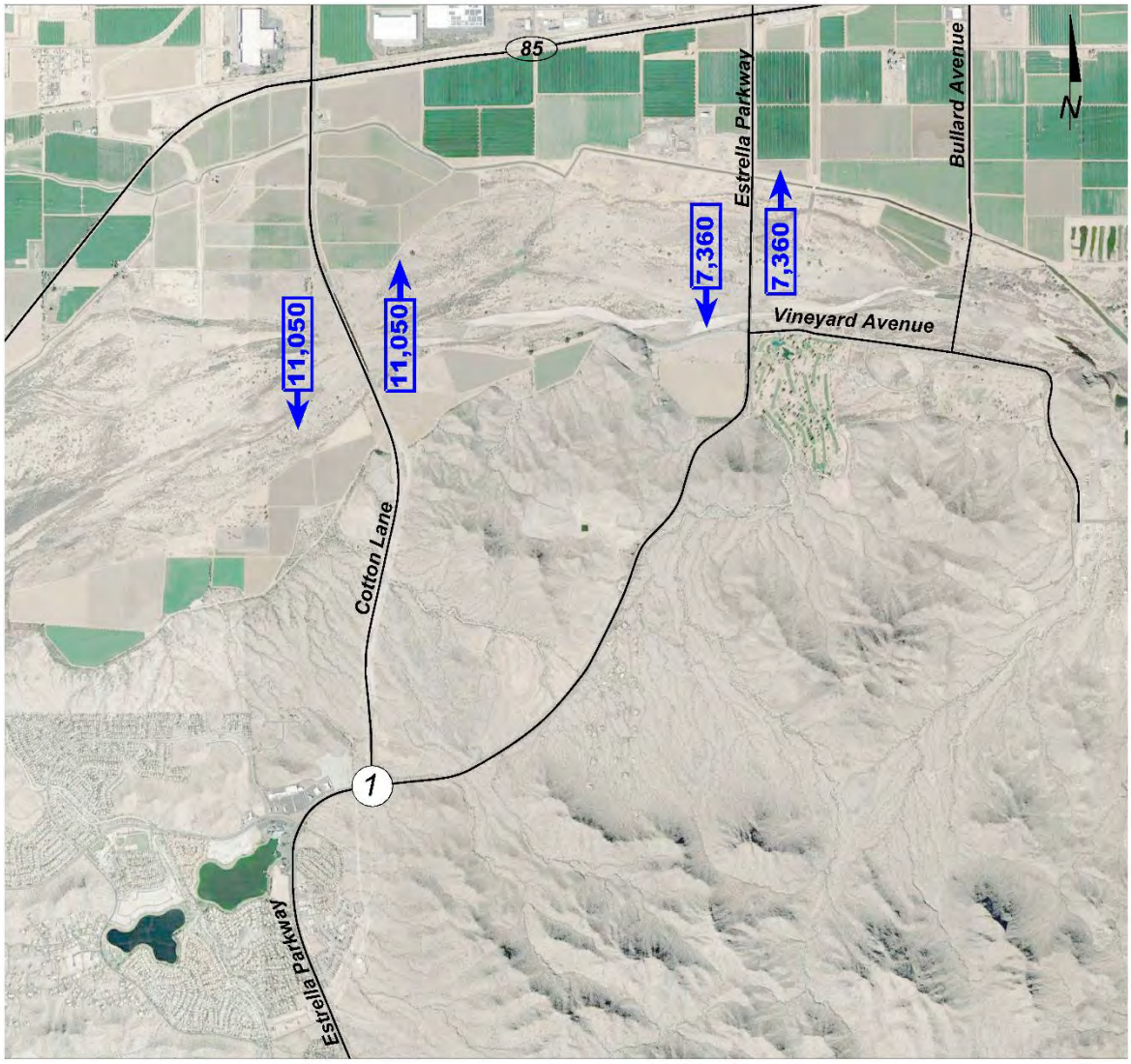


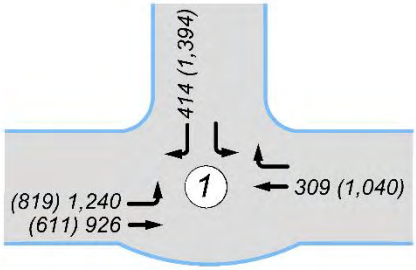


LEGEND:

= Vehicles Per Day
XX = Weekday AM Peak Hour, Vehicles Per Hour
(XX) = Weekday PM Peak Hour, Vehicles Per Hour
= Existing Road

Figure 10 – Weekday Peak Hour Trip Assignment 2034





LEGEND:

###→ = Vehicles Per Day
XX = Weekday AM Peak Hour, Vehicles Per Hour
(XX) = Weekday PM Peak Hour, Vehicles Per Hour
——— = Existing Road

APPENDIX F
Review Comment Resolution

COMMENT RESOLUTION

Lakin Property Traffic Impact Study
Rezone Case No. 18-200-00014
REVIEWER:
ORGANIZATION: City of Goodyear
REVIEW DATE: 1/7/2019

CODES:
A = Will Comply
B = Designer to Evaluate
C = City of Goodyear to Evaluate
D = No Further Action Required

COMMENT NO.	DWG, SHT, PAGE NO.	COMMENT	FINAL CODE	RESPONSE
1	42	Figure 15 Recommendations - The header in the table provided in this figure has a text error. Please revise text.	A	Text revised.
2	44	Warrant 3 Peak Hour Volume - The text states that Warrant 3 is not met for Cotton and Elwood, however, this location appears that it does meet Warrant 3 in 2021 and 2026.	D	Per signal warrant analysis provided in Appendix B, signal warrants (including Warrant 3) are not met at Cotton/Elwood. The high minor volume condition is not met (for Condition A) so the warrant is not satisfied. The traffic signal warrant studies should be re-evaluated in the future traffic impact study updates for the site once the actual development plans, site planning for the remaining phases of the project, and future traffic volumes are realized.

MCDOT -- TRAFFIC ENGINEERING
REVIEW COMMENT SHEET

Project Name: Lakin Park Phase 1 Location: SWC of Cotton Ln & MC-85 P&D/MCDOT File No.: TC201900914	Date: 05-29-2019 Reviewer: Raj Thoutam Phone No.: 602-506-8940
Consultant: United Civil Group Project No.: TR18074 Report Sealed By: Keith A. Winney, P.E. Phone No: 602-265-6155 Fax:	CONSULTANT CODE: A = Will Comply B = Deleted C = Consultant to Evaluate

Item Number	Page Number	Comments	Consultant Reply
		1ST REVIEW (TIS)	
		Consultant: Please use the code and respond to each comment in the Consultant Reply Column. This sheet is for our record, **please answer every question and sign and date your acknowledgement or the plans will be sent back to complete the process.** Send back the marked-up plans and a new set of plans along with this comment sheet. Thank you for your cooperation.	
= = =	= = =	**General Summary:** The proposed development's phase 1 site is located on the southwest corner of Cotton Ln & MC-85 Rd. The site will consist of single-family residential, multi-family residential, commercial, and a fire station. The site will have six driveways of which four will access out on to MC-85 and the other two will access out onto Cotton Ln. Below comments pertain to driveways that connect to MC-85 only since it is under MCDOT jurisdiction.	
		Review Comments:	
1		Since existing eastbound exclusive dual left-turn and right-turn lane storage length exceeds 400 ft., proposed ACCESS C should be located at least 500 ft. west of Cotton Ln to provide adequate merging distance for the vehicles exiting the driveway. The existing center median should be extended west to keep the access Right-In/Right-Out only. Per our discussions, Access C will be a full access and located at a point west of the existing median.	A
		Other than above there are no further comments on this study.	

Signature: _____ Date: 7/15/19

COMMENT RESOLUTION

Lakin Property Traffic Impact Study
Rezone Case No. 18-200-00014
REVIEWER: Hugh Bigalk
ORGANIZATION: City of Goodyear
REVIEW DATE: 8/29/2019

CODES:
A = Will Comply
B = Designer to Evaluate
C = City of Goodyear to Evaluate
D = No Further Action Required

COMMENT NO.	DWG, SHT, PAGE NO.	COMMENT	FINAL CODE	RESPONSE
1	8	C. Phasing and Timing – It is understood that the new freeways will change the traffic flow once they have been opened, however, analyzing the horizon year is a requirement for TIAs. Please make some assumptions/best guesses and analyze the site access driveways for the horizon year. Please document the assumptions being made.	A	Per our discussion, the growth rate for determining the backgound traffic volumes along Cotton Lane in 2038 has been reduced to 1% per year between 2028 - 2038. Using the future redistributed site generated traffic (already in previous version of the study) once SR 30 opens to add to the background traffic, the total traffic conditions on Cotton Lane are determined. ***For clarity, the discussion and analyses regarding total traffic assumptions along Cotton Lane in the 2038 horizon year and the associated traffic analyses have been added as a separate section (VI. Cotton Lane Traffic Analyses - Horizon Year 2038).
2	32	Page 32 – Access B – Please submit a waiver for this driveway to the City with the submittal of the preliminary plat or site plan for review and approval.	A	A waiver will be submitted at this time.
3	Fig 11	Figure 11: Recommendations – Left turn lanes will also be required for SB Cotton Lane at Access B, A and I.	A	Have included these left turn lanes in the analysis and recommendations
4	Fig 11	1. Figure 11: Recommendations – A right turn lane will be required for NB Cotton Lane for Access B, A, and I (EDS&PM 4.1.3.K.6).	A	Have included these right turn lanes in the analysis and recommendations
5	42	Warrant 3 – Peak Hour Volume – A Warrant 3 is met for Cotton Lane and Access A. Please revise the study.	D	For the 2028 horizon year: Under Condition A for Warrant 3, the volume condition is met, however the delay condition is not met, so overall, Condition A is not met. Condition B is not met. Warrant 3 overall is not met for this access, as shown in the study.
6	42	Page 42 – Warrant 3 – Peak Hour Volume – A Warrant 3 is met for Cotton Lane and Access B. Please revise the study.	D	For the 2028 horizon year: Warrant 3 is reported in the Traffic Impact Study as being met for this access. Under Condition A for Warrant 3, the volume condition is met, but the delay condition is not met, so overall, Condition A is not met. However, Condition B is met; therefore Warrant 3 is met, as shown in the study.
7	42	Page 42 – Warrant 3 – Peak Hour Volume – A Warrant 3 is met for Cotton Lane and Access I. Please revise the study.	D	For the 2028 horizon year: Under Condition A for Warrant 3, the volume condition is met, however the delay condition is not met, so overall, Condition A is not met. Condition B is not met. Warrant 3 overall is not met for this access, as shown in the study.