The Language of Traffic Engineering

Traffic Engineering, and Traffic Engineers, often use technical terms or jargon that may be confusing or tough to understand even within the context of a sentence. Key terms and acronyms that can generally be found in all types of traffic studies are defined in this document.

Types of Studies

Access Management – The practice of government agencies limiting the amount of intersections (both public roadway crossings and private driveways) along a roadway corridor based on the function of the roadway to improve safety and mobility while streamlining access.

Corridor Study – A transportation review and analysis of the existing and future traffic operations of a roadway segment. Varies in length from a couple blocks to a few miles and typically covers all modes of travel.

Intersection Control Evaluation (ICE) Report – A document that examines and determines the most appropriate type of control (stop sign, signal, roundabout, or other) at one or more intersections.

Safety Study – An examination of crash records to identify potential trends, issues, and problem intersections/ corridors. Usually includes potential mitigation options expected to decrease crash rates in the future.

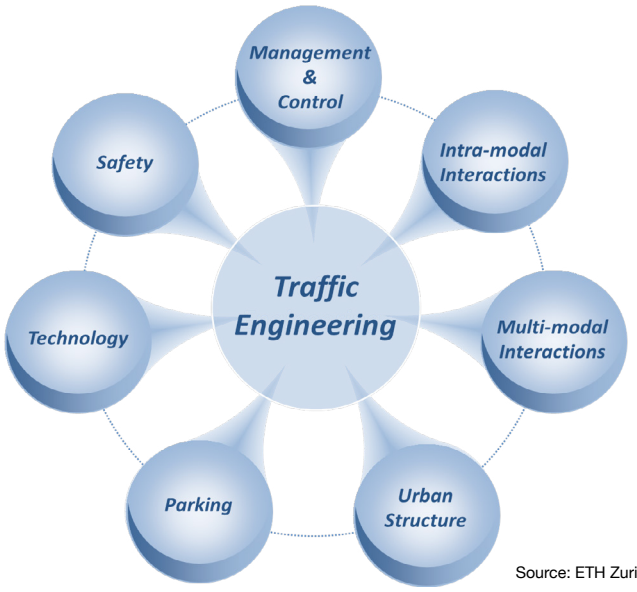
Speed Study – A review of existing travel speeds and the corridor characteristics to determine if speeding is an issue, the appropriate speed to post as the limit, and/or areas to provide reduced speed warnings.

Traffic Impact Study (TIS) – A document that addresses the expected traffic impacts of a development and, if necessary, mitigation options that will reduce or eliminate negative impacts. Also referred to as a Traffic Impact Analysis.

Transportation Plan – A document developed by a government agency to take inventory of their transportation network, identify concerns or issues and lay out the path for improvement of the system.

Travel Demand Management Plan (TDMP) – A plan that documents the existing infrastructure around a site, including transit and non-motorized vehicle options, and develops measures to be implemented to encourage those alternative modes of travel.

Warrant Evaluation – Review of traffic volumes and other characteristics at an intersection against thresholds to determine if a traffic signal or other traffic control option is needed/warranted.



Source: ETH Zurich

Traffic Engineering is a branch of civil engineering that focuses on the safe and efficient movement of people and vehicles. It is part science and part art, requiring not only technical skills for analysis but an understanding of motivations in choosing travel routes.

Key Organizations

AASHTO – American Association of State Highway and Transportation Officials. A nonprofit, nonpartisan association representing transportation departments with a primary goal of fostering the development, operation, and maintenance of an integrated national transportation system.

DOT – Department of Transportation. Government organizations within federal and state agencies dedicated to serving the transportation needs of the community and typically responsible for study, design, operation, and maintenance of all facets of transportation.

FHWA – Federal Highway Administration. An agency within the US Department of Transportation that supports State and local governments in the design, construction, and maintenance of the highway system.

ITE – Institute of Transportation Engineers. An international educational and scientific association of transportation professionals who are responsible for meeting mobility and safety needs.

Appendix A - The Language of Traffic Engineering

Results

85th Percentile Speed – Speed at which 85 percent of drivers are traveling at or below. Speed limits are typically set at the 85th percentile speed.

95th Percentile Queue – The distance, generally measured in feet or number of vehicles, which will be exceeded in a lane, typically at an intersection, only five percent of the time. Usually used to help determine intersection turn lane lengths.

Control Delay – The total amount of time a motorist takes to get through a road segment or intersection minus the time it would take without stopping due to traffic controls (like stop signs or traffic signals). Control delay includes decelerating and accelerating back to full driving speed.

Functional Classification – the grouping of streets and highways into categories according to their characteristics and emphasis on mobility or access. Generally, categories include arterials (emphasizing mobility and fast travel), local roads (emphasizing access to adjoining properties), and collector roads (emphasizing a balance between the two and usually connecting arterials to local roads).

Intersection Delay – The average amount of time, usually expressed in seconds, experienced by any vehicle traveling through an intersection.

Level of Service (LOS) – Qualitative measure of traffic operations related to the amount of average delay experienced. Expressed in letter grades with LOS A representing the best operations with little to no delay and LOS F representing the worst operations with excessive delays and congestion.

Measures of Effectiveness – Performance measures that define how well traffic is moving along a corridor or thru an intersection. The common MOEs are travel time, corridor speed, delay, and queues.

Mitigation – Measures intended to reduce the impact of a development or improve an identified traffic issue by either improving capacity (like adding lanes) or reducing demand (like encouraging carpooling).

Queue – Length of line of cars waiting at an intersection or at a bottleneck in a corridor, typically measured for each individual lane of traffic in feet or number of vehicles.

Volume to Capacity (v/c) ratio – the number of vehicles through an intersection or roadway segment in a specific amount of time divided by the expected capacity of the road. Less than 1.0 indicates available capacity and above 1.0 indicates more vehicles than can be accommodated. Typically, a v/c ratio above 0.85 suggests operational issues.

Trip Generation – The amount of vehicle traffic generated by a land use. One trip is equal to one vehicle traveling from an origin to a destination (traveling to and from work equals two trips).

Warrants – Criteria based on volumes and other Measures of Effectiveness for determining when all way stop signs, roundabouts, traffic signals, or other type of control should be installed.

Important Manuals/Guides

HCM – Highway Capacity Manual (released by the Transportation Research Board, or TRB). The guide for engineers and planners to assess traffic and environmental effects of highway projects. This manual presents the foundation of traffic analysis procedures in the US.

MUTCD – Manual of Uniform Traffic Control Devices. A document that sets minimum standards and provides guidance to ensure uniformity of traffic control devices (such as messages, location, size, shapes, and colors) across the nation. All roads are subject to its jurisdiction.

HSM – Highway Safety Manual (released by AASHTO). A guide that presents a variety of methods for quantitatively estimating crash frequency or severity.

Resources

MUTCD, 2009 Edition, published by FHWA

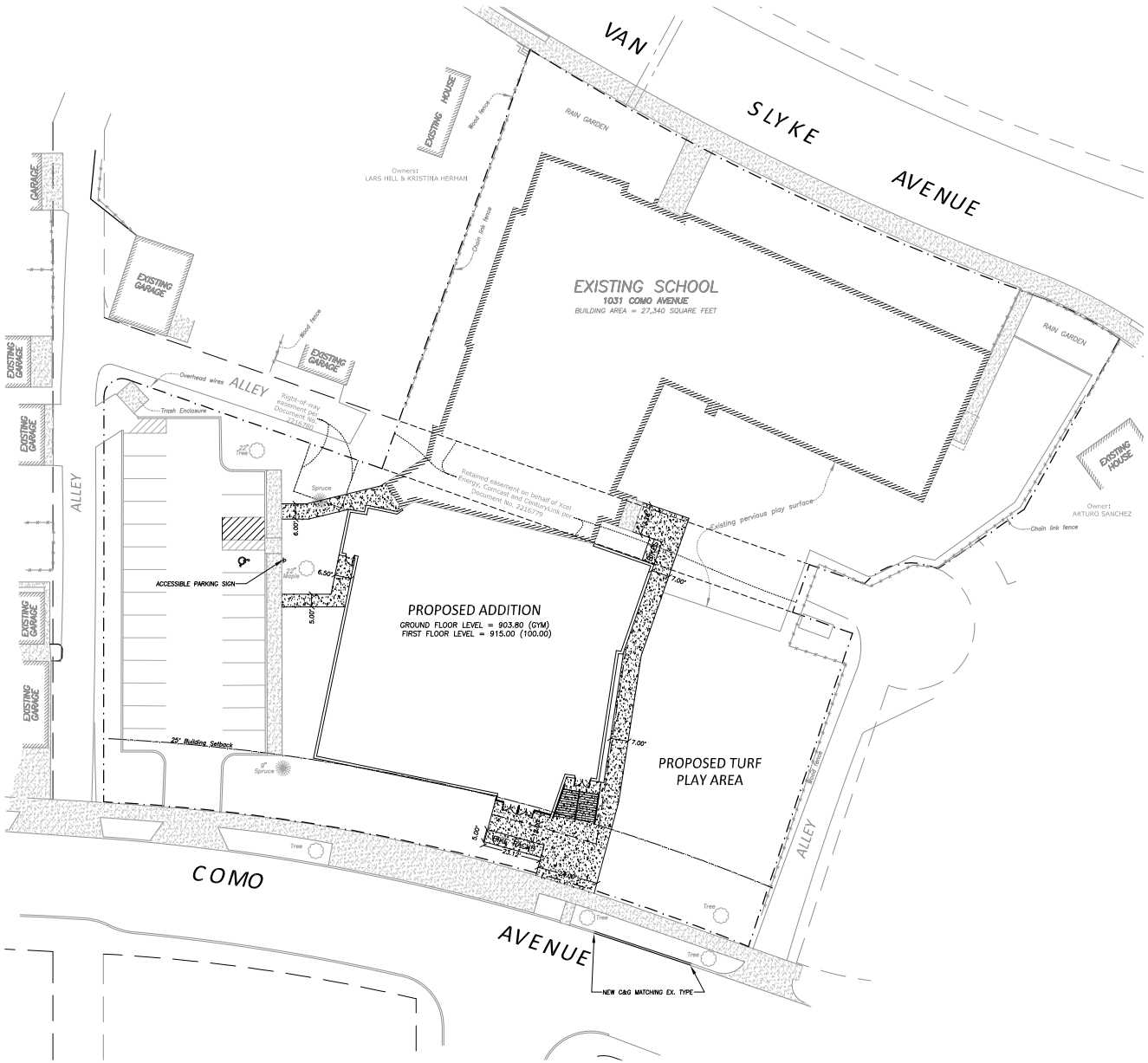
Highway Capacity Manual, HCM6

Highway Safety Manual, HSM

About This Brief

Spack Consulting prepared this brief as part of our company's vision to significantly improve the practice of traffic engineering and transportation planning. Transportation professionals from around the world have assisted us in developing this document. We are providing this brief under the Creative Commons Attribution License. Feel free to use-modify-share this guide, but please give us some credit in your document. To request our whole series of Design Briefs and to be included on our distribution list for new materials, please email mspack@spackconsulting.com. And please reach out if you have any comments or questions related to this Design Brief.

Appendix B - Concept Site Plan



SITE DATA

SITE AREA = 77,471
PRINCIPAL BUILDING COVERAGE = 30,290/77,471 = 39.1%
HARD SURFACE COVERAGE = 42,935/77,471 = 55.4%
(PERVIOUS PLAY SURFACE NOT INCLUDED)

PARKING STALLS REQUIRED

	FTE	STALLS
SCHOOL STAFF (FTE)	85	
TOTAL	85 X 1 STALL/FTE =	85

PARKING STALLS PROVIDED

STANDARD STALLS	ACCESSIBLE STALLS	COMPACT STALLS	TOTAL
24	1	0	25

LEGEND

- PROPOSED CONCRETE
- W — EXISTING WATERMAIN
- S — EXISTING SANITARY SEWER
- ST — EXISTING STORM SEWER
- G — EXISTING BURIED GAS LINE
- E — EXISTING BURIED ELECTRIC LINE
- C — EXISTING BURIED COMMUNICATION LINE

N

0 10 20 40 60
Scale in Feet

Rehder & Associates, Inc.
Civil Engineers, Planners and Land Surveyors
3440 Federal Drive, Suite 110 • Eagan, Minnesota 55122
(651-452-5601 • Fax (651-452-0587 • email info@rehder.com

PROJECT NO.: 181-3062.011 DRAWING FILE: 3062011.DWG

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

PRELIMINARY

Name Date Reg. No.

Issued
CITY SITE PLAN REVIEW 10-23-18

SITE DIMENSION PLAN
TWIN CITIES GERMAN IMMERSION SCHOOL
IMMERSION SCHOOL
CITY OF ST. PAUL

SHEET NUMBER
C1

Spack CONSULTING
ENGINEERING TRAFFIC FORWARD

Technical Memorandum

To: Rich Swedberb, TCGIS Board Chair
From: Bryant Ficek, PE, PTOE
Max Moreland, PE
Date: November 29, 2018
Re: Twin Cities German Immersion School – Existing Conditions

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The Twin Cities German Immersion School (TCGIS) is proposing building renovations to accommodate expected student growth and update their facilities. A traffic study is underway to review the impacts of these renovations on the surrounding roadway network. This memorandum is a part of the overall traffic study and documents the existing conditions around the TCGIS.

Study Area

To cover the intersections that are most significantly impacted by traffic generated by the TCGIS, the following intersections are included for primary review:

1. Lexington Parkway & Como Avenue/Horton Avenue
2. Horton Avenue & Van Slyke Avenue
3. Van Slyke Avenue & Churchill Street
4. Como Avenue & Chatsworth Street
5. Lexington Parkway & Wynne Avenue/Como Avenue
6. Churchill Street & Como Avenue
7. Como Avenue & West Parking Lot
8. Como Avenue & Oxford Street
9. Como Avenue & East Parking Lot

Figure 1 in the Appendix shows the location of the study intersections.

Transportation Network Characteristics

Lexington Parkway is Ramsey County State Aid Highway (CSAH) 51. In the study area, Lexington Parkway is a partially undivided, two-lane road with left turn lanes at study intersections. Northbound Lexington Parkway widens to two northbound lanes between Como Avenue/Horton Avenue and Wynne Avenue/Como Avenue. The speed limit is 30 mph. There is a sidewalk on the east side of the road and a trail on the west side of the road. On-street parking is not permitted.

Como Avenue west of Lexington Parkway is Ramsey CSAH 31. East of Lexington Parkway this road becomes Horton Avenue and is a City street. This is a two-lane, undivided road with a 30-mph speed limit. Sidewalks/trails are on both sides of the road and on-street parking is generally permitted.

Wynne Avenue west of Lexington Parkway becomes Como Avenue east of Lexington Parkway. Wynne Avenue is a two-lane, undivided road with a 25-mph speed limit and a right turn lane at the Lexington Avenue intersection. Wynne Avenue has a trail on the north side of the road and on-street parking is not permitted. Wynne Avenue leads to large parking lots for the surrounding playfields and pool. Como Avenue is a two-lane, undivided road with a 30-mph speed limit. Como Avenue has sidewalks on both sides and on-street parking is permitted. The north side of Como Avenue in front of the TCGIS is signed as a passenger loading area during weekday mornings and afternoons.

Van Slyke Avenue is a two-lane, undivided road with a 30-mph speed limit. Sidewalks are on both sides of the road and on-street parking is permitted. The south side of Van Slyke Avenue in front of the TCGIS is signed as a passenger loading area during weekday mornings and afternoons. Van Slyke Avenue becomes Chatsworth Street east of Como Avenue.

Churchill Street, Oxford Street and Argyle Street are local, two-way, undivided roads with 30-mph speed limits. Sidewalks are provided on both sides of these roads and on-street parking is permitted.

The Lexington Parkway/Como Avenue/Horton Avenue and Lexington Parkway/Wynne Avenue/Como Avenue intersections are signalized. The other study intersections are under side street stop sign control (the major road continues without stopping).

Existing traffic control and travel lanes for the study intersections are shown in Figure 2 in the Appendix.

Metro Transit Route 3 runs along Van Slyke Avenue, Como Avenue and Horton Avenue while Route 83 runs along Lexington Parkway and Como Avenue. Route 3 (U of M-Como Avenue-Energy Park Drive-Maryland Avenue) runs with an approximate frequency of five to ten minutes during the weekday rush hours and ten to 30 minutes for the rest of a typical weekday. Route 83 (HarMar Target-Lexington Avenue) has an approximate frequency of 30 minutes during the weekday rush hours and most of a typical weekday.

Traffic Volumes

Intersection video was collected at each study intersection under normal weekday conditions in November of 2018. Using these videos, 48-hour turning movement counts were collected at the study intersections. Counts for the two days were averaged at each location to smooth out any daily irregularities and provide traffic volumes for a “typical day”. The averaged daily volumes are shown in Figure 3 in the Appendix. The full traffic count data, shown in 15-minute intervals, can be seen in the Appendix.

Based on these counts, the overall peak hours in the study area were found to be from 7:30 to 8:30 a.m., 3:00 to 4:00 p.m. and 4:15 to 5:15 p.m. These times encompass the a.m. peak hour, school p.m. peak hour and p.m. peak hour, respectively. Summaries of the peak hour volumes are provided in Figures 4 to 6 in the Appendix.

Field Review

A field review of existing operations was conducted in the study area during the November 2018 data collection via both on-site and video observations of traffic. Key information from these observations is listed below.

AM Peak Hour

- Bus drop-offs occur without issue. Bus unloading areas were free of other vehicles.
- The car drop-offs on the Como Avenue side of the building last from approximately 7:47 to 8:15 a.m. with a few drop-offs as early as 7:35 a.m. The busiest period for car drop-offs was from approximately 8:03 to 8:10 a.m.
- The car drop-offs on the Van Slyke Avenue side of the building last from approximately 7:50 to 8:15 a.m. The busiest period for car drop-offs was approximately 7:57 to 8:07 a.m.
- A few car drop-offs occurred on Churchill Street near both Como Avenue and Van Slyke Avenue. A few car drop-offs also occurred on Como Avenue south of Van Slyke Avenue and Oxford Street south of Como Avenue. Very few car drop-offs occurred on Argyle Street south of Como Avenue.
- Most of the car drop-offs that occurred on Como Avenue were on the north side of the street adjacent to the school, though there were a portion that occurred on the south side of the street. The south side drop-offs increase pedestrian crossings of Como Avenue. Of the car drop-offs on the north side of Como Avenue, most students exited vehicles curbside.
- The westbound vehicle queues on Como Avenue at Lexington Parkway extended beyond Churchill Street from approximately 8:05 to 8:15 a.m. On one of the days of observations, this queue extended to Oxford Street from 8:08 to 8:13 a.m.
- On one of the days of observation, portable pedestrian awareness signs were placed on Como Avenue east of Oxford Street.

School PM Peak Hour

- Car pick-up operations were completed at 3:30 p.m. on both the Como Avenue and Van Slyke Avenue sides of the school.
- Vehicles start parking and waiting to pick-up on Como Avenue at about 2:40 p.m. and on Van Slyke Avenue at about 2:45 p.m.
- The queue for cars waiting to pick-up on the north side of the building extended down Van Slyke Avenue and Horton Avenue all the way to Lexington Avenue. The queue for cars waiting to pick-up on the south side of the building wrapped around Como Avenue to Van Slyke Avenue.
- Bus pick-ups were smooth on one day of observation with no vehicle conflicts in the loading area. On the other day, vehicles were stacked in the loading area causing buses to wait and block the through lane on Van Slyke Avenue before being able to pull curbside.
- Approximately a dozen vehicles do pick-ups on Oxford Street and about a half dozen on both Argyle Street and Churchill Street south of Como Avenue. A larger number occurs

on Churchill Street between Como Avenue and Van Slyke Avenue. A few pick-ups occur in the eastern parking lot off Como Avenue.

- Most of the Como Avenue car pick-ups occur on the north side of Como Avenue with about ten occurring on the south side of Como Avenue.
- There are a large number of pedestrian crossings on Como Avenue during this period. There is no marked crossing area and these crossings are typically unassisted.
- The westbound vehicle queues on Como Avenue at Lexington Parkway extended beyond Churchill Street from approximately 3:26 to 3:30 p.m.
- A moderate number of vehicles use Argyle Street to access the school area.
- There were a number of U-turns made in front of the school, mostly on Como Avenue, during this period. In general, there is a somewhat disordered feel around the school, especially on the Como Avenue side near the curve. With vehicles parked on either sideof Como Avenue and vehicles in the pick-up line on the north side of Como Avenue, that leaves one lane for two-way traffic which includes buses.

On-Street Parking

The on-street parking demand versus supply was monitored during the three peak hours. The percentage of on-street parking occupied in areas around the TCGIS are shown in Table 1. Some of the locations show a range as the number of vehicles parked on-street fluctuated throughout the peak hour. Table 1 also shows the number of parked vehicles during the observation periods.

Table 1 – Occupied On-Street Parking

Location	AM Peak Hour	School PM Peak Hour	PM Peak Hour
Churchill St between Como Ave & Van Slyke Ave	30% - 50% 13-23 cars	40% - 100% 17-45 cars	30% - 40% 14-17 cars
Churchill St south of Como Ave	20% - 25% 9-11 cars	20% - 30% 9-13 cars	25% - 30% 11-13 cars
Como Ave west of Churchill St	0% 0 cars	0% - 10% 0-2 cars	0% 0 cars
Como Ave between Churchill St & Oxford St	70% - 100% 8-11 cars	100% 11 cars	20% - 55% 2-6 cars
Como Ave between Oxford St & Argyle St	15% - 30% 2-4 cars	15% - 100% 2-13 cars	10% - 30% 1-4 cars
Como Ave between Argyle St & Van Slyke Ave	30% - 60% 4-7 cars	25% - 100% 3-12 cars	10% 1 car
Oxford St south of Como Ave	20% - 40% 8-16 cars	25% - 55% 9-21 cars	10% - 15% 4-6 cars
Argyle St south of Como Ave	15% - 20% 6-8 cars	15% - 30% 7-13 cars	10% - 15% 5-7 cars

Table 1 shows the fluctuations in on-street parking demand during the peak hours which gives a sense of school related traffic including staff and parent pick-ups/drop-offs. On-street parking counts were also conducted on a different day in the middle of the day on a school day and late in the evening on a school day to get a sense of parking demand during the day when school is in

session and during the evening when parking demand is driven solely by the residential neighborhood. The difference in these numbers can give a sense of how much on-street parking is utilized by the TCGIS during a school day. These counts are shown in Table 2. These are also visualized in Figure 7 in the Appendix.

Table 2 – Occupied On-Street Parking

Location	12:30 p.m.	9:30 p.m.
Horton Ave between Lexington Pkwy & Van Slyke Ave	2	3
Van Slyke Ave between Churchill St & Como Ave	8	2
Churchill St between Como Ave & Van Slyke Ave	11	9
Churchill St south of Como Ave	9	10
Como Ave west of Churchill St	1	0
Como Ave between Churchill St & Oxford St	9	0
Como Ave between Oxford St & Argyle St	3	1
Como Ave between Argyle St & Van Slyke Ave	2	0
Oxford St south of Como Ave	14	10
Argyle St south of Como Ave	11	10

Comparison to Other Schools

Spack Consulting has reviewed the operations at other schools in Minnesota over the past few years. At the TCGIS, the morning drop-off period lasts approximately 25 minutes and the afternoon pick-up period last approximately 15 minutes. This is very similar to what has been observed at other locations with good operations. For reference, school drop-off periods we have observed are generally around 30 minutes and pick-up periods range from 10 to 30 minutes. From a time-frame perspective, the TCGIS operates well.

Other schools we have observed have larger parking areas or more curb space for their drop-off/pick-up operations. These schools are able to effectively separate bus and car traffic, which is not the case at the TCGIS. The bus loading zones are occasionally in conflict with car loading at the TCGIS.

Around the TCGIS there are a number of intersections with significant pedestrian crossings, but without crossing guards or other protections. Although many students are walked to/from the school by parents/guardians, there are still students walking alone. Other schools Spack Consulting has observed do have crossing guards in place at key locations to improve safety.

Regarding communication with parents/guardians on pick-up/drop-off operations, the TCGIS is stronger in this category than what has been observed at other locations. Pick-up/drop-off policies are easy to find on the school's website and are thorough. The use of signage in pick-up vehicles is well placed and appears to keep the pick-up lines moving at a good pace. While we were not able to specifically evaluate the PikMyKid app, the fact that it exists puts the TCGIS above most schools. This app unquestionably is contributing to the operational efficiency. Having

multiple dedicated staff outside for the pick-up operations also ensures operations continue safely and efficiently.

Operational Analysis

The existing turning movement volumes along with the existing intersection configurations and traffic control were used to develop the average delay per intersection in each study scenario. The delay calculations were done in accordance with the *Highway Capacity Manual, 6th Edition* using the Vistro software package. The full calculations for each study scenario, including Level of Service (LOS) grades and queue lengths, are included in the Appendix.

Chart 1 shows the average peak hour delay per traffic signal controlled intersection for each peak hour. The signal timing for the existing conditions was provided by the City of Saint Paul. The LOS D/E boundary of 55 seconds of delay per vehicle is considered the threshold between acceptable and unacceptable traffic signal operation in Minnesota.

Chart 1 – Peak Hour Delays: Signal Controlled Intersections

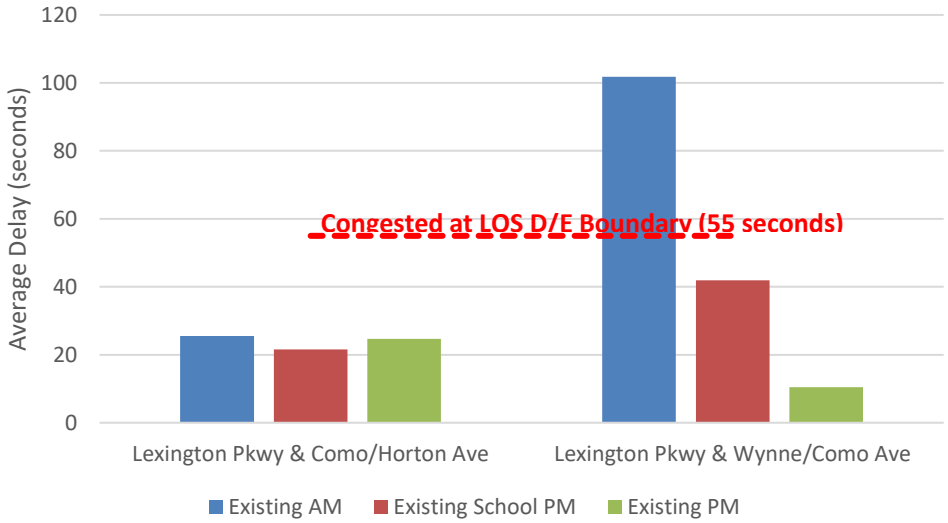
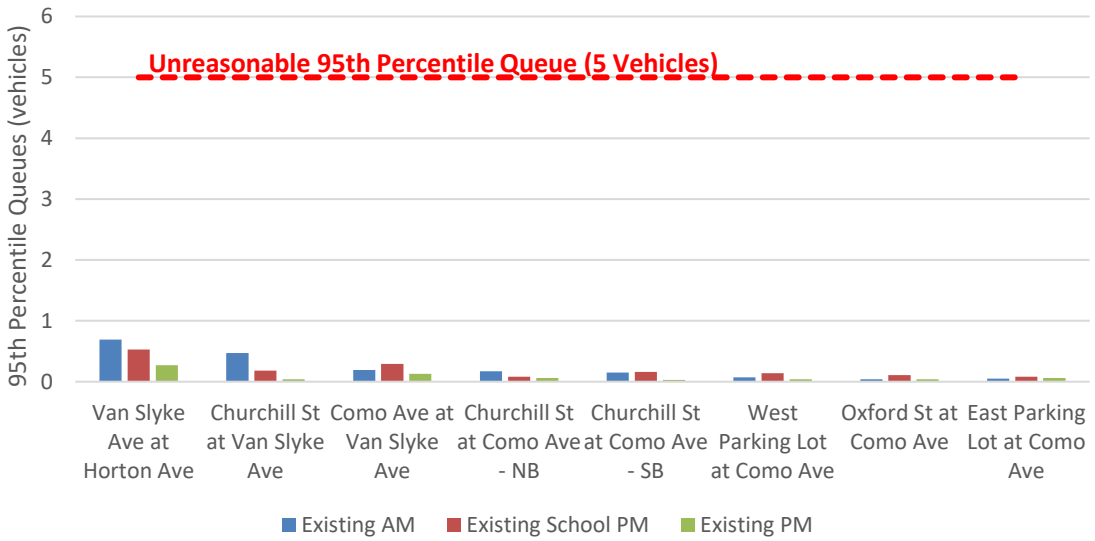


Chart 2 shows the 95th percentile queue lengths on the busiest stop sign controlled approach at intersections with side street stop sign control. Average delays are not shown for intersections with side street stop sign control because the vast majority of vehicles going through the intersection are on the main roadway and have zero delay, which leads to low overall average delays. At side street stop sign controlled approaches to busy roadways, the average delay for all vehicles on the approach often exceeds 60 seconds. This can be the case for a few vehicles waiting at the stop sign where improvements would not be justified for the low traffic volume. Based on our experience, improvements are not warranted at these types of intersections until the 95th percentile queue at a stop sign is in the five to ten vehicle range.

Chart 2 – A.M. Peak Hour Queues: Side Street Stop Sign Controlled Intersections



As shown in Charts 1 and 2, most study intersections and movements are operating acceptably in the existing peak hours. These computer results match the magnitude of delays and vehicle queues observed in the field.

The one intersection operating with higher than desired delays is the Lexington Parkway and Wynne Avenue/Como Avenue intersection in the a.m. peak hour. Specifically, the westbound approach on Como Avenue to the intersection experiences high delays and queues. This result is due to the high concentration of vehicles coming from the school in a relatively short time period. The other three approaches on Lexington Parkway and Wynne Avenue operate acceptably in this peak hour. Having vehicles exiting a school experience significant delay during a peak period is not uncommon and, while not desired by drivers, these significant delays only last for approximately 10 minutes.

Crash History

Crash information for the years 2013 through 2015 (the three most recent years of available data) was retrieved from MnDOT's Minnesota Crash Mapping Analysis Tool (MnCMAT) at each study intersection. Using this crash data as well as the traffic volumes at the study intersections, crash rates were determined at each intersection.

The observed Crash Rate is the number of crashes per million entering vehicles (MEV). This formula uses the total traffic, crashes, and time frame to provide a standard format for comparison between intersections. Although the study intersections can be compared together, a better measure is against the state averages for similar types of intersections (in traffic control type and traffic volume).

Another comparison tool is the Critical Crash Rate, which is a statistically adjusted Crash Rate to account for the random nature of crashes. An observed Crash Rate greater than the critical rate indicates that the intersection operates outside the expected, normal range.

Table 3 summarizes the historic crash data and calculated rates. More detailed crash information is shown in the Appendix.

Table 3 – Intersection Crash Data (2013-2015)

Intersection	Intersection Information			State Average Crash Rate*	Critical Crash Rate*
	Total Crashes	Entering Vehicle Volume	Observed Crash Rate*		
Lexington Pkwy & Como Ave/Horton Ave	12	17,540	0.62	0.52	0.97
Horton Ave & Van Slyke Ave	1	5,352	0.17	0.19	0.73
Como Ave & Chatsworth St	1	1,351	0.68	0.19	1.44
Lexington Pkwy & Wynne Ave/Como Ave	10	14,926	0.61	0.52	1.02
Como Ave & Oxford St	1	841	1.09	0.19	1.89

*Rates are per million entering vehicles.

As shown in Table 3, four of the five study intersections that experienced crashes from 2013 through 2015 have an observed crash rate higher than the state average for their similar type of intersection. All intersections, however, are below the critical crash rate threshold. Based on this result, there is a high probability that the higher than average Crash Rate at some locations is due to the random nature of crashes and not indicative of a systematic safety concern.

No fatal or serious injury crashes occurred at the study intersections from 2013 through 2015.

Appendix

A. Figures 1-7
B. Traffic Counts
C. Crash Data
D. Capacity Analysis Backup

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Figure 1
Study Intersections

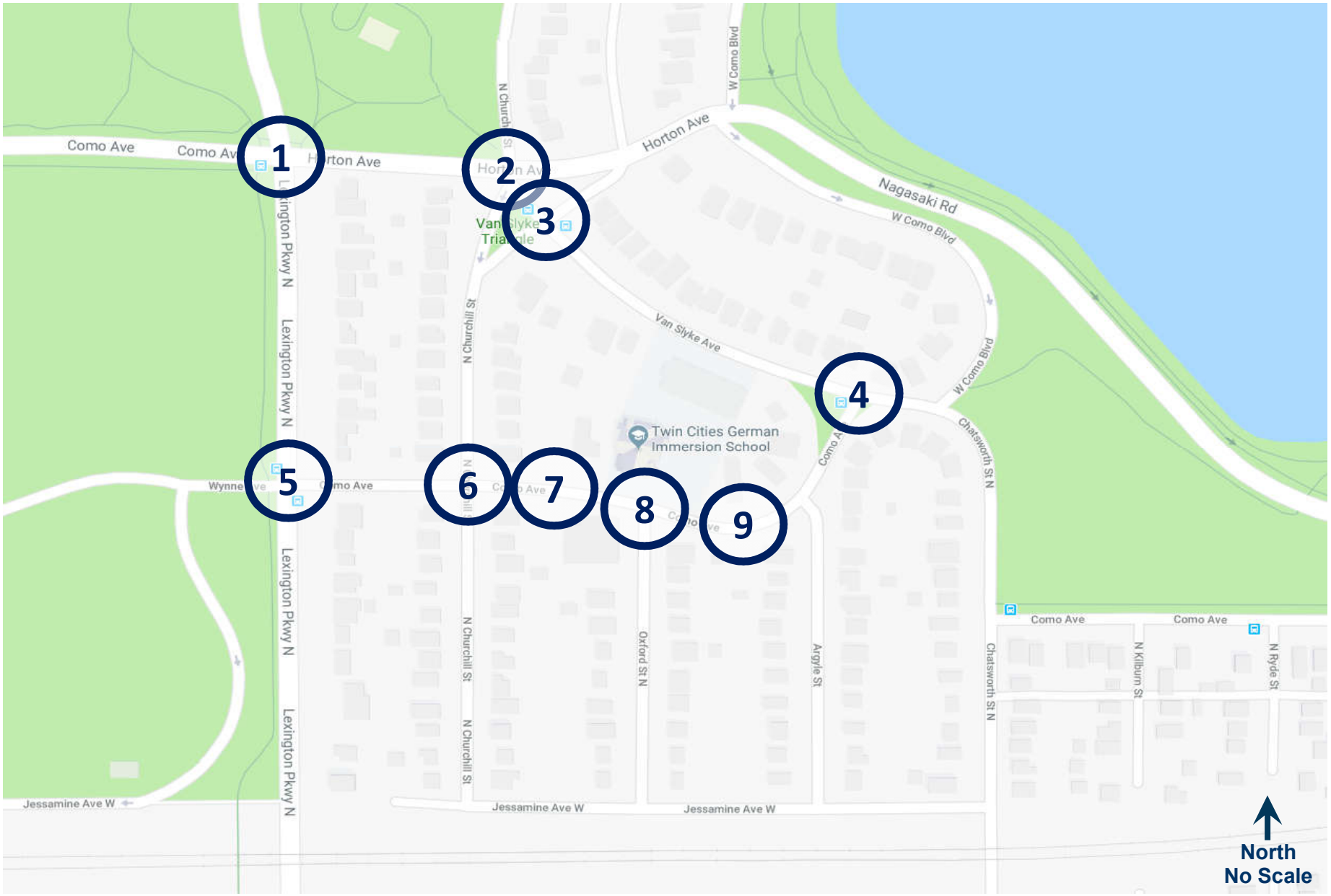

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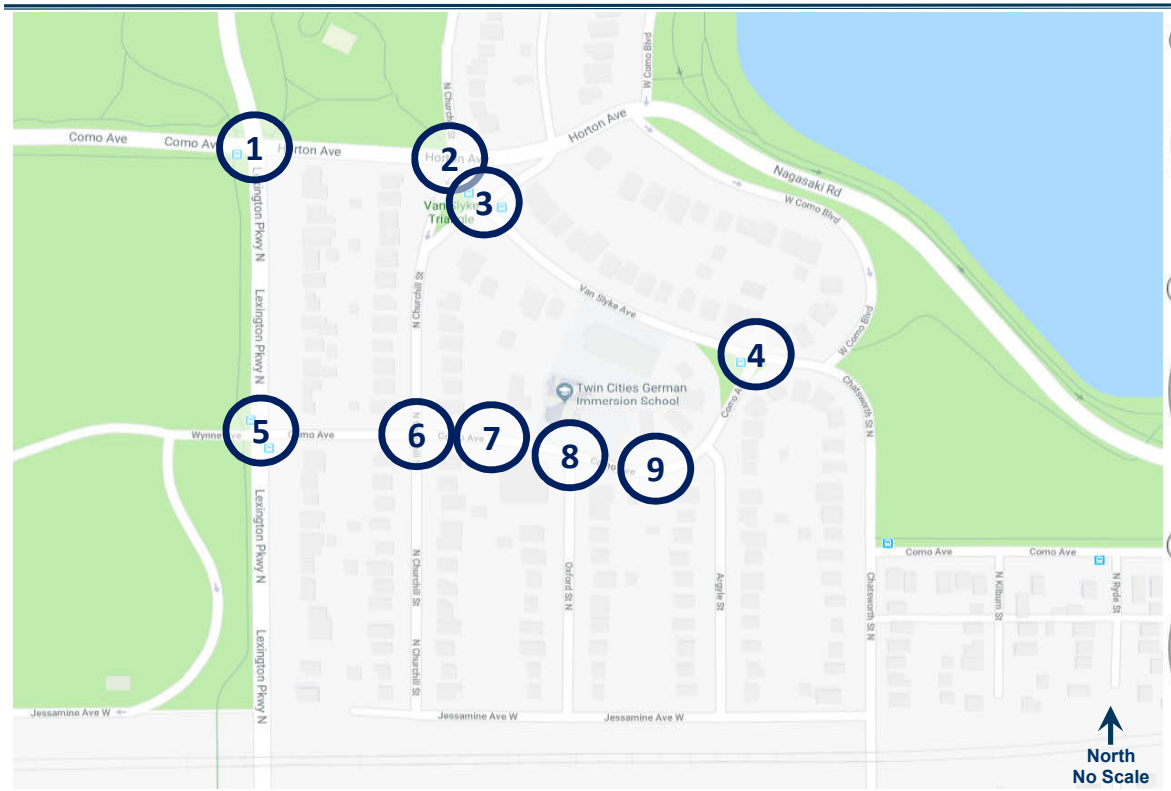
Figure 2
Study Intersection Layouts



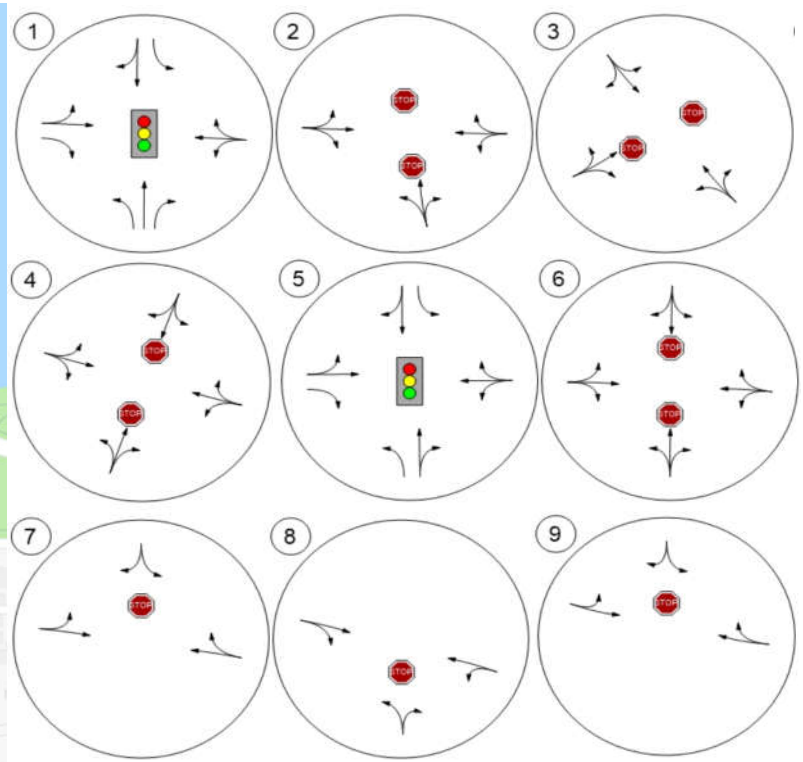


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Figure 3
Daily Traffic Volumes

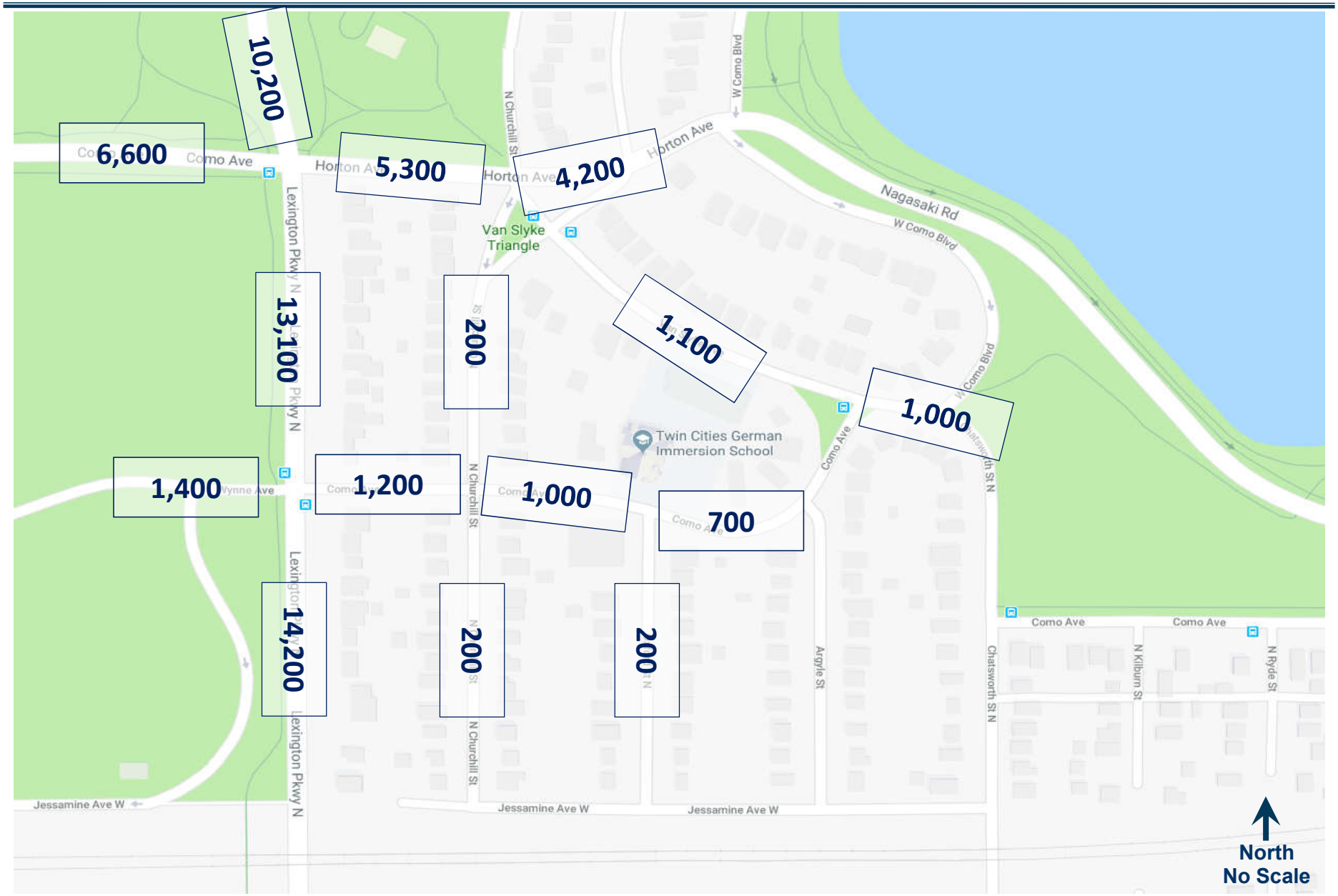

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Figure 4
AM Peak Hour Volumes

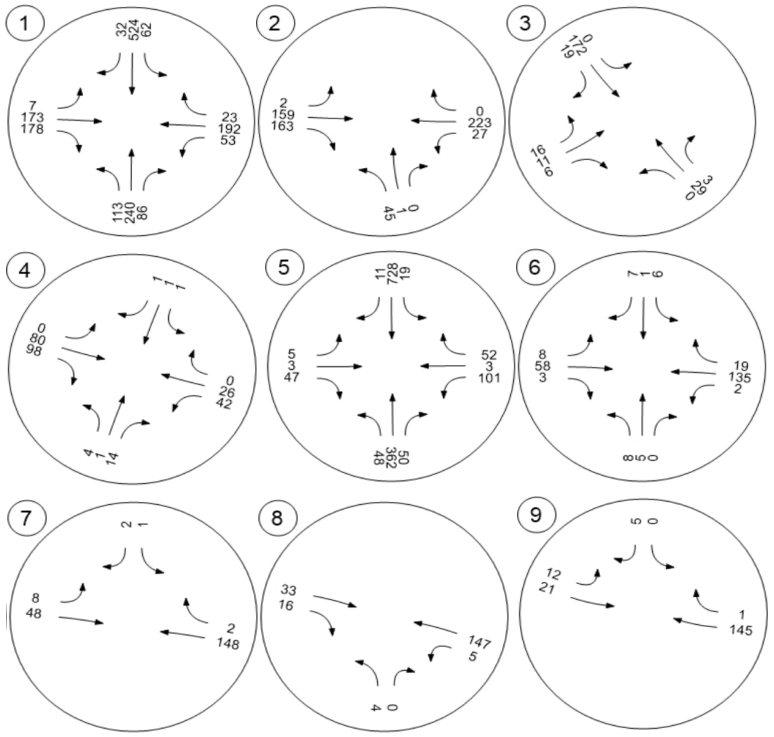

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Figure 5
School PM Peak Hour Volumes

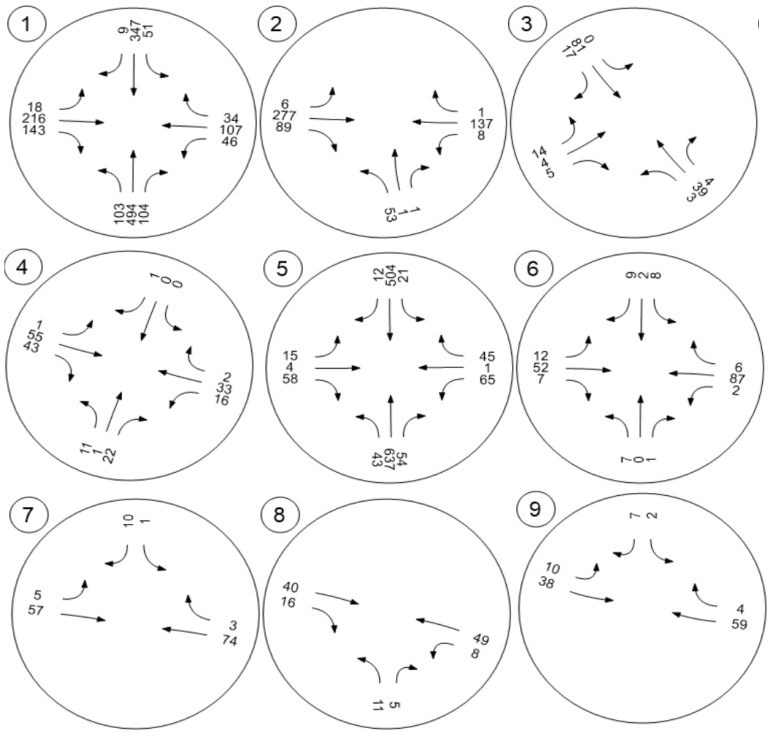

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Figure 6
PM Peak Hour Volumes

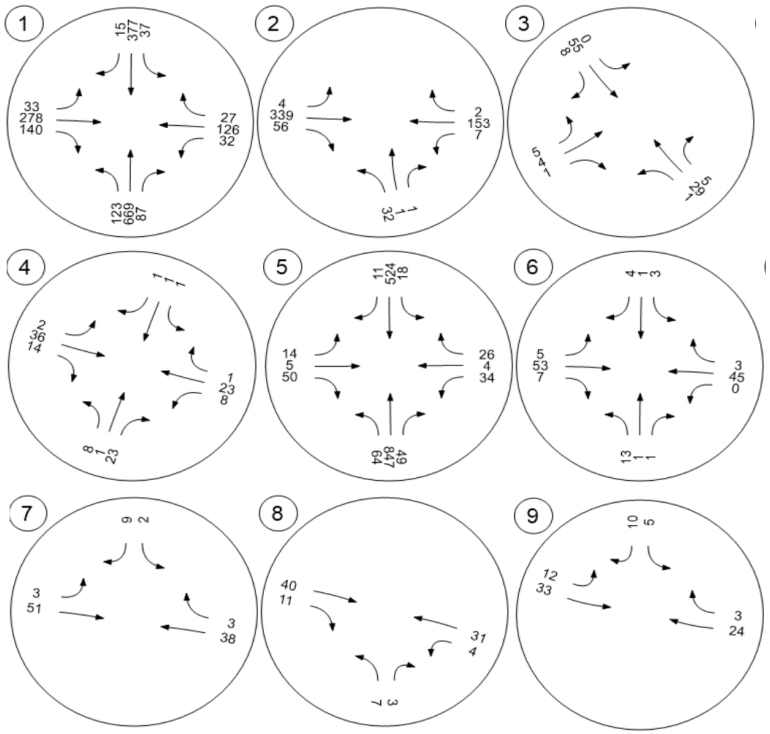

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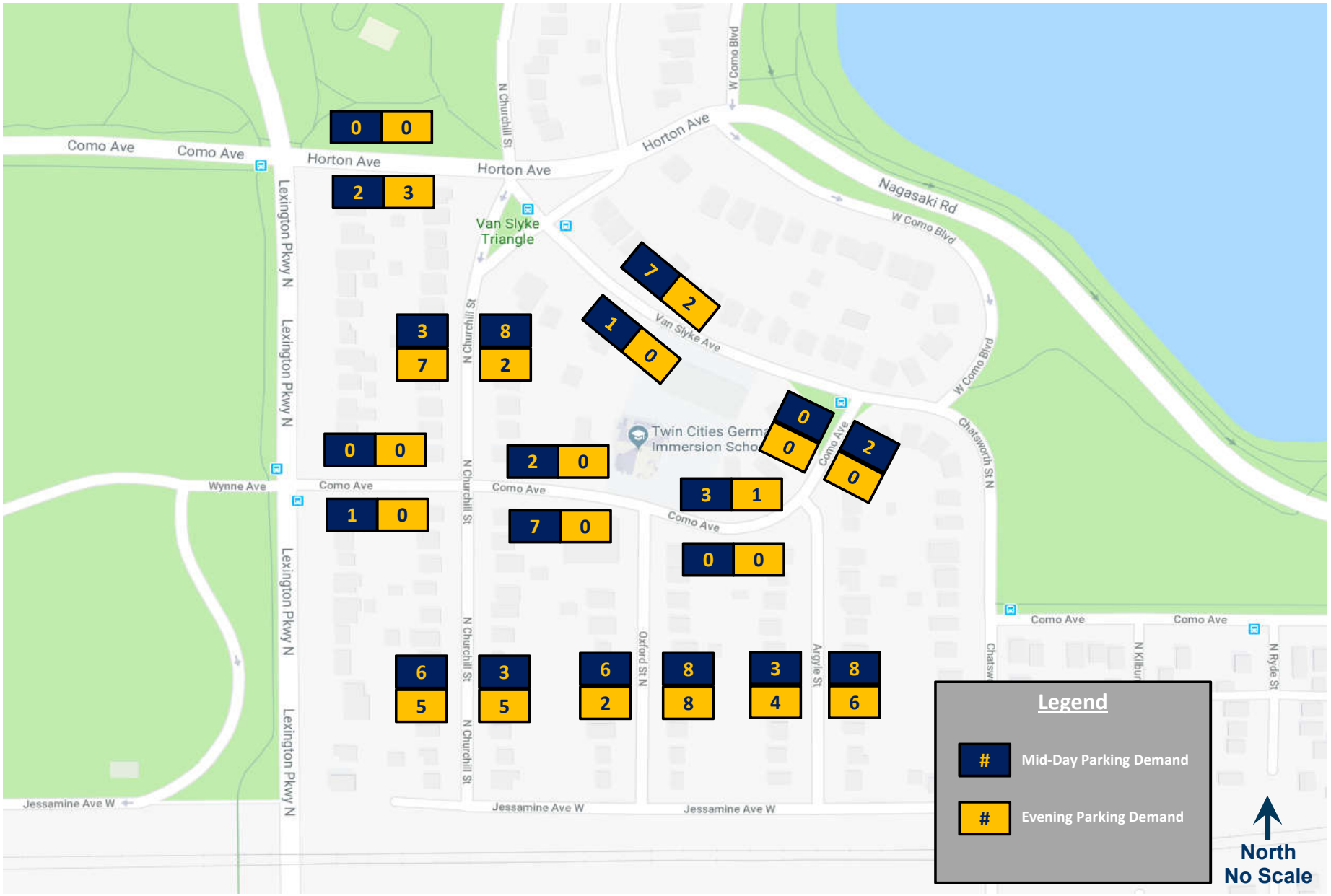
Figure 7
Mid-Day & Evening On-Street Parking Demand



Level of Service (LOS)

Level of Service (LOS) is a qualitative description, similar to typical school grades, that traffic engineers use to communicate how good or bad traffic operations are on a corridor, intersection, or interchange.

Common Factors

Traffic can be a hard thing to quantify as everyone has a different tolerance for congestion. What seems excessively long to one person may seem good enough for another. These differences are readily apparent when comparing small towns or rural areas, where five cars an hour can be the norm, to big cities or downtowns, where less than hundred cars an hour, even in the middle of night, is rare.

To combat this issue and provide a consistent measuring tool for traffic studies, a "Level of Service" rating was developed. Level of Service ratings are based on the roadway or intersection characteristics and the amount of traffic. Just like grade school, LOS A represents the best traffic operations, where traffic flows freely. LOS F, on the other hand, represents failing operations, where the road or intersection is congested and running beyond maximum capacity. LOS E is typically considered "at capacity" which means the amount of traffic is right at the level the roadway or intersection can adequately accommodate. Using Level of Service letter grades provides an easy way to convey road operations to the general public and has been adopted across the United States.

Common Factors Impacting Level of Service

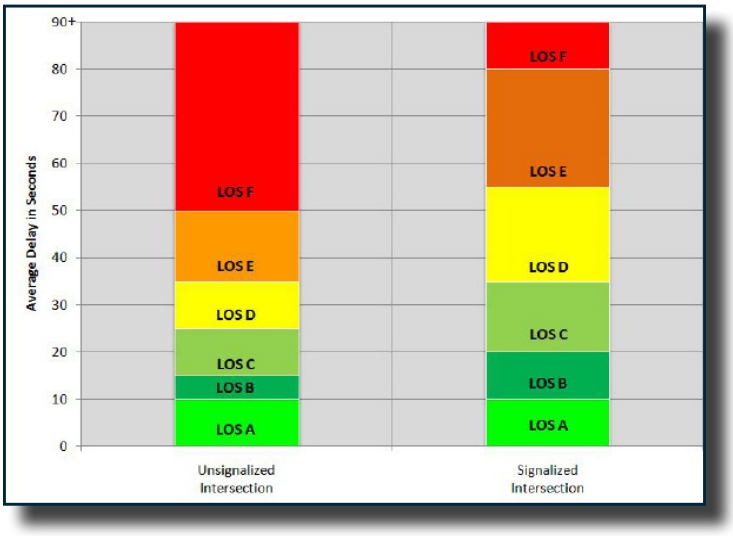
- **Number of Lanes.**
- **Traffic Volumes.**
- **Intersection Control (stop sign, signal, roundabout, interchange.)**
- **Amount of access on a corridor.**
- **Percentage of turning traffic.**
- **Traffic signal cycle length (green time devoted to each approach) and phasing (one green for all approach movements or separate green arrows.)**
- **Percentage of heavy trucks.**
- **Roadway Grades.**
- **Distribution of traffic within a peak hour as well as over the course of a day.**
- **Pedestrian activity.**
- **Bicycle activity.**

Level of Service criteria have been developed for multiple types of traffic operations including:

- Intersections
- Urban Corridors
- Freeways
- Transit Service
- Bicycle Operations
- Pedestrian Operations

The most common LOS criteria used is for car operations at intersections; both signalized and unsignalized. For an intersection Level of Service analysis, average delay for cars travelling through the intersection is used to determine the appropriate grade. A high delay results in a poor LOS rating and equates to poor operations. Similarly, low delay results in a good LOS rating and equates to good or great operations.

LOS can be determined for the intersection as a whole, or for individual movements. It is common during peak periods in major population areas for an intersection to have an acceptable overall LOS rating, but fail to achieve a good grade for individual movements.



Appendix D - Level of Service (LOS)

LOS A

LOS C

LOS D = Acceptable

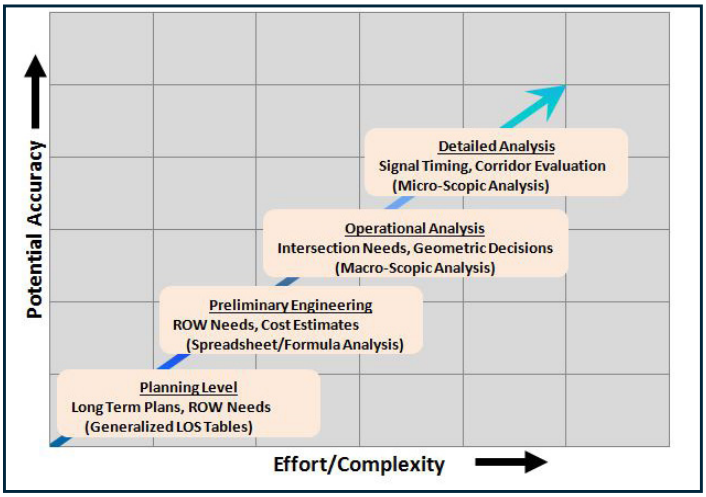
LOS F = Unacceptable

Source: City of San Jose, CA.

Although a Level of Service rating of A represents the best traffic operations, it is not always the most desirable. Providing LOS A for all corridors and all operations at all times would require a significant amount of land to be devoted to the road infrastructure, which makes it extremely costly to build and maintain. During non-peak times, like overnight, much of that infrastructure would sit unused.

On the opposite side of the spectrum, a Level of Service rating of E and F represent traffic operations close to breaking down, or that already have. These ratings mean high delays, long queues, and slow speeds, not to mention driver frustration. Instead of trying to achieve one or the other, government agencies try to strike a balance between providing acceptable operations, neither falling nor flowing too freely. Because of this, **LOS D is typically considered the lowest LOS acceptable by government agencies** and is reflective of a balanced approach between cost and benefit.

There are many tools and guidelines used to determine a roads Level of Service rating. Simple tools like generalized roadway capacities allow for planning-level efforts. While inexpensive and quick to complete, they are not as accurate as other options. More complicated tools, such as micro-simulations, provide more accurate results, but cost more and take more time. It is important to understand the trade-offs between the analysis types as well as the purpose of the study.



Source: Florida Deptarment of Transportation

Resources

- Highway Capacity Manual, fifth edition
- Nation Cooperative Highway Research Program Report 616; Multimodal Level of Service Analysis for Urban Streets
- http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_616.pdf
- Florida Department of Transportation Quality/Level of Service Handbook
- http://www.dot.state.fl.us/planning/systems/programs/sm/los/pdfs/2009FDOTQLOS_Handbook.pdf

About This Brief

Spack Consulting prepared this brief as part of our company's vision to significantly improve the practice of traffic engineering and transportation planning. Transportation professionals from around the world have assisted us in developing this document. We are providing this brief under the Creative Commons Attribution License. Feel free to use-modify-share this guide, but please give us some credit in your document. To request our whole series of Design Briefs and to be included on our distribution list for new materials, please email mspack@spackconsulting.com. And please reach out if you have any comments or questions related to this Design Brief.

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TCGIS

Vistro File: C:\...\TCGIS Vistro - Updated Signal Timing.vistro
Report File: C:\...\4 - AM 2023 - Updated.pdf

Scenario 4 AM 2023
1/13/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lexington Pkwy & Como Ave/Horton Ave	Signalized	HCM 6th Edition	WB Thru	0.681	28.1	C
2	Horton Ave & Van Slyke Ave	Two-way stop	HCM 6th Edition	NB Left	0.217	20.4	C
3	Van Slyke Ave & Churchill St	Two-way stop	HCM 6th Edition	NEB Thru	0.053	14.7	B
4	Van Slyke Ave & Como Ave	Two-way stop	HCM 6th Edition	SB Thru	0.006	15.9	C
5	Lexington Pkwy & Wynne Ave/Como Ave	Signalized	HCM 6th Edition	WB Left	0.773	68.4	E
6	Churchill St & Como Ave	Two-way stop	HCM 6th Edition	NB Thru	0.023	13.9	B
7	Como Ave & West Parking Lot	Two-way stop	HCM 6th Edition	SB Left	0.004	12.9	B
8	Como Ave & Oxford St	Two-way stop	HCM 6th Edition	NB Left	0.015	11.7	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: Lexington Pkwy & Como Ave/Horton Ave

Control Type:	Signalized	Delay (sec / veh):	28.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.681

Intersection Setup

Name	Lexington Pkwy			Lexington Pkwy			Como Ave			Horton Ave		
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	0	1	0	0	0	0	1	0	0	0
Pocket Length [ft]	75.00	100.00	100.00	75.00	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	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lexington Pkwy			Lexington Pkwy			Como Ave			Horton Ave		
Base Volume Input [veh/h]	113	240	86	62	524	32	7	173	178	53	192	23
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 [%]	6.00	3.00	3.00	3.00	3.00	3.00	3.00	8.00	4.00	4.00	10.00	3.00
Growth Rate	1.03	1.03	1.05	1.05	1.03	1.03	1.03	1.05	1.03	1.05	1.05	1.05
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	45	0	0	8	0	0	46	0	0	6
Total Hourly Volume [veh/h]	116	247	45	65	540	25	7	182	137	56	202	18
Peak Hour Factor	0.8330	0.8330	0.8330	0.8620	0.8620	0.8620	0.8430	0.8430	0.8430	0.8650	0.8650	0.8650
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]	35	74	14	19	157	7	2	54	41	16	58	5
Total Analysis Volume [veh/h]	139	297	54	75	626	29	8	216	163	65	234	21
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	8	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			2			3			1		
v_di, Inbound Pedestrian Volume crossing m	3			1			3			2		
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		

Appendix E - Capacity Analysis Backup

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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	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	1	6	0	5	2	0	0	4	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	15	0	7	15	0	0	10	0	0	10	0
Maximum Green [s]	25	50	0	12	50	0	0	35	0	0	35	0
Amber [s]	3.0	3.5	0.0	3.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0
All red [s]	1.5	1.5	0.0	1.5	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0
Split [s]	12	36	0	12	36	0	0	32	0	0	32	0
Vehicle Extension [s]	3.5	3.0	0.0	2.3	3.0	0.0	0.0	4.5	0.0	0.0	4.5	0.0
Walk [s]	0	7	0	0	7	0	0	2	0	0	2	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	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]	2.5	3.0	0.0	2.5	3.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	Yes		No	Yes			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	R	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	9.00	9.00	9.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	0.00	3.00	7.00	7.00	7.00
g_i, Effective Green Time [s]	46	36	36	46	35	20	20	20
g / C, Green / Cycle	0.58	0.45	0.45	0.58	0.44	0.25	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.15	0.16	0.03	0.06	0.36	0.13	0.11	0.28
s, saturation flow rate [veh/h]	946	1855	1577	1196	1841	1763	1496	1136
c, Capacity [veh/h]	442	834	709	709	805	484	371	336
d1, Uniform Delay [s]	12.64	14.42	12.54	7.97	19.68	25.87	25.35	31.80
k, delay calibration	0.13	0.50	0.50	0.50	0.50	0.19	0.19	0.21
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.49	1.19	0.21	0.30	8.86	1.18	1.40	22.00
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.36	0.08	0.11	0.81	0.46	0.44	0.95
d, Delay for Lane Group [s/veh]	13.13	15.61	12.75	8.27	28.53	27.05	26.75	53.80
Lane Group LOS	B	B	B	A	C	C	C	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.04	3.57	0.56	0.57	11.74	3.71	2.67	8.23
50th-Percentile Queue Length [ft/ln]	26.03	89.27	14.06	14.19	293.49	92.71	66.87	205.82
95th-Percentile Queue Length [veh/ln]	1.87	6.43	1.01	1.02	17.36	6.68	4.81	12.94
95th-Percentile Queue Length [ft/ln]	46.85	160.68	25.30	25.54	433.97	166.88	120.36	323.46

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Movement, Approach, & Intersection Results

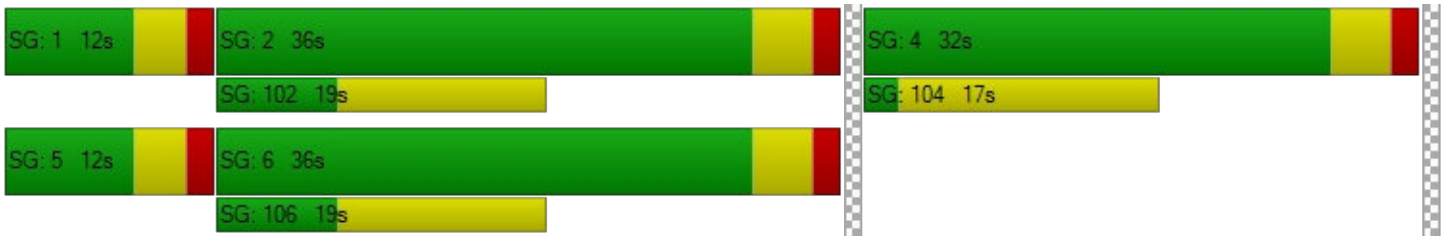
d_M, Delay for Movement [s/veh]	13.13	15.61	12.75	8.27	28.53	28.53	27.05	27.05	26.75	53.80	53.80	53.80
Movement LOS	B	B	B	A	C	C	C	C	C	D	D	D
d_A, Approach Delay [s/veh]	14.59			26.45			26.92			53.80		
Approach LOS	B			C			C			D		
d_I, Intersection Delay [s/veh]	28.07											
Intersection LOS	C											
Intersection V/C	0.681											

Other Modes

g_Walk,mi, Effective Walk Time [s]	6.0	6.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	2322.36	4658.98	2322.36	4673.24
M_CW, Crosswalk Circulation Area [ft²/ped]	675.57	2284.33	0.00	0.00
d_p, Pedestrian Delay [s]	34.23	34.23	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.636	2.310	2.365	2.117
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	775	775	675	675
d_b, Bicycle Delay [s]	15.01	15.01	17.56	17.56
l_b,int, Bicycle LOS Score for Intersection	3.590	3.848	2.963	2.786
Bicycle LOS	D	D	C	C

Sequence

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



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Intersection Level Of Service Report
Intersection 2: Horton Ave & Van Slyke Ave

Control Type:	Two-way stop	Delay (sec / veh):	20.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.217

Intersection Setup

Name	Van Slyke Ave			Churchill St			Horton Ave			Horton Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Van Slyke Ave			Churchill St			Horton Ave			Horton Ave		
Base Volume Input [veh/h]	45	1	0	0	0	0	2	159	163	27	223	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 [%]	13.00	3.00	3.00	2.00	2.00	2.00	3.00	5.00	10.00	5.00	6.00	3.00
Growth Rate	1.09	1.03	1.09	1.00	1.00	1.00	1.03	1.03	1.14	1.14	1.03	1.03
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]	49	1	0	0	0	0	2	164	186	31	230	0
Peak Hour Factor	0.7490	0.7490	0.7490	1.0000	1.0000	1.0000	0.7490	0.7490	0.7490	0.7490	0.7490	0.7490
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]	16	0	0	0	0	0	1	55	62	10	77	0
Total Analysis Volume [veh/h]	65	1	0	0	0	0	3	219	248	41	307	0
Pedestrian Volume [ped/h]	2			6			4			4		

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Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00
d_M, Delay for Movement [s/veh]	20.36	19.55	13.58	0.00	0.00	0.00	7.92	0.00	0.00	8.48	0.00	0.00
Movement LOS	C	C	B				A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.82	0.82	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.09
95th-Percentile Queue Length [ft/ln]	20.56	20.56	20.56	0.00	0.00	0.00	0.12	0.12	0.12	2.23	2.23	2.23
d_A, Approach Delay [s/veh]	20.34			0.00			0.05			1.00		
Approach LOS	C			A			A			A		
d_I, Intersection Delay [s/veh]	1.94											
Intersection LOS	C											

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Intersection Level Of Service Report
Intersection 3: Van Slyke Ave & Churchill St

Control Type:	Two-way stop	Delay (sec / veh):	14.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.053

Intersection Setup

Name	Churchill St			Churchill St			Van Slyke Ave			Van Slyke Ave		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
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	0	0	0	0	0	0	0	0	0	0	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	Churchill St			Churchill St			Van Slyke Ave			Van Slyke Ave		
Base Volume Input [veh/h]	16	11	6	0	0	0	0	29	3	0	172	19
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 [%]	3.00	15.00	3.00	2.00	2.00	2.00	17.00	15.00	4.00	30.00	10.00	15.00
Growth Rate	1.09	1.03	1.03	1.00	1.00	1.00	1.03	1.09	1.03	1.03	1.14	1.09
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]	17	11	6	0	0	0	0	32	3	0	196	21
Peak Hour Factor	0.4700	0.4700	0.4700	1.0000	1.0000	1.0000	0.4700	0.4700	0.4700	0.4700	0.4700	0.4700
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]	9	6	3	0	0	0	0	17	2	0	104	11
Total Analysis Volume [veh/h]	36	23	13	0	0	0	0	68	6	0	417	45
Pedestrian Volume [ped/h]	12			3			4			1		

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Version 6.00-02

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Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.28	14.74	12.46	0.00	0.00	0.00	8.45	0.00	0.00	7.65	0.00	0.00
Movement LOS	B	B	B				A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.54	0.54	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	13.51	13.51	13.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.10			0.00			0.00			0.00		
Approach LOS	B			A			A			A		
d_I, Intersection Delay [s/veh]	1.67											
Intersection LOS	B											

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Intersection Level Of Service Report
Intersection 4: Van Slyke Ave & Como Ave

Control Type:	Two-way stop	Delay (sec / veh):	15.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name	Como Ave			Driveway			Van Slyke Ave			Van Slyke Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Como Ave			Driveway			Van Slyke Ave			Van Slyke Ave		
Base Volume Input [veh/h]	4	1	14	1	1	1	0	80	98	42	26	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 [%]	4.00	3.00	5.00	3.00	3.00	3.00	3.00	15.00	3.00	6.00	17.00	3.00
Growth Rate	1.14	1.03	1.14	1.03	1.03	1.03	1.03	1.14	1.14	1.14	1.03	1.03
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]	5	1	16	1	1	1	0	91	112	48	27	0
Peak Hour Factor	0.4810	0.4810	0.4810	0.4810	0.4810	0.4810	0.4810	0.4810	0.4810	0.4810	0.4810	0.4810
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]	3	1	8	1	1	1	0	47	58	25	14	0
Total Analysis Volume [veh/h]	10	2	33	2	2	2	0	189	233	100	56	0
Pedestrian Volume [ped/h]	4			3			1			1		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.03	0.01	0.05	0.01	0.01	0.00	0.00	0.00	0.00	0.09	0.00	0.00
d_M, Delay for Movement [s/veh]	14.62	14.78	10.51	14.81	15.93	8.71	7.35	0.00	0.00	8.57	0.00	0.00
Movement LOS	B	B	B	B	C	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.25	0.25	0.25	0.04	0.04	0.04	0.00	0.00	0.00	0.14	0.14	0.14
95th-Percentile Queue Length [ft/ln]	6.18	6.18	6.18	1.02	1.02	1.02	0.00	0.00	0.00	3.39	3.39	3.39
d_A, Approach Delay [s/veh]	11.61			13.15			0.00			5.49		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	2.32											
Intersection LOS	C											

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Intersection Level Of Service Report
Intersection 5: Lexington Pkwy & Wynne Ave/Como Ave

Control Type:	Signalized	Delay (sec / veh):	68.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.773

Intersection Setup

Name	Lexington Pkwy			Lexington Pkwy			Wynne Ave			Como Ave		
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	0	1	0	0	0	0	1	0	0	0
Pocket Length [ft]	150.00	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	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lexington Pkwy			Lexington Pkwy			Wynne Ave			Como Ave		
Base Volume Input [veh/h]	48	362	50	19	728	11	5	3	47	101	3	52
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 [%]	3.00	3.00	3.00	3.00	3.00	7.00	3.00	8.00	3.00	3.00	10.00	3.00
Growth Rate	1.03	1.03	1.14	1.14	1.03	1.03	1.03	1.14	1.03	1.14	1.14	1.14
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	14	0	0	3	0	0	24	0	0	30
Total Hourly Volume [veh/h]	49	373	43	22	750	8	5	3	24	115	3	29
Peak Hour Factor	0.8830	0.8830	0.8830	0.9240	0.9240	0.9240	0.8180	0.8180	0.8180	0.4920	0.4920	0.4920
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]	14	106	12	6	203	2	2	1	7	58	2	15
Total Analysis Volume [veh/h]	55	422	49	24	812	9	6	4	29	234	6	59
Presence of On-Street Parking	No		No	No		No	No		No	No		Yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	1
Local Bus Stopping Rate [/h]	0	0	2	0	0	2	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			2			4			2		
v_di, Inbound Pedestrian Volume crossing m	4			2			3			2		
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		

Appendix E - Capacity Analysis Backup

Generated with PTV VISTRO
Version 6.00-02

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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	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	1	6	0	0	2	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	20	0	0	20	0	0	10	0	0	10	0
Maximum Green [s]	20	50	0	0	50	0	0	35	0	0	35	0
Amber [s]	3.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0
All red [s]	1.5	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0
Split [s]	15	33	0	0	33	0	0	32	0	0	32	0
Vehicle Extension [s]	3.5	3.0	0.0	0.0	3.0	0.0	0.0	2.5	0.0	0.0	2.5	0.0
Walk [s]	0	7	0	0	7	0	0	2	0	0	2	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	13	0	0	13	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	3.0	0.0	0.0	3.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	Yes			Yes			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

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Lane Group Calculations

Lane Group	L	C	L	C	C	R	C
C, Cycle Length [s]	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	9.00	9.00	9.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	7.00	7.00	7.00
g_i, Effective Green Time [s]	58	58	48	48	8	8	8
g / C, Green / Cycle	0.72	0.72	0.61	0.61	0.10	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.07	0.26	0.03	0.45	0.01	0.02	0.31
s, saturation flow rate [veh/h]	804	1807	915	1837	1605	1525	950
c, Capacity [veh/h]	488	1297	516	1102	244	163	182
d1, Uniform Delay [s]	8.28	4.31	11.73	11.58	32.07	32.49	37.60
k, delay calibration	0.13	0.50	0.50	0.50	0.08	0.08	0.09
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.12	0.79	0.17	4.59	0.05	0.38	294.05
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.36	0.05	0.75	0.04	0.18	1.64
d, Delay for Lane Group [s/veh]	8.40	5.09	11.90	16.17	32.12	32.87	331.65
Lane Group LOS	A	A	B	B	C	C	F
Critical Lane Group	Yes	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.20	2.36	0.24	10.14	0.18	0.52	18.49
50th-Percentile Queue Length [ft/ln]	5.05	59.08	6.07	253.58	4.38	13.05	462.35
95th-Percentile Queue Length [veh/ln]	0.36	4.25	0.44	15.37	0.32	0.94	29.80
95th-Percentile Queue Length [ft/ln]	9.08	106.35	10.93	384.16	7.88	23.48	745.00

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.40	5.09	5.09	11.90	16.17	16.17	32.12	32.12	32.87	331.65	331.65	331.65
Movement LOS	A	A	A	B	B	B	C	C	C	F	F	F
d_A, Approach Delay [s/veh]	5.44			16.05			32.68			331.65		
Approach LOS	A			B			C			F		
d_I, Intersection Delay [s/veh]	68.38											
Intersection LOS	E											
Intersection V/C	0.773											

Other Modes

g_Walk,mi, Effective Walk Time [s]	6.0	6.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	1990.59	3494.23	1984.48	3494.23
M_CW, Crosswalk Circulation Area [ft²/ped]	291.61	1387.55	0.00	0.00
d_p, Pedestrian Delay [s]	34.23	34.23	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.825	2.476	2.061	1.990
Crosswalk LOS	C	B	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	700	675	675
d_b, Bicycle Delay [s]	16.90	16.90	17.56	17.56
l_b,int, Bicycle LOS Score for Intersection	3.292	3.724	2.429	2.561
Bicycle LOS	C	D	B	B

Sequence

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

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Intersection Level Of Service Report
Intersection 6: Churchill St & Como Ave

Control Type:	Two-way stop	Delay (sec / veh):	13.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.023

Intersection Setup

Name	Churchill St			Churchill St			Como Ave			Como Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Churchill St			Churchill St			Como Ave			Como Ave		
Base Volume Input [veh/h]	8	5	0	6	1	7	8	58	3	2	135	19
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 [%]	3.00	3.00	3.00	3.00	3.00	15.00	10.00	3.00	3.00	3.00	3.00	3.00
Growth Rate	1.09	1.03	1.03	1.03	1.03	1.09	1.09	1.14	1.09	1.03	1.14	1.03
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]	9	5	0	6	1	8	9	66	3	2	154	20
Peak Hour Factor	0.4960	0.4960	0.4960	0.4960	0.4960	0.4960	0.4960	0.4960	0.4960	0.4960	0.4960	0.4960
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	3	0	3	1	4	5	33	2	1	78	10
Total Analysis Volume [veh/h]	18	10	0	12	2	16	18	133	6	4	310	40
Pedestrian Volume [ped/h]	6			6			1			2		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.02	0.00	0.03	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.78	13.90	9.59	13.49	13.54	10.75	8.17	0.00	0.00	7.54	0.00	0.00
Movement LOS	B	B	A	B	B	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.21	0.21	0.21	0.18	0.18	0.18	0.02	0.02	0.02	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	5.13	5.13	5.13	4.38	4.38	4.38	0.59	0.59	0.59	0.11	0.11	0.11
d_A, Approach Delay [s/veh]	13.82			12.03			0.94			0.09		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.63											
Intersection LOS	B											

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Intersection Level Of Service Report
Intersection 7: Como Ave & West Parking Lot

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):	0.004

Intersection Setup

Name	West Parking Lot		Como Ave		Como Ave	
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	0	0	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	West Parking Lot		Como Ave		Como Ave	
Base Volume Input [veh/h]	1	2	8	48	148	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.11	1.11	1.11	1.14	1.14	1.11
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	5	12	-12	-5	1
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	7	21	43	164	3
Peak Hour Factor	0.4880	0.4880	0.4880	0.4880	0.4880	0.4880
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	11	22	84	2
Total Analysis Volume [veh/h]	2	14	43	88	336	6
Pedestrian Volume [ped/h]	27		2		4	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.87	10.62	8.23	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.08	0.08	0.06	0.06	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.96	1.96	1.38	1.38	0.00	0.00
d_A, Approach Delay [s/veh]	10.90		2.70		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.08					
Intersection LOS	B					

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Intersection Level Of Service Report
Intersection 8: Como Ave & Oxford St

Control Type:	Two-way stop	Delay (sec / veh):	11.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.015

Intersection Setup

Name	Oxford St		Como Ave		Como Ave	
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	0	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	Oxford St		Como Ave		Como Ave	
Base Volume Input [veh/h]	4	0	33	16	5	147
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00
Growth Rate	1.09	1.09	1.14	1.09	1.09	1.14
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	-12	0	0	-4
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	0	26	17	5	164
Peak Hour Factor	0.4790	0.4790	0.4790	0.4790	0.4790	0.4790
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	14	9	3	86
Total Analysis Volume [veh/h]	8	0	54	35	10	342
Pedestrian Volume [ped/h]	1		23		9	

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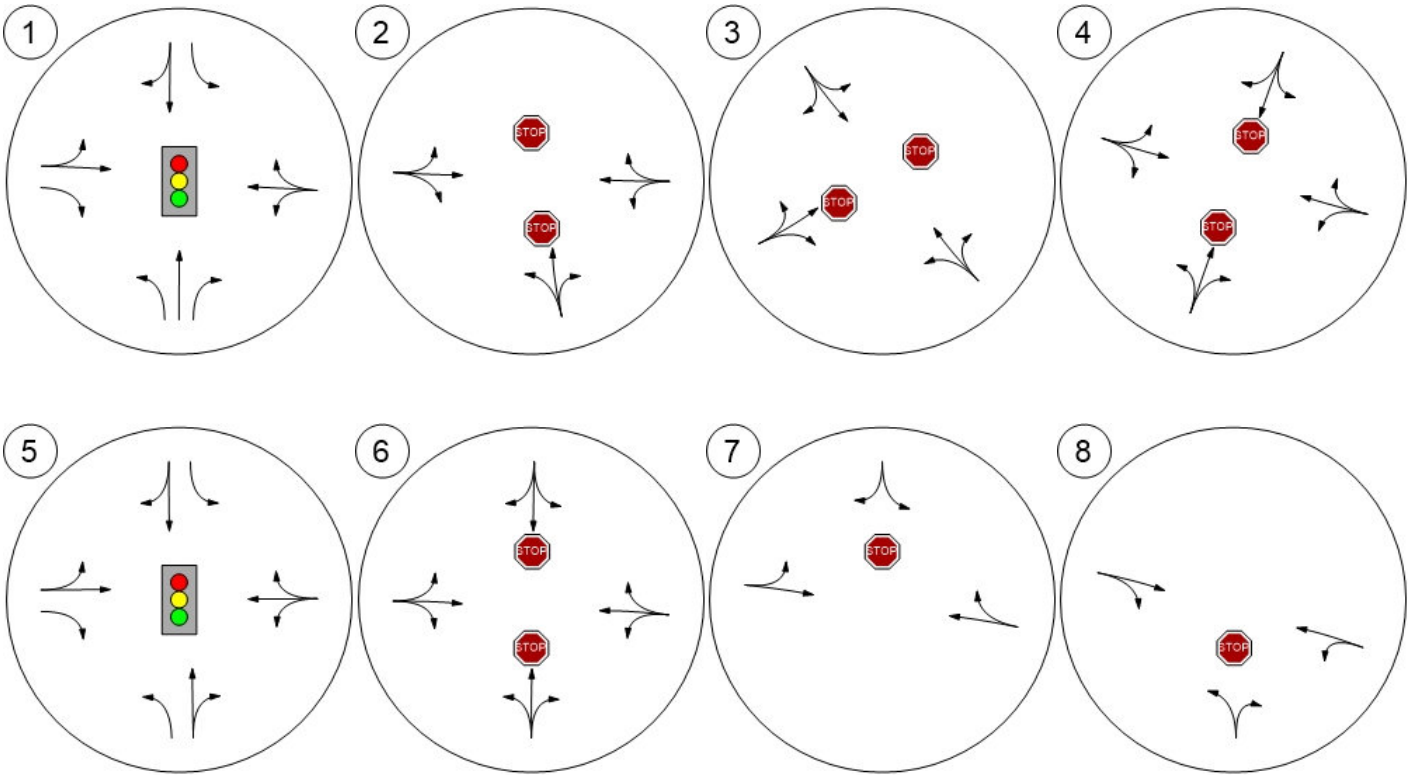
Intersection Settings

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

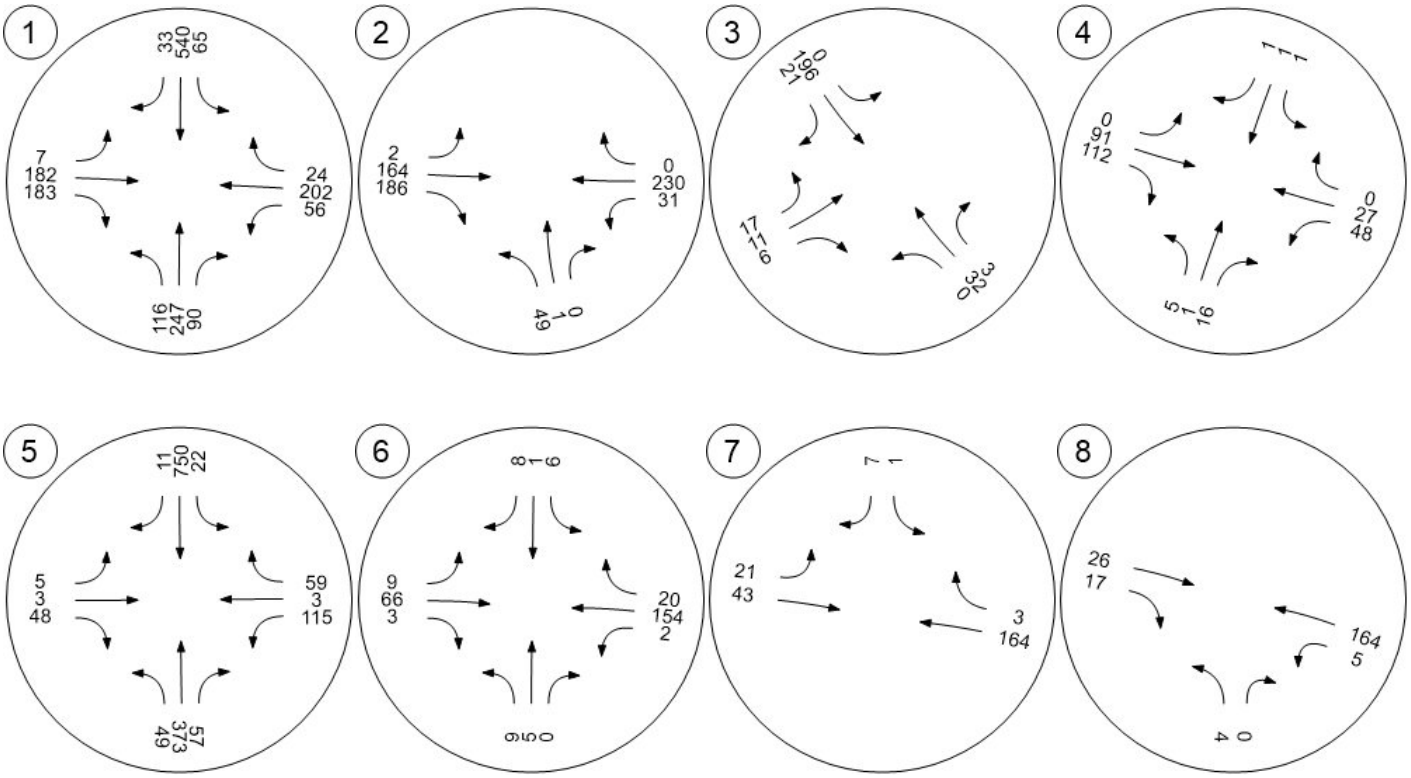
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	11.74	8.83	0.00	0.00	7.42	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	1.12	1.12	0.00	0.00	0.25	0.25
d_A, Approach Delay [s/veh]	11.74		0.00		0.21	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.37					
Intersection LOS	B					

Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



TCGIS

Vistro File: C:\...\TCGIS Vistro - Updated Signal Timing.vistro
Report File: C:\...\5 - School PM 2023 - Updated.pdf

Scenario 5 School PM 2023
1/13/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lexington Pkwy & Como Ave/Horton Ave	Signalized	HCM 6th Edition	WB Thru	0.558	22.2	C
2	Horton Ave & Van Slyke Ave	Two-way stop	HCM 6th Edition	NB Left	0.169	15.9	C
3	Van Slyke Ave & Churchill St	Two-way stop	HCM 6th Edition	NEB Thru	0.012	11.4	B
4	Van Slyke Ave & Como Ave	Two-way stop	HCM 6th Edition	NB Thru	0.004	12.1	B
5	Lexington Pkwy & Wynne Ave/Como Ave	Signalized	HCM 6th Edition	WB Left	0.654	36.4	D
6	Churchill St & Como Ave	Two-way stop	HCM 6th Edition	SB Thru	0.008	12.2	B
7	Como Ave & West Parking Lot	Two-way stop	HCM 6th Edition	SB Left	0.012	12.4	B
8	Como Ave & Oxford St	Two-way stop	HCM 6th Edition	NB Left	0.029	10.2	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: Lexington Pkwy & Como Ave/Horton Ave

Control Type:	Signalized	Delay (sec / veh):	22.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.558

Intersection Setup

Name	Lexington Pkwy			Lexington Pkwy			Como Ave			Horton Ave		
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	0	1	0	0	0	0	1	0	0	0
Pocket Length [ft]	75.00	100.00	100.00	75.00	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	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lexington Pkwy			Lexington Pkwy			Como Ave			Horton Ave		
Base Volume Input [veh/h]	103	494	104	51	347	9	18	216	143	46	107	34
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 [%]	6.00	3.00	3.00	3.00	3.00	3.00	3.00	8.00	4.00	4.00	10.00	3.00
Growth Rate	1.03	1.03	1.05	1.05	1.03	1.03	1.03	1.05	1.03	1.05	1.05	1.05
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	52	0	0	2	0	0	36	0	0	9
Total Hourly Volume [veh/h]	106	509	57	54	357	7	19	227	111	48	112	27
Peak Hour Factor	0.8940	0.8940	0.8940	0.9100	0.9100	0.9100	0.9090	0.9090	0.9090	0.8860	0.8860	0.8860
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]	30	142	16	15	98	2	5	62	31	14	32	8
Total Analysis Volume [veh/h]	119	569	64	59	392	8	21	250	122	54	126	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	8	0	0	0
v_do, Outbound Pedestrian Volume crossing	4			6			9			3		
v_di, Inbound Pedestrian Volume crossing m	9			3			4			6		
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		

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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	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	1	6	0	5	2	0	0	4	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	15	0	7	15	0	0	10	0	0	10	0
Maximum Green [s]	25	50	0	12	50	0	0	35	0	0	35	0
Amber [s]	3.0	3.5	0.0	3.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0
All red [s]	1.5	1.5	0.0	1.5	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0
Split [s]	12	36	0	12	36	0	0	32	0	0	32	0
Vehicle Extension [s]	3.5	3.0	0.0	2.3	3.0	0.0	0.0	4.5	0.0	0.0	4.5	0.0
Walk [s]	0	7	0	0	7	0	0	2	0	0	2	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	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]	2.5	3.0	0.0	2.5	3.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	Yes		No	Yes			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	R	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	9.00	9.00	9.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	0.00	3.00	7.00	7.00	7.00
g_i, Effective Green Time [s]	48	38	38	48	37	19	19	19
g / C, Green / Cycle	0.59	0.47	0.47	0.59	0.46	0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.11	0.31	0.04	0.06	0.22	0.16	0.08	0.23
s, saturation flow rate [veh/h]	1101	1855	1577	987	1848	1706	1472	895
c, Capacity [veh/h]	640	876	745	523	840	445	342	264
d1, Uniform Delay [s]	8.21	16.13	11.65	9.25	15.26	27.95	25.76	30.58
k, delay calibration	0.13	0.50	0.50	0.50	0.50	0.19	0.19	0.19
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.17	3.72	0.23	0.44	1.93	2.31	1.08	8.92
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.65	0.09	0.11	0.48	0.61	0.36	0.79
d, Delay for Lane Group [s/veh]	8.38	19.84	11.88	9.69	17.20	30.26	26.84	39.51
Lane Group LOS	A	B	B	A	B	C	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.82	8.17	0.64	0.44	5.17	4.84	1.99	4.64
50th-Percentile Queue Length [ft/ln]	20.44	204.21	15.93	10.99	129.24	120.91	49.76	115.92
95th-Percentile Queue Length [veh/ln]	1.47	12.86	1.15	0.79	8.90	8.44	3.58	8.17
95th-Percentile Queue Length [ft/ln]	36.79	321.38	28.68	19.78	222.46	211.07	89.58	204.20

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Movement, Approach, & Intersection Results

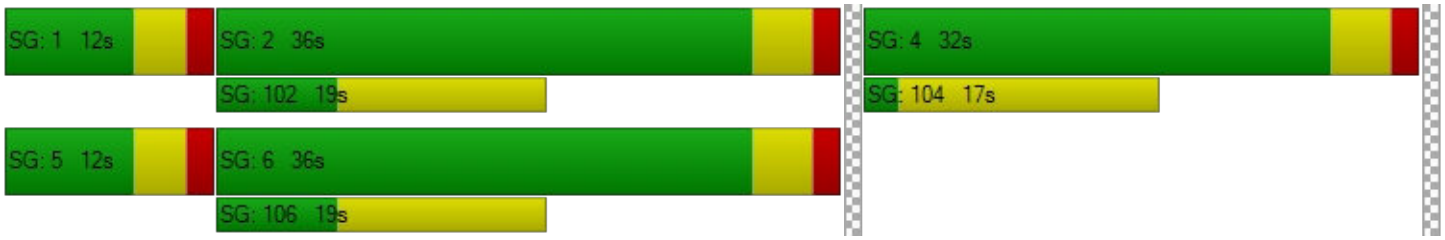
d_M, Delay for Movement [s/veh]	8.38	19.84	11.88	9.69	17.20	17.20	30.26	30.26	26.84	39.51	39.51	39.51
Movement LOS	A	B	B	A	B	B	C	C	C	D	D	D
d_A, Approach Delay [s/veh]	17.35			16.23			29.20			39.51		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	22.20											
Intersection LOS	C											
Intersection V/C	0.558											

Other Modes

g_Walk,mi, Effective Walk Time [s]	6.0	6.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	1068.57	1533.98	1052.11	1548.24
M_CW, Crosswalk Circulation Area [ft²/ped]	369.65	723.02	0.00	0.00
d_p, Pedestrian Delay [s]	34.23	34.23	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.624	2.326	2.288	2.077
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	775	775	675	675
d_b, Bicycle Delay [s]	15.01	15.01	17.56	17.56
l_b,int, Bicycle LOS Score for Intersection	4.034	3.391	2.956	2.609
Bicycle LOS	D	C	C	B

Sequence

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



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Intersection Level Of Service Report
Intersection 2: Horton Ave & Van Slyke Ave

Control Type:	Two-way stop	Delay (sec / veh):	15.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.169

Intersection Setup

Name	Van Slyke Ave			Churchill St			Horton Ave			Horton Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Van Slyke Ave			Churchill St			Horton Ave			Horton Ave		
Base Volume Input [veh/h]	53	1	1	0	0	0	6	277	89	8	137	1
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 [%]	13.00	3.00	3.00	2.00	2.00	2.00	3.00	5.00	10.00	5.00	6.00	3.00
Growth Rate	1.09	1.03	1.09	1.00	1.00	1.00	1.03	1.03	1.14	1.14	1.03	1.03
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]	58	1	1	0	0	0	6	285	101	9	141	1
Peak Hour Factor	0.8720	0.8720	0.8720	1.0000	1.0000	1.0000	0.8720	0.8720	0.8720	0.8720	0.8720	0.8720
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]	17	0	0	0	0	0	2	82	29	3	40	0
Total Analysis Volume [veh/h]	67	1	1	0	0	0	7	327	116	10	162	1
Pedestrian Volume [ped/h]	2			3			3			2		

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Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	15.94	15.62	12.37	0.00	0.00	0.00	7.58	0.00	0.00	8.31	0.00	0.00
Movement LOS	C	C	B				A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.62	0.62	0.62	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	15.43	15.43	15.43	0.00	0.00	0.00	0.32	0.32	0.32	0.62	0.62	0.62
d_A, Approach Delay [s/veh]	15.89			0.00			0.12			0.48		
Approach LOS	C			A			A			A		
d_I, Intersection Delay [s/veh]	1.78											
Intersection LOS	C											

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Intersection Level Of Service Report
Intersection 3: Van Slyke Ave & Churchill St

Control Type:	Two-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

Intersection Setup

Name	Churchill St			Churchill St			Van Slyke Ave			Van Slyke Ave		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
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	0	0	0	0	0	0	0	0	0	0	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	Churchill St			Churchill St			Van Slyke Ave			Van Slyke Ave		
Base Volume Input [veh/h]	14	4	5	0	0	0	3	39	4	0	81	17
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 [%]	3.00	15.00	3.00	2.00	2.00	2.00	17.00	15.00	4.00	30.00	10.00	15.00
Growth Rate	1.09	1.03	1.03	1.00	1.00	1.00	1.03	1.09	1.03	1.03	1.14	1.09
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	4	5	0	0	0	3	43	4	0	92	19
Peak Hour Factor	0.5540	0.5540	0.5540	1.0000	1.0000	1.0000	0.5540	0.5540	0.5540	0.5540	0.5540	0.5540
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	2	2	0	0	0	1	19	2	0	42	9
Total Analysis Volume [veh/h]	27	7	9	0	0	0	5	78	7	0	166	34
Pedestrian Volume [ped/h]	6			1			3			0		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.78	11.39	9.64	0.00	0.00	0.00	7.76	0.00	0.00	7.67	0.00	0.00
Movement LOS	B	B	A				A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.20	0.20	0.20	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	5.04	5.04	5.04	0.00	0.00	0.00	0.17	0.17	0.17	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.64			0.00			0.43			0.00		
Approach LOS	B			A			A			A		
d_I, Intersection Delay [s/veh]	1.49											
Intersection LOS	B											

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Intersection Level Of Service Report
Intersection 4: Van Slyke Ave & Como Ave

Control Type:	Two-way stop	Delay (sec / veh):	12.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Como Ave			Driveway			Van Slyke Ave			Van Slyke Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Como Ave			Driveway			Van Slyke Ave			Van Slyke Ave		
Base Volume Input [veh/h]	11	1	22	0	0	1	1	55	43	16	33	2
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 [%]	4.00	3.00	5.00	3.00	3.00	3.00	3.00	15.00	3.00	6.00	17.00	3.00
Growth Rate	1.14	1.03	1.14	1.03	1.03	1.03	1.03	1.14	1.14	1.14	1.03	1.03
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]	13	1	25	0	0	1	1	63	49	18	34	2
Peak Hour Factor	0.5220	0.5220	0.5220	0.5220	0.5220	0.5220	0.5220	0.5220	0.5220	0.5220	0.5220	0.5220
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	0	12	0	0	0	0	30	23	9	16	1
Total Analysis Volume [veh/h]	25	2	48	0	0	2	2	121	94	34	65	4
Pedestrian Volume [ped/h]	22			1			1			4		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00
d_M, Delay for Movement [s/veh]	11.68	12.05	9.98	11.42	11.86	8.65	7.37	0.00	0.00	7.89	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.35	0.35	0.35	0.01	0.01	0.01	0.00	0.00	0.00	0.04	0.04	0.04
95th-Percentile Queue Length [ft/ln]	8.72	8.72	8.72	0.15	0.15	0.15	0.05	0.05	0.05	1.07	1.07	1.07
d_A, Approach Delay [s/veh]	10.60			8.65			0.07			2.60		
Approach LOS	B			A			A			A		
d_I, Intersection Delay [s/veh]	2.76											
Intersection LOS	B											

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Intersection Level Of Service Report
Intersection 5: Lexington Pkwy & Wynne Ave/Como Ave

Control Type:	Signalized	Delay (sec / veh):	36.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.654

Intersection Setup

Name	Lexington Pkwy			Lexington Pkwy			Wynne Ave			Como Ave		
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	0	1	0	0	0	0	1	0	0	0
Pocket Length [ft]	150.00	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	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lexington Pkwy			Lexington Pkwy			Wynne Ave			Como Ave		
Base Volume Input [veh/h]	43	637	54	21	504	12	15	4	58	65	1	45
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 [%]	3.00	3.00	3.00	3.00	3.00	7.00	3.00	8.00	3.00	3.00	10.00	3.00
Growth Rate	1.03	1.03	1.14	1.14	1.03	1.03	1.03	1.14	1.03	1.14	1.14	1.14
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	14	0	0	3	0	0	29	0	0	26
Total Hourly Volume [veh/h]	44	656	48	24	519	9	15	5	31	74	1	25
Peak Hour Factor	0.9010	0.9010	0.9010	0.9640	0.9640	0.9640	0.6590	0.6590	0.6590	0.4680	0.4680	0.4680
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]	12	182	13	6	135	2	6	2	12	40	1	13
Total Analysis Volume [veh/h]	49	728	53	25	538	9	23	8	47	158	2	53
Presence of On-Street Parking	No		No	No		No	No		No	No		Yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	1
Local Bus Stopping Rate [/h]	0	0	2	0	0	2	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	2			0			2			1		
v_di, Inbound Pedestrian Volume crossing m	2			1			2			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		

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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	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	1	6	0	0	2	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	20	0	0	20	0	0	10	0	0	10	0
Maximum Green [s]	20	50	0	0	50	0	0	35	0	0	35	0
Amber [s]	3.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0
All red [s]	1.5	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0
Split [s]	15	33	0	0	33	0	0	32	0	0	32	0
Vehicle Extension [s]	3.5	3.0	0.0	0.0	3.0	0.0	0.0	2.5	0.0	0.0	2.5	0.0
Walk [s]	0	7	0	0	7	0	0	2	0	0	2	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	13	0	0	13	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	3.0	0.0	0.0	3.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	Yes			Yes			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

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Lane Group Calculations

Lane Group	L	C	L	C	C	R	C
C, Cycle Length [s]	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	9.00	9.00	9.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	7.00	7.00	7.00
g_i, Effective Green Time [s]	60	60	51	51	6	6	6
g / C, Green / Cycle	0.75	0.75	0.63	0.63	0.08	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.05	0.43	0.04	0.30	0.02	0.03	0.22
s, saturation flow rate [veh/h]	962	1818	686	1835	1597	1536	950
c, Capacity [veh/h]	714	1360	370	1163	201	118	151
d1, Uniform Delay [s]	3.75	4.45	14.55	7.64	34.71	35.13	38.52
k, delay calibration	0.13	0.50	0.50	0.50	0.08	0.08	0.08
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.05	1.77	0.35	1.37	0.26	1.60	189.21
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.07	0.57	0.07	0.47	0.15	0.40	1.41
d, Delay for Lane Group [s/veh]	3.80	6.22	14.91	9.01	34.97	36.73	227.73
Lane Group LOS	A	A	B	A	C	D	F
Critical Lane Group	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.15	4.35	0.30	4.52	0.57	0.91	11.07
50th-Percentile Queue Length [ft/ln]	3.63	108.71	7.55	112.91	14.30	22.70	276.78
95th-Percentile Queue Length [veh/ln]	0.26	7.77	0.54	8.00	1.03	1.63	18.30
95th-Percentile Queue Length [ft/ln]	6.53	194.21	13.59	200.04	25.74	40.85	457.61

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.80	6.22	6.22	14.91	9.01	9.01	34.97	34.97	36.73	227.73	227.73	227.73
Movement LOS	A	A	A	B	A	A	C	C	D	F	F	F
d_A, Approach Delay [s/veh]	6.07			9.27			36.03			227.73		
Approach LOS	A			A			D			F		
d_I, Intersection Delay [s/veh]	36.42											
Intersection LOS	D											
Intersection V/C	0.654											

Other Modes

g_Walk,mi, Effective Walk Time [s]	6.0	6.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	3494.23	14062.50	3494.23	14019.72
M_CW, Crosswalk Circulation Area [ft²/ped]	784.15	5328.05	0.00	0.00
d_p, Pedestrian Delay [s]	34.23	34.23	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.709	2.510	2.076	1.946
Crosswalk LOS	B	B	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	700	675	675
d_b, Bicycle Delay [s]	16.90	16.90	17.56	17.56
l_b,int, Bicycle LOS Score for Intersection	3.794	3.273	2.501	2.413
Bicycle LOS	D	C	B	B

Sequence

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

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Intersection Level Of Service Report
Intersection 6: Churchill St & Como Ave

Control Type:	Two-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name	Churchill St			Churchill St			Como Ave			Como Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Churchill St			Churchill St			Como Ave			Como Ave		
Base Volume Input [veh/h]	7	0	1	8	2	9	12	52	7	2	87	6
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 [%]	3.00	3.00	3.00	3.00	3.00	15.00	10.00	3.00	3.00	3.00	3.00	3.00
Growth Rate	1.09	1.03	1.03	1.03	1.03	1.09	1.09	1.14	1.09	1.03	1.14	1.03
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]	8	0	1	8	2	10	13	59	8	2	99	6
Peak Hour Factor	0.5520	0.5520	0.5520	0.5520	0.5520	0.5520	0.5520	0.5520	0.5520	0.5520	0.5520	0.5520
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	0	0	4	1	5	6	27	4	1	45	3
Total Analysis Volume [veh/h]	14	0	2	14	4	18	24	107	14	4	179	11
Pedestrian Volume [ped/h]	7			16			7			5		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.03	0.00	0.00	0.03	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.81	12.05	9.13	11.80	12.21	9.92	7.82	0.00	0.00	7.50	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.09	0.18	0.18	0.18	0.03	0.03	0.03	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.16	2.16	2.16	4.42	4.42	4.42	0.76	0.76	0.76	0.10	0.10	0.10
d_A, Approach Delay [s/veh]	11.48			10.91			1.29			0.15		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	2.03											
Intersection LOS	B											

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Intersection Level Of Service Report
Intersection 7: Como Ave & West Parking Lot

Control Type:	Two-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

Intersection Setup

Name	West Parking Lot		Como Ave		Como Ave	
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	0	0	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	West Parking Lot		Como Ave		Como Ave	
Base Volume Input [veh/h]	1	10	5	57	74	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.11	1.11	1.11	1.14	1.14	1.11
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]	2	7	10	-10	-7	4
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	18	16	55	77	7
Peak Hour Factor	0.5140	0.5140	0.5140	0.5140	0.5140	0.5140
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	9	8	27	37	3
Total Analysis Volume [veh/h]	6	35	31	107	150	14
Pedestrian Volume [ped/h]	70		5		33	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.35	10.12	7.97	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.19	0.19	0.04	0.04	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.64	4.64	0.98	0.98	0.00	0.00
d_A, Approach Delay [s/veh]	10.45		1.79		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.97					
Intersection LOS	B					

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Intersection Level Of Service Report
Intersection 8: Como Ave & Oxford St

Control Type:	Two-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.029

Intersection Setup

Name	Oxford St		Como Ave		Como Ave	
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	0	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	Oxford St		Como Ave		Como Ave	
Base Volume Input [veh/h]	11	5	40	16	8	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00
Growth Rate	1.09	1.09	1.14	1.09	1.09	1.14
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	-8	0	0	-3
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	5	38	17	9	53
Peak Hour Factor	0.5710	0.5710	0.5710	0.5710	0.5710	0.5710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	2	17	7	4	23
Total Analysis Volume [veh/h]	21	9	67	30	16	93
Pedestrian Volume [ped/h]	5		25		33	

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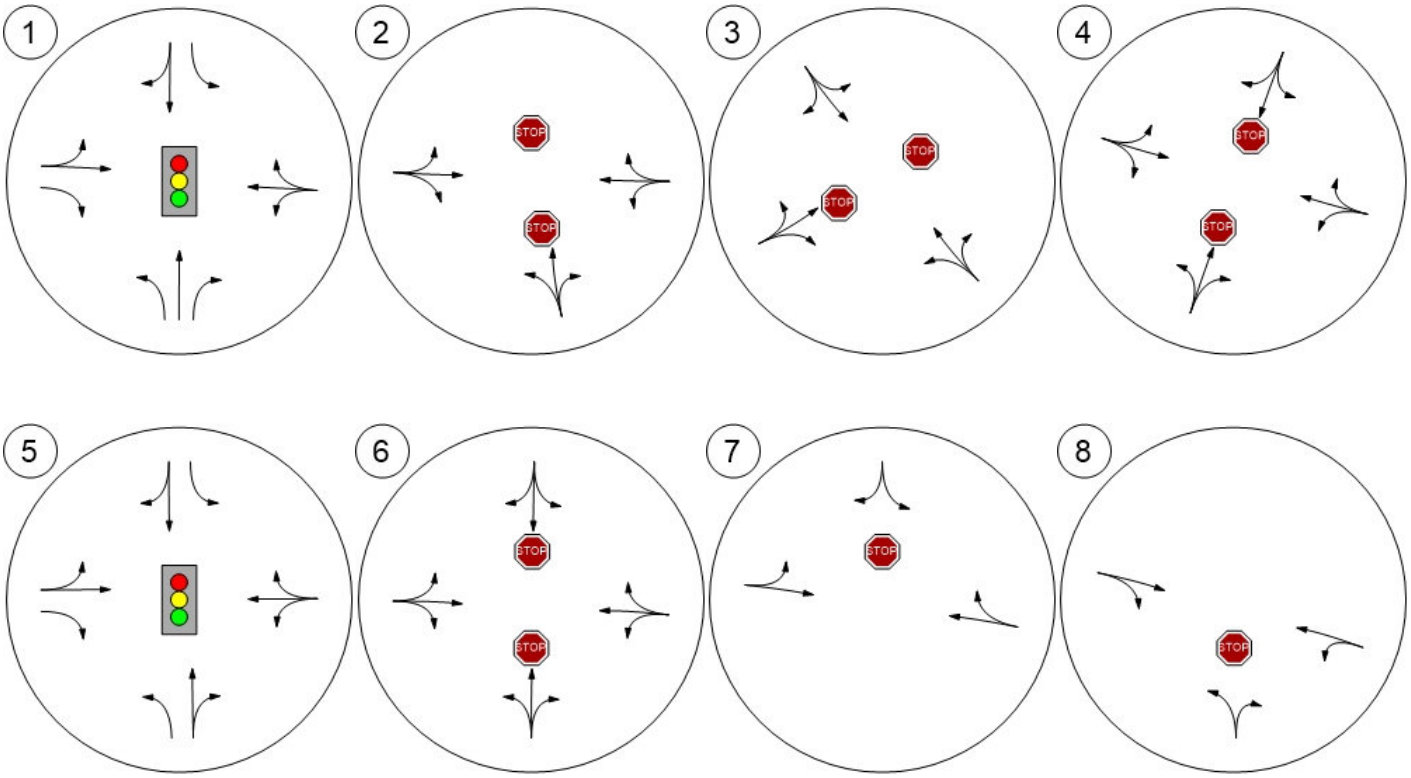
Intersection Settings

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

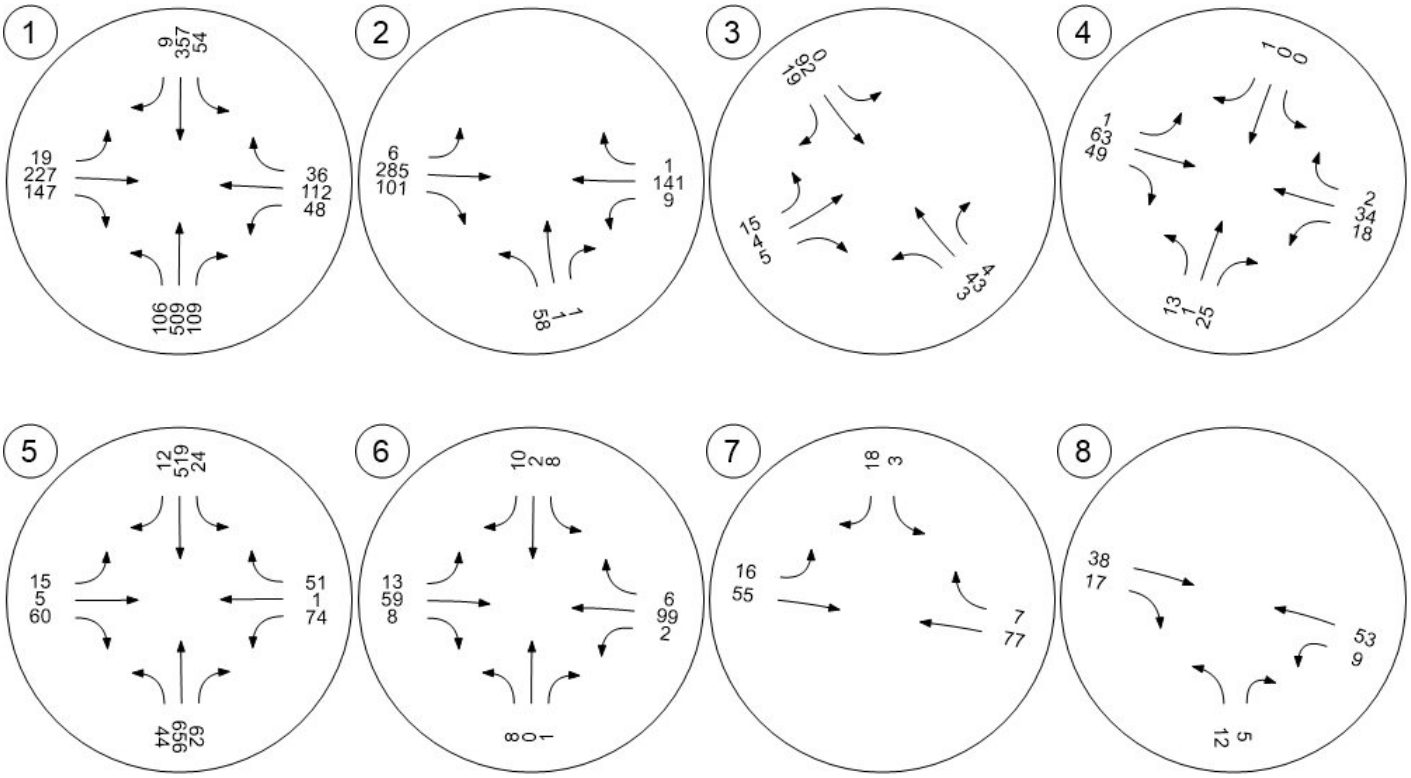
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	10.20	9.21	0.00	0.00	7.46	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	3.06	3.06	0.00	0.00	0.46	0.46
d_A, Approach Delay [s/veh]	9.90		0.00		1.10	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.76					
Intersection LOS	B					

Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



TCGIS

Vistro File: C:\...\TCGIS Vistro.vistro
Report File: C:\...\6 - PM 2023.pdf

Scenario 6 PM Existing 2023
11/29/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lexington Pkwy & Como Ave/Horton Ave	Signalized	HCM 6th Edition	WB Thru	0.669	26.0	C
2	Horton Ave & Van Slyke Ave	Two-way stop	HCM 6th Edition	NB Left	0.085	14.8	B
3	Van Slyke Ave & Churchill St	Two-way stop	HCM 6th Edition	NEB Thru	0.005	9.9	A
4	Van Slyke Ave & Como Ave	Two-way stop	HCM 6th Edition	NB Thru	0.001	9.9	A
5	Lexington Pkwy & Wynne Ave/Como Ave	Signalized	HCM 6th Edition	WB Left	0.699	11.1	B
6	Churchill St & Como Ave	Two-way stop	HCM 6th Edition	NB Thru	0.001	9.9	A
7	Como Ave & West Parking Lot	Two-way stop	HCM 6th Edition	SB Left	0.010	9.6	A
8	Como Ave & Oxford St	Two-way stop	HCM 6th Edition	NB Left	0.009	9.1	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: Lexington Pkwy & Como Ave/Horton Ave

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):	0.669

Intersection Setup

Name	Lexington Pkwy			Lexington Pkwy			Como Ave			Horton Ave		
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	0	1	0	0	0	0	1	0	0	0
Pocket Length [ft]	75.00	100.00	100.00	75.00	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	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lexington Pkwy			Lexington Pkwy			Como Ave			Horton Ave		
Base Volume Input [veh/h]	123	669	87	37	377	15	33	278	140	32	126	27
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 [%]	6.00	3.00	3.00	3.00	3.00	3.00	3.00	8.00	4.00	4.00	10.00	3.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
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	44	0	0	4	0	0	35	0	0	7
Total Hourly Volume [veh/h]	127	689	46	38	388	11	34	286	109	33	130	21
Peak Hour Factor	0.9610	0.9610	0.9610	0.8710	0.8710	0.8710	0.9110	0.9110	0.9110	0.9390	0.9390	0.9390
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]	33	179	12	11	111	3	9	78	30	9	35	6
Total Analysis Volume [veh/h]	132	717	48	44	445	13	37	314	120	35	138	22
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	8	0	0	0
v_do, Outbound Pedestrian Volume crossing	4			1			2			1		
v_di, Inbound Pedestrian Volume crossing m	2			1			4			1		
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		

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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	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	1	6	0	5	2	0	0	4	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	15	0	7	15	0	0	10	0	0	10	0
Maximum Green [s]	25	50	0	12	50	0	0	35	0	0	35	0
Amber [s]	3.0	3.5	0.0	3.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0
All red [s]	1.5	1.5	0.0	1.5	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0
Split [s]	12	36	0	12	36	0	0	32	0	0	32	0
Vehicle Extension [s]	3.5	3.0	0.0	2.3	3.0	0.0	0.0	4.5	0.0	0.0	4.5	0.0
Walk [s]	0	7	0	0	7	0	0	2	0	0	2	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	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]	2.5	3.0	0.0	2.5	3.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	Yes		No	Yes			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

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Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	9.00	9.00	9.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	0.00	3.00	7.00	7.00	7.00
g_i, Effective Green Time [s]	47	38	38	47	35	19	19	19
g / C, Green / Cycle	0.58	0.47	0.47	0.58	0.44	0.24	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.12	0.39	0.03	0.05	0.25	0.22	0.08	0.27
s, saturation flow rate [veh/h]	1065	1855	1577	882	1846	1604	1495	723
c, Capacity [veh/h]	583	872	741	401	815	441	365	230
d1, Uniform Delay [s]	9.24	18.32	11.59	12.05	16.58	28.85	24.83	27.13
k, delay calibration	0.13	0.50	0.50	0.50	0.50	0.19	0.19	0.19
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.24	8.62	0.17	0.55	2.79	5.56	0.89	14.22
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.82	0.06	0.11	0.56	0.80	0.33	0.85
d, Delay for Lane Group [s/veh]	9.48	26.94	11.76	12.60	19.37	34.41	25.73	41.35
Lane Group LOS	A	C	B	B	B	C	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.95	12.45	0.47	0.35	6.42	6.90	1.91	3.97
50th-Percentile Queue Length [ft/ln]	23.83	311.29	11.84	8.76	160.39	172.49	47.70	99.35
95th-Percentile Queue Length [veh/ln]	1.72	18.24	0.85	0.63	10.57	11.21	3.43	7.15
95th-Percentile Queue Length [ft/ln]	42.90	455.96	21.31	15.77	264.24	280.18	85.85	178.84

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Movement, Approach, & Intersection Results

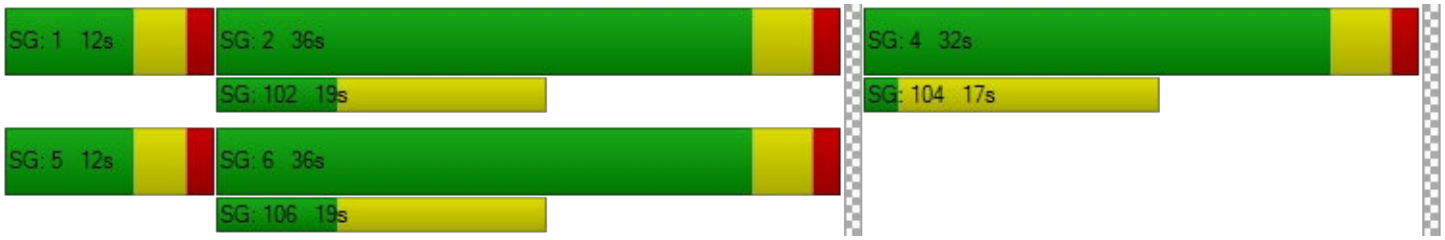
d_M, Delay for Movement [s/veh]	9.48	26.94	11.76	12.60	19.37	19.37	34.41	34.41	25.73	41.35	41.35	41.35
Movement LOS	A	C	B	B	B	B	C	C	C	D	D	D
d_A, Approach Delay [s/veh]	23.55			18.78			32.19			41.35		
Approach LOS	C			B			C			D		
d_I, Intersection Delay [s/veh]	26.04											
Intersection LOS	C											
Intersection V/C	0.669											

Other Modes

g_Walk,mi, Effective Walk Time [s]	6.0	6.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	2315.23	7009.86	2329.49	7009.86
M_CW, Crosswalk Circulation Area [ft²/ped]	852.74	3195.28	0.00	0.00
d_p, Pedestrian Delay [s]	34.23	34.23	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.627	2.416	2.329	2.067
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	775	775	675	675
d_b, Bicycle Delay [s]	15.01	15.01	17.56	17.56
l_b,int, Bicycle LOS Score for Intersection	4.260	3.466	3.083	2.581
Bicycle LOS	E	C	C	B

Sequence

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



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Intersection Level Of Service Report
Intersection 2: Horton Ave & Van Slyke Ave

Control Type:	Two-way stop	Delay (sec / veh):	14.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.085

Intersection Setup

Name	Van Slyke Ave			Churchill St			Horton Ave			Horton Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Van Slyke Ave			Churchill St			Horton Ave			Horton Ave		
Base Volume Input [veh/h]	32	1	1	0	0	0	4	339	56	7	153	2
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 [%]	13.00	3.00	3.00	2.00	2.00	2.00	3.00	5.00	10.00	5.00	6.00	3.00
Growth Rate	1.03	1.03	1.03	1.00	1.00	1.00	1.03	1.03	1.03	1.03	1.03	1.03
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]	33	1	1	0	0	0	4	349	58	7	158	2
Peak Hour Factor	0.9610	0.9610	0.9610	1.0000	1.0000	1.0000	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610
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]	9	0	0	0	0	0	1	91	15	2	41	1
Total Analysis Volume [veh/h]	34	1	1	0	0	0	4	363	60	7	164	2
Pedestrian Volume [ped/h]	2			3			1			2		

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Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	14.81	14.54	11.41	0.00	0.00	0.00	7.58	0.00	0.00	8.25	0.00	0.00
Movement LOS	B	B	B				A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.29	0.29	0.29	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	7.23	7.23	7.23	0.00	0.00	0.00	0.22	0.22	0.22	0.47	0.47	0.47
d_A, Approach Delay [s/veh]	14.70			0.00			0.07			0.33		
Approach LOS	B			A			A			A		
d_I, Intersection Delay [s/veh]	0.97											
Intersection LOS	B											

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Intersection Level Of Service Report
Intersection 3: Van Slyke Ave & Churchill St

Control Type:	Two-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Churchill St			Churchill St			Van Slyke Ave			Van Slyke Ave		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
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	0	0	0	0	0	0	0	0	0	0	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	Churchill St			Churchill St			Van Slyke Ave			Van Slyke Ave		
Base Volume Input [veh/h]	5	4	1	0	0	0	1	29	5	0	55	8
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 [%]	3.00	15.00	3.00	2.00	2.00	2.00	17.00	15.00	4.00	30.00	10.00	15.00
Growth Rate	1.03	1.03	1.03	1.00	1.00	1.00	1.03	1.03	1.03	1.03	1.03	1.03
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]	5	4	1	0	0	0	1	30	5	0	57	8
Peak Hour Factor	0.9250	0.9250	0.9250	1.0000	1.0000	1.0000	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250
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	1	0	0	0	0	0	8	1	0	15	2
Total Analysis Volume [veh/h]	5	4	1	0	0	0	1	32	5	0	62	9
Pedestrian Volume [ped/h]	6			2			2			0		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.23	9.88	8.74	0.00	0.00	0.00	7.51	0.00	0.00	7.56	0.00	0.00
Movement LOS	A	A	A				A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.92	0.92	0.92	0.00	0.00	0.00	0.05	0.05	0.05	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.44			0.00			0.20			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	0.86											
Intersection LOS	A											

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Intersection Level Of Service Report
Intersection 4: Van Slyke Ave & Como Ave

Control Type:	Two-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Como Ave			Driveway			Van Slyke Ave			Van Slyke Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Como Ave			Driveway			Van Slyke Ave			Van Slyke Ave		
Base Volume Input [veh/h]	8	1	23	1	1	1	2	36	14	8	23	1
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 [%]	4.00	3.00	5.00	3.00	3.00	3.00	3.00	15.00	3.00	6.00	17.00	3.00
Growth Rate	1.05	1.03	1.05	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
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]	8	1	24	1	1	1	2	37	14	8	24	1
Peak Hour Factor	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
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]	3	0	8	0	0	0	1	12	4	3	8	0
Total Analysis Volume [veh/h]	10	1	31	1	1	1	3	47	18	10	31	1
Pedestrian Volume [ped/h]	4			3			1			3		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	9.46	9.94	8.83	9.54	9.83	8.51	7.30	0.00	0.00	7.41	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.14	0.14	0.14	0.01	0.01	0.01	0.00	0.00	0.00	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	3.50	3.50	3.50	0.27	0.27	0.27	0.10	0.10	0.10	0.40	0.40	0.40
d_A, Approach Delay [s/veh]	9.01			9.29			0.32			1.77		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	3.24											
Intersection LOS	A											

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Intersection Level Of Service Report
Intersection 5: Lexington Pkwy & Wynne Ave/Como Ave

Control Type:	Signalized	Delay (sec / veh):	11.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.699

Intersection Setup

Name	Lexington Pkwy			Lexington Pkwy			Wynne Ave			Como Ave		
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	0	1	0	0	0	0	1	0	0	0
Pocket Length [ft]	150.00	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	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lexington Pkwy			Lexington Pkwy			Wynne Ave			Como Ave		
Base Volume Input [veh/h]	64	847	49	18	524	11	14	5	50	34	4	26
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 [%]	3.00	3.00	3.00	3.00	3.00	7.00	3.00	8.00	3.00	3.00	10.00	3.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.05	1.05	1.05
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	12	0	0	3	0	0	25	0	0	7
Total Hourly Volume [veh/h]	66	872	38	19	540	8	14	5	27	36	4	20
Peak Hour Factor	0.9430	0.9430	0.9430	0.9000	0.9000	0.9000	0.6750	0.6750	0.6750	0.7500	0.7500	0.7500
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]	17	231	10	5	150	2	5	2	10	12	1	7
Total Analysis Volume [veh/h]	70	925	40	21	600	9	21	7	40	48	5	27
Presence of On-Street Parking	No		No	No		No	No		No	No		Yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	1
Local Bus Stopping Rate [/h]	0	0	2	0	0	2	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			1			6			1		
v_di, Inbound Pedestrian Volume crossing m	6			1			0			1		
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		

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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	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	1	6	0	0	2	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	20	0	0	20	0	0	10	0	0	10	0
Maximum Green [s]	20	50	0	0	50	0	0	35	0	0	35	0
Amber [s]	3.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0
All red [s]	1.5	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0
Split [s]	15	38	0	0	38	0	0	27	0	0	27	0
Vehicle Extension [s]	3.5	3.0	0.0	0.0	3.0	0.0	0.0	2.5	0.0	0.0	2.5	0.0
Walk [s]	0	7	0	0	7	0	0	2	0	0	2	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	13	0	0	13	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	3.0	0.0	0.0	3.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	Yes			Yes			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

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Lane Group Calculations

Lane Group	L	C	L	C	C	R	C
C, Cycle Length [s]	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	9.00	9.00	9.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	7.00	7.00	7.00
g_i, Effective Green Time [s]	62	62	51	51	5	5	5
g / C, Green / Cycle	0.77	0.77	0.64	0.64	0.06	0.06	0.06
(v / s)_i Volume / Saturation Flow Rate	0.08	0.53	0.04	0.33	0.02	0.03	0.17
s, saturation flow rate [veh/h]	932	1827	577	1835	1714	1494	468
c, Capacity [veh/h]	698	1403	289	1178	177	86	99
d1, Uniform Delay [s]	3.80	4.58	17.89	7.70	36.18	36.53	39.78
k, delay calibration	0.13	0.50	0.50	0.50	0.08	0.08	0.08
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.07	2.77	0.49	1.62	0.31	2.90	11.06
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.69	0.07	0.52	0.16	0.47	0.81
d, Delay for Lane Group [s/veh]	3.87	7.35	18.38	9.32	36.49	39.43	50.85
Lane Group LOS	A	A	B	A	D	D	D
Critical Lane Group	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.18	5.71	0.29	5.14	0.53	0.81	1.92
50th-Percentile Queue Length [ft/ln]	4.49	142.81	7.35	128.60	13.25	20.30	48.02
95th-Percentile Queue Length [veh/ln]	0.32	9.63	0.53	8.86	0.95	1.46	3.46
95th-Percentile Queue Length [ft/ln]	8.08	240.80	13.22	221.58	23.85	36.54	86.44

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Movement, Approach, & Intersection Results

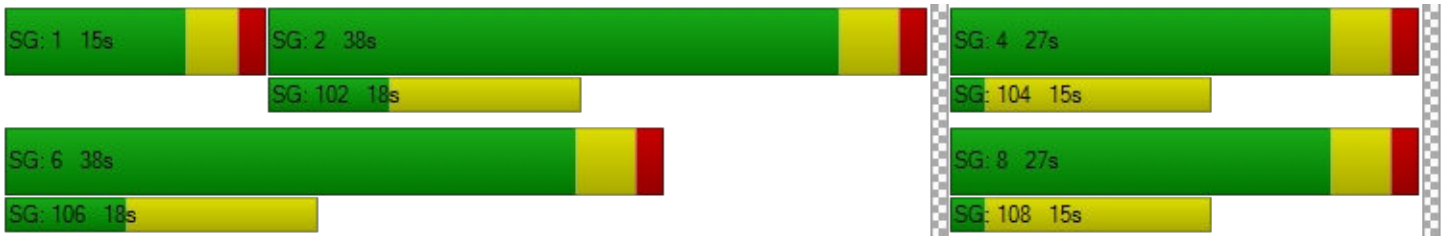
d_M, Delay for Movement [s/veh]	3.87	7.35	7.35	18.38	9.32	9.32	36.49	36.49	39.43	50.85	50.85	50.85
Movement LOS	A	A	A	B	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	7.11			9.62			38.22			50.85		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	11.08											
Intersection LOS	B											
Intersection V/C	0.699											

Other Modes

g_Walk,mi, Effective Walk Time [s]	6.0	6.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	2343.75	7009.86	2300.97	7009.86
M_CW, Crosswalk Circulation Area [ft²/ped]	889.50	2949.28	0.00	0.00
d_p, Pedestrian Delay [s]	34.23	34.23	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.597	2.557	2.094	1.829
Crosswalk LOS	B	B	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	825	825	550	550
d_b, Bicycle Delay [s]	13.81	13.81	21.03	21.03
l_b,int, Bicycle LOS Score for Intersection	4.129	3.369	2.478	2.162
Bicycle LOS	D	C	B	B

Sequence

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



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Intersection Level Of Service Report
Intersection 6: Churchill St & Como Ave

Control Type:	Two-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Churchill St			Churchill St			Como Ave			Como Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Churchill St			Churchill St			Como Ave			Como Ave		
Base Volume Input [veh/h]	13	1	1	3	1	4	5	53	7	0	45	3
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 [%]	3.00	3.00	3.00	3.00	3.00	15.00	10.00	3.00	3.00	3.00	3.00	3.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.05	1.03
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]	13	1	1	3	1	4	5	55	7	0	47	3
Peak Hour Factor	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180
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	0	0	1	0	1	1	15	2	0	13	1
Total Analysis Volume [veh/h]	14	1	1	3	1	4	5	60	8	0	51	3
Pedestrian Volume [ped/h]	4			3			2			2		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.46	9.91	8.74	9.38	9.88	8.75	7.42	0.00	0.00	7.37	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.06	0.03	0.03	0.03	0.01	0.01	0.01	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.48	1.48	1.48	0.69	0.69	0.69	0.25	0.25	0.25	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.44			9.13			0.51			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	1.73											
Intersection LOS	A											

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Intersection Level Of Service Report
Intersection 7: Como Ave & West Parking Lot

Control Type:	Two-way stop	Delay (sec / veh):	9.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name	West Parking Lot		Como Ave		Como Ave	
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	0	0	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	West Parking Lot		Como Ave		Como Ave	
Base Volume Input [veh/h]	2	9	3	51	38	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.11	1.11	1.11	1.05	1.05	1.11
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]	5	10	12	-12	-10	3
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	20	15	42	30	6
Peak Hour Factor	0.8810	0.8810	0.8810	0.8810	0.8810	0.8810
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	6	4	12	9	2
Total Analysis Volume [veh/h]	8	23	17	48	34	7
Pedestrian Volume [ped/h]	16		7		18	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.02	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.62	8.80	7.39	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.03	0.03	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.59	2.59	0.75	0.75	0.00	0.00
d_A, Approach Delay [s/veh]	9.01		1.93		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.96					
Intersection LOS	A					

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Intersection Level Of Service Report
Intersection 8: Como Ave & Oxford St

Control Type:	Two-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.009

Intersection Setup

Name	Oxford St		Como Ave		Como Ave	
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	0	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	Oxford St		Como Ave		Como Ave	
Base Volume Input [veh/h]	7	3	40	11	4	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00
Growth Rate	1.03	1.03	1.05	1.03	1.03	1.05
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	-7	0	0	-7
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	3	35	11	4	26
Peak Hour Factor	0.8770	0.8770	0.8770	0.8770	0.8770	0.8770
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	1	10	3	1	7
Total Analysis Volume [veh/h]	8	3	40	13	5	30
Pedestrian Volume [ped/h]	4		10		6	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.14	8.66	0.00	0.00	7.35	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.92	0.92	0.00	0.00	0.20	0.20
d_A, Approach Delay [s/veh]	9.01		0.00		1.05	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.37					
Intersection LOS	A					

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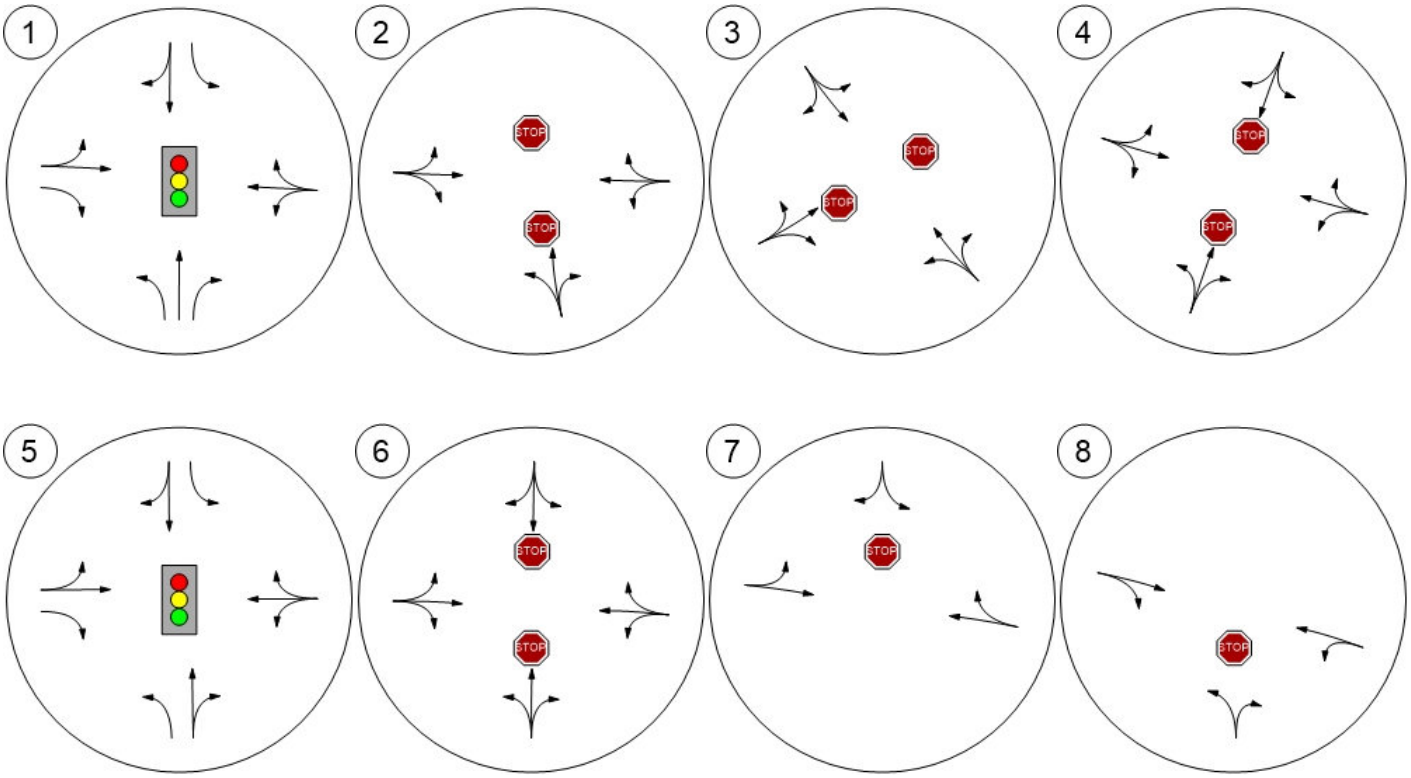
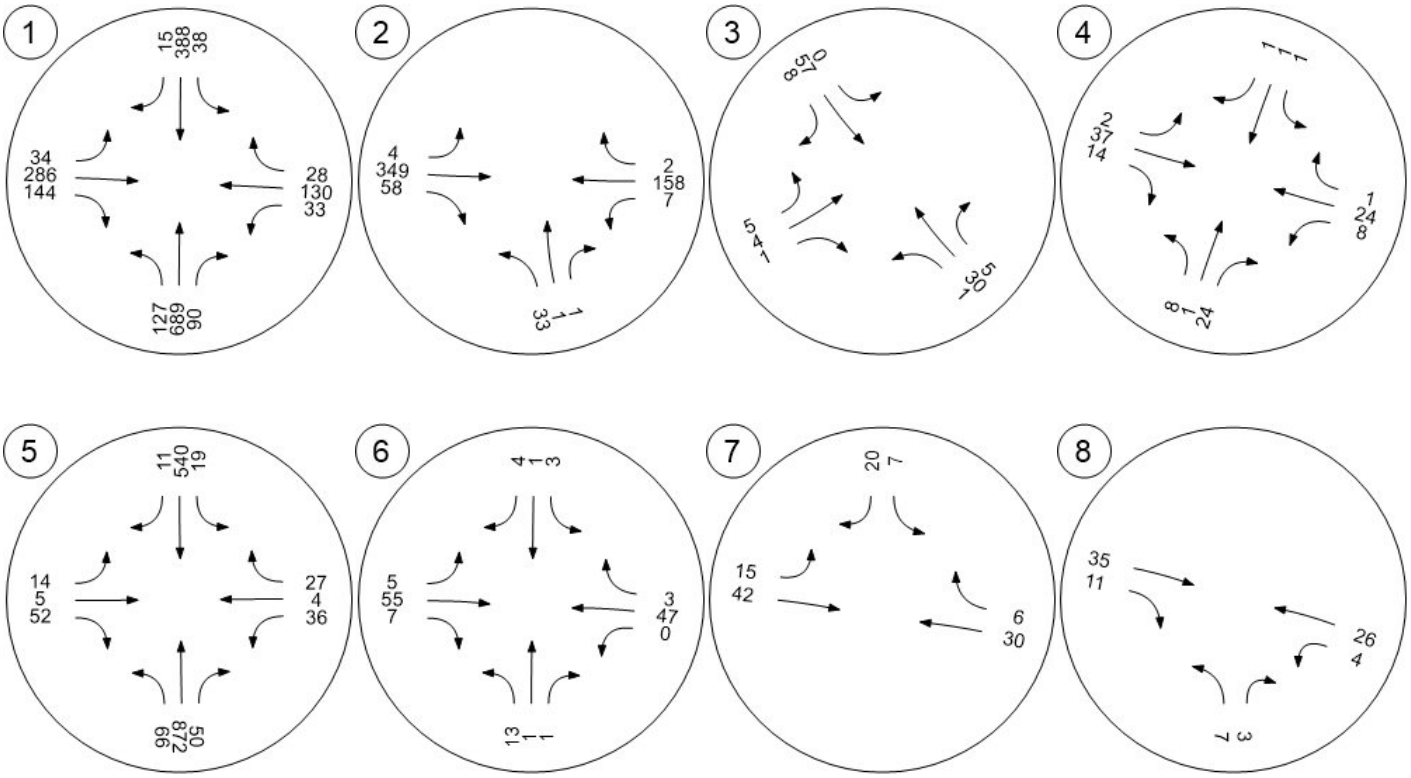
Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lexington Pkwy & Como Ave/Horton Ave	Signalized	HCM 6th Edition	WB Thru	0.721	34.4	C
2	Horton Ave & Van Slyke Ave	Two-way stop	HCM 6th Edition	NB Left	0.350	23.4	C
3	Van Slyke Ave & Churchill St	Two-way stop	HCM 6th Edition	NEB Thru	0.058	15.8	C
4	Van Slyke Ave & Como Ave	Two-way stop	HCM 6th Edition	SB Thru	0.006	15.9	C
5	Lexington Pkwy & Wynne Ave/Como Ave	Signalized	HCM 6th Edition	WB Left	0.701	45.3	D
6	Churchill St & Como Ave	Two-way stop	HCM 6th Edition	NB Thru	0.021	13.2	B
7	Como Ave & West Parking Lot	Two-way stop	HCM 6th Edition	SB Left	0.004	12.0	B
8	Como Ave & Oxford St	Two-way stop	HCM 6th Edition	NB Left	0.016	12.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: Lexington Pkwy & Como Ave/Horton Ave

Control Type:	Signalized	Delay (sec / veh):	34.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.721

Intersection Setup

Name	Lexington Pkwy			Lexington Pkwy			Como Ave			Horton Ave		
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	0	1	0	0	0	0	1	0	0	0
Pocket Length [ft]	75.00	100.00	100.00	75.00	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	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lexington Pkwy			Lexington Pkwy			Como Ave			Horton Ave		
Base Volume Input [veh/h]	113	240	86	62	524	32	7	173	178	53	192	23
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 [%]	6.00	3.00	3.00	3.00	3.00	3.00	3.00	8.00	4.00	4.00	10.00	3.00
Growth Rate	1.03	1.03	1.05	1.05	1.03	1.03	1.03	1.05	1.03	1.05	1.05	1.05
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	10	0	20
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	45	0	0	8	0	0	46	0	0	11
Total Hourly Volume [veh/h]	116	247	45	65	540	25	7	182	137	66	202	33
Peak Hour Factor	0.8330	0.8330	0.8330	0.8620	0.8620	0.8620	0.8430	0.8430	0.8430	0.8650	0.8650	0.8650
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]	35	74	14	19	157	7	2	54	41	19	58	10
Total Analysis Volume [veh/h]	139	297	54	75	626	29	8	216	163	76	234	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	8	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			2			3			1		
v_di, Inbound Pedestrian Volume crossing m	3			1			3			2		
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		

Appendix E - Capacity Analysis Backup

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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	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	1	6	0	5	2	0	0	4	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	15	0	7	15	0	0	10	0	0	10	0
Maximum Green [s]	25	50	0	12	50	0	0	35	0	0	35	0
Amber [s]	3.0	3.5	0.0	3.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0
All red [s]	1.5	1.5	0.0	1.5	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0
Split [s]	12	36	0	12	36	0	0	32	0	0	32	0
Vehicle Extension [s]	3.5	3.0	0.0	2.3	3.0	0.0	0.0	4.5	0.0	0.0	4.5	0.0
Walk [s]	0	7	0	0	7	0	0	2	0	0	2	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	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]	2.5	3.0	0.0	2.5	3.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	Yes		No	Yes			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	R	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	9.00	9.00	9.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	0.00	3.00	7.00	7.00	7.00
g_i, Effective Green Time [s]	46	36	36	46	35	20	20	20
g / C, Green / Cycle	0.57	0.45	0.45	0.57	0.43	0.25	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.15	0.16	0.03	0.06	0.36	0.13	0.11	0.32
s, saturation flow rate [veh/h]	947	1855	1577	1197	1841	1763	1496	1081
c, Capacity [veh/h]	437	826	702	704	797	491	377	328
d1, Uniform Delay [s]	12.87	14.64	12.73	8.13	19.97	25.59	25.06	32.38
k, delay calibration	0.13	0.50	0.50	0.50	0.50	0.19	0.19	0.26
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.50	1.22	0.21	0.30	9.34	1.13	1.34	53.39
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.36	0.08	0.11	0.82	0.46	0.43	1.06
d, Delay for Lane Group [s/veh]	13.37	15.86	12.95	8.43	29.30	26.72	26.40	85.77
Lane Group LOS	B	B	B	A	C	C	C	F
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.06	3.61	0.57	0.58	11.92	3.68	2.65	11.19
50th-Percentile Queue Length [ft/ln]	26.40	90.18	14.20	14.38	297.99	92.01	66.34	279.78
95th-Percentile Queue Length [veh/ln]	1.90	6.49	1.02	1.04	17.58	6.62	4.78	17.24
95th-Percentile Queue Length [ft/ln]	47.52	162.32	25.55	25.89	439.54	165.62	119.41	431.01

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Movement, Approach, & Intersection Results

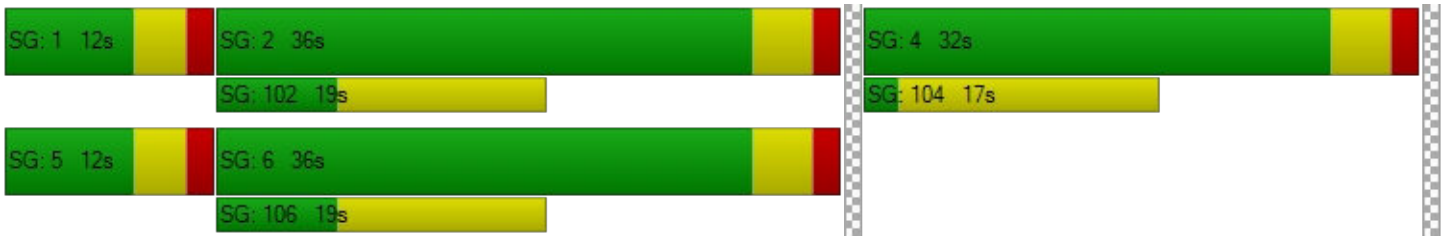
d_M, Delay for Movement [s/veh]	13.37	15.86	12.95	8.43	29.30	29.30	26.72	26.72	26.40	85.77	85.77	85.77
Movement LOS	B	B	B	A	C	C	C	C	C	F	F	F
d_A, Approach Delay [s/veh]	14.83			27.16			26.59			85.77		
Approach LOS	B			C			C			F		
d_I, Intersection Delay [s/veh]	34.39											
Intersection LOS	C											
Intersection V/C	0.721											

Other Modes

g_Walk,mi, Effective Walk Time [s]	6.0	6.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	2322.36	4658.98	2322.36	4673.24
M_CW, Crosswalk Circulation Area [ft²/ped]	648.86	2196.76	0.00	0.00
d_p, Pedestrian Delay [s]	34.23	34.23	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.655	2.317	2.364	2.139
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	775	775	675	675
d_b, Bicycle Delay [s]	15.01	15.01	17.56	17.56
l_b,int, Bicycle LOS Score for Intersection	3.590	3.848	2.963	2.840
Bicycle LOS	D	D	C	C

Sequence

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



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Intersection Level Of Service Report
Intersection 2: Horton Ave & Van Slyke Ave

Control Type:	Two-way stop	Delay (sec / veh):	23.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.350

Intersection Setup

Name	Van Slyke Ave			Churchill St			Horton Ave			Horton Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Van Slyke Ave			Churchill St			Horton Ave			Horton Ave		
Base Volume Input [veh/h]	45	1	0	0	0	0	2	159	163	27	223	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 [%]	13.00	3.00	3.00	2.00	2.00	2.00	3.00	5.00	10.00	5.00	6.00	3.00
Growth Rate	1.09	1.03	1.09	1.00	1.00	1.00	1.03	1.03	1.14	1.14	1.03	1.03
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]	30	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]	79	1	0	0	0	0	2	164	186	31	230	0
Peak Hour Factor	0.7490	0.7490	0.7490	1.0000	1.0000	1.0000	0.7490	0.7490	0.7490	0.7490	0.7490	0.7490
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]	26	0	0	0	0	0	1	55	62	10	77	0
Total Analysis Volume [veh/h]	105	1	0	0	0	0	3	219	248	41	307	0
Pedestrian Volume [ped/h]	2			6			4			4		

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Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00
d_M, Delay for Movement [s/veh]	23.42	22.61	16.65	0.00	0.00	0.00	7.92	0.00	0.00	8.48	0.00	0.00
Movement LOS	C	C	C				A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.54	1.54	1.54	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.09
95th-Percentile Queue Length [ft/ln]	38.53	38.53	38.53	0.00	0.00	0.00	0.12	0.12	0.12	2.23	2.23	2.23
d_A, Approach Delay [s/veh]	23.41			0.00			0.05			1.00		
Approach LOS	C			A			A			A		
d_I, Intersection Delay [s/veh]	3.09											
Intersection LOS	C											

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Intersection Level Of Service Report
Intersection 3: Van Slyke Ave & Churchill St

Control Type:	Two-way stop	Delay (sec / veh):	15.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.058

Intersection Setup

Name	Churchill St			Churchill St			Van Slyke Ave			Van Slyke Ave		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
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	0	0	0	0	0	0	0	0	0	0	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			No		

Volumes

Name	Churchill St			Churchill St			Van Slyke Ave			Van Slyke Ave		
Base Volume Input [veh/h]	16	11	6	0	0	0	0	29	3	0	172	19
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 [%]	3.00	15.00	3.00	2.00	2.00	2.00	17.00	15.00	4.00	30.00	10.00	15.00
Growth Rate	1.09	1.03	1.03	1.00	1.00	1.00	1.03	1.09	1.03	1.03	1.14	1.09
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	30	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]	17	11	6	0	0	0	0	62	3	0	196	21
Peak Hour Factor	0.4700	0.4700	0.4700	1.0000	1.0000	1.0000	0.4700	0.4700	0.4700	0.4700	0.4700	0.4700
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]	9	6	3	0	0	0	0	33	2	0	104	11
Total Analysis Volume [veh/h]	36	23	13	0	0	0	0	132	6	0	417	45
Pedestrian Volume [ped/h]	12			3			4			0		

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Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	15.33	15.75	12.73	0.00	0.00	0.00	8.59	0.00	0.00	7.81	0.00	0.00
Movement LOS	C	C	B				A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.59	0.59	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	14.81	14.81	14.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.99			0.00			0.00			0.00		
Approach LOS	B			A			A			A		
d_I, Intersection Delay [s/veh]	1.61											
Intersection LOS	C											

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Intersection Level Of Service Report
Intersection 4: Van Slyke Ave & Como Ave

Control Type:	Two-way stop	Delay (sec / veh):	15.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name	Como Ave			Driveway			Van Slyke Ave			Van Slyke Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Como Ave			Driveway			Van Slyke Ave			Van Slyke Ave		
Base Volume Input [veh/h]	4	1	14	1	1	1	0	80	98	42	26	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 [%]	4.00	3.00	5.00	3.00	3.00	3.00	3.00	15.00	3.00	6.00	17.00	3.00
Growth Rate	1.14	1.03	1.14	1.03	1.03	1.03	1.03	1.14	1.14	1.14	1.03	1.03
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]	5	1	16	1	1	1	0	91	112	48	27	0
Peak Hour Factor	0.4810	0.4810	0.4810	0.4810	0.4810	0.4810	0.4810	0.4810	0.4810	0.4810	0.4810	0.4810
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]	3	1	8	1	1	1	0	47	58	25	14	0
Total Analysis Volume [veh/h]	10	2	33	2	2	2	0	189	233	100	56	0
Pedestrian Volume [ped/h]	4			3			1			1		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.03	0.01	0.05	0.01	0.01	0.00	0.00	0.00	0.00	0.09	0.00	0.00
d_M, Delay for Movement [s/veh]	14.62	14.78	10.51	14.81	15.93	8.71	7.35	0.00	0.00	8.57	0.00	0.00
Movement LOS	B	B	B	B	C	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.25	0.25	0.25	0.04	0.04	0.04	0.00	0.00	0.00	0.14	0.14	0.14
95th-Percentile Queue Length [ft/ln]	6.18	6.18	6.18	1.02	1.02	1.02	0.00	0.00	0.00	3.39	3.39	3.39
d_A, Approach Delay [s/veh]	11.61			13.15			0.00			5.49		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	2.32											
Intersection LOS	C											

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Intersection Level Of Service Report
Intersection 5: Lexington Pkwy & Wynne Ave/Como Ave

Control Type:	Signalized	Delay (sec / veh):	45.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.701

Intersection Setup

Name	Lexington Pkwy			Lexington Pkwy			Wynne Ave			Como Ave		
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	0	1	0	0	0	0	1	0	0	0
Pocket Length [ft]	150.00	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	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lexington Pkwy			Lexington Pkwy			Wynne Ave			Como Ave		
Base Volume Input [veh/h]	48	362	50	19	728	11	5	3	47	101	3	52
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 [%]	3.00	3.00	3.00	3.00	3.00	7.00	3.00	8.00	3.00	3.00	10.00	3.00
Growth Rate	1.03	1.03	1.14	1.14	1.03	1.03	1.03	1.14	1.03	1.14	1.14	1.14
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	-10	0	-20
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	14	0	0	3	0	0	24	0	0	30
Total Hourly Volume [veh/h]	49	373	43	22	750	8	5	3	24	105	3	9
Peak Hour Factor	0.8830	0.8830	0.8830	0.9240	0.9240	0.9240	0.8180	0.8180	0.8180	0.4920	0.4920	0.4920
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]	14	106	12	6	203	2	2	1	7	53	2	5
Total Analysis Volume [veh/h]	55	422	49	24	812	9	6	4	29	213	6	18
Presence of On-Street Parking	No		No	No		No	No		No	No		Yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	1
Local Bus Stopping Rate [/h]	0	0	2	0	0	2	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			2			4			2		
v_di, Inbound Pedestrian Volume crossing m	4			2			3			2		
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		

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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	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	1	6	0	0	2	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	20	0	0	20	0	0	10	0	0	10	0
Maximum Green [s]	20	50	0	0	50	0	0	35	0	0	35	0
Amber [s]	3.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0
All red [s]	1.5	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0
Split [s]	15	30	0	0	30	0	0	35	0	0	35	0
Vehicle Extension [s]	3.5	3.0	0.0	0.0	3.0	0.0	0.0	2.5	0.0	0.0	2.5	0.0
Walk [s]	0	7	0	0	7	0	0	2	0	0	2	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	13	0	0	13	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	3.0	0.0	0.0	3.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	Yes			Yes			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

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Lane Group Calculations

Lane Group	L	C	L	C	C	R	C
C, Cycle Length [s]	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	9.00	9.00	9.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	7.00	7.00	7.00
g_i, Effective Green Time [s]	60	60	50	50	6	6	6
g / C, Green / Cycle	0.75	0.75	0.63	0.63	0.08	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.07	0.26	0.03	0.45	0.01	0.02	0.24
s, saturation flow rate [veh/h]	799	1807	915	1837	1724	1507	975
c, Capacity [veh/h]	525	1348	554	1153	208	119	162
d1, Uniform Delay [s]	6.86	3.49	9.97	10.01	34.12	34.56	38.50
k, delay calibration	0.13	0.50	0.50	0.50	0.08	0.08	0.08
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.10	0.72	0.15	3.75	0.07	0.78	211.83
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.35	0.04	0.71	0.05	0.24	1.46
d, Delay for Lane Group [s/veh]	6.96	4.21	10.12	13.76	34.19	35.34	250.33
Lane Group LOS	A	A	B	B	C	D	F
Critical Lane Group	Yes	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.17	2.01	0.22	9.16	0.18	0.55	12.89
50th-Percentile Queue Length [ft/ln]	4.27	50.34	5.52	229.02	4.53	13.64	322.26
95th-Percentile Queue Length [veh/ln]	0.31	3.62	0.40	14.12	0.33	0.98	21.03
95th-Percentile Queue Length [ft/ln]	7.69	90.61	9.94	353.12	8.15	24.56	525.81

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Movement, Approach, & Intersection Results

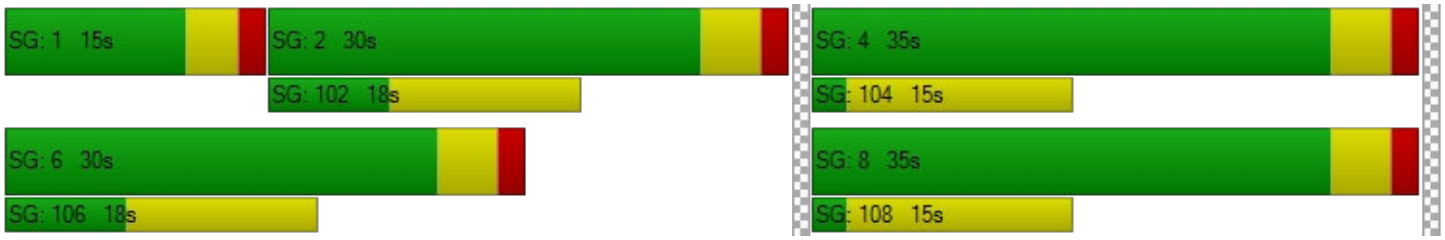
d_M, Delay for Movement [s/veh]	6.96	4.21	4.21	10.12	13.76	13.76	34.19	34.19	35.34	250.33	250.33	250.33
Movement LOS	A	A	A	B	B	B	C	C	D	F	F	F
d_A, Approach Delay [s/veh]	4.49			13.65			35.05			250.33		
Approach LOS	A			B			D			F		
d_I, Intersection Delay [s/veh]	45.29											
Intersection LOS	D											
Intersection V/C	0.701											

Other Modes

g_Walk,mi, Effective Walk Time [s]	6.0	6.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	1990.59	3494.23	1984.48	3494.23
M_CW, Crosswalk Circulation Area [ft²/ped]	348.18	1596.32	0.00	0.00
d_p, Pedestrian Delay [s]	34.23	34.23	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.788	2.466	2.063	1.960
Crosswalk LOS	C	B	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	625	625	750	750
d_b, Bicycle Delay [s]	18.91	18.91	15.63	15.63
l_b,int, Bicycle LOS Score for Intersection	3.292	3.724	2.429	2.459
Bicycle LOS	C	D	B	B

Sequence

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



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Intersection Level Of Service Report
Intersection 6: Churchill St & Como Ave

Control Type:	Two-way stop	Delay (sec / veh):	13.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.021

Intersection Setup

Name	Churchill St			Churchill St			Como Ave			Como Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Churchill St			Churchill St			Como Ave			Como Ave		
Base Volume Input [veh/h]	8	5	0	6	1	7	8	58	3	2	135	19
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 [%]	3.00	3.00	3.00	3.00	3.00	15.00	10.00	3.00	3.00	3.00	3.00	3.00
Growth Rate	1.09	1.03	1.03	1.03	1.03	1.09	1.09	1.14	1.09	1.03	1.14	1.03
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	-30	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	5	0	6	1	8	9	66	3	2	124	20
Peak Hour Factor	0.4960	0.4960	0.4960	0.4960	0.4960	0.4960	0.4960	0.4960	0.4960	0.4960	0.4960	0.4960
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	3	0	3	1	4	5	33	2	1	63	10
Total Analysis Volume [veh/h]	18	10	0	12	2	16	18	133	6	4	250	40
Pedestrian Volume [ped/h]	6			6			1			2		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.02	0.00	0.02	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.94	13.17	9.50	12.70	12.85	10.28	8.01	0.00	0.00	7.54	0.00	0.00
Movement LOS	B	B	A	B	B	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.19	0.19	0.19	0.16	0.16	0.16	0.02	0.02	0.02	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.66	4.66	4.66	4.00	4.00	4.00	0.56	0.56	0.56	0.11	0.11	0.11
d_A, Approach Delay [s/veh]	13.02			11.42			0.92			0.10		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.73											
Intersection LOS	B											

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Intersection Level Of Service Report
Intersection 7: Como Ave & West Parking Lot

Control Type:	Two-way stop	Delay (sec / veh):	12.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	West Parking Lot		Como Ave		Como Ave	
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	0	0	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	West Parking Lot		Como Ave		Como Ave	
Base Volume Input [veh/h]	1	2	8	48	148	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.11	1.11	1.11	1.14	1.14	1.11
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	-75	75
Existing Site Adjustment Volume [veh/h]	0	5	12	-12	-5	1
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	7	21	43	89	78
Peak Hour Factor	0.4880	0.4880	0.4880	0.4880	0.4880	0.4880
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	11	22	46	40
Total Analysis Volume [veh/h]	2	14	43	88	182	160
Pedestrian Volume [ped/h]	27		0		0	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.02	10.05	8.23	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.07	0.07	0.06	0.06	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.76	1.76	1.38	1.38	0.00	0.00
d_A, Approach Delay [s/veh]	10.29		2.70		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.06					
Intersection LOS	B					

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Intersection Level Of Service Report
Intersection 8: Como Ave & Oxford St

Control Type:	Two-way stop	Delay (sec / veh):	12.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name	Oxford St		Como Ave		Como Ave	
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	0	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	Oxford St		Como Ave		Como Ave	
Base Volume Input [veh/h]	4	0	33	16	5	147
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00
Growth Rate	1.09	1.09	1.14	1.09	1.09	1.14
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	-12	0	0	-4
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	0	26	17	5	164
Peak Hour Factor	0.4790	0.4790	0.4790	0.4790	0.4790	0.4790
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	14	9	3	86
Total Analysis Volume [veh/h]	8	0	54	35	10	342
Pedestrian Volume [ped/h]	1		54		0	

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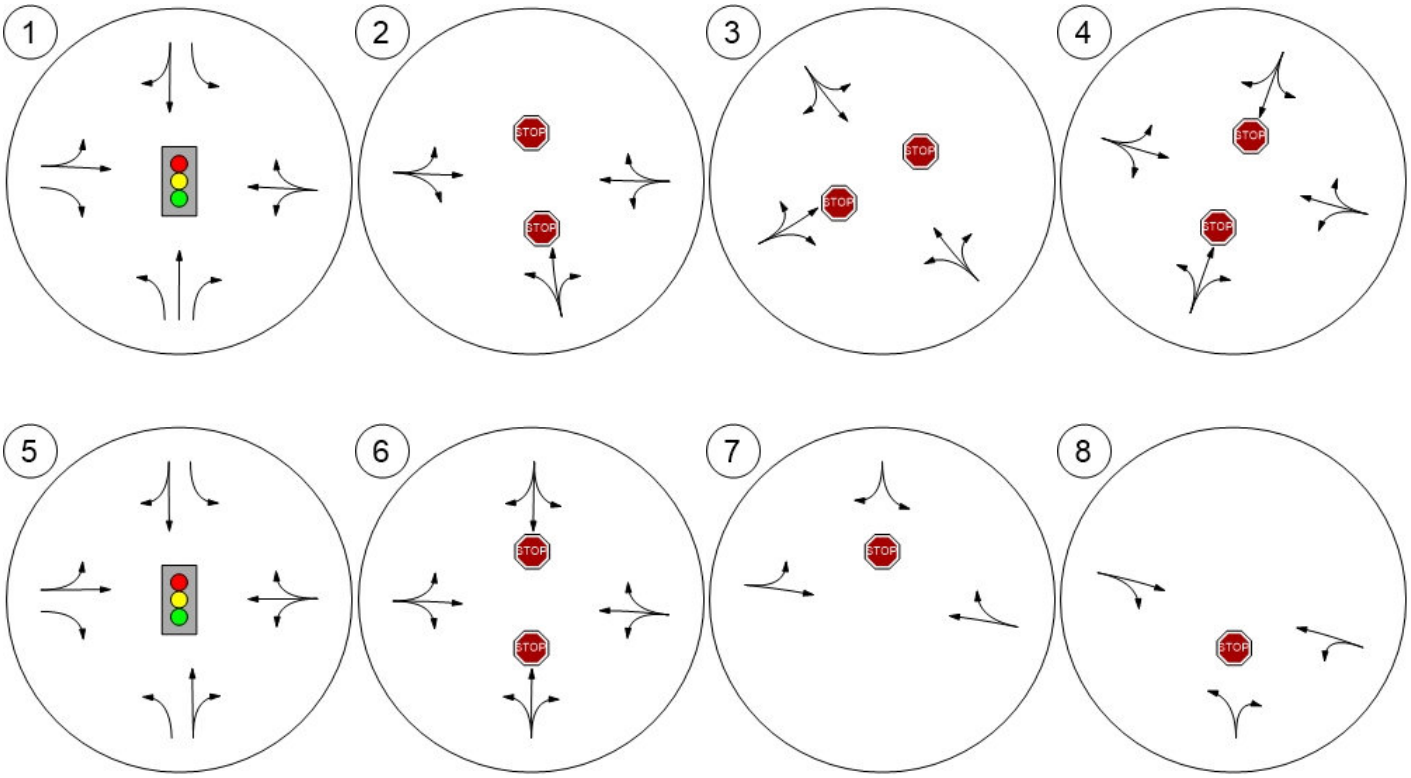
Intersection Settings

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

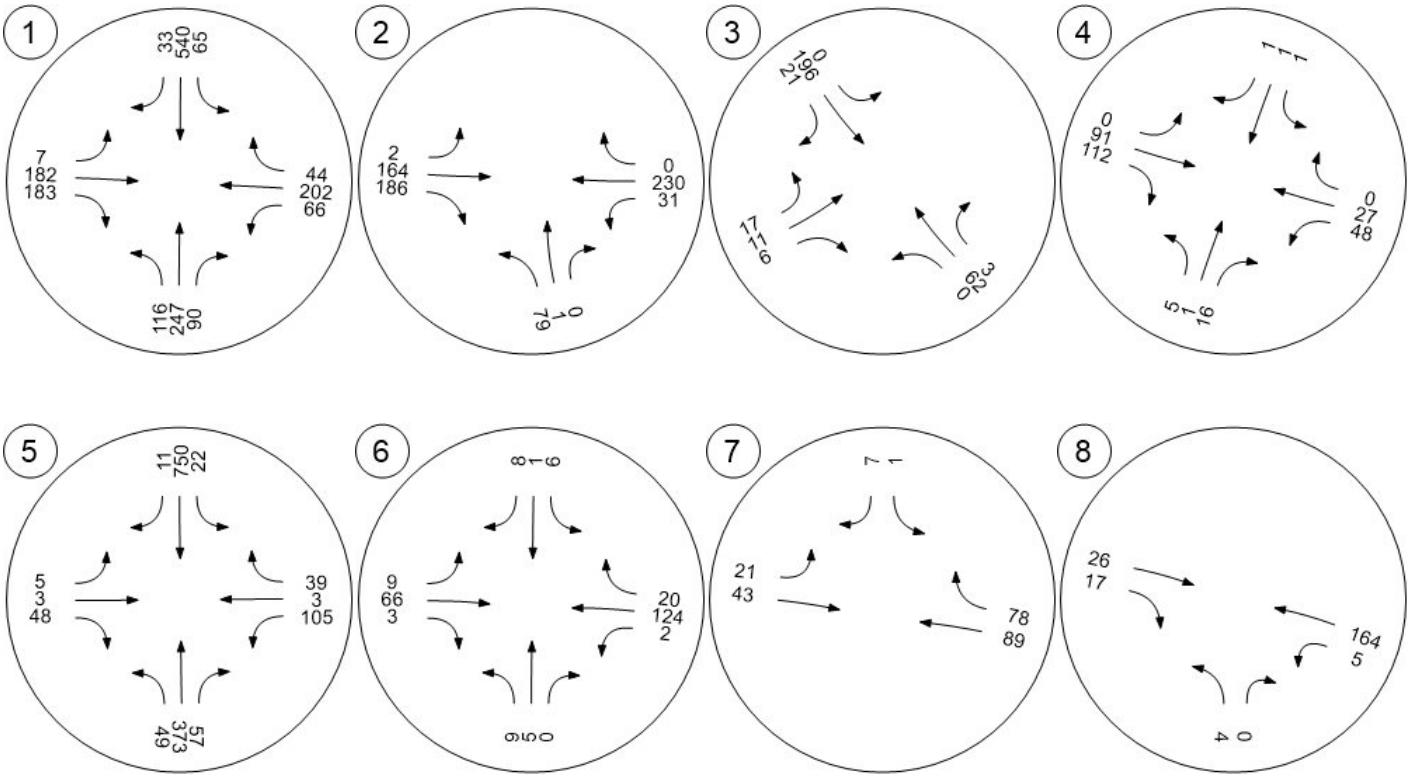
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	12.25	8.77	0.00	0.00	7.42	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.05	0.05	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	1.21	1.21	0.00	0.00	0.25	0.25
d_A, Approach Delay [s/veh]	12.25		0.00		0.21	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.38					
Intersection LOS	B					

Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



TCGIS

Vistro File: C:\...\TCGIS Vistro - Updated Signal Timing.vistro
Report File: C:\...\8 - School PM 2023 with Alternatives - Update.pdf

Scenario 8 School PM 2023 with Alts
1/14/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lexington Pkwy & Como Ave/Horton Ave	Signalized	HCM 6th Edition	WB Thru	0.583	23.0	C
2	Horton Ave & Van Slyke Ave	Two-way stop	HCM 6th Edition	NB Left	0.206	16.0	C
3	Van Slyke Ave & Churchill St	Two-way stop	HCM 6th Edition	NEB Thru	0.008	10.8	B
4	Van Slyke Ave & Como Ave	Two-way stop	HCM 6th Edition	NB Thru	0.002	11.0	B
5	Lexington Pkwy & Wynne Ave/Como Ave	Signalized	HCM 6th Edition	WB Left	0.573	12.4	B
6	Churchill St & Como Ave	Two-way stop	HCM 6th Edition	SB Thru	0.005	11.0	B
7	Como Ave & West Parking Lot	Two-way stop	HCM 6th Edition	SB Left	0.006	10.7	B
8	Como Ave & Oxford St	Two-way stop	HCM 6th Edition	NB Left	0.028	11.6	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: Lexington Pkwy & Como Ave/Horton Ave

Control Type:	Signalized	Delay (sec / veh):	23.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.583

Intersection Setup

Name	Lexington Pkwy			Lexington Pkwy			Como Ave			Horton Ave		
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	0	1	0	0	0	0	1	0	0	0
Pocket Length [ft]	75.00	100.00	100.00	75.00	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	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lexington Pkwy			Lexington Pkwy			Como Ave			Horton Ave		
Base Volume Input [veh/h]	103	494	104	51	347	9	18	216	143	46	107	34
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 [%]	6.00	3.00	3.00	3.00	3.00	3.00	3.00	8.00	4.00	4.00	10.00	3.00
Growth Rate	1.03	1.03	1.05	1.05	1.03	1.03	1.03	1.05	1.03	1.05	1.05	1.05
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	5	0	15
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	52	0	0	2	0	0	36	0	0	13
Total Hourly Volume [veh/h]	106	509	57	54	357	7	19	227	111	53	112	38
Peak Hour Factor	0.8940	0.8940	0.8940	0.9100	0.9100	0.9100	0.9090	0.9090	0.9090	0.8860	0.8860	0.8860
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]	30	142	16	15	98	2	5	62	31	15	32	11
Total Analysis Volume [veh/h]	119	569	64	59	392	8	21	250	122	60	126	43
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	8	0	0	0
v_do, Outbound Pedestrian Volume crossing	4			6			9			3		
v_di, Inbound Pedestrian Volume crossing m	9			3			4			6		
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		

Appendix E - Capacity Analysis Backup

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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	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	1	6	0	5	2	0	0	4	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	15	0	7	15	0	0	10	0	0	10	0
Maximum Green [s]	25	50	0	12	50	0	0	35	0	0	35	0
Amber [s]	3.0	3.5	0.0	3.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0
All red [s]	1.5	1.5	0.0	1.5	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0
Split [s]	12	36	0	12	36	0	0	32	0	0	32	0
Vehicle Extension [s]	3.5	3.0	0.0	2.3	3.0	0.0	0.0	4.5	0.0	0.0	4.5	0.0
Walk [s]	0	7	0	0	7	0	0	2	0	0	2	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	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]	2.5	3.0	0.0	2.5	3.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	Yes		No	Yes			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	R	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	9.00	9.00	9.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	0.00	3.00	7.00	7.00	7.00
g_i, Effective Green Time [s]	47	37	37	47	36	19	19	19
g / C, Green / Cycle	0.59	0.47	0.47	0.59	0.45	0.24	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.11	0.31	0.04	0.06	0.22	0.16	0.08	0.26
s, saturation flow rate [veh/h]	1101	1855	1577	987	1848	1704	1472	882
c, Capacity [veh/h]	633	867	737	515	832	453	350	266
d1, Uniform Delay [s]	8.40	16.38	11.84	9.49	15.45	27.45	25.30	31.27
k, delay calibration	0.13	0.50	0.50	0.50	0.50	0.19	0.19	0.19
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.17	3.87	0.23	0.45	1.99	2.16	1.02	12.82
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.66	0.09	0.11	0.48	0.60	0.35	0.86
d, Delay for Lane Group [s/veh]	8.57	20.25	12.07	9.94	17.44	29.61	26.32	44.09
Lane Group LOS	A	C	B	A	B	C	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.83	8.26	0.64	0.45	5.22	4.78	1.97	5.34
50th-Percentile Queue Length [ft/ln]	20.76	206.56	16.08	11.17	130.39	119.38	49.20	133.54
95th-Percentile Queue Length [veh/ln]	1.49	12.98	1.16	0.80	8.96	8.36	3.54	9.13
95th-Percentile Queue Length [ft/ln]	37.36	324.41	28.95	20.10	224.02	208.98	88.57	228.30

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Movement, Approach, & Intersection Results

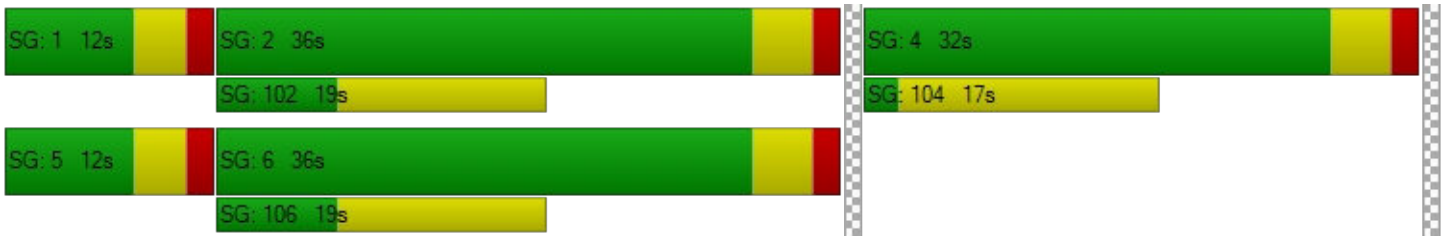
d_M, Delay for Movement [s/veh]	8.57	20.25	12.07	9.94	17.44	17.44	29.61	29.61	26.32	44.09	44.09	44.09
Movement LOS	A	C	B	A	B	B	C	C	C	D	D	D
d_A, Approach Delay [s/veh]	17.71			16.48			28.59			44.09		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	23.03											
Intersection LOS	C											
Intersection V/C	0.583											

Other Modes

g_Walk,mi, Effective Walk Time [s]	6.0	6.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	1068.57	1533.98	1052.11	1548.24
M_CW, Crosswalk Circulation Area [ft²/ped]	362.94	700.72	0.00	0.00
d_p, Pedestrian Delay [s]	34.23	34.23	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.634	2.332	2.288	2.093
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	775	775	675	675
d_b, Bicycle Delay [s]	15.01	15.01	17.56	17.56
l_b,int, Bicycle LOS Score for Intersection	4.034	3.391	2.956	2.647
Bicycle LOS	D	C	C	B

Sequence

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



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Intersection Level Of Service Report
Intersection 2: Horton Ave & Van Slyke Ave

Control Type:	Two-way stop	Delay (sec / veh):	16.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.206

Intersection Setup

Name	Van Slyke Ave			Churchill St			Horton Ave			Horton Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Van Slyke Ave			Churchill St			Horton Ave			Horton Ave		
Base Volume Input [veh/h]	53	1	1	0	0	0	6	277	89	8	137	1
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 [%]	13.00	3.00	3.00	2.00	2.00	2.00	3.00	5.00	10.00	5.00	6.00	3.00
Growth Rate	1.09	1.03	1.09	1.00	1.00	1.00	1.03	1.03	1.14	1.14	1.03	1.03
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]	20	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]	78	1	1	0	0	0	6	285	101	9	141	1
Peak Hour Factor	0.9130	0.9130	0.9130	1.0000	1.0000	1.0000	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130
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]	21	0	0	0	0	0	2	78	28	2	39	0
Total Analysis Volume [veh/h]	85	1	1	0	0	0	7	312	111	10	154	1
Pedestrian Volume [ped/h]	2			3			3			2		

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Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	16.00	15.74	12.66	0.00	0.00	0.00	7.56	0.00	0.00	8.25	0.00	0.00
Movement LOS	C	C	B				A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.78	0.78	0.78	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	19.52	19.52	19.52	0.00	0.00	0.00	0.32	0.32	0.32	0.61	0.61	0.61
d_A, Approach Delay [s/veh]	15.96			0.00			0.12			0.50		
Approach LOS	C			A			A			A		
d_I, Intersection Delay [s/veh]	2.23											
Intersection LOS	C											

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Intersection Level Of Service Report
Intersection 3: Van Slyke Ave & Churchill St

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name	Churchill St			Churchill St			Van Slyke Ave			Van Slyke Ave		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
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	0	0	0	0	0	0	0	0	0	0	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			No		

Volumes

Name	Churchill St			Churchill St			Van Slyke Ave			Van Slyke Ave		
Base Volume Input [veh/h]	14	4	5	0	0	0	3	39	4	0	81	17
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 [%]	3.00	15.00	3.00	2.00	2.00	2.00	17.00	15.00	4.00	30.00	10.00	15.00
Growth Rate	1.09	1.03	1.03	1.00	1.00	1.00	1.03	1.09	1.03	1.03	1.14	1.09
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	20	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	4	5	0	0	0	3	63	4	0	92	19
Peak Hour Factor	0.8040	0.8040	0.8040	1.0000	1.0000	1.0000	0.8040	0.8040	0.8040	0.8040	0.8040	0.8040
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	1	2	0	0	0	1	20	1	0	29	6
Total Analysis Volume [veh/h]	19	5	6	0	0	0	4	78	5	0	114	24
Pedestrian Volume [ped/h]	6			1			3			0		

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Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.16	10.77	9.19	0.00	0.00	0.00	7.69	0.00	0.00	7.66	0.00	0.00
Movement LOS	B	B	A				A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.13	0.13	0.13	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.16	3.16	3.16	0.00	0.00	0.00	0.17	0.17	0.17	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.07			0.00			0.35			0.00		
Approach LOS	B			A			A			A		
d_I, Intersection Delay [s/veh]	1.30											
Intersection LOS	B											

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Intersection Level Of Service Report
Intersection 4: Van Slyke Ave & Como Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Como Ave			Driveway			Van Slyke Ave			Van Slyke Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Como Ave			Driveway			Van Slyke Ave			Van Slyke Ave		
Base Volume Input [veh/h]	11	1	22	0	0	1	1	55	43	16	33	2
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 [%]	4.00	3.00	5.00	3.00	3.00	3.00	3.00	15.00	3.00	6.00	17.00	3.00
Growth Rate	1.14	1.03	1.14	1.03	1.03	1.03	1.03	1.14	1.14	1.14	1.03	1.03
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]	13	1	25	0	0	1	1	63	49	18	34	2
Peak Hour Factor	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500	0.7500
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	0	8	0	0	0	0	21	16	6	11	1
Total Analysis Volume [veh/h]	17	1	33	0	0	1	1	84	65	24	45	3
Pedestrian Volume [ped/h]	22			1			1			4		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	10.55	10.98	9.42	10.33	10.90	8.55	7.32	0.00	0.00	7.71	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.20	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04
95th-Percentile Queue Length [ft/ln]	5.12	5.12	5.12	0.07	0.07	0.07	0.05	0.05	0.05	1.01	1.01	1.01
d_A, Approach Delay [s/veh]	9.83			8.55			0.05			2.57		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.56											
Intersection LOS	B											

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Intersection Level Of Service Report
Intersection 5: Lexington Pkwy & Wynne Ave/Como Ave

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):	0.573

Intersection Setup

Name	Lexington Pkwy			Lexington Pkwy			Wynne Ave			Como Ave		
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	0	1	0	0	0	0	1	0	0	0
Pocket Length [ft]	150.00	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	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lexington Pkwy			Lexington Pkwy			Wynne Ave			Como Ave		
Base Volume Input [veh/h]	43	637	54	21	504	12	15	4	58	65	1	45
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 [%]	3.00	3.00	3.00	3.00	3.00	7.00	3.00	8.00	3.00	3.00	10.00	3.00
Growth Rate	1.03	1.03	1.14	1.14	1.03	1.03	1.03	1.14	1.03	1.14	1.14	1.14
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	-5	0	-15
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	14	0	0	3	0	0	29	0	0	23
Total Hourly Volume [veh/h]	44	656	48	24	519	9	15	5	31	69	1	13
Peak Hour Factor	0.9010	0.9010	0.9010	0.9640	0.9640	0.9640	0.6590	0.6590	0.6590	0.6100	0.6100	0.6100
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]	12	182	13	6	135	2	6	2	12	28	0	5
Total Analysis Volume [veh/h]	49	728	53	25	538	9	23	8	47	113	2	21
Presence of On-Street Parking	No		No	No		No	No		No	No		Yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	1
Local Bus Stopping Rate [/h]	0	0	2	0	0	2	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	2			0			2			1		
v_di, Inbound Pedestrian Volume crossing m	2			1			2			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		

Appendix E - Capacity Analysis Backup

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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	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	1	6	0	0	2	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	20	0	0	20	0	0	10	0	0	10	0
Maximum Green [s]	20	50	0	0	50	0	0	35	0	0	35	0
Amber [s]	3.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0
All red [s]	1.5	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0
Split [s]	15	33	0	0	33	0	0	32	0	0	32	0
Vehicle Extension [s]	3.5	3.0	0.0	0.0	3.0	0.0	0.0	2.5	0.0	0.0	2.5	0.0
Walk [s]	0	7	0	0	7	0	0	2	0	0	2	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	13	0	0	13	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	3.0	0.0	0.0	3.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	Yes			Yes			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

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Lane Group Calculations

Lane Group	L	C	L	C	C	R	C
C, Cycle Length [s]	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	9.00	9.00	9.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	7.00	7.00	7.00
g_i, Effective Green Time [s]	60	60	51	51	6	6	6
g / C, Green / Cycle	0.75	0.75	0.64	0.64	0.07	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.05	0.43	0.04	0.30	0.02	0.03	0.14
s, saturation flow rate [veh/h]	961	1818	686	1835	1665	1533	950
c, Capacity [veh/h]	719	1369	374	1172	198	111	151
d1, Uniform Delay [s]	3.65	4.28	14.23	7.45	35.07	35.51	38.56
k, delay calibration	0.13	0.50	0.50	0.50	0.08	0.08	0.08
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.05	1.73	0.34	1.34	0.27	1.92	13.42
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.07	0.57	0.07	0.47	0.16	0.43	0.90
d, Delay for Lane Group [s/veh]	3.69	6.01	14.58	8.79	35.34	37.42	51.98
Lane Group LOS	A	A	B	A	D	D	D
Critical Lane Group	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.14	4.19	0.30	4.43	0.58	0.92	3.37
50th-Percentile Queue Length [ft/ln]	3.49	104.77	7.44	110.69	14.39	22.99	84.27
95th-Percentile Queue Length [veh/ln]	0.25	7.54	0.54	7.88	1.04	1.66	6.07
95th-Percentile Queue Length [ft/ln]	6.28	188.58	13.40	196.96	25.90	41.38	151.69

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	3.69	6.01	6.01	14.58	8.79	8.79	35.34	35.34	37.42	51.98	51.98	51.98
Movement LOS	A	A	A	B	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	5.87			9.04			36.59			51.98		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	12.36											
Intersection LOS	B											
Intersection V/C	0.573											

Other Modes

g_Walk,mi, Effective Walk Time [s]	6.0	6.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	3494.23	14062.50	3494.23	14019.72
M_CW, Crosswalk Circulation Area [ft²/ped]	996.40	5980.05	0.00	0.00
d_p, Pedestrian Delay [s]	34.23	34.23	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.630	2.501	2.076	1.903
Crosswalk LOS	B	B	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	700	675	675
d_b, Bicycle Delay [s]	16.90	16.90	17.56	17.56
l_b,int, Bicycle LOS Score for Intersection	3.794	3.273	2.501	2.281
Bicycle LOS	D	C	B	B

Sequence

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

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Intersection Level Of Service Report
Intersection 6: Churchill St & Como Ave

Control Type:	Two-way stop	Delay (sec / veh):	11.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Churchill St			Churchill St			Como Ave			Como Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Churchill St			Churchill St			Como Ave			Como Ave		
Base Volume Input [veh/h]	7	0	1	8	2	9	12	52	7	2	87	6
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 [%]	3.00	3.00	3.00	3.00	3.00	15.00	10.00	3.00	3.00	3.00	3.00	3.00
Growth Rate	1.09	1.03	1.03	1.03	1.03	1.09	1.09	1.14	1.09	1.03	1.14	1.03
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	-20	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	0	1	8	2	10	13	59	8	2	79	6
Peak Hour Factor	0.7480	0.7480	0.7480	0.7480	0.7480	0.7480	0.7480	0.7480	0.7480	0.7480	0.7480	0.7480
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]	3	0	0	3	1	3	4	20	3	1	26	2
Total Analysis Volume [veh/h]	11	0	1	11	3	13	17	79	11	3	106	8
Pedestrian Volume [ped/h]	7			16			7			5		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.00	0.00	0.02	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.51	10.92	8.90	10.53	11.02	9.35	7.63	0.00	0.00	7.44	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.05	0.05	0.05	0.11	0.11	0.11	0.03	0.03	0.03	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.34	1.34	1.34	2.82	2.82	2.82	0.71	0.71	0.71	0.10	0.10	0.10
d_A, Approach Delay [s/veh]	10.38			10.02			1.21			0.19		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	2.08											
Intersection LOS	B											

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Intersection Level Of Service Report
Intersection 7: Como Ave & West Parking Lot

Control Type:	Two-way stop	Delay (sec / veh):	10.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name	West Parking Lot		Como Ave		Como Ave	
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	0	0	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	West Parking Lot		Como Ave		Como Ave	
Base Volume Input [veh/h]	1	10	5	57	74	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.11	1.11	1.11	1.14	1.14	1.11
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	-35	35
Existing Site Adjustment Volume [veh/h]	2	7	10	-10	-7	4
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	18	16	55	42	42
Peak Hour Factor	0.7230	0.7230	0.7230	0.7230	0.7230	0.7230
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	6	6	19	15	15
Total Analysis Volume [veh/h]	4	25	22	76	58	58
Pedestrian Volume [ped/h]	70		0		0	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.03	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.68	9.51	7.83	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.11	0.11	0.04	0.04	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.82	2.82	0.94	0.94	0.00	0.00
d_A, Approach Delay [s/veh]	9.67		1.76		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.86					
Intersection LOS	B					

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Intersection Level Of Service Report
Intersection 8: Como Ave & Oxford St

Control Type:	Two-way stop	Delay (sec / veh):	11.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.028

Intersection Setup

Name	Oxford St		Como Ave		Como Ave	
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	0	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	Oxford St		Como Ave		Como Ave	
Base Volume Input [veh/h]	11	5	40	16	8	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00
Growth Rate	1.09	1.09	1.14	1.09	1.09	1.14
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	-8	0	0	-3
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	5	38	17	9	53
Peak Hour Factor	0.7710	0.7710	0.7710	0.7710	0.7710	0.7710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	2	12	6	3	17
Total Analysis Volume [veh/h]	16	6	49	22	12	69
Pedestrian Volume [ped/h]	5		159		0	

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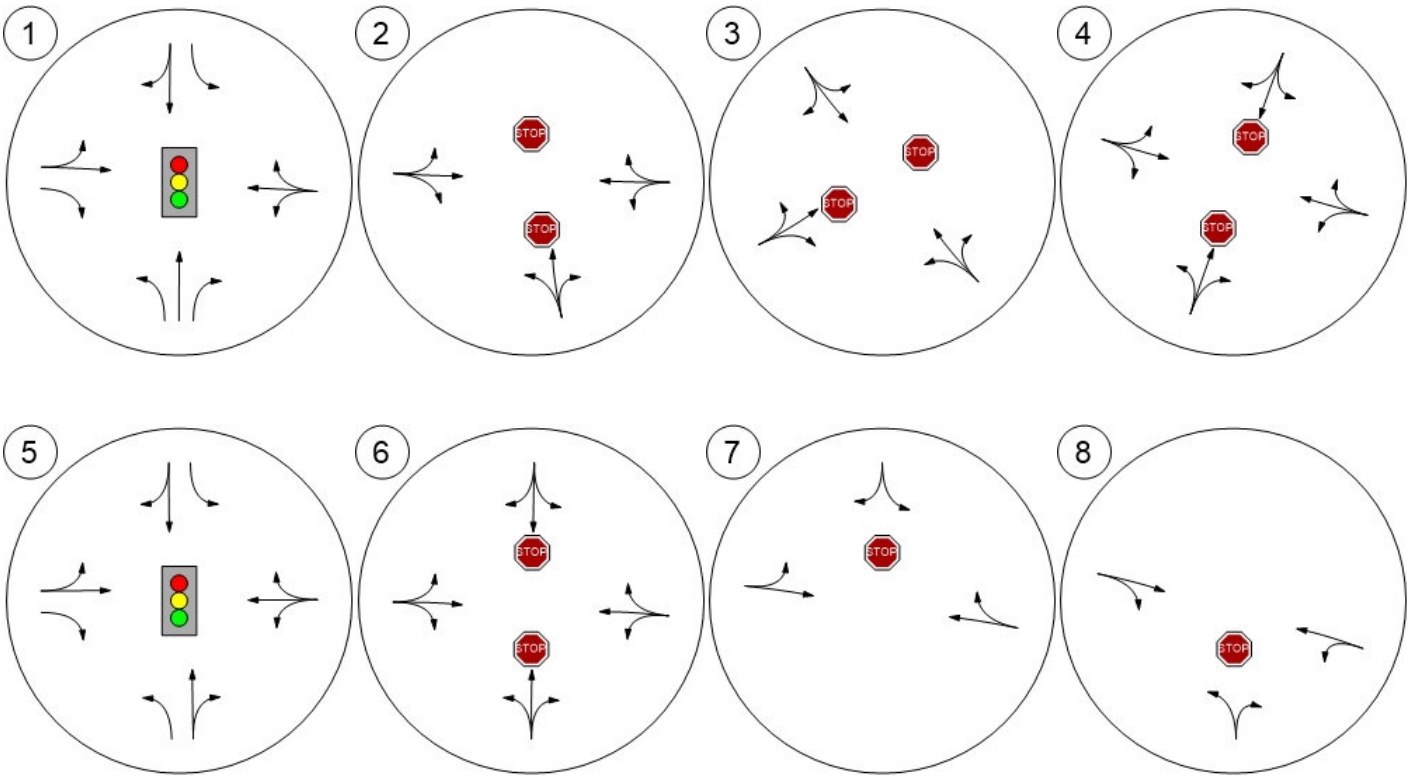
Intersection Settings

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

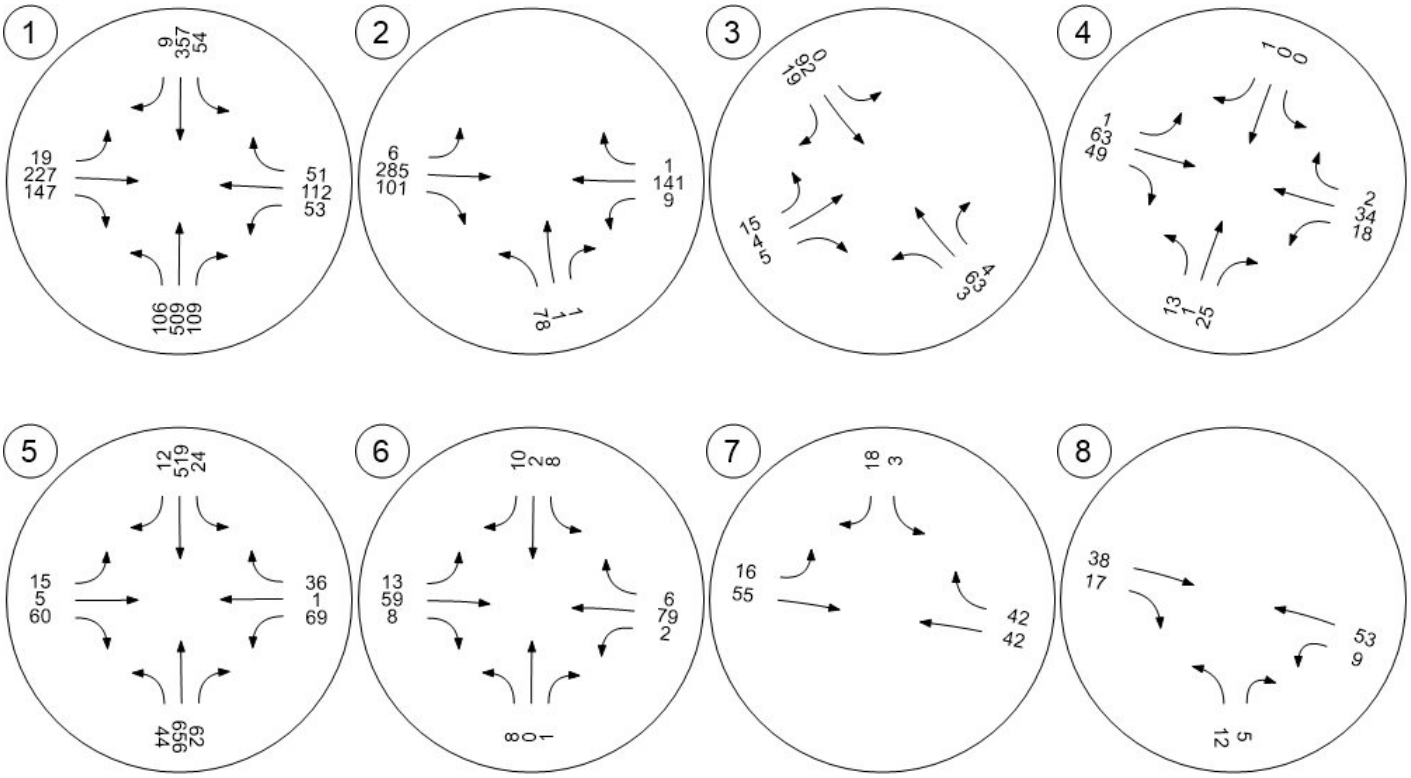
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	11.58	8.83	0.00	0.00	7.40	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.11	0.11	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	2.67	2.67	0.00	0.00	0.45	0.45
d_A, Approach Delay [s/veh]	10.83		0.00		1.10	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.88					
Intersection LOS	B					

Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume



TCGIS

Vistro File: C:\...\TCGIS Vistro.vistro
Report File: C:\...\9 - PM 2023 with Alternatives.pdf

Scenario 9 PM Existing 2023 with Alts
11/30/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Lexington Pkwy & Como Ave/Horton Ave	Signalized	HCM 6th Edition	WB Thru	0.669	26.0	C
2	Horton Ave & Van Slyke Ave	Two-way stop	HCM 6th Edition	NB Left	0.085	14.8	B
3	Van Slyke Ave & Churchill St	Two-way stop	HCM 6th Edition	NEB Thru	0.005	9.9	A
4	Van Slyke Ave & Como Ave	Two-way stop	HCM 6th Edition	NB Thru	0.001	9.9	A
5	Lexington Pkwy & Wynne Ave/Como Ave	Signalized	HCM 6th Edition	WB Left	0.699	11.1	B
6	Churchill St & Como Ave	Two-way stop	HCM 6th Edition	NB Thru	0.001	9.9	A
7	Como Ave & West Parking Lot	Two-way stop	HCM 6th Edition	SB Left	0.010	9.4	A
8	Como Ave & Oxford St	Two-way stop	HCM 6th Edition	NB Left	0.010	9.7	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: Lexington Pkwy & Como Ave/Horton Ave

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):	0.669

Intersection Setup

Name	Lexington Pkwy			Lexington Pkwy			Como Ave			Horton Ave		
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	0	1	0	0	0	0	1	0	0	0
Pocket Length [ft]	75.00	100.00	100.00	75.00	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	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lexington Pkwy			Lexington Pkwy			Como Ave			Horton Ave		
Base Volume Input [veh/h]	123	669	87	37	377	15	33	278	140	32	126	27
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 [%]	6.00	3.00	3.00	3.00	3.00	3.00	3.00	8.00	4.00	4.00	10.00	3.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
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	44	0	0	4	0	0	35	0	0	7
Total Hourly Volume [veh/h]	127	689	46	38	388	11	34	286	109	33	130	21
Peak Hour Factor	0.9610	0.9610	0.9610	0.8710	0.8710	0.8710	0.9110	0.9110	0.9110	0.9390	0.9390	0.9390
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]	33	179	12	11	111	3	9	78	30	9	35	6
Total Analysis Volume [veh/h]	132	717	48	44	445	13	37	314	120	35	138	22
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	8	0	0	0
v_do, Outbound Pedestrian Volume crossing	4			1			2			1		
v_di, Inbound Pedestrian Volume crossing m	2			1			4			1		
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		

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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	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	1	6	0	5	2	0	0	4	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	15	0	7	15	0	0	10	0	0	10	0
Maximum Green [s]	25	50	0	12	50	0	0	35	0	0	35	0
Amber [s]	3.0	3.5	0.0	3.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0
All red [s]	1.5	1.5	0.0	1.5	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0
Split [s]	12	36	0	12	36	0	0	32	0	0	32	0
Vehicle Extension [s]	3.5	3.0	0.0	2.3	3.0	0.0	0.0	4.5	0.0	0.0	4.5	0.0
Walk [s]	0	7	0	0	7	0	0	2	0	0	2	0
Pedestrian Clearance [s]	0	12	0	0	12	0	0	15	0	0	15	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]	2.5	3.0	0.0	2.5	3.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	Yes		No	Yes			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

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Lane Group Calculations

Lane Group	L	C	R	L	C	C	R	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	9.00	9.00	9.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	0.00	3.00	7.00	7.00	7.00
g_i, Effective Green Time [s]	47	38	38	47	35	19	19	19
g / C, Green / Cycle	0.58	0.47	0.47	0.58	0.44	0.24	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.12	0.39	0.03	0.05	0.25	0.22	0.08	0.27
s, saturation flow rate [veh/h]	1065	1855	1577	882	1846	1604	1495	723
c, Capacity [veh/h]	583	872	741	401	815	441	365	230
d1, Uniform Delay [s]	9.24	18.32	11.59	12.05	16.58	28.85	24.83	27.13
k, delay calibration	0.13	0.50	0.50	0.50	0.50	0.19	0.19	0.19
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.24	8.62	0.17	0.55	2.79	5.56	0.89	14.22
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.82	0.06	0.11	0.56	0.80	0.33	0.85
d, Delay for Lane Group [s/veh]	9.48	26.94	11.76	12.60	19.37	34.41	25.73	41.35
Lane Group LOS	A	C	B	B	B	C	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.95	12.45	0.47	0.35	6.42	6.90	1.91	3.97
50th-Percentile Queue Length [ft/ln]	23.83	311.29	11.84	8.76	160.39	172.49	47.70	99.35
95th-Percentile Queue Length [veh/ln]	1.72	18.24	0.85	0.63	10.57	11.21	3.43	7.15
95th-Percentile Queue Length [ft/ln]	42.90	455.96	21.31	15.77	264.24	280.18	85.85	178.84

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Movement, Approach, & Intersection Results

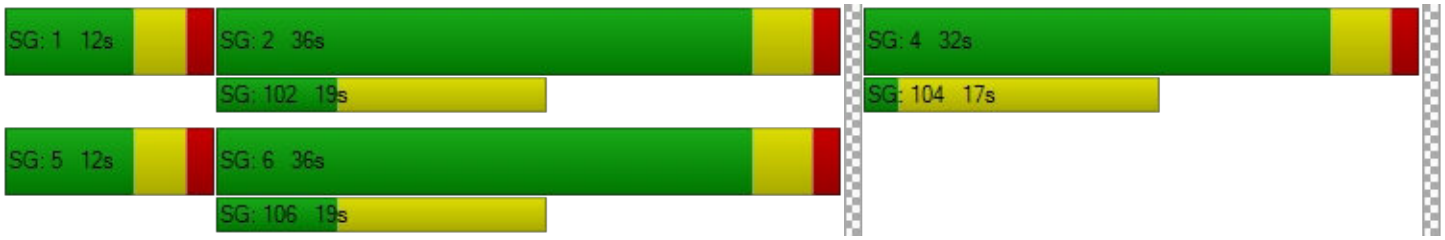
d_M, Delay for Movement [s/veh]	9.48	26.94	11.76	12.60	19.37	19.37	34.41	34.41	25.73	41.35	41.35	41.35
Movement LOS	A	C	B	B	B	B	C	C	C	D	D	D
d_A, Approach Delay [s/veh]	23.55			18.78			32.19			41.35		
Approach LOS	C			B			C			D		
d_I, Intersection Delay [s/veh]	26.04											
Intersection LOS	C											
Intersection V/C	0.669											

Other Modes

g_Walk,mi, Effective Walk Time [s]	6.0	6.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	2315.23	7009.86	2329.49	7009.86
M_CW, Crosswalk Circulation Area [ft²/ped]	852.74	3195.28	0.00	0.00
d_p, Pedestrian Delay [s]	34.23	34.23	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.627	2.416	2.329	2.067
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	775	775	675	675
d_b, Bicycle Delay [s]	15.01	15.01	17.56	17.56
l_b,int, Bicycle LOS Score for Intersection	4.260	3.466	3.083	2.581
Bicycle LOS	E	C	C	B

Sequence

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



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Intersection Level Of Service Report
Intersection 2: Horton Ave & Van Slyke Ave

Control Type:	Two-way stop	Delay (sec / veh):	14.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.085

Intersection Setup

Name	Van Slyke Ave			Churchill St			Horton Ave			Horton Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Van Slyke Ave			Churchill St			Horton Ave			Horton Ave		
Base Volume Input [veh/h]	32	1	1	0	0	0	4	339	56	7	153	2
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 [%]	13.00	3.00	3.00	2.00	2.00	2.00	3.00	5.00	10.00	5.00	6.00	3.00
Growth Rate	1.03	1.03	1.03	1.00	1.00	1.00	1.03	1.03	1.03	1.03	1.03	1.03
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]	33	1	1	0	0	0	4	349	58	7	158	2
Peak Hour Factor	0.9610	0.9610	0.9610	1.0000	1.0000	1.0000	0.9610	0.9610	0.9610	0.9610	0.9610	0.9610
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]	9	0	0	0	0	0	1	91	15	2	41	1
Total Analysis Volume [veh/h]	34	1	1	0	0	0	4	363	60	7	164	2
Pedestrian Volume [ped/h]	2			3			1			2		

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Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	14.81	14.54	11.41	0.00	0.00	0.00	7.58	0.00	0.00	8.25	0.00	0.00
Movement LOS	B	B	B				A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.29	0.29	0.29	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	7.23	7.23	7.23	0.00	0.00	0.00	0.22	0.22	0.22	0.47	0.47	0.47
d_A, Approach Delay [s/veh]	14.70			0.00			0.07			0.33		
Approach LOS	B			A			A			A		
d_I, Intersection Delay [s/veh]	0.97											
Intersection LOS	B											

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Intersection Level Of Service Report
Intersection 3: Van Slyke Ave & Churchill St

Control Type:	Two-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	Churchill St			Churchill St			Van Slyke Ave			Van Slyke Ave		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
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	0	0	0	0	0	0	0	0	0	0	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	Churchill St			Churchill St			Van Slyke Ave			Van Slyke Ave		
Base Volume Input [veh/h]	5	4	1	0	0	0	1	29	5	0	55	8
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 [%]	3.00	15.00	3.00	2.00	2.00	2.00	17.00	15.00	4.00	30.00	10.00	15.00
Growth Rate	1.03	1.03	1.03	1.00	1.00	1.00	1.03	1.03	1.03	1.03	1.03	1.03
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]	5	4	1	0	0	0	1	30	5	0	57	8
Peak Hour Factor	0.9250	0.9250	0.9250	1.0000	1.0000	1.0000	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250
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	1	0	0	0	0	0	8	1	0	15	2
Total Analysis Volume [veh/h]	5	4	1	0	0	0	1	32	5	0	62	9
Pedestrian Volume [ped/h]	6			2			2			0		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No			
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.23	9.88	8.74	0.00	0.00	0.00	7.53	0.00	0.00	7.56	0.00	0.00
Movement LOS	A	A	A				A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.92	0.92	0.92	0.00	0.00	0.00	0.05	0.05	0.05	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.44			0.00			0.20			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	0.86											
Intersection LOS	A											

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Intersection Level Of Service Report
Intersection 4: Van Slyke Ave & Como Ave

Control Type:	Two-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Como Ave			Driveway			Van Slyke Ave			Van Slyke Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Como Ave			Driveway			Van Slyke Ave			Van Slyke Ave		
Base Volume Input [veh/h]	8	1	23	1	1	1	2	36	14	8	23	1
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 [%]	4.00	3.00	5.00	3.00	3.00	3.00	3.00	15.00	3.00	6.00	17.00	3.00
Growth Rate	1.05	1.03	1.05	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
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]	8	1	24	1	1	1	2	37	14	8	24	1
Peak Hour Factor	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
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]	3	0	8	0	0	0	1	12	4	3	8	0
Total Analysis Volume [veh/h]	10	1	31	1	1	1	3	47	18	10	31	1
Pedestrian Volume [ped/h]	4			3			1			3		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	9.46	9.94	8.83	9.54	9.83	8.51	7.30	0.00	0.00	7.41	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.14	0.14	0.14	0.01	0.01	0.01	0.00	0.00	0.00	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	3.50	3.50	3.50	0.27	0.27	0.27	0.10	0.10	0.10	0.40	0.40	0.40
d_A, Approach Delay [s/veh]	9.01			9.29			0.32			1.77		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	3.24											
Intersection LOS	A											

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Intersection Level Of Service Report
Intersection 5: Lexington Pkwy & Wynne Ave/Como Ave

Control Type:	Signalized	Delay (sec / veh):	11.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.699

Intersection Setup

Name	Lexington Pkwy			Lexington Pkwy			Wynne Ave			Como Ave		
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	0	1	0	0	0	0	1	0	0	0
Pocket Length [ft]	150.00	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	Yes			Yes			Yes			Yes		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Lexington Pkwy			Lexington Pkwy			Wynne Ave			Como Ave		
Base Volume Input [veh/h]	64	847	49	18	524	11	14	5	50	34	4	26
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 [%]	3.00	3.00	3.00	3.00	3.00	7.00	3.00	8.00	3.00	3.00	10.00	3.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.05	1.05	1.05
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	12	0	0	3	0	0	25	0	0	7
Total Hourly Volume [veh/h]	66	872	38	19	540	8	14	5	27	36	4	20
Peak Hour Factor	0.9430	0.9430	0.9430	0.9000	0.9000	0.9000	0.6750	0.6750	0.6750	0.7500	0.7500	0.7500
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]	17	231	10	5	150	2	5	2	10	12	1	7
Total Analysis Volume [veh/h]	70	925	40	21	600	9	21	7	40	48	5	27
Presence of On-Street Parking	No		No	No		No	No		No	No		Yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	1
Local Bus Stopping Rate [/h]	0	0	2	0	0	2	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			1			6			1		
v_di, Inbound Pedestrian Volume crossing m	6			1			0			1		
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		

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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	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	1	6	0	0	2	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	20	0	0	20	0	0	10	0	0	10	0
Maximum Green [s]	20	50	0	0	50	0	0	35	0	0	35	0
Amber [s]	3.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0	0.0	3.5	0.0
All red [s]	1.5	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0
Split [s]	15	38	0	0	38	0	0	27	0	0	27	0
Vehicle Extension [s]	3.5	3.0	0.0	0.0	3.0	0.0	0.0	2.5	0.0	0.0	2.5	0.0
Walk [s]	0	7	0	0	7	0	0	2	0	0	2	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	13	0	0	13	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.5	3.0	0.0	0.0	3.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0
Minimum Recall	No	No			No			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	Yes			Yes			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

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Lane Group Calculations

Lane Group	L	C	L	C	C	R	C
C, Cycle Length [s]	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	9.00	9.00	9.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	0.00	2.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	7.00	7.00	7.00
g_i, Effective Green Time [s]	62	62	51	51	5	5	5
g / C, Green / Cycle	0.77	0.77	0.64	0.64	0.06	0.06	0.06
(v / s)_i Volume / Saturation Flow Rate	0.08	0.53	0.04	0.33	0.02	0.03	0.17
s, saturation flow rate [veh/h]	932	1827	577	1835	1714	1494	468
c, Capacity [veh/h]	698	1403	289	1178	177	86	99
d1, Uniform Delay [s]	3.80	4.58	17.89	7.70	36.18	36.53	39.78
k, delay calibration	0.13	0.50	0.50	0.50	0.08	0.08	0.08
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.07	2.77	0.49	1.62	0.31	2.90	11.06
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.69	0.07	0.52	0.16	0.47	0.81
d, Delay for Lane Group [s/veh]	3.87	7.35	18.38	9.32	36.49	39.43	50.85
Lane Group LOS	A	A	B	A	D	D	D
Critical Lane Group	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.18	5.71	0.29	5.14	0.53	0.81	1.92
50th-Percentile Queue Length [ft/ln]	4.49	142.81	7.35	128.60	13.25	20.30	48.02
95th-Percentile Queue Length [veh/ln]	0.32	9.63	0.53	8.86	0.95	1.46	3.46
95th-Percentile Queue Length [ft/ln]	8.08	240.80	13.22	221.58	23.85	36.54	86.44

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Movement, Approach, & Intersection Results

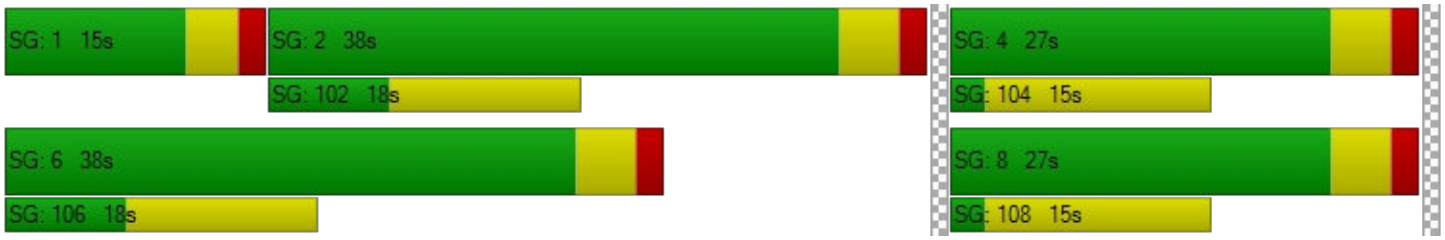
d_M, Delay for Movement [s/veh]	3.87	7.35	7.35	18.38	9.32	9.32	36.49	36.49	39.43	50.85	50.85	50.85
Movement LOS	A	A	A	B	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	7.11			9.62			38.22			50.85		
Approach LOS	A			A			D			D		
d_I, Intersection Delay [s/veh]	11.08											
Intersection LOS	B											
Intersection V/C	0.699											

Other Modes

g_Walk,mi, Effective Walk Time [s]	6.0	6.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	2343.75	7009.86	2300.97	7009.86
M_CW, Crosswalk Circulation Area [ft²/ped]	889.50	2949.28	0.00	0.00
d_p, Pedestrian Delay [s]	34.23	34.23	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.597	2.557	2.094	1.829
Crosswalk LOS	B	B	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	825	825	550	550
d_b, Bicycle Delay [s]	13.81	13.81	21.03	21.03
l_b,int, Bicycle LOS Score for Intersection	4.129	3.369	2.478	2.162
Bicycle LOS	D	C	B	B

Sequence

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



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Intersection Level Of Service Report
Intersection 6: Churchill St & Como Ave

Control Type:	Two-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Churchill St			Churchill St			Como Ave			Como Ave		
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	0	0	0	0	0	0	0	0	0	0	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	Churchill St			Churchill St			Como Ave			Como Ave		
Base Volume Input [veh/h]	13	1	1	3	1	4	5	53	7	0	45	3
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 [%]	3.00	3.00	3.00	3.00	3.00	15.00	10.00	3.00	3.00	3.00	3.00	3.00
Growth Rate	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.05	1.03
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]	13	1	1	3	1	4	5	55	7	0	47	3
Peak Hour Factor	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180	0.9180
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	0	0	1	0	1	1	15	2	0	13	1
Total Analysis Volume [veh/h]	14	1	1	3	1	4	5	60	8	0	51	3
Pedestrian Volume [ped/h]	4			3			2			2		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.46	9.91	8.74	9.38	9.88	8.75	7.42	0.00	0.00	7.37	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.06	0.03	0.03	0.03	0.01	0.01	0.01	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.48	1.48	1.48	0.69	0.69	0.69	0.25	0.25	0.25	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.44			9.13			0.51			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	1.73											
Intersection LOS	A											

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Intersection Level Of Service Report
Intersection 7: Como Ave & West Parking Lot

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name	West Parking Lot		Como Ave		Como Ave	
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	0	0	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	West Parking Lot		Como Ave		Como Ave	
Base Volume Input [veh/h]	2	9	3	51	38	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.11	1.11	1.11	1.05	1.05	1.11
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]	5	10	12	-12	-10	3
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	20	15	42	30	6
Peak Hour Factor	0.8810	0.8810	0.8810	0.8810	0.8810	0.8810
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	6	4	12	9	2
Total Analysis Volume [veh/h]	8	23	17	48	34	7
Pedestrian Volume [ped/h]	16		0		0	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.02	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.44	8.73	7.39	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.03	0.03	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.53	2.53	0.75	0.75	0.00	0.00
d_A, Approach Delay [s/veh]	8.92		1.93		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.93					
Intersection LOS	A					

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Intersection Level Of Service Report
Intersection 8: Como Ave & Oxford St

Control Type:	Two-way stop	Delay (sec / veh):	9.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name	Oxford St		Como Ave		Como Ave	
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	0	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	Oxford St		Como Ave		Como Ave	
Base Volume Input [veh/h]	7	3	40	11	4	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00
Growth Rate	1.03	1.03	1.05	1.03	1.03	1.05
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	-7	0	0	-7
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	3	35	11	4	26
Peak Hour Factor	0.8770	0.8770	0.8770	0.8770	0.8770	0.8770
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	1	10	3	1	7
Total Analysis Volume [veh/h]	8	3	40	13	5	30
Pedestrian Volume [ped/h]	4		69		0	

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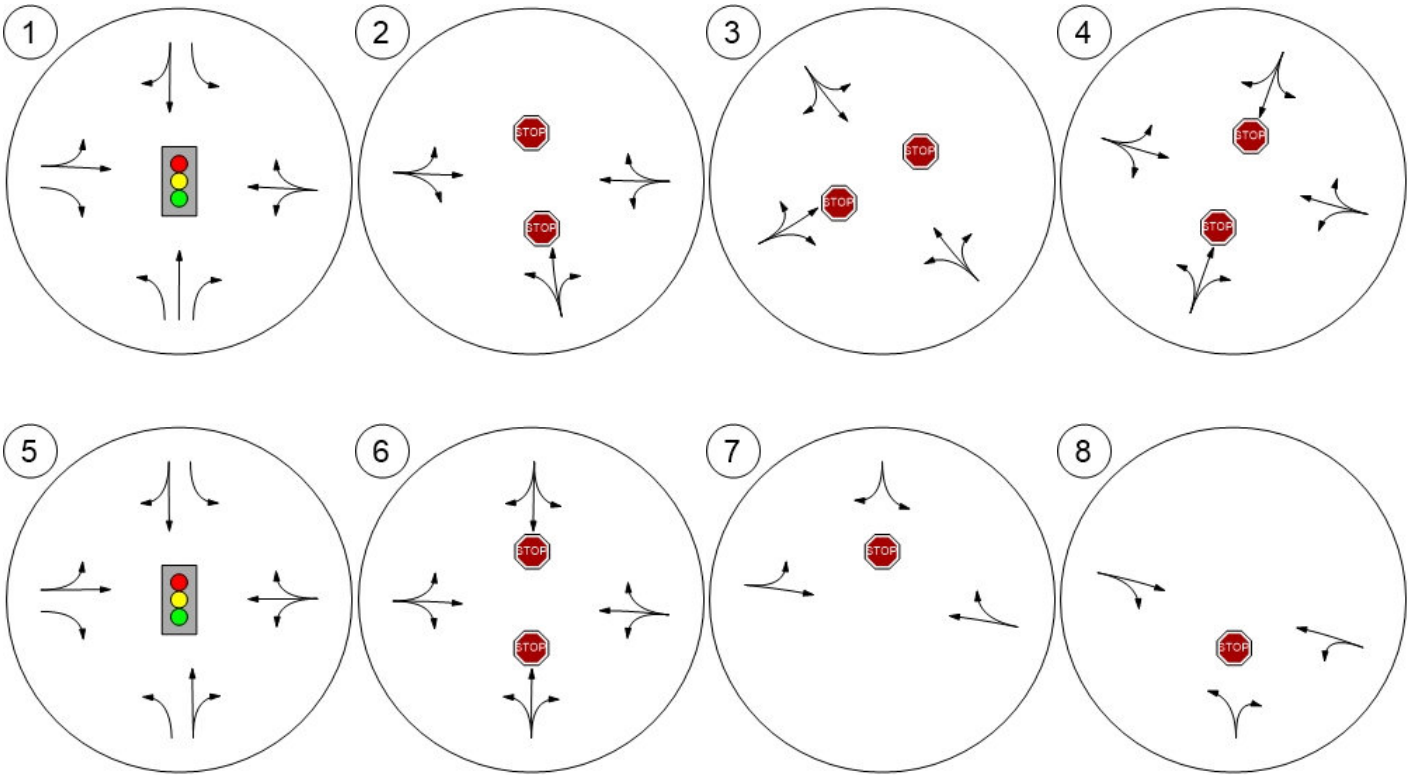
Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
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	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.74	8.62	0.00	0.00	7.35	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	1.02	1.02	0.00	0.00	0.20	0.20
d_A, Approach Delay [s/veh]	9.44		0.00		1.05	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.42					
Intersection LOS	A					

Lane Configuration and Traffic Control



Traffic Volume - Future Total Volume