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.

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.
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


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.
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

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 side of 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**

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

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

<table>
<thead>
<tr>
<th>Location</th>
<th>12:30 p.m.</th>
<th>9:30 p.m.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horton Ave between Lexington Pkwy &amp; Van Slyke Ave</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Van Slyke Ave between Churchill St &amp; Como Ave</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Churchill St between Como Ave &amp; Van Slyke Ave</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>Churchill St south of Como Ave</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Como Ave west of Churchill St</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Como Ave between Churchill St &amp; Oxford St</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Como Ave between Oxford St &amp; Argyle St</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Como Ave between Argyle St &amp; Van Slyke Ave</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Oxford St south of Como Ave</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>Argyle St south of Como Ave</td>
<td>11</td>
<td>10</td>
</tr>
</tbody>
</table>

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.
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)**

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

*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
Figure 1
Study Intersections

Appendix C - Existing Conditions Memorandum
Appendix C - Existing Conditions Memorandum

Figure 2
Study Intersection Layouts

Traffic Impact Study  C10  TCGIS
Figure 3
Daily Traffic Volumes

Appendix C - Existing Conditions Memorandum
Appendix C - Existing Conditions Memorandum

Figure 5
School PM Peak Hour Volumes
Appendix C - Existing Conditions Memorandum

Figure 6
PM Peak Hour Volumes

Traffic Impact Study
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.
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.

Resources

- Nation Cooperative Highway Research Program Report 616; Multimodal Level of Service Analysis for Urban Streets
- Florida Department of Transportation Quality/Level of Service Handbook

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.
## Intersection Analysis Summary

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

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.
### Intersection Level Of Service Report

**Intersection 1: Lexington Pkwy & Como Ave/Horton Ave**

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

#### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Lexington Pkwy</th>
<th>Lexington Pkwy</th>
<th>Como Ave</th>
<th>Horton Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lane Configuration</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Approach</strong></td>
<td>Northbound</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
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<td>Turning Movement</td>
<td>Left Thru Right</td>
<td>Left Thru Right</td>
<td>Left Thru Right</td>
<td>Left Thru Right</td>
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<td>Lane Width [ft]</td>
<td>12.00 12.00 12.00</td>
<td>12.00 12.00 12.00</td>
<td>12.00 12.00 12.00</td>
<td>12.00 12.00 12.00</td>
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<td>1 0 0</td>
<td>0 0 1</td>
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<td>Pocket Length [ft]</td>
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<td>75.00 100.00 100.00</td>
<td>100.00 100.00 100.00</td>
<td>100.00 100.00 100.00</td>
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<td>Speed [mph]</td>
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<td>30.00 30.00 30.00</td>
<td>30.00 30.00 30.00</td>
<td>30.00 30.00 30.00</td>
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<td>Grade [%]</td>
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<td>0.00 0.00 0.00</td>
<td>0.00 0.00 0.00</td>
<td>0.00 0.00 0.00</td>
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<td>Curb Present</td>
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<td>Yes Yes Yes</td>
<td>Yes Yes Yes</td>
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#### Volumes

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<tr>
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<th>Lexington Pkwy</th>
<th>Como Ave</th>
<th>Horton Ave</th>
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<tbody>
<tr>
<td><strong>Base Volume Input [veh/h]</strong></td>
<td>113 240 86</td>
<td>62 524 32</td>
<td>7 173 178</td>
<td>53 192 23</td>
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<td><strong>Base Volume Adjustment Factor</strong></td>
<td>1.0000 1.0000 1.0000</td>
<td>1.0000 1.0000 1.0000</td>
<td>1.0000 1.0000 1.0000</td>
<td>1.0000 1.0000 1.0000</td>
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<tr>
<td><strong>Heavy Vehicles Percentage [%]</strong></td>
<td>6.00 3.00 3.00</td>
<td>3.00 3.00 3.00</td>
<td>3.00 8.00 4.00</td>
<td>4.00 10.00 3.00</td>
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<tr>
<td><strong>Growth Rate</strong></td>
<td>1.03 1.03 1.05</td>
<td>1.05 1.03 1.03</td>
<td>1.03 1.05 1.03</td>
<td>1.05 1.05 1.05</td>
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<tr>
<td><strong>In-Process Volume [veh/h]</strong></td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
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<tr>
<td><strong>Site-Generated Trips [veh/h]</strong></td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
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<tr>
<td><strong>Diverted Trips [veh/h]</strong></td>
<td>0 0 0</td>
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<td>0 0 0</td>
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<tr>
<td><strong>Pass-by Trips [veh/h]</strong></td>
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<td><strong>Existing Site Adjustment Volume [veh/h]</strong></td>
<td>0 0 0</td>
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<td>0 0 0</td>
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<td><strong>Other Volume [veh/h]</strong></td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
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<tr>
<td><strong>Right-Turn on Red Volume [veh/h]</strong></td>
<td>0 0 45</td>
<td>0 0 8</td>
<td>0 0 46</td>
<td>0 0 6</td>
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<tr>
<td><strong>Total Hourly Volume [veh/h]</strong></td>
<td>116 247 45</td>
<td>65 540 25</td>
<td>7 182 137</td>
<td>56 202 18</td>
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<td><strong>Peak Hour Factor</strong></td>
<td>0.8330 0.8330 0.8330</td>
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<td>0.8430 0.8430 0.8430</td>
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<td><strong>Other Adjustment Factor</strong></td>
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<td>1.0000 1.0000 1.0000</td>
<td>1.0000 1.0000 1.0000</td>
<td>1.0000 1.0000 1.0000</td>
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<tr>
<td><strong>Total 15-Minute Volume [veh/h]</strong></td>
<td>35 74 14</td>
<td>19 157 7</td>
<td>2 54 41</td>
<td>16 58 5</td>
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<tr>
<td><strong>Total Analysis Volume [veh/h]</strong></td>
<td>139 297 54</td>
<td>75 626 29</td>
<td>8 216 163</td>
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<td><strong>Presence of On-Street Parking</strong></td>
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<td>v_do, Outbound Pedestrian Volume crossing</td>
<td>3 2 3</td>
<td>3 2 3</td>
<td>0 0 0</td>
<td>0 0 0</td>
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<td>v_di, Inbound Pedestrian Volume crossing</td>
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<td>3 1 3</td>
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<td>v_co, Outbound Pedestrian Volume crossing</td>
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<td>v_ci, Inbound Pedestrian Volume crossing</td>
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<td>0 0 0</td>
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<td>v_ab, Corner Pedestrian Volume [ped/h]</td>
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<td>Bicycle Volume [bicycles/h]</td>
<td>0 0 0</td>
<td>0 0 0</td>
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TCGIS

Scenario 4: 4 AM 2023

Traffic Impact Study E2 TCGIS
## Appendix E - Capacity Analysis Backup

### Intersection Settings

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<tr>
<th>Feature</th>
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<td>Signal Coordination Group</td>
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<td>Cycle Length [s]</td>
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<td>Coordination Type</td>
<td>Time of Day Pattern Coordinated</td>
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<td>Actuation Type</td>
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<td>Offset [s]</td>
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<td>Offset Reference</td>
<td>LeadGreen</td>
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<td>Permissive Mode</td>
<td>SingleBand</td>
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<td>Lost time [s]</td>
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### Phasing & Timing

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<th>Control Type</th>
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<th>Permiss</th>
<th>ProtPer</th>
<th>Permiss</th>
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<td>Auxiliary Signal Groups</td>
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<td>Lead / Lag</td>
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<td>Lead</td>
<td>-</td>
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<td>-</td>
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<td>Minimum Green [s]</td>
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<td>All red [s]</td>
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<td>Split [s]</td>
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<td>Vehicle Extension [s]</td>
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<tr>
<td>Rest In Walk</td>
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### Exclusive Pedestrian Phase

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<td>Pedestrian Signal Group</td>
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<td>Pedestrian Walk [s]</td>
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<tr>
<td>Pedestrian Clearance [s]</td>
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### Lane Group Calculations

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<th>Lane Group</th>
<th>L</th>
<th>C</th>
<th>R</th>
<th>L</th>
<th>C</th>
<th>C</th>
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<tr>
<td>C, Cycle Length [s]</td>
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### Lane Group Results

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<th>C</th>
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<td>X, volume / capacity</td>
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<td>C</td>
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### Movement, Approach, & Intersection Results

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### Other Modes

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<td>g_Walk.mi, Effective Walk Time [s]</td>
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<td>M_corner, Corner Circulation Area [ft²/ped]</td>
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<td>2322.36</td>
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### Sequence

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## Intersection Level Of Service Report

**Intersection 2: Horton Ave & Van Slyke Ave**

- **Control Type:** Two-way stop
- **Analysis Method:** HCM 6th Edition
- **Analysis Period:** 15 minutes

### Volume to Capacity (v/c):

- **Delay (sec / veh):** 20.4
- **Level Of Service:** C
- **Volume to Capacity (v/c):** 0.217

### Intersection Setup

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<th>Name</th>
<th>Van Slyke Ave</th>
<th>Churchill St</th>
<th>Horton Ave</th>
<th>Horton Ave</th>
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<tbody>
<tr>
<td>Approach</td>
<td>Northbound</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
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<tr>
<td>Turning Movement</td>
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### Volumes

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<td>Site-Generated Trips [veh/h]</td>
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<td>Diverted Trips [veh/h]</td>
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<td>Pass-by Trips [veh/h]</td>
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### Intersection Settings

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### Movement, Approach, & Intersection Results

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<td>A</td>
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<td>20.56</td>
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<td>C</td>
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<table>
<thead>
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### Intersection Level Of Service Report

**Intersection 3: Van Slyke Ave & Churchill St**

<table>
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<tr>
<th>Control Type:</th>
<th>Two-way stop</th>
<th>Delay (sec / veh):</th>
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<tr>
<td>Analysis Period:</td>
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<td>Volume to Capacity (v/c):</td>
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#### Intersection Setup

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<th>Van Slyke Ave</th>
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<tbody>
<tr>
<td><strong>Approach</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Northeastbound</td>
<td>Southwestbound</td>
<td>Northwestbound</td>
<td>Southeastbound</td>
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<tr>
<td><strong>Turning Movement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Left</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>Thru</td>
<td>12.00</td>
<td>12.00</td>
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<tr>
<td>Right</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
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<tr>
<td><strong>Lane Width [ft]</strong></td>
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<td></td>
<td></td>
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<td>12.00</td>
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<tr>
<td><strong>No. of Lanes in Pocket</strong></td>
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<tr>
<td><strong>Crosswalk</strong></td>
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<td>Yes</td>
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#### Volumes

<table>
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<th>Van Slyke Ave</th>
<th>Van Slyke Ave</th>
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</thead>
<tbody>
<tr>
<td><strong>Base Volume Input [veh/h]</strong></td>
<td>16</td>
<td>11</td>
<td>6</td>
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<tr>
<td><strong>Base Volume Adjustment Factor</strong></td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
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</tr>
<tr>
<td><strong>Heavy Vehicles Percentage [%]</strong></td>
<td>3.00</td>
<td>15.00</td>
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<td>2.00</td>
</tr>
<tr>
<td><strong>In-Process Volume [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Site-Generated Trips [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Diverted Trips [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Pass-by Trips [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Existing Site Adjustment Volume [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Other Volume [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Hourly Volume [veh/h]</strong></td>
<td>17</td>
<td>11</td>
<td>6</td>
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<tr>
<td><strong>Peak Hour Factor</strong></td>
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<td><strong>Total Analysis Volume [veh/h]</strong></td>
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<td>3</td>
<td>4</td>
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TCGIS
Scenario 4: 4 AM 2023
Traffic Impact Study
E8
TCGIS
### Intersection Settings

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<th>Stop</th>
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<tbody>
<tr>
<td>Flared Lane</td>
<td>No</td>
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<td></td>
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</tr>
<tr>
<td>Storage Area [veh]</td>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Two-Stage Gap Acceptance</td>
<td>No</td>
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<td></td>
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<td>Number of Storage Spaces in Median</td>
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### Movement, Approach, & Intersection Results

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<tr>
<td>V/C, Movement V/C Ratio</td>
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<td>d_M, Delay for Movement [s/veh]</td>
<td>14.28</td>
<td>14.74</td>
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<td>Movement LOS</td>
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<td>B</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>95th-Percentile Queue Length [veh/ln]</td>
<td>0.54</td>
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<td>13.51</td>
<td>13.51</td>
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<td>B</td>
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### Intersection Level Of Service Report
#### Intersection 4: Van Slyke Ave & Como Ave

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

#### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Como Ave</th>
<th>Driveway</th>
<th>Van Slyke Ave</th>
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<tbody>
<tr>
<td><strong>Approach</strong></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Lane Configuration</strong></td>
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</tr>
<tr>
<td><strong>Turning Movement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lane Width [ft]</strong></td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
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<tr>
<td><strong>No. of Lanes in Pocket</strong></td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Pocket Length [ft]</strong></td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
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<td><strong>Speed [mph]</strong></td>
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<td>30.00</td>
<td>30.00</td>
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<tr>
<td><strong>Crosswalk</strong></td>
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#### Volumes

<table>
<thead>
<tr>
<th>Name</th>
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<th>Van Slyke Ave</th>
<th>Van Slyke Ave</th>
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<tr>
<td><strong>Base Volume Input [veh/h]</strong></td>
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<td><strong>Heavy Vehicles Percentage [%]</strong></td>
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<td><strong>In-Process Volume [veh/h]</strong></td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Site-Generated Trips [veh/h]</strong></td>
<td>0</td>
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<td>0</td>
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<td><strong>Diverted Trips [veh/h]</strong></td>
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<tr>
<td><strong>Pass-by Trips [veh/h]</strong></td>
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<tr>
<td><strong>Existing Site Adjustment Volume [veh/h]</strong></td>
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<tr>
<td><strong>Other Volume [veh/h]</strong></td>
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<td><strong>Total 15-Minute Volume [veh/h]</strong></td>
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<td><strong>Total Analysis Volume [veh/h]</strong></td>
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<td><strong>Pedestrian Volume [ped/h]</strong></td>
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### Intersection Settings

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<th>Free</th>
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<tr>
<td>Flared Lane</td>
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<tr>
<td>Storage Area [veh]</td>
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<tr>
<td>Two-Stage Gap Acceptance</td>
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<tr>
<td>Number of Storage Spaces in Median</td>
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### Movement, Approach, & Intersection Results

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<td>B</td>
<td>B</td>
<td>C</td>
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<td>A</td>
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<td>95th-Percentile Queue Length [veh/ln]</td>
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<td>B</td>
<td>C</td>
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</table>
### Intersection Level Of Service Report

**Intersection 5: Lexington Pkwy & Wynne Ave/Como Ave**

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

#### Intersection Setup

<table>
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<tr>
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<th>Lexington Pkwy</th>
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<th>Wynne Ave</th>
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<tbody>
<tr>
<td><strong>Approach</strong></td>
<td>Northbound</td>
<td>Southbound</td>
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<tr>
<td><strong>Lane Configuration</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turning Movement</td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
<td>Left</td>
</tr>
<tr>
<td>Lane Width [ft]</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
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<tr>
<td>No. of Lanes in Pocket</td>
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<td>Pocket Length [ft]</td>
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<td>Speed [mph]</td>
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#### Volumes

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<th>Como Ave</th>
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### Phasing & Timing

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### Exclusive Pedestrian Phase

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### Lane Group Calculations

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<th>C, Cycle Length [s]</th>
<th>L, Total Lost Time per Cycle [s]</th>
<th>L1_p, Permitted Start-Up Lost Time [s]</th>
<th>L2, Clearance Lost Time [s]</th>
<th>g_i, Effective Green Time [s]</th>
<th>g / C, Green / Cycle</th>
<th>(v / s)_i Volume / Saturation Flow Rate</th>
<th>s, saturation flow rate [veh/h]</th>
<th>c, Capacity [veh/h]</th>
<th>d1, Uniform Delay [s]</th>
<th>k, delay calibration</th>
<th>l, Upstream Filtering Factor</th>
<th>d2, Incremental Delay [s]</th>
<th>d3, Initial Queue Delay [s]</th>
<th>Rp, platoon ratio</th>
<th>PF, progression factor</th>
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### Lane Group Results

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<th>Critical Lane Group</th>
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<th>50th-Percentile Queue Length [ft/ln]</th>
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## Movement, Approach, & Intersection Results

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<th>F</th>
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### Sequence

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<td>Ring 1</td>
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<td>Ring 4</td>
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</tbody>
</table>
### Intersection Level Of Service Report

**Intersection 6: Churchill St & Como Ave**

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

#### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Churchill St</th>
<th>Churchill St</th>
<th>Como Ave</th>
<th>Como Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach</td>
<td>Northbound</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
</tr>
<tr>
<td>Turning Movement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>Thru</td>
<td>12.00</td>
<td>12.00</td>
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<td>Right</td>
<td>12.00</td>
<td>12.00</td>
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</tr>
<tr>
<td>No. of Lanes in Pocket</td>
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<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Pocket Length [ft]</td>
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<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Speed [mph]</td>
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<td>30.00</td>
<td>30.00</td>
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</tr>
<tr>
<td>Grade [%]</td>
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<td>0.00</td>
<td>0.00</td>
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<tr>
<td>Crosswalk</td>
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<td>Yes</td>
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#### Volumes

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<tr>
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<th>Churchill St</th>
<th>Como Ave</th>
<th>Como Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Volume Input [veh/h]</td>
<td>8</td>
<td>5</td>
<td>0</td>
<td>6</td>
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<tr>
<td>Base Volume Adjustment Factor</td>
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<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
</tr>
<tr>
<td>Heavy Vehicles Percentage [%]</td>
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<td>3.00</td>
<td>3.00</td>
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<tr>
<td>Growth Rate</td>
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<td>1.03</td>
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<td>In-Process Volume [veh/h]</td>
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<tr>
<td>Site-Generated Trips [veh/h]</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Diverted Trips [veh/h]</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Pass-by Trips [veh/h]</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Existing Site Adjustment Volume [veh/h]</td>
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<td>0</td>
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<td>Other Volume [veh/h]</td>
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<td>0</td>
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<tr>
<td>Total Hourly Volume [veh/h]</td>
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<td>Peak Hour Factor</td>
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<td>Other Adjustment Factor</td>
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<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
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<tr>
<td>Total 15-Minute Volume [veh/h]</td>
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<td>Total Analysis Volume [veh/h]</td>
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<td>Pedestrian Volume [ped/h]</td>
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<td>2</td>
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### Intersection Settings

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<th>Free</th>
<th>Free</th>
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<tbody>
<tr>
<td>Flared Lane</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Area [veh]</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two-Stage Gap Acceptance</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Storage Spaces in Median</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
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### Movement, Approach, & Intersection Results

| V/C, Movement V/C Ratio | 0.04 | 0.02 | 0.00 | 0.03 | 0.00 | 0.02 | 0.00 | 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] | 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 |      |      |      |      |      |      |      |      |      |      |      |
| Approach LOS              | B    | B    | A    |      |      |      |      |      |      |      |      |      |      |
| d_I, Intersection Delay [s/veh] |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      | 1.63 |
| Intersection LOS          | B    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
## Intersection Level Of Service Report
### Intersection 7: Como Ave & West Parking Lot

- **Control Type:** Two-way stop
- **Analysis Method:** HCM 6th Edition
- **Analysis Period:** 15 minutes
- **Delay (sec / veh):** 12.9
- **Level Of Service:** B
- **Volume to Capacity (v/c):** 0.004
- **Analysis Method:** Two-way stop
- **Control Type:** Intersection 7: Como Ave & West Parking Lot

### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>West Parking Lot</th>
<th>Como Ave</th>
<th>Como Ave</th>
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<tbody>
<tr>
<td>Approach</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
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<tr>
<td>Lane Configuration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turning Movement</td>
<td>Left</td>
<td>Right</td>
<td>Left</td>
</tr>
<tr>
<td>Lane Width [ft]</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>No. of Lanes in Pocket</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pocket Length [ft]</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Speed [mph]</td>
<td>30.00</td>
<td>30.00</td>
<td>30.00</td>
</tr>
<tr>
<td>Grade [%]</td>
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<td>0.00</td>
</tr>
<tr>
<td>Crosswalk</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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### Volumes

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<th>West Parking Lot</th>
<th>Como Ave</th>
<th>Como Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Volume Input [veh/h]</td>
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<td>2</td>
<td>8</td>
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<tr>
<td>Base Volume Adjustment Factor</td>
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<td>1.0000</td>
<td>1.0000</td>
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<tr>
<td>Heavy Vehicles Percentage [%]</td>
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<td>2.00</td>
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<tr>
<td>Growth Rate</td>
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<td>1.11</td>
<td>1.11</td>
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<tr>
<td>In-Process Volume [veh/h]</td>
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<td>0</td>
</tr>
<tr>
<td>Site-Generated Trips [veh/h]</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Diverted Trips [veh/h]</td>
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<td>0</td>
</tr>
<tr>
<td>Pass-by Trips [veh/h]</td>
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<td>0</td>
</tr>
<tr>
<td>Existing Site Adjustment Volume [veh/h]</td>
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<tr>
<td>Other Volume [veh/h]</td>
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<td>Total Hourly Volume [veh/h]</td>
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<td>Other Adjustment Factor</td>
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<td>1.0000</td>
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<td>Total 15-Minute Volume [veh/h]</td>
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<td>4</td>
<td>11</td>
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<tr>
<td>Total Analysis Volume [veh/h]</td>
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<td>Pedestrian Volume [ped/h]</td>
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### Intersection Settings

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<th>Free</th>
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<tbody>
<tr>
<td>Flared Lane</td>
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<td></td>
</tr>
<tr>
<td>Storage Area [veh]</td>
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<td>0</td>
</tr>
<tr>
<td>Two-Stage Gap Acceptance</td>
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<td></td>
</tr>
<tr>
<td>Number of Storage Spaces in Median</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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

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

### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Oxford St</th>
<th>Como Ave</th>
<th>Como Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach</td>
<td>Northbound</td>
<td>Eastbound</td>
<td>Westbound</td>
</tr>
<tr>
<td><strong>Lane Configuration</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turning Movement</td>
<td>Left</td>
<td>Right</td>
<td>Thru</td>
</tr>
<tr>
<td><strong>Lane Width [ft]</strong></td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
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<tr>
<td>No. of Lanes in Pocket</td>
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<td>0</td>
</tr>
<tr>
<td><strong>Pocket Length [ft]</strong></td>
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<td>100.00</td>
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<tr>
<td><strong>Speed [mph]</strong></td>
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<td>30.00</td>
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<tr>
<td>Grade [%]</td>
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<td>0.00</td>
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<tr>
<td>Crosswalk</td>
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### Volumes

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<th>Como Ave</th>
<th>Como Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base Volume Input [veh/h]</strong></td>
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<td><strong>Base Volume Adjustment Factor</strong></td>
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<td>1.0000</td>
<td>1.0000</td>
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<tr>
<td><strong>Heavy Vehicles Percentage [%]</strong></td>
<td>3.00</td>
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<td>3.00</td>
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<tr>
<td><strong>Growth Rate</strong></td>
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<td>1.09</td>
<td>1.14</td>
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<tr>
<td><strong>In-Process Volume [veh/h]</strong></td>
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<td>0</td>
</tr>
<tr>
<td><strong>Site-Generated Trips [veh/h]</strong></td>
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<td>0</td>
</tr>
<tr>
<td><strong>Diverted Trips [veh/h]</strong></td>
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<td>0</td>
</tr>
<tr>
<td><strong>Pass-by Trips [veh/h]</strong></td>
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<td><strong>Other Volume [veh/h]</strong></td>
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<td><strong>Total Hourly Volume [veh/h]</strong></td>
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<td>0.4790</td>
<td>0.4790</td>
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<td><strong>Other Adjustment Factor</strong></td>
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<td>1.0000</td>
<td>1.0000</td>
</tr>
<tr>
<td><strong>Total 15-Minute Volume [veh/h]</strong></td>
<td>2</td>
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<td>14</td>
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<td><strong>Total Analysis Volume [veh/h]</strong></td>
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<tr>
<td><strong>Pedestrian Volume [ped/h]</strong></td>
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<td>23</td>
<td>9</td>
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### Intersection Settings

<table>
<thead>
<tr>
<th>Priority Scheme</th>
<th>Stop</th>
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<th>Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flared Lane</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Area [veh]</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Two-Stage Gap Acceptance</td>
<td>No</td>
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<td></td>
</tr>
<tr>
<td>Number of Storage Spaces in Median</td>
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</table>

### Movement, Approach, & Intersection Results

<table>
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<th>V/C, Movement V/C Ratio</th>
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<th>Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>d_M, Delay for Movement [s/veh]</td>
<td>11.74</td>
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</tr>
<tr>
<td>Movement LOS</td>
<td>B</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>95th-Percentile Queue Length [veh/ln]</td>
<td>0.04</td>
<td>0.04</td>
<td>0.01</td>
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<td>95th-Percentile Queue Length [ft/ln]</td>
<td>1.12</td>
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<td>d_A, Approach Delay [s/veh]</td>
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<td>0.21</td>
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<td>Approach LOS</td>
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<td>A</td>
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<td>Intersection LOS</td>
<td>B</td>
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</table>
Appendix E - Capacity Analysis Backup

Lane Configuration and Traffic Control

Scenario 4: 4 AM 2023

TCGIS
Version 6.00-02

Traffic Impact Study
Appendix E - Capacity Analysis Backup

Traffic Volume - Future Total Volume

Scenario 4: 4 AM 2023

TCGIS

Version 6.00-02

Generated with PTV VISTRO

TCGIS

Appendix E - Capacity Analysis Backup
### Intersection Analysis Summary

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

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.
### Intersection 1: Lexington Pkwy & Como Ave/Horton Ave

**Interchange Level Of Service Report**

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

#### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Lexington Pkwy</th>
<th>Lexington Pkwy</th>
<th>Como Ave</th>
<th>Horton Ave</th>
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</thead>
<tbody>
<tr>
<td><strong>Lane Configuration</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Turning Movement</strong></td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
<td>Left</td>
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<tr>
<td><strong>Lane Width [ft]</strong></td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
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<tr>
<td><strong>No. of Lanes in Pocket</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td><strong>Pocket Length [ft]</strong></td>
<td>75.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
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<tr>
<td><strong>Speed [mph]</strong></td>
<td>30.00</td>
<td>30.00</td>
<td>30.00</td>
<td>30.00</td>
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<tr>
<td><strong>Grade [%]</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<tr>
<td><strong>Curb Present</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td><strong>Crosswalk</strong></td>
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#### Volumes

<table>
<thead>
<tr>
<th>Name</th>
<th>Lexington Pkwy</th>
<th>Lexington Pkwy</th>
<th>Como Ave</th>
<th>Horton Ave</th>
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<tbody>
<tr>
<td><strong>Base Volume Input [veh/h]</strong></td>
<td>103</td>
<td>494</td>
<td>104</td>
<td>51</td>
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<tr>
<td><strong>Base Volume Adjustment Factor</strong></td>
<td>1.0000</td>
<td>1.0000</td>
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<tr>
<td><strong>Heavy Vehicles Percentage [%]</strong></td>
<td>6.00</td>
<td>3.00</td>
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<tr>
<td><strong>Growth Rate</strong></td>
<td>1.03</td>
<td>1.03</td>
<td>1.05</td>
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<td><strong>In-Process Volume [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td><strong>Site-Generated Trips [veh/h]</strong></td>
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<td>0</td>
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<td><strong>Diverted Trips [veh/h]</strong></td>
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<td><strong>Pass-by Trips [veh/h]</strong></td>
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<td><strong>Existing Site Adjustment Volume [veh/h]</strong></td>
<td>0</td>
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<tr>
<td><strong>Other Volume [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td><strong>Right-Turn on Red Volume [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>52</td>
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<tr>
<td><strong>Total Hourly Volume [veh/h]</strong></td>
<td>106</td>
<td>509</td>
<td>57</td>
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<tr>
<td><strong>Peak Hour Factor</strong></td>
<td>0.8940</td>
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<td><strong>Other Adjustment Factor</strong></td>
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<td>1.0000</td>
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<td><strong>Total 15-Minute Volume [veh/h]</strong></td>
<td>30</td>
<td>142</td>
<td>16</td>
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<tr>
<td><strong>Total Analysis Volume [veh/h]</strong></td>
<td>119</td>
<td>569</td>
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<td><strong>Presence of On-Street Parking</strong></td>
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<td><strong>On-Street Parking Maneuver Rate [h]</strong></td>
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<td><strong>Local Bus Stopping Rate [h]</strong></td>
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Scenario 5: 5 School PM 2023

Traffic Impact Study E25 TCGIS
### Intersection Settings

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<tr>
<th>Feature</th>
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<td>Located in CBD</td>
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<td>Cycle Length [s]</td>
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<tr>
<td>Coordination Type</td>
<td>Time of Day Pattern Coordinated</td>
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<td>Actuation Type</td>
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<td>Offset [s]</td>
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<td>Offset Reference</td>
<td>LeadGreen</td>
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<tr>
<td>Permissive Mode</td>
<td>SingleBand</td>
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<td>Lost time [s]</td>
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### Phasing & Timing

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<tr>
<th>Control Type</th>
<th>ProtPer</th>
<th>Permiss</th>
<th>ProtPer</th>
<th>Permiss</th>
<th>ProtPer</th>
<th>Permiss</th>
<th>ProtPer</th>
<th>Permiss</th>
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<tr>
<td>Signal group</td>
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<td>6</td>
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<td>5</td>
<td>2</td>
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<td>Auxiliary Signal Groups</td>
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<td></td>
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<td></td>
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<tr>
<td>Lead / Lag</td>
<td>Lead</td>
<td>-</td>
<td>Lead</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Minimum Green [s]</td>
<td>7</td>
<td>15</td>
<td>0</td>
<td>7</td>
<td>15</td>
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<td>10</td>
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<td>Maximum Green [s]</td>
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<td>50</td>
<td>12</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>35</td>
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<td>Amber [s]</td>
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<td>All red [s]</td>
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<td>Split [s]</td>
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<td>12</td>
<td>36</td>
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<td>Vehicle Extension [s]</td>
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<td>2.3</td>
<td>3.0</td>
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<td>Walk [s]</td>
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<td>7</td>
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<td>0</td>
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<td>0</td>
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<td>Rest In Walk</td>
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<td>No</td>
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<td>No</td>
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<td>I1, Start-Up Lost Time [s]</td>
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<td>2.0</td>
<td>0.0</td>
<td>2.0</td>
<td>2.0</td>
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<td>0.0</td>
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<td>3.0</td>
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<td>Minimum Recall</td>
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<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<td>No</td>
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<tr>
<td>Maximum Recall</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Pedestrian Recall</td>
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<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
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<td>Detector Location [ft]</td>
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<td>0.0</td>
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<tr>
<td>Detector Length [ft]</td>
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<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>I, Upstream Filtering Factor</td>
<td>1.00</td>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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### Exclusive Pedestrian Phase

<table>
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<tr>
<th>Feature</th>
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<tr>
<td>Pedestrian Signal Group</td>
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<tr>
<td>Pedestrian Walk [s]</td>
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<tr>
<td>Pedestrian Clearance [s]</td>
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</table>
### Lane Group Calculations

<table>
<thead>
<tr>
<th>Lane Group</th>
<th>L</th>
<th>C</th>
<th>R</th>
<th>L</th>
<th>C</th>
<th>C</th>
<th>R</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>C, Cycle Length [s]</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
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<tr>
<td>L, Total Lost Time per Cycle [s]</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>9.00</td>
<td>9.00</td>
<td>9.00</td>
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<td>L1_p, Permitted Start-Up Lost Time [s]</td>
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<td>0.00</td>
<td>2.00</td>
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<td>2.00</td>
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<tr>
<td>L2, Clearance Lost Time [s]</td>
<td>0.00</td>
<td>3.00</td>
<td>3.00</td>
<td>0.00</td>
<td>3.00</td>
<td>7.00</td>
<td>7.00</td>
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<td>g, i, Effective Green Time [s]</td>
<td>48</td>
<td>38</td>
<td>38</td>
<td>48</td>
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<td>19</td>
<td>19</td>
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<td>g / C, Green / Cycle</td>
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<td>0.47</td>
<td>0.59</td>
<td>0.46</td>
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<td>0.23</td>
<td>0.23</td>
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<tr>
<td>(v / s)_i Volume / Saturation Flow Rate</td>
<td>0.11</td>
<td>0.31</td>
<td>0.04</td>
<td>0.06</td>
<td>0.22</td>
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<td>0.08</td>
<td>0.23</td>
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<td>s, saturation flow rate [veh/h]</td>
<td>1101</td>
<td>1855</td>
<td>1577</td>
<td>987</td>
<td>1848</td>
<td>1706</td>
<td>1472</td>
<td>895</td>
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<td>c, Capacity [veh/h]</td>
<td>640</td>
<td>876</td>
<td>745</td>
<td>523</td>
<td>840</td>
<td>445</td>
<td>342</td>
<td>264</td>
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<td>d1, Uniform Delay [s]</td>
<td>8.21</td>
<td>16.13</td>
<td>11.65</td>
<td>9.25</td>
<td>15.26</td>
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<td>k, delay calibration</td>
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<td>0.19</td>
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<tr>
<td>l, Upstream Filtering Factor</td>
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<td>1.00</td>
<td>1.00</td>
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<tr>
<td>d2, Incremental Delay [s]</td>
<td>0.17</td>
<td>3.72</td>
<td>0.23</td>
<td>0.44</td>
<td>1.93</td>
<td>2.31</td>
<td>1.08</td>
<td>8.92</td>
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<td>d3, Initial Queue Delay [s]</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<td>Rp, platoon ratio</td>
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<td>1.00</td>
<td>1.00</td>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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</table>

### 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 | 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 |
### Movement, Approach, & Intersection Results

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### Sequence

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TCGIS  
Scenario 5: 5 School PM 2023  
Traffic Impact Study  
E28  
TCGIS
**Intersection Level Of Service Report**

**Intersection 2: Horton Ave & Van Slyke Ave**

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

### Intersection Setup

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<thead>
<tr>
<th>Name</th>
<th>Van Slyke Ave</th>
<th>Churchill St</th>
<th>Horton Ave</th>
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<tr>
<td>Approach</td>
<td>Northbound</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
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<td>Turning Movement</td>
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<tr>
<td>Left</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
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<tr>
<td>Thru</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
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<tr>
<td>Right</td>
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### Volumes

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<tbody>
<tr>
<td>Base Volume Input [veh/h]</td>
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<td>Heavy Vehicles Percentage [%]</td>
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<td>In-Process Volume [veh/h]</td>
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<tr>
<td>Site-Generated Trips [veh/h]</td>
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<td>Diverted Trips [veh/h]</td>
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<td>Pass-by Trips [veh/h]</td>
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<tr>
<td>Existing Site Adjustment Volume [veh/h]</td>
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<td>Total Hourly Volume [veh/h]</td>
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<td>3</td>
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**Traffic Impact Study**

Scenario 5: 5 School PM 2023

TCGIS

E29
### Intersection Settings

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<tr>
<td>Flared Lane</td>
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<tr>
<td>Storage Area [veh]</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Two-Stage Gap Acceptance</td>
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<td>Number of Storage Spaces in Median</td>
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### Movement, Approach, & Intersection Results

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### Intersection Level Of Service Report

**Intersection 3: Van Slyke Ave & Churchill St**

**Control Type:** Two-way stop  
**Analysis Method:** HCM 6th Edition  
**Analysis Period:** 15 minutes

**Volume to Capacity (v/c):** 0.012  
**Delay (sec / veh):** 11.4  
**Level Of Service:** B

**Analysis Period:** HCM 6th Edition  
**Control Type:** Two-way stop  
**Intersection 3: Van Slyke Ave & Churchill St**

#### Interseciton Setup

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#### Volumes

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## Intersection Settings

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## Movement, Approach, & Intersection Results

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</tr>
<tr>
<td>Number of Storage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Spaces in Median</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
# Intersection Level Of Service Report

**Intersection 4: Van Slyke Ave & Como Ave**

<table>
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<tr>
<th>Control Type:</th>
<th>Two-way stop</th>
<th>Delay (sec / veh):</th>
<th>12.1</th>
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<tbody>
<tr>
<td>Analysis Period:</td>
<td>15 minutes</td>
<td>Volume to Capacity (v/c):</td>
<td>0.004</td>
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## Intersection Setup

<table>
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<th>Name</th>
<th>Como Ave</th>
<th>Driveway</th>
<th>Van Slyke Ave</th>
<th>Van Slyke Ave</th>
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</thead>
<tbody>
<tr>
<td><strong>Approach</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lane Configuration</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Turning Movement</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Lane Width [ft]</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>No. of Lanes in Pocket</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pocket Length [ft]</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
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<td>Speed [mph]</td>
<td>30.00</td>
<td>30.00</td>
<td>30.00</td>
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<td>Grade [%]</td>
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<td>Crosswalk</td>
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## Volumes

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<th>Van Slyke Ave</th>
<th>Van Slyke Ave</th>
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<tbody>
<tr>
<td><strong>Base Volume Input [veh/h]</strong></td>
<td>11</td>
<td>1</td>
<td>22</td>
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<tr>
<td><strong>Base Volume Adjustment Factor</strong></td>
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<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
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<tr>
<td><strong>Heavy Vehicles Percentage [%]</strong></td>
<td>4.00</td>
<td>3.00</td>
<td>5.00</td>
<td>3.00</td>
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<td><strong>Growth Rate</strong></td>
<td>1.14</td>
<td>1.03</td>
<td>1.14</td>
<td>1.03</td>
</tr>
<tr>
<td><strong>In-Process Volume [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Site-Generated Trips [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Diverted Trips [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Pass-by Trips [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Existing Site Adjustment Volume [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td><strong>Other Volume [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td><strong>Total Hourly Volume [veh/h]</strong></td>
<td>13</td>
<td>1</td>
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<td><strong>Peak Hour Factor</strong></td>
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<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
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<td><strong>Total 15-Minute Volume [veh/h]</strong></td>
<td>6</td>
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<tr>
<td><strong>Total Analysis Volume [veh/h]</strong></td>
<td>25</td>
<td>2</td>
<td>48</td>
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<tr>
<td><strong>Pedestrian Volume [ped/h]</strong></td>
<td>22</td>
<td>1</td>
<td>1</td>
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### Intersection Settings

<table>
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<th>Priority Scheme</th>
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<th>Free</th>
<th>Free</th>
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<tr>
<td>Flared Lane</td>
<td>No</td>
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<td>Storage Area [veh]</td>
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<td>Two-Stage Gap Acceptance</td>
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<tr>
<td>Number of Storage Spaces in Median</td>
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### Movement, Approach, & Intersection Results

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<tr>
<th>V/C, Movement V/C Ratio</th>
<th>0.00</th>
<th>0.00</th>
<th>0.06</th>
<th>0.00</th>
<th>0.00</th>
<th>0.00</th>
<th>0.00</th>
<th>0.00</th>
<th>0.03</th>
<th>0.00</th>
<th>0.00</th>
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<tbody>
<tr>
<td>d_M, Delay for Movement [s/veh]</td>
<td>11.68</td>
<td>12.05</td>
<td>9.98</td>
<td>11.42</td>
<td>11.86</td>
<td>8.65</td>
<td>7.37</td>
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<td>0.00</td>
<td>7.89</td>
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<td>Movement LOS</td>
<td>B</td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>B</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>95th-Percentile Queue Length [veh/ln]</td>
<td>0.35</td>
<td>0.35</td>
<td>0.35</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
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<td>0.00</td>
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<tr>
<td>95th-Percentile Queue Length [ft/ln]</td>
<td>8.72</td>
<td>8.72</td>
<td>8.72</td>
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<td>0.15</td>
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<td>0.05</td>
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<td>1.07</td>
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<td>d_A, Approach Delay [s/veh]</td>
<td>10.60</td>
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<td>2.60</td>
<td>2.60</td>
<td>2.60</td>
<td>2.60</td>
<td>2.60</td>
<td>2.60</td>
<td>2.60</td>
<td>2.60</td>
</tr>
<tr>
<td>Approach LOS</td>
<td>B</td>
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<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
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<td>d_I, Intersection Delay [s/veh]</td>
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<td>Intersection LOS</td>
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</tbody>
</table>
### Traffic Impact Study

**Scenario 5: 5 School PM 2023**

**TCGIS**

**Appendix E - Capacity Analysis Backup**

---

**Intersection Level Of Service Report**

**Intersection 5: Lexington Pkwy & Wynne Ave/Como Ave**

- **Control Type:** Signaled
- **Analysis Method:** HCM 6th Edition
- **Analysis Period:** 15 minutes

**Volume to Capacity (v/c):** 0.654

**Level Of Service:** D

**Delay (sec / veh):** 36.4

---

#### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Lexington Pkwy</th>
<th>Lexington Pkwy</th>
<th>Wynne Ave</th>
<th>Como Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach</td>
<td>Northbound</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
</tr>
<tr>
<td></td>
<td>Turning Movement</td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
</tr>
<tr>
<td></td>
<td>Lane Width [ft]</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td></td>
<td>No. of Lanes in Pocket</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Pocket Length [ft]</td>
<td>150.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td></td>
<td>Speed [mph]</td>
<td>30.00</td>
<td>30.00</td>
<td>30.00</td>
</tr>
<tr>
<td></td>
<td>Grade [%]</td>
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<td>0.00</td>
<td>0.00</td>
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<tr>
<td></td>
<td>Curb Present</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Crosswalk</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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</tbody>
</table>

#### Volumes

<table>
<thead>
<tr>
<th>Name</th>
<th>Lexington Pkwy</th>
<th>Lexington Pkwy</th>
<th>Wynne Ave</th>
<th>Como Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Base Volume Input [veh/h]</td>
<td>43</td>
<td>637</td>
<td>54</td>
</tr>
<tr>
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<td>Base Volume Adjustment Factor</td>
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<tr>
<td></td>
<td>Heavy Vehicles Percentage [%]</td>
<td>3.00</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td>Growth Rate</td>
<td>1.03</td>
<td>1.03</td>
<td>1.14</td>
</tr>
<tr>
<td></td>
<td>In-Process Volume [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Site-Generated Trips [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Diverted Trips [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Pass-by Trips [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Existing Site Adjustment Volume [veh/h]</td>
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</tr>
<tr>
<td></td>
<td>Other Volume [veh/h]</td>
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<td>Right-Turn on Red Volume [veh/h]</td>
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<td>14</td>
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<tr>
<td></td>
<td>Total Hourly Volume [veh/h]</td>
<td>44</td>
<td>656</td>
<td>48</td>
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<tr>
<td></td>
<td>Peak Hour Factor</td>
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<td>0.9010</td>
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<td>Other Adjustment Factor</td>
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<td>1.0000</td>
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<td></td>
<td>Total 15-Minute Volume [veh/h]</td>
<td>12</td>
<td>182</td>
<td>13</td>
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<td></td>
<td>Total Analysis Volume [veh/h]</td>
<td>49</td>
<td>728</td>
<td>53</td>
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<tr>
<td></td>
<td>Presence of On-Street Parking</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>On-Street Parking Maneuver Rate [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td></td>
<td>Local Bus Stopping Rate [veh/h]</td>
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<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

- **v_do, Outbound Pedestrian Volume crossing m** | 2 | 0 | 2 | 1 |
- **v_di, Inbound Pedestrian Volume crossing m** | 2 | 1 | 2 | 0 |
- **v_co, Outbound Pedestrian Volume crossing m** | 0 | 0 | 0 | 0 |
- **v_ci, Inbound Pedestrian Volume crossing m** | 0 | 0 | 0 | 0 |
- **v_ab, Corner Pedestrian Volume [ped/h]** | 0 | 0 | 0 | 0 |
- **Bicycle Volume [bicycles/h]** | 0 | 0 | 0 | 0 |

---

**TCGIS**

Scenario 5: 5 School PM 2023

Traffic Impact Study

E35

TCGIS
### Intersection Settings

<table>
<thead>
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<td>Located in CBD</td>
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<td>Signal Coordination Group</td>
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<td>Cycle Length [s]</td>
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</tr>
<tr>
<td>Coordination Type</td>
<td>Time of Day Pattern Coordinated</td>
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<td>Actuation Type</td>
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<td>Offset [s]</td>
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<td>Offset Reference</td>
<td>LeadGreen</td>
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<td>Permissive Mode</td>
<td>SingleBand</td>
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<td>Lost time [s]</td>
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### Phasing & Timing

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<tr>
<td>Lead / Lag</td>
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<td>13</td>
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<tr>
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### Exclusive Pedestrian Phase

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<td>Pedestrian Walk [s]</td>
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<td>Pedestrian Clearance [s]</td>
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TCGIS
Scenario 5: 5 School PM 2023
Traffic Impact Study
E36
### Lane Group Calculations

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<th>Lane Group</th>
<th>L</th>
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<td>(v / s)_i Volume / Saturation Flow Rate</td>
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<td>1818</td>
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<td>1163</td>
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### Lane Group Results

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<th>X, volume / capacity</th>
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<th>0.57</th>
<th>0.07</th>
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<td>d, Delay for Lane Group [s/veh]</td>
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<td>A</td>
<td>B</td>
<td>A</td>
<td>C</td>
<td>D</td>
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## Movement, Approach, & Intersection Results

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<th>C</th>
<th>C</th>
<th>D</th>
<th>F</th>
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<td>D</td>
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### 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 |
| I_p,int, Pedestrian LOS Score for Intersection | 2.709 | 2.510 | 2.076 | 1.946 |

### Sequence

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TCGIS
Scenario 5: 5 School PM 2023
Traffic Impact Study
E38
TCGIS
### Intersection Level Of Service Report
#### Intersection 6: Churchill St & Como Ave

- **Control Type:** Two-way stop
- **Analysis Method:** HCM 6th Edition
- **Analysis Period:** 15 minutes

**Delay (sec / veh):** 12.2  
**Level Of Service:** B  
**Volume to Capacity (v/c):** 0.008

#### Intersection Setup

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<th>Approach</th>
<th>Name</th>
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<th>Southbound</th>
<th>Eastbound</th>
<th>Westbound</th>
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<tr>
<td>Turning Movement</td>
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<td>Thru</td>
<td>Right</td>
<td>Left</td>
<td>Thru</td>
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<td>Lane Width [ft]</td>
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#### Volumes

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<th>Como Ave</th>
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### Intersection Settings

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<td>Two-Stage Gap Acceptance</td>
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### Movement, Approach, & Intersection Results

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

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

### Intersection Setup

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<tr>
<td>Approach</td>
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<td><strong>Lane Configuration</strong></td>
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</tr>
<tr>
<td>Turning Movement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
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<tr>
<td>Right</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
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<tr>
<td>No. of Lanes in Pocket</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Pocket Length [ft]</td>
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<td>100.00</td>
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<td>Speed [mph]</td>
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<td>Grade [%]</td>
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### Volumes

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<th>West Parking Lot</th>
<th>Como Ave</th>
<th>Como Ave</th>
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<tr>
<td>Base Volume Input [veh/h]</td>
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<td>Base Volume Adjustment Factor</td>
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<td>Heavy Vehicles Percentage [%]</td>
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<td>In-Process Volume [veh/h]</td>
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<td>0</td>
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<tr>
<td>Site-Generated Trips [veh/h]</td>
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<td>0</td>
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<tr>
<td>Diverted Trips [veh/h]</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pass-by Trips [veh/h]</td>
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<td>Existing Site Adjustment Volume [veh/h]</td>
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<td>Other Volume [veh/h]</td>
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<td>Total Hourly Volume [veh/h]</td>
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<td>Total Analysis Volume [veh/h]</td>
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<tbody>
<tr>
<td>Flared Lane</td>
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<tr>
<td>Storage Area [veh]</td>
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<td>Two-Stage Gap Acceptance</td>
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### Movement, Approach, & Intersection Results

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<td>A</td>
<td>A</td>
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<td>95th-Percentile Queue Length [veh/ln]</td>
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Intersection 8: Como Ave & Oxford St

Control Type: Two-way stop
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 10.2
Level Of Service: B
Volume to Capacity (v/c): 0.029

### Intersection Setup

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<tr>
<td>Approach</td>
<td>Northbound</td>
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<td>Westbound</td>
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<td>Lane Configuration</td>
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<tr>
<td>Turning Movement</td>
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<td>Right</td>
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<tr>
<td>Lane Width [ft]</td>
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<td>12.00</td>
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<tr>
<td>No. of Lanes in Pocket</td>
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<td>Pocket Length [ft]</td>
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<td>Speed [mph]</td>
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### Volumes

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<tr>
<td>Site-Generated Trips [veh/h]</td>
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<tr>
<td>Diverted Trips [veh/h]</td>
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<tr>
<td>Pass-by Trips [veh/h]</td>
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### Intersection Settings

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<tbody>
<tr>
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<tr>
<td>Storage Area [veh]</td>
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<td>Two-Stage Gap Acceptance</td>
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<td>Number of Storage Spaces in Median</td>
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### Movement, Approach, & Intersection Results

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<td>Movement LOS</td>
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<td>A</td>
<td>A</td>
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<td>95th-Percentile Queue Length [veh/ln]</td>
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Appendix E - Capacity Analysis Backup

Traffic Volume - Future Total Volume

Scenario 5: 5 School PM 2023

Traffic Impact Study
<table>
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<tr>
<th>ID</th>
<th>Intersection Name</th>
<th>Control Type</th>
<th>Method</th>
<th>Worst Mvmt</th>
<th>V/C</th>
<th>Delay (s/veh)</th>
<th>LOS</th>
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<tr>
<td>1</td>
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<td>Signalized</td>
<td>HCM 6th Edition</td>
<td>WB Thru</td>
<td>0.669</td>
<td>26.0</td>
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</tr>
<tr>
<td>2</td>
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<td>Two-way stop</td>
<td>HCM 6th Edition</td>
<td>NB Left</td>
<td>0.085</td>
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</tr>
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<td>Two-way stop</td>
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<td>NEB Thru</td>
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<td>Two-way stop</td>
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<td>6</td>
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<td>Two-way stop</td>
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<td>NB Thru</td>
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<td>7</td>
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</table>

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.
### Intersection Level Of Service Report

**Intersection 1: Lexington Pkwy & Como Ave/Horton Ave**

#### Control Type:
Signaled

#### Analysis Method:
HCM 6th Edition

#### Analysis Period:
15 minutes

#### Delay (sec/veh):
26.0

#### Level Of Service:
C

#### Volume to Capacity (v/c):
0.669

#### Traffic Impact Study

### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Lexington Pkwy</th>
<th>Lexington Pkwy</th>
<th>Como Ave</th>
<th>Horton Ave</th>
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<tbody>
<tr>
<td></td>
<td>Northbound</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
</tr>
<tr>
<td>Lane Configuration</td>
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<tr>
<td>Turning Movement</td>
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<td>Right</td>
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### Volumes

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<td></td>
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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

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<th>ProtPer</th>
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## Exclusive Pedestrian Phase

| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |
### Lane Group Calculations

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<th>L</th>
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<th>R</th>
<th>L</th>
<th>C</th>
<th>C</th>
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### Lane Group Results

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<th>C</th>
<th>C</th>
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<th>C</th>
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<td>B</td>
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<td>C</td>
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### Movement, Approach, & Intersection Results

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<th>B</th>
<th>B</th>
<th>C</th>
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<th>D</th>
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### Other Modes

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<td>d_M, Delay for Movement [s/veh]</td>
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### Other Modes

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<td>M_corner, Corner Circulation Area [ft²/ped]</td>
<td>2315.23</td>
<td>7009.86</td>
<td>2329.49</td>
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<td>M_CW, Crosswalk Circulation Area [ft²/ped]</td>
<td>852.74</td>
<td>3195.28</td>
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<td>d_p, Pedestrian Delay [s]</td>
<td>34.23</td>
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<td>I_p int, Pedestrian LOS Score for Intersection</td>
<td>2.627</td>
<td>2.416</td>
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<td>Crosswalk LOS</td>
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<td>E</td>
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## Sequence

| Ring | 1 | 2 | 4 | - | - | - | - | - | - | - | - | - | - | - |
|------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ring 1 | 6 | 5 | 12 | - | 4 | - | - | - | - | - | - | - | - | - | - |
| Ring 2 | 6 | 5 | 12 | - | 4 | - | - | - | - | - | - | - | - | - | - |
| Ring 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Ring 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

TCGIS
Scenario 6: 6 PM Existing 2023
Traffic Impact Study

TCGIS
# Intersection Level Of Service Report

## Intersection 2: Horton Ave & Van Slyke Ave

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

## Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Van Slyke Ave</th>
<th>Churchill St</th>
<th>Horton Ave</th>
<th>Horton Ave</th>
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</thead>
<tbody>
<tr>
<td>Approach</td>
<td>Northbound</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
</tr>
<tr>
<td>Turning Movement</td>
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<tr>
<td>Left</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
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<tr>
<td>Thru</td>
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<tr>
<td>Lane Width [ft]</td>
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<td>Pocket Length [ft]</td>
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<td>Speed [mph]</td>
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## Volumes

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<tr>
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<tbody>
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<td>Base Volume Input [veh/h]</td>
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<td>In-Process Volume [veh/h]</td>
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<tr>
<td>Site-Generated Trips [veh/h]</td>
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<td>Diverted Trips [veh/h]</td>
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<td>Pass-by Trips [veh/h]</td>
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<td>Existing Site Adjustment Volume [veh/h]</td>
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<td>Total Hourly Volume [veh/h]</td>
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### Intersection Settings

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### Movement, Approach, & Intersection Results

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<td>A</td>
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</table>
## Intersection Level Of Service Report

**Intersection 3: Van Slyke Ave & Churchill St**

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

### Intersection Setup

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<tr>
<td></td>
<td>Northeastbound</td>
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<td>Northwestbound</td>
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<td><strong>Lane Configuration</strong></td>
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<tr>
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<td><strong>No. of Lanes in Pocket</strong></td>
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<tr>
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<td>Yes</td>
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<td><strong>Others</strong></td>
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### Volumes

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<th>Churchill St</th>
<th>Van Slyke Ave</th>
<th>Van Slyke Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base Volume Input [veh/h]</strong></td>
<td>5 4 1</td>
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<td>1 29 5</td>
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<td>1.0000 1.0000 1.0000</td>
<td>1.0000 1.0000 1.0000</td>
<td>1.0000 1.0000 1.0000</td>
</tr>
<tr>
<td><strong>Heavy Vehicles Percentage [%]</strong></td>
<td>3.00 15.00 3.00</td>
<td>2.00 2.00 2.00</td>
<td>17.00 15.00 4.00</td>
<td>30.00 10.00 15.00</td>
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<td>1.00 1.00 1.00</td>
<td>1.03 1.03 1.03</td>
<td>1.03 1.03 1.03</td>
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<tr>
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<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td><strong>Site-Generated Trips [veh/h]</strong></td>
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<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td><strong>Diverted Trips [veh/h]</strong></td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td><strong>Pass-by Trips [veh/h]</strong></td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td><strong>Existing Site Adjustment Volume [veh/h]</strong></td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td><strong>Other Volume [veh/h]</strong></td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td><strong>Total Hourly Volume [veh/h]</strong></td>
<td>5 4 1</td>
<td>0 0 0</td>
<td>1 30 5</td>
<td>0 57 8</td>
</tr>
<tr>
<td><strong>Peak Hour Factor</strong></td>
<td>0.9250 0.9250 0.9250</td>
<td>1.0000 1.0000 1.0000</td>
<td>0.9250 0.9250 0.9250</td>
<td>0.9250 0.9250 0.9250</td>
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<tr>
<td><strong>Other Adjustment Factor</strong></td>
<td>1.0000 1.0000 1.0000</td>
<td>1.0000 1.0000 1.0000</td>
<td>1.0000 1.0000 1.0000</td>
<td>1.0000 1.0000 1.0000</td>
</tr>
<tr>
<td><strong>Total 15-Minute Volume [veh/h]</strong></td>
<td>1 1 0</td>
<td>0 0 0</td>
<td>0 8 1</td>
<td>0 15 2</td>
</tr>
<tr>
<td><strong>Total Analysis Volume [veh/h]</strong></td>
<td>5 4 1</td>
<td>0 0 0</td>
<td>1 32 5</td>
<td>0 62 9</td>
</tr>
<tr>
<td><strong>Pedestrian Volume [ped/h]</strong></td>
<td>6 2 2</td>
<td>0</td>
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### Intersection Settings

<table>
<thead>
<tr>
<th>Priority Scheme</th>
<th>Stop</th>
<th>Stop</th>
<th>Free</th>
<th>Free</th>
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</thead>
<tbody>
<tr>
<td>Flared Lane</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Area [veh]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Two-Stage Gap Acceptance</td>
<td>No</td>
<td></td>
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<tr>
<td>Number of Storage Spaces in Median</td>
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### Movement, Approach, & Intersection Results

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<tr>
<th>V/C, Movement V/C Ratio</th>
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<th>Stop</th>
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<th>Free</th>
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<tr>
<td>d_M, Delay for Movement [s/veh]</td>
<td>9.23</td>
<td>9.88</td>
<td>8.74</td>
<td>7.51</td>
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<td>Movement LOS</td>
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<td>A</td>
<td>A</td>
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<tr>
<td>95th-Percentile Queue Length [veh/ln]</td>
<td>0.04</td>
<td>0.04</td>
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<td>95th-Percentile Queue Length [ft/ln]</td>
<td>0.92</td>
<td>0.92</td>
<td>0.92</td>
<td>0.05</td>
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<td>d_A, Approach Delay [s/veh]</td>
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<td>A</td>
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<td>d_I, Intersection Delay [s/veh]</td>
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<td>Intersection LOS</td>
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</table>
### Intersection Level Of Service Report

**Intersection 4: Van Slyke Ave & Como Ave**

- **Control Type:** Two-way stop
- **Analysis Method:** HCM 6th Edition
- **Analysis Period:** 15 minutes

### Delay (sec / veh):
- **9.9**

### Level Of Service:
- **A**

### Volume to Capacity (v/c):
- **0.001**

### Analysis Period:
- **HCM 6th Edition**

### Analysis Method:
- **Two-way stop**

### Control Type:
- **Intersection 4: Van Slyke Ave & Como Ave**

### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Como Ave</th>
<th>Driveway</th>
<th>Van Slyke Ave</th>
<th>Van Slyke Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Approach</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northbound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southbound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastbound</td>
<td></td>
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</tr>
<tr>
<td>Westbound</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Lane Configuration</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Turning Movement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>Thru</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
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<tr>
<td>Right</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td><strong>Lane Width [ft]</strong></td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td><strong>No. of Lanes in Pocket</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Pocket Length [ft]</strong></td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td><strong>Speed [mph]</strong></td>
<td>30.00</td>
<td>30.00</td>
<td>30.00</td>
<td>30.00</td>
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<tr>
<td><strong>Grade [%]</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<tr>
<td><strong>Crosswalk</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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### Volumes

<table>
<thead>
<tr>
<th>Name</th>
<th>Como Ave</th>
<th>Driveway</th>
<th>Van Slyke Ave</th>
<th>Van Slyke Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base Volume Input [veh/h]</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>23</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>36</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Hourly Volume [veh/h]</strong></td>
<td>8</td>
<td>1</td>
<td>24</td>
<td>1</td>
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<tr>
<td><strong>Peak Hour Factor</strong></td>
<td>0.7800</td>
<td>0.7800</td>
<td>0.7800</td>
<td>0.7800</td>
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<tr>
<td><strong>Other Adjustment Factor</strong></td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
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<tr>
<td><strong>Total 15-Minute Volume [veh/h]</strong></td>
<td>3</td>
<td>0</td>
<td>8</td>
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<tr>
<td><strong>Total Analysis Volume [veh/h]</strong></td>
<td>10</td>
<td>1</td>
<td>31</td>
<td>1</td>
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<tr>
<td><strong>Pedestrian Volume [ped/h]</strong></td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>3</td>
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## Intersection Settings

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<tr>
<th>Priority Scheme</th>
<th>Stop</th>
<th>Stop</th>
<th>Free</th>
<th>Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flared Lane</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Area [veh]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Two-Stage Gap Acceptance</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Storage Spaces in Median</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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## Movement, Approach, & Intersection Results

<table>
<thead>
<tr>
<th>Movement, Approach, &amp; Intersection Results</th>
<th>Stop</th>
<th>Stop</th>
<th>Free</th>
<th>Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>V/C, Movement V/C Ratio</td>
<td>0.01</td>
<td>0.00</td>
<td>0.03</td>
<td>0.00</td>
</tr>
<tr>
<td>d_M, Delay for Movement [s/veh]</td>
<td>9.46</td>
<td>9.94</td>
<td>8.83</td>
<td>9.54</td>
</tr>
<tr>
<td>Movement LOS</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>95th-Percentile Queue Length [veh/ln]</td>
<td>0.14</td>
<td>0.14</td>
<td>0.14</td>
<td>0.01</td>
</tr>
<tr>
<td>95th-Percentile Queue Length [ft/ln]</td>
<td>3.50</td>
<td>3.50</td>
<td>3.50</td>
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<tr>
<td>d_A, Approach Delay [s/veh]</td>
<td>9.01</td>
<td>9.29</td>
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<td>Approach LOS</td>
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<td>A</td>
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<td>A</td>
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<td>d_I, Intersection Delay [s/veh]</td>
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<td>3.24</td>
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<tr>
<td>Intersection LOS</td>
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<td>A</td>
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</table>
### 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

<table>
<thead>
<tr>
<th>Name</th>
<th>Lexington Pkwy</th>
<th>Lexington Pkwy</th>
<th>Wynne Ave</th>
<th>Como Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach</td>
<td>Northbound</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
</tr>
<tr>
<td>Lane Configuration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turning Movement</td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
<td>Left</td>
</tr>
<tr>
<td>Lane Width [ft]</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>No. of Lanes in Pocket</td>
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<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Pocket Length [ft]</td>
<td>150.00</td>
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<td>100.00</td>
<td>100.00</td>
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<td>Speed [mph]</td>
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<td>30.00</td>
<td>30.00</td>
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<tr>
<td>Grade [%]</td>
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<td>0.00</td>
<td>0.00</td>
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<tr>
<td>Curb Present</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Crosswalk</td>
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<td>Yes</td>
<td>Yes</td>
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#### Volumes

<table>
<thead>
<tr>
<th>Name</th>
<th>Lexington Pkwy</th>
<th>Lexington Pkwy</th>
<th>Wynne Ave</th>
<th>Como Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Volume Input [veh/h]</td>
<td>64</td>
<td>847</td>
<td>49</td>
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<td>Base Volume Adjustment Factor</td>
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<td>1.0000</td>
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<tr>
<td>Heavy Vehicles Percentage [%]</td>
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<td>3.00</td>
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<td>1.03</td>
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<td>In-Process Volume [veh/h]</td>
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<td>Site-Generated Trips [veh/h]</td>
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<tr>
<td>Diverted Trips [veh/h]</td>
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<tr>
<td>Pass-by Trips [veh/h]</td>
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<tr>
<td>Existing Site Adjustment Volume [veh/h]</td>
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<tr>
<td>Other Volume [veh/h]</td>
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<td>Right-Turn on Red Volume [veh/h]</td>
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<tr>
<td>Total Hourly Volume [veh/h]</td>
<td>66</td>
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<td>1.0000</td>
<td>1.0000</td>
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</tr>
<tr>
<td>Total 15-Minute Volume [veh/h]</td>
<td>17</td>
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<td>Total Analysis Volume [veh/h]</td>
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<td>Presence of On-Street Parking</td>
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<td>No</td>
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<td>On-Street Parking Maneuver Rate [veh/h]</td>
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<td>Local Bus Stopping Rate [veh/h]</td>
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<td>v_di, Inbound Pedestrian Volume crossing [ped/h]</td>
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<td>Bicycle Volume [bicycles/h]</td>
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### Intersection Settings

<table>
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<tr>
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<td>Signal Coordination Group</td>
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<td>Cycle Length [s]</td>
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<td>Coordination Type</td>
<td>Time of Day Pattern Coordinated</td>
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<td>Actuation Type</td>
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<td>Offset [s]</td>
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<tr>
<td>Offset Reference</td>
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<td>Permissive Mode</td>
<td>SingleBand</td>
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<td>Lost time [s]</td>
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### Phasing & Timing

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<td>Lead / Lag</td>
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### Exclusive Pedestrian Phase

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### Lane Group Calculations

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### 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 | 1.14 | 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 |
### Movement, Approach, & Intersection Results

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<td>B</td>
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<td>M_CW, Crosswalk Circulation Area [ft²/ped]</td>
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<td>Crosswalk LOS</td>
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<tr>
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<td>c_b, Capacity of the bicycle lane [bicycles/h]</td>
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### Sequence

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TCGIS
Scenario 6: 6 PM Existing 2023
Traffic Impact Study E61 TCGIS
## Intersection Level Of Service Report

**Intersection 6: Churchill St & Como Ave**

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

### Intersection Setup

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<th>Churchill St</th>
<th>Como Ave</th>
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### Volumes

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### Intersection Settings

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<tr>
<td>Flared Lane</td>
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<tr>
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<td>Two-Stage Gap Acceptance</td>
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### Movement, Approach, & Intersection Results

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<th>V/C, Movement V/C Ratio</th>
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<td>9.91</td>
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<td>9.88</td>
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<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
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<td>0.03</td>
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<td>A</td>
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<td>Intersection LOS</td>
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<td></td>
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</table>
# Appendix E - Capacity Analysis Backup

## Intersection Level Of Service Report

**Intersection 7: Como Ave & West Parking Lot**

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

### Intersection Setup

<table>
<thead>
<tr>
<th>Lane Configuration</th>
<th>West Parking Lot</th>
<th>Como Ave</th>
<th>Como Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turning Movement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pocket Length [ft]</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Speed [mph]</td>
<td>30.00</td>
<td>30.00</td>
<td>30.00</td>
</tr>
<tr>
<td>Grade [%]</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Crosswalk</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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</tbody>
</table>

### Volumes

<table>
<thead>
<tr>
<th>Name</th>
<th>West Parking Lot</th>
<th>Como Ave</th>
<th>Como Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Volume Input [veh/h]</td>
<td>2</td>
<td>3</td>
<td>51</td>
</tr>
<tr>
<td>Heavy Vehicles Percentage [%]</td>
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<td>2.00</td>
<td>2.00</td>
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<tr>
<td>Growth Rate</td>
<td>1.11</td>
<td>1.11</td>
<td>1.11</td>
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<tr>
<td>In-Process Volume [veh/h]</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Site-Generated Trips [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Diverted Trips [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pass-by Trips [veh/h]</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Existing Site Adjustment Volume [veh/h]</td>
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<td>Other Volume [veh/h]</td>
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<tr>
<td>Total Hourly Volume [veh/h]</td>
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<td>15</td>
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<td>0.8810</td>
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<td>Other Volume Adjustment Factor</td>
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<td>1.0000</td>
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<tr>
<td>Total 15-Minute Volume [veh/h]</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>Total Analysis Volume [veh/h]</td>
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<td>23</td>
<td>17</td>
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<td>Pedestrian Volume [ped/h]</td>
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<td>7</td>
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### Intersection Settings

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<th>Free</th>
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<tbody>
<tr>
<td>Flared Lane</td>
<td>No</td>
<td></td>
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</tr>
<tr>
<td>Storage Area [veh]</td>
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<tr>
<td>Two-Stage Gap Acceptance</td>
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<td>Number of Storage Spaces in Median</td>
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### Movement, Approach, & Intersection Results

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<td>d_M, Delay for Movement [s/veh]</td>
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<td>8.80</td>
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<td>Movement LOS</td>
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<td>A</td>
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<td>95th-Percentile Queue Length [veh/ln]</td>
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<td>95th-Percentile Queue Length [ft/ln]</td>
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## Intersection Level Of Service Report

### Intersection 8: Como Ave & Oxford St

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<tr>
<td>Analysis Method:</td>
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<tr>
<td>Analysis Period:</td>
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<td>Delay (sec / veh):</td>
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### Intersection Setup

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</tr>
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<tbody>
<tr>
<td>Approach</td>
<td>Northbound</td>
<td>Eastbound</td>
<td>Westbound</td>
</tr>
<tr>
<td>Turning Movement</td>
<td></td>
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<tr>
<td>No. of Lanes in Pocket</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Speed [mph]</td>
<td></td>
<td></td>
<td>30.00</td>
</tr>
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<td>Grade [%]</td>
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<td>Crosswalk</td>
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### Volumes

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<tbody>
<tr>
<td>Base Volume Input [veh/h]</td>
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<td>Heavy Vehicles Percentage [%]</td>
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<tr>
<td>Site-Generated Trips [veh/h]</td>
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<td>Diverted Trips [veh/h]</td>
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</tr>
<tr>
<td>Pass-by Trips [veh/h]</td>
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<tr>
<td>Existing Site Adjustment Volume [veh/h]</td>
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<td>Other Volume [veh/h]</td>
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<tr>
<td>Total Hourly Volume [veh/h]</td>
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<tr>
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<td>3</td>
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<tr>
<td>Total Analysis Volume [veh/h]</td>
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<td>40</td>
<td>13</td>
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<tr>
<td>Pedestrian Volume [ped/h]</td>
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### Intersection Settings

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<tr>
<th>Priority Scheme</th>
<th>Stop</th>
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<tbody>
<tr>
<td>Flared Lane</td>
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<tr>
<td>Storage Area [veh]</td>
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<td>Two-Stage Gap Acceptance</td>
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<td>Number of Storage Spaces in Median</td>
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### Movement, Approach, & Intersection Results

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<td>A</td>
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## Intersection Analysis Summary

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<th>Intersection Name</th>
<th>Control Type</th>
<th>Method</th>
<th>Worst Mvmt</th>
<th>V/C</th>
<th>Delay (s/veh)</th>
<th>LOS</th>
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<tbody>
<tr>
<td>1</td>
<td>Lexington Pkwy &amp; Como Ave/Horton Ave</td>
<td>Signaled</td>
<td>HCM 6th Edition</td>
<td>WB Thru</td>
<td>0.721</td>
<td>34.4</td>
<td>C</td>
</tr>
<tr>
<td>2</td>
<td>Horton Ave &amp; Van Slyke Ave</td>
<td>Two-way stop</td>
<td>HCM 6th Edition</td>
<td>NB Left</td>
<td>0.350</td>
<td>23.4</td>
<td>C</td>
</tr>
<tr>
<td>3</td>
<td>Van Slyke Ave &amp; Churchill St</td>
<td>Two-way stop</td>
<td>HCM 6th Edition</td>
<td>NEB Thru</td>
<td>0.058</td>
<td>15.8</td>
<td>C</td>
</tr>
<tr>
<td>4</td>
<td>Van Slyke Ave &amp; Como Ave</td>
<td>Two-way stop</td>
<td>HCM 6th Edition</td>
<td>SB Thru</td>
<td>0.006</td>
<td>15.9</td>
<td>C</td>
</tr>
<tr>
<td>5</td>
<td>Lexington Pkwy &amp; Wynne Ave/Como Ave</td>
<td>Signaled</td>
<td>HCM 6th Edition</td>
<td>WB Left</td>
<td>0.701</td>
<td>45.3</td>
<td>D</td>
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<tr>
<td>6</td>
<td>Churchill St &amp; Como Ave</td>
<td>Two-way stop</td>
<td>HCM 6th Edition</td>
<td>NB Thru</td>
<td>0.021</td>
<td>13.2</td>
<td>B</td>
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<tr>
<td>7</td>
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<td>Two-way stop</td>
<td>HCM 6th Edition</td>
<td>SB Left</td>
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<td>Two-way stop</td>
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<td>NB Left</td>
<td>0.016</td>
<td>12.3</td>
<td>B</td>
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</table>

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.
### Intersection Level Of Service Report

**Intersection 1: Lexington Pkwy & Como Ave/Horton Ave**

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

#### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Lexington Pkwy</th>
<th>Lexington Pkwy</th>
<th>Como Ave</th>
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<tbody>
<tr>
<td><strong>Approach</strong></td>
<td>Northbound</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
</tr>
<tr>
<td><strong>Lane Configuration</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Base Volume Input [veh/h]</strong></td>
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<td>240</td>
<td>86</td>
<td>62</td>
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<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
</tr>
<tr>
<td><strong>Heavy Vehicles Percentage [%]</strong></td>
<td>6.00</td>
<td>3.00</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td><strong>Growth Rate</strong></td>
<td>1.03</td>
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TCGIS

**Scenario 7: 7 AM 2023 with Alts**

Traffic Impact Study

E71
### Intersection Settings

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### Phasing & Timing

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### Exclusive Pedestrian Phase

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### Lane Group Calculations

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### Lane Group Results

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<th>C</th>
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### Movement, Approach, & Intersection Results

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#### Other Modes

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<td>s_b, Saturation Flow Rate of the bicycle lane</td>
<td>2000</td>
</tr>
<tr>
<td>c_b, Capacity of the bicycle lane [bicycles/h]</td>
<td>775</td>
</tr>
<tr>
<td>d_b, Bicycle Delay [s]</td>
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<tr>
<td>l_b, Bicycle LOS Score for Intersection</td>
<td>3.590</td>
</tr>
<tr>
<td>Bicycle LOS</td>
<td>D</td>
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#### Sequence

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Results</th>
</tr>
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<tbody>
<tr>
<td>Ring 1</td>
<td>1</td>
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<tr>
<td>Ring 2</td>
<td>5</td>
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<tr>
<td>Ring 3</td>
<td>-</td>
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<tr>
<td>Ring 4</td>
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**Ring 1**

<table>
<thead>
<tr>
<th>Scenario 1</th>
<th>12s</th>
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<tr>
<td>Scenario 2</td>
<td>36s</td>
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**Ring 2**

<table>
<thead>
<tr>
<th>Scenario 3</th>
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**Ring 3**

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**Ring 4**

<table>
<thead>
<tr>
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<tr>
<td>Scenario 6</td>
<td>36s</td>
</tr>
</tbody>
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**Appendix E - Capacity Analysis Backup**
### Intersecion Level Of Service Report

**Intersection 2: Horton Ave & Van Slyke Ave**

- **Control Type:** Two-way stop
- **Analysis Method:** HCM 6th Edition
- **Delay (sec / veh):** 23.4
- **Level Of Service:** C
- **Volume to Capacity (v/c):** 0.350
- **Analysis Period:** 15 minutes
- **Analysis Method:** Two-way stop
- **Control Type:** Intersection 2: Horton Ave & Van Slyke Ave

### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Van Slyke Ave</th>
<th>Churchill St</th>
<th>Horton Ave</th>
<th>Horton Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Approach</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lane Configuration</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Turning Movement</strong></td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
<td>Left</td>
</tr>
<tr>
<td><strong>Lane Width [ft]</strong></td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td><strong>No. of Lanes in Pocket</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Pocket Length [ft]</strong></td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td><strong>Grade [%]</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Crosswalk</strong></td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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### Volumes

<table>
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<th>Van Slyke Ave</th>
<th>Churchill St</th>
<th>Horton Ave</th>
<th>Horton Ave</th>
</tr>
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<tbody>
<tr>
<td><strong>Base Volume Input [veh/h]</strong></td>
<td>45</td>
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<td><strong>Base Volume Adjustment Factor</strong></td>
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<td>1.0000</td>
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<tr>
<td><strong>Heavy Vehicles Percentage [%]</strong></td>
<td>13.00</td>
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<td>3.00</td>
<td>2.00</td>
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<td><strong>Growth Rate</strong></td>
<td>1.09</td>
<td>1.03</td>
<td>1.09</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>In-Process Volume [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Site-Generated Trips [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td><strong>Diverted Trips [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Pass-by Trips [veh/h]</strong></td>
<td>0</td>
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<td>0</td>
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<td><strong>Existing Site Adjustment Volume [veh/h]</strong></td>
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<td>0</td>
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<tr>
<td><strong>Other Volume [veh/h]</strong></td>
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<tr>
<td><strong>Total Hourly Volume [veh/h]</strong></td>
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**Pedestrian Volume [ped/h]**

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<tr>
<th>Name</th>
<th>Van Slyke Ave</th>
<th>Churchill St</th>
<th>Horton Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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### Intersection Settings

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<th>Free</th>
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<tr>
<td>Flared Lane</td>
<td>No</td>
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</tr>
<tr>
<td>Storage Area (veh)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Two-Stage Gap Acceptance</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Storage Spaces in Median</td>
<td>0</td>
<td>0</td>
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</table>

### Movement, Approach, & Intersection Results

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<th>Free</th>
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</thead>
<tbody>
<tr>
<td>V/C, Movement V/C Ratio</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<tr>
<td>d_M, Delay for Movement (s/veh)</td>
<td>23.42</td>
<td>22.61</td>
<td>16.65</td>
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<tr>
<td>Movement LOS</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>A</td>
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<td>95th-Percentile Queue Length (veh/ln)</td>
<td>1.54</td>
<td>1.54</td>
<td>1.54</td>
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</tr>
<tr>
<td>95th-Percentile Queue Length (ft/ln)</td>
<td>38.53</td>
<td>38.53</td>
<td>38.53</td>
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<tr>
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<td>23.41</td>
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<td>Approach LOS</td>
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<td>A</td>
<td>A</td>
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<td>d_I, Intersection Delay (s/veh)</td>
<td>3.09</td>
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<td>Intersection LOS</td>
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</table>
### Intersection Level Of Service Report

**Intersection 3: Van Slyke Ave & Churchill St**

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

#### Intersection Setup

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<th>Churchill St</th>
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<th>Van Slyke Ave</th>
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<tbody>
<tr>
<td><strong>Approach</strong></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Turning Movement</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>Thru</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>Right</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td><strong>Lane Configuration</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of Lanes in Pocket</td>
<td>0 0 0 0</td>
<td>0 0 0 0</td>
<td>0 0 0 0</td>
<td>0 0 0 0</td>
</tr>
<tr>
<td>Pocket Length [ft]</td>
<td>100.00 100.00 100.00 100.00</td>
<td>100.00 100.00 100.00 100.00</td>
<td>100.00 100.00 100.00 100.00</td>
<td>100.00 100.00 100.00 100.00</td>
</tr>
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<td>30.00</td>
<td>30.00</td>
<td>30.00</td>
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<tr>
<td>Grade [%]</td>
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<td>0.00</td>
<td>0.00</td>
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<tr>
<td>Crosswalk</td>
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#### Volumes

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<tr>
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<th>Churchill St</th>
<th>Van Slyke Ave</th>
<th>Van Slyke Ave</th>
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</thead>
<tbody>
<tr>
<td><strong>Base Volume Input [veh/h]</strong></td>
<td>16 11 6 0 0 0 0 29 3 0 172 19</td>
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<tr>
<td><strong>Base Volume Adjustment Factor</strong></td>
<td>1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Heavy Vehicles Percentage [%]</strong></td>
<td>3.00 15.00 3.00 2.00 2.00 2.00 17.00 15.00 4.00 30.00 10.00 15.00</td>
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<tr>
<td><strong>Growth Rate</strong></td>
<td>1.09 1.03 1.03 1.00 1.00 1.00 1.03 1.09 1.03 1.03 1.14 1.09</td>
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</tr>
<tr>
<td><strong>In-Process Volume [veh/h]</strong></td>
<td>0 0 0 0 0 0 0 0 0 0 0 0 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Site-Generated Trips [veh/h]</strong></td>
<td>0 0 0 0 0 0 0 0 0 0 0 0 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Diverted Trips [veh/h]</strong></td>
<td>0 0 0 0 0 0 0 0 0 0 0 0 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pass-by Trips [veh/h]</strong></td>
<td>0 0 0 0 0 0 0 0 0 0 0 0 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Existing Site Adjustment Volume [veh/h]</strong></td>
<td>0 0 0 0 0 0 0 30 0 0 0 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other Volume [veh/h]</strong></td>
<td>0 0 0 0 0 0 0 0 0 0 0 0 0</td>
<td></td>
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</tr>
<tr>
<td><strong>Total Hourly Volume [veh/h]</strong></td>
<td>17 11 6 0 0 0 0 62 3 0 196 21</td>
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</tr>
<tr>
<td><strong>Peak Hour Factor</strong></td>
<td>0.4700 0.4700 0.4700 1.0000 1.0000 1.0000 0.4700 0.4700 0.4700 0.4700 0.4700 0.4700</td>
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</tr>
<tr>
<td><strong>Other Adjustment Factor</strong></td>
<td>1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000</td>
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</tr>
<tr>
<td><strong>Total 15-Minute Volume [veh/h]</strong></td>
<td>9 6 3 0 0 0 0 33 2 0 104 11</td>
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<td><strong>Total Analysis Volume [veh/h]</strong></td>
<td>36 23 13 0 0 0 0 132 6 0 417 45</td>
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<tr>
<td><strong>Pedestrian Volume [ped/h]</strong></td>
<td>12 3 4 0</td>
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</table>
### Intersection Settings

<table>
<thead>
<tr>
<th>Priority Scheme</th>
<th>Stop</th>
<th>Stop</th>
<th>Free</th>
<th>Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flared Lane</td>
<td>No</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Storage Area [veh]</td>
<td>0</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Two-Stage Gap Acceptance</td>
<td>No</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Number of Storage Spaces in Median</td>
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</table>

### Movement, Approach, & Intersection Results

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<th>0.09</th>
<th>0.06</th>
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<th>0.00</th>
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</tr>
</thead>
<tbody>
<tr>
<td>d_M, Delay for Movement [s/veh]</td>
<td>15.33</td>
<td>15.75</td>
<td>12.73</td>
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<td>0.00</td>
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<td>8.59</td>
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<td>7.81</td>
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<tr>
<td>Movement LOS</td>
<td>C</td>
<td>C</td>
<td>B</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
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<tr>
<td>95th-Percentile Queue Length [veh/ln]</td>
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<td>0.59</td>
<td>0.59</td>
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<td>0.00</td>
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<tr>
<td>95th-Percentile Queue Length [ft/ln]</td>
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<td>d_I, Intersection Delay [s/veh]</td>
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### Intersection Setup

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<th>Name</th>
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<th>Van Slyke Ave</th>
<th>Van Slyke Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Northbound</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
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### Turning Movement

<table>
<thead>
<tr>
<th>Lane Configuration</th>
<th>Left</th>
<th>Thru</th>
<th>Right</th>
<th>Left</th>
<th>Thru</th>
<th>Right</th>
<th>Left</th>
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</tbody>
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### Lane Width [ft]

<table>
<thead>
<tr>
<th>Lane Width [ft]</th>
<th>Left</th>
<th>Thru</th>
<th>Right</th>
<th>Left</th>
<th>Thru</th>
<th>Right</th>
<th>Left</th>
<th>Thru</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.00</td>
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<td></td>
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</tbody>
</table>

### No. of Lanes in Pocket

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### Pocket Length [ft]

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### Speed [mph]

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### Grade [%]

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### Crosswalk

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### Volumes

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<th>Driveway</th>
<th>Van Slyke Ave</th>
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<tr>
<td>Base Volume Input [veh/h]</td>
<td>4</td>
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<td>1.14</td>
<td>1.03</td>
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<tr>
<td>Site-Generated Trips [veh/h]</td>
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<tr>
<td>Diverted Trips [veh/h]</td>
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<tr>
<td>Pass-by Trips [veh/h]</td>
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<td>Existing Site Adjustment Volume [veh/h]</td>
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### Intersection Settings

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<td>Storage Area [veh]</td>
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### Movement, Approach, & Intersection Results

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<th>0.01</th>
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<th>0.01</th>
<th>0.01</th>
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<tr>
<td>d_M, Delay for Movement [s/veh]</td>
<td>14.62</td>
<td>14.78</td>
<td>10.51</td>
<td>14.81</td>
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<td>B</td>
<td>B</td>
<td>B</td>
<td>C</td>
<td>A</td>
<td>A</td>
<td>A</td>
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<td>95th-Percentile Queue Length [veh/ln]</td>
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<td>A</td>
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<td>Intersection LOS</td>
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<td>C</td>
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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
- **Level Of Service:** D
- **Volume to Capacity (v/c):** 0.701

### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Lexington Pkwy</th>
<th>Lexington Pkwy</th>
<th>Wynne Ave</th>
<th>Como Ave</th>
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<tbody>
<tr>
<td>Approach</td>
<td>Northbound</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
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<tr>
<td><strong>Lane Configuration</strong></td>
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<tr>
<td>Turning Movement</td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
<td>Left</td>
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<td>Lane Width [ft]</td>
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<td>Pocket Length [ft]</td>
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<td>100.00</td>
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<td>Curb Present</td>
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<td>Yes</td>
<td>Yes</td>
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<td>Crosswalk</td>
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### Volumes

<table>
<thead>
<tr>
<th>Name</th>
<th>Lexington Pkwy</th>
<th>Lexington Pkwy</th>
<th>Wynne Ave</th>
<th>Como Ave</th>
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<tbody>
<tr>
<td><strong>Base Volume Input [veh/h]</strong></td>
<td>48</td>
<td>362</td>
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<tr>
<td><strong>Base Volume Adjustment Factor</strong></td>
<td>1.0000</td>
<td>1.0000</td>
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</tr>
<tr>
<td><strong>Heavy Vehicles Percentage [%]</strong></td>
<td>3.00</td>
<td>3.00</td>
<td>3.00</td>
<td>3.00</td>
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<tr>
<td><strong>Growth Rate</strong></td>
<td>1.03</td>
<td>1.03</td>
<td>1.14</td>
<td>1.14</td>
</tr>
<tr>
<td><strong>In-Process Volume [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Site-Generated Trips [veh/h]</strong></td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<tr>
<td><strong>Diverted Trips [veh/h]</strong></td>
<td>0</td>
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<td>0</td>
<td>0</td>
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<tr>
<td><strong>Pass-by Trips [veh/h]</strong></td>
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<tr>
<td><strong>Existing Site Adjustment Volume [veh/h]</strong></td>
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<tr>
<td><strong>Other Volume [veh/h]</strong></td>
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<td>0</td>
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<tr>
<td><strong>Total Hourly Volume [veh/h]</strong></td>
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<td>373</td>
<td>43</td>
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<td>0.9240</td>
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<td><strong>Total 15-Minute Volume [veh/h]</strong></td>
<td>14</td>
<td>106</td>
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<td><strong>Total Analysis Volume [veh/h]</strong></td>
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<td>422</td>
<td>49</td>
<td>24</td>
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<tr>
<td><strong>Presence of On-Street Parking</strong></td>
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<td><strong>On-Street Parking Maneuver Rate [/h]</strong></td>
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<td>v_do, Outbound Pedestrian Volume crossing</td>
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<td>v_di, Inbound Pedestrian Volume crossing</td>
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<td>Bicycle Volume [bicycles/h]</td>
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TCGIS

Scenario 7: 7 AM 2023 with Alts

Traffic Impact Study

E81  TCGIS
### Intersection Settings

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<td>Located in CBD</td>
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### Phasing & Timing

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<td>Detector Length [ft]</td>
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<td>0.0</td>
<td>0.0</td>
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<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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### Exclusive Pedestrian Phase

| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |
## Lane Group Calculations

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<tr>
<th>Lane Group</th>
<th>L</th>
<th>C</th>
<th>L</th>
<th>C</th>
<th>C</th>
<th>R</th>
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<td>C, Cycle Length [s]</td>
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<td>L, Total Lost Time per Cycle [s]</td>
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<td>(v / s)_i Volume / Saturation Flow Rate</td>
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<td>1807</td>
<td>915</td>
<td>1837</td>
<td>1724</td>
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<td>975</td>
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<td>c, Capacity [veh/h]</td>
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<td>1348</td>
<td>554</td>
<td>1153</td>
<td>208</td>
<td>119</td>
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<td>k, delay calibration</td>
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## Lane Group Results

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<tr>
<th>Lane Group</th>
<th>X, volume / capacity</th>
<th>0.10</th>
<th>0.35</th>
<th>0.04</th>
<th>0.71</th>
<th>0.05</th>
<th>0.24</th>
<th>1.46</th>
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<tr>
<td>d, Delay for Lane Group [s/veh]</td>
<td>6.96</td>
<td>4.21</td>
<td>10.12</td>
<td>13.76</td>
<td>34.19</td>
<td>35.34</td>
<td>250.33</td>
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<td>A</td>
<td>B</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>F</td>
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<td>No</td>
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<td>No</td>
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<td>50th-Percentile Queue Length [veh/ln]</td>
<td>0.17</td>
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<td>95th-Percentile Queue Length [veh/ln]</td>
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### Movement, Approach, & Intersection Results

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<th>6.96</th>
<th>4.21</th>
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<th>13.76</th>
<th>13.76</th>
<th>34.19</th>
<th>34.19</th>
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<td>A</td>
<td>B</td>
<td>B</td>
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<td>C</td>
<td>C</td>
<td>D</td>
<td>F</td>
<td>F</td>
<td>F</td>
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<td>d_A, Approach Delay</td>
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<td>F</td>
<td>F</td>
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<td>D</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>A</td>
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<td>d_I, Intersection Delay [s/veh]</td>
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<td>2.466</td>
<td>2.063</td>
<td>1.960</td>
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<td>A</td>
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<td>B</td>
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### Other Modes

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<th>6.0</th>
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<td>M_corner, Corner Circulation Area [ft²/ped]</td>
<td>1990.59</td>
<td>3494.23</td>
<td>1984.48</td>
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<td>M_CW, Crosswalk Circulation Area [ft²/ped]</td>
<td>348.18</td>
<td>1596.32</td>
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<td>34.23</td>
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<td>l_p.int, Pedestrian LOS Score for Intersection</td>
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<td>2.466</td>
<td>2.063</td>
<td>1.960</td>
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<td>Crosswalk LOS</td>
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<td>A</td>
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<td>s_b, Saturation Flow Rate of the bicycle lane</td>
<td>2000</td>
<td>2000</td>
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<td>2000</td>
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<td>c_b, Capacity of the bicycle lane [bicycles/h]</td>
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<td>625</td>
<td>750</td>
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<td>d_b, Bicycle Delay [s]</td>
<td>18.91</td>
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<td>l_b.int, Bicycle LOS Score for Intersection</td>
<td>3.292</td>
<td>3.724</td>
<td>2.429</td>
<td>2.459</td>
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<td>Bicycle LOS</td>
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### Sequence

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Scenario 7: 7 AM 2023 with Alts
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**Appendix E - Capacity Analysis Backup**
**Intersection Level Of Service Report**

**Intersection 6: Churchill St & Como Ave**

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

### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Approach</th>
<th>Turning Movement</th>
<th>Lane Configuration</th>
<th>Lane Width [ft]</th>
<th>No. of Lanes in Pocket</th>
<th>Pocket Length [ft]</th>
<th>Speed [mph]</th>
<th>Grade [%]</th>
<th>Crosswalk</th>
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<td>Eastbound</td>
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### Volumes

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<th>Churchill St</th>
<th>Como Ave</th>
<th>Como Ave</th>
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<tbody>
<tr>
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<td>8</td>
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<td>Heavy Vehicles Percentage [%]</td>
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<td>In-Process Volume [veh/h]</td>
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<td>Site-Generated Trips [veh/h]</td>
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<td>Diverted Trips [veh/h]</td>
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<td>Pass-by Trips [veh/h]</td>
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<td>Total Hourly Volume [veh/h]</td>
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**Scenario 7: 7 AM 2023 with Alts**

**Traffic Impact Study**

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### Intersection Settings

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<tr>
<th>Priority Scheme</th>
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### Movement, Approach, & Intersection Results

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<th>B</th>
<th>B</th>
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<td>0.00</td>
<td>0.02</td>
<td>0.00</td>
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<td>B</td>
<td>B</td>
<td>A</td>
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### Interception Level Of Service Report

**Intersection 7: Como Ave & West Parking Lot**

<table>
<thead>
<tr>
<th>Control Type</th>
<th>Two-way stop</th>
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<tbody>
<tr>
<td>Analysis Method</td>
<td>HCM 6th Edition</td>
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<tr>
<td>Analysis Period</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Delay (sec / veh)</td>
<td>12.0</td>
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<tr>
<td>Level Of Service</td>
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<tr>
<td>Volume to Capacity (v/c)</td>
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<td>Control Type</td>
<td>Intersection 7: Como Ave &amp; West Parking Lot</td>
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**Interception Setup**

<table>
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<tr>
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<th>Como Ave</th>
<th>Como Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
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<table>
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<tr>
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<th>Left</th>
<th>Right</th>
<th>Left</th>
<th>Thru</th>
<th>Thru</th>
<th>Right</th>
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</thead>
<tbody>
<tr>
<td>Turning Movement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lane Width [ft]</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>No. of Lanes in Pocket</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pocket Length [ft]</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Speed [mph]</td>
<td>30.00</td>
<td>30.00</td>
<td>30.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade [%]</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Crosswalk</td>
<td>Yes</td>
<td>Yes</td>
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**Volumes**

<table>
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<th>West Parking Lot</th>
<th>Como Ave</th>
<th>Como Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Volume Input [veh/h]</td>
<td>1</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Base Volume Adjustment Factor</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
</tr>
<tr>
<td>Heavy Vehicles Percentage [%]</td>
<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
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<tr>
<td>Growth Rate</td>
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<td>1.11</td>
<td>1.11</td>
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<tr>
<td>In-Process Volume [veh/h]</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Site-Generated Trips [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Diverted Trips [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pass-by Trips [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Existing Site Adjustment Volume [veh/h]</td>
<td>0</td>
<td>5</td>
<td>12</td>
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<tr>
<td>Other Volume [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total Hourly Volume [veh/h]</td>
<td>1</td>
<td>7</td>
<td>21</td>
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<tr>
<td>Peak Hour Factor</td>
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<td>0.4880</td>
<td>0.4880</td>
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<tr>
<td>Other Adjustment Factor</td>
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<td>1.0000</td>
<td>1.0000</td>
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<tr>
<td>Total 15-Minute Volume [veh/h]</td>
<td>1</td>
<td>4</td>
<td>11</td>
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<tr>
<td>Total Analysis Volume [veh/h]</td>
<td>2</td>
<td>14</td>
<td>43</td>
</tr>
<tr>
<td>Pedestrian Volume [ped/h]</td>
<td>27</td>
<td>0</td>
<td>0</td>
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### Intersection Settings

<table>
<thead>
<tr>
<th>Priority Scheme</th>
<th>Stop</th>
<th>Free</th>
<th>Free</th>
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</thead>
<tbody>
<tr>
<td>Flared Lane</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Area [veh]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Two-Stage Gap Acceptance</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Storage Spaces in Median</td>
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### Movement, Approach, & Intersection Results

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<th>V/C, Movement V/C Ratio</th>
<th>0.00</th>
<th>0.02</th>
<th>0.04</th>
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<th>0.00</th>
<th>0.00</th>
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<tr>
<td>d_M, Delay for Movement [s/veh]</td>
<td>12.02</td>
<td>10.05</td>
<td>8.23</td>
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<td>0.00</td>
<td>0.00</td>
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<tr>
<td>Movement LOS</td>
<td>B</td>
<td>B</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>95th-Percentile Queue Length [veh/ln]</td>
<td>0.07</td>
<td>0.07</td>
<td>0.06</td>
<td>0.06</td>
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<tr>
<td>95th-Percentile Queue Length [ft/ln]</td>
<td>1.76</td>
<td>1.76</td>
<td>1.38</td>
<td>1.38</td>
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<td>0.00</td>
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<td>A</td>
<td>A</td>
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<td>d_I, Intersection Delay [s/veh]</td>
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</table>
### Intersection Level Of Service Report
**Intersection 8: Como Ave & Oxford St**

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

### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Oxford St</th>
<th>Como Ave</th>
<th>Como Ave</th>
</tr>
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<tbody>
<tr>
<td>Approach</td>
<td>Northbound</td>
<td>Eastbound</td>
<td>Westbound</td>
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<tr>
<td>Turning Movement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lane Configuration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lane Width [ft]</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>No. of Lanes in Pocket</td>
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<td>0</td>
</tr>
<tr>
<td>Pocket Length [ft]</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Speed [mph]</td>
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<tr>
<td>Crosswalk</td>
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### Volumes

<table>
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<th>Oxford St</th>
<th>Como Ave</th>
<th>Como Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Volume Input [veh/h]</td>
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<tr>
<td>Base Volume Adjustment Factor</td>
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<td>1.0000</td>
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<td>Heavy Vehicles Percentage [%]</td>
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<td>3.00</td>
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<td>Growth Rate</td>
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<tr>
<td>In-Process Volume [veh/h]</td>
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<td>0</td>
</tr>
<tr>
<td>Site-Generated Trips [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Diverted Trips [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pass-by Trips [veh/h]</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Existing Site Adjustment Volume [veh/h]</td>
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<tr>
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<tr>
<td>Total Hourly Volume [veh/h]</td>
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<tr>
<td>Other Adjustment Factor</td>
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<td>1.0000</td>
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<tr>
<td>Total 15-Minute Volume [veh/h]</td>
<td>2</td>
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<td>14</td>
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<tr>
<td>Total Analysis Volume [veh/h]</td>
<td>8</td>
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<td>54</td>
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<tr>
<td>Pedestrian Volume [ped/h]</td>
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<td>54</td>
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### Intersection Settings

<table>
<thead>
<tr>
<th>Priority Scheme</th>
<th>Stop</th>
<th>Free</th>
<th>Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flared Lane</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Area [veh]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Two-Stage Gap Acceptance</td>
<td>No</td>
<td></td>
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<tr>
<td>Number of Storage Spaces in Median</td>
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<td>0</td>
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### Movement, Approach, & Intersection Results

<table>
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<th>Stop</th>
<th>Free</th>
<th>Free</th>
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<tbody>
<tr>
<td>V/C, Movement V/C Ratio</td>
<td>0.02</td>
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<td>0.00</td>
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<td>d_M, Delay for Movement [s/veh]</td>
<td>12.25</td>
<td>8.77</td>
<td>0.00</td>
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<tr>
<td>Movement LOS</td>
<td>B</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>95th-Percentile Queue Length [veh/ln]</td>
<td>0.05</td>
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<tr>
<td>95th-Percentile Queue Length [ft/ln]</td>
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<td>1.21</td>
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<tr>
<td>d_A, Approach Delay [s/veh]</td>
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<td>0.00</td>
<td>0.21</td>
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<tr>
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</table>
Appendix E - Capacity Analysis Backup
### Intersection Analysis Summary

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

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.
### Scenario 8: 8 School PM 2023 with Alts

#### Intersection Level Of Service Report

**Intersection 1: Lexington Pkwy & Como Ave/Horton Ave**

<table>
<thead>
<tr>
<th>Control Type</th>
<th>Signalized</th>
<th>Delay (sec / veh): 23.0</th>
<th>Level Of Service: C</th>
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</thead>
<tbody>
<tr>
<td>Analysis Method</td>
<td>HCM 6th Edition</td>
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<tr>
<td>Analysis Period</td>
<td>15 minutes</td>
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**Volume to Capacity (v/c): 0.583**

#### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Lexington Pkwy</th>
<th>Lexington Pkwy</th>
<th>Como Ave</th>
<th>Horton Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach</td>
<td>Northbound</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
</tr>
<tr>
<td>Lane Configuration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turning Movement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lane Width [ft]</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>No. of Lanes in Pocket</td>
<td>1</td>
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<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Pocket Length [ft]</td>
<td>75.00</td>
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<td>100.00</td>
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<tr>
<td>Speed [mph]</td>
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<td>30.00</td>
<td>30.00</td>
<td>30.00</td>
</tr>
<tr>
<td>In-Process Volume [veh/h]</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Site-Generated Trips [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Diverted Trips [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pass-by Trips [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
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<td>Other Volume [veh/h]</td>
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<td>509</td>
<td>57</td>
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<tr>
<td>Total 15-Minute Volume [veh/h]</td>
<td>30</td>
<td>142</td>
<td>16</td>
<td>5</td>
</tr>
<tr>
<td>Total Analysis Volume [veh/h]</td>
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<td>569</td>
<td>64</td>
<td>21</td>
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<tr>
<td>Presence of On-Street Parking</td>
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<td>No</td>
<td>No</td>
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<tr>
<td>On-Street Parking Maneuver Rate [fh]</td>
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<td>0</td>
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<td>0</td>
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<td>Local Bus Stopping Rate [fh]</td>
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<tr>
<td>v_do, Outbound Pedestrian Volume crossing [ped/h]</td>
<td>4</td>
<td>6</td>
<td>9</td>
<td>3</td>
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<td>v_di, Inbound Pedestrian Volume crossing [ped/h]</td>
<td>9</td>
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<td>4</td>
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**Analysis Method:**

Right-Turn on Red Volume [veh/h]

**Analysis Period:**

Total 15-Minute Volume [veh/h]

**Other Volume [veh/h]:**

Right-Turn on Red Volume [veh/h]

**Total Hourly Volume [veh/h]:**

106, 509, 57, 19

**Peak Hour Factor:**

0.8940

**Other Adjustment Factor:**

1.0000

**Total Analysis Volume [veh/h]:**

119, 569, 64, 21

**Presence of On-Street Parking:**

No

**On-Street Parking Maneuver Rate [fh]:**

0

**Local Bus Stopping Rate [fh]:**

0

**Volumes**

<table>
<thead>
<tr>
<th>Name</th>
<th>Lexington Pkwy</th>
<th>Lexington Pkwy</th>
<th>Como Ave</th>
<th>Horton Ave</th>
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<td>Base Volume Input [veh/h]</td>
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<td>494</td>
<td>104</td>
<td>51</td>
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<td>1.05</td>
<td>1.05</td>
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<td>Site-Generated Trips [veh/h]</td>
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<td>Diverted Trips [veh/h]</td>
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<td>Pass-by Trips [veh/h]</td>
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<td>Other Volume [veh/h]</td>
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<tr>
<td>Total Hourly Volume [veh/h]</td>
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<td>509</td>
<td>57</td>
<td>19</td>
</tr>
<tr>
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<td>1.0000</td>
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<tr>
<td>Total 15-Minute Volume [veh/h]</td>
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<td>Total Analysis Volume [veh/h]</td>
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<td>569</td>
<td>64</td>
<td>21</td>
</tr>
<tr>
<td>Presence of On-Street Parking</td>
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<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Local Bus Stopping Rate [fh]</td>
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<td>0</td>
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<td>v_do, Outbound Pedestrian Volume crossing [ped/h]</td>
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<td>6</td>
<td>9</td>
<td>3</td>
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<td>v_di, Inbound Pedestrian Volume crossing [ped/h]</td>
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<td>3</td>
<td>4</td>
<td>6</td>
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<tr>
<td>v_co, Outbound Pedestrian Volume crossing [ped/h]</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>v_ci, Inbound Pedestrian Volume crossing [ped/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>v_ab, Corner Pedestrian Volume [ped/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bicycle Volume [bicycles/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</table>
### 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

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<th>Signal Type</th>
<th>ProtPer</th>
<th>Permiss</th>
<th>ProtPer</th>
<th>Permiss</th>
<th>ProtPer</th>
<th>Permiss</th>
<th>ProtPer</th>
<th>Permiss</th>
<th>ProtPer</th>
<th>Permiss</th>
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<td>6</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>4</td>
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</tbody>
</table>

#### 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 | 15 | 0 | 1.5 | 15 | 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 | 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 | No |
| Maximum Recall | No | No | No | No | No | No | No |
| Pedestrian Recall | No | Yes | No | Yes | No | No | No |
| Detector Location [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Detector Length [ft] | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| I, Upstream Filtering Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

### Exclusive Pedestrian Phase

| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |
## Lane Group Calculations

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<thead>
<tr>
<th>Lane Group</th>
<th>L</th>
<th>C</th>
<th>R</th>
<th>L</th>
<th>C</th>
<th>C</th>
<th>R</th>
<th>C</th>
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<tr>
<td>C, Cycle Length [s]</td>
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<td>80</td>
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<td>80</td>
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<td>80</td>
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<tr>
<td>L, Total Lost Time per Cycle [s]</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>9.00</td>
<td>9.00</td>
<td>5.00</td>
<td>9.00</td>
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<td>L1_p, Permitted Start-Up Lost Time [s]</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2.00</td>
<td>2.00</td>
<td>0.00</td>
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<tr>
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<td>3.00</td>
<td>3.00</td>
<td>0.00</td>
<td>3.00</td>
<td>7.00</td>
<td>7.00</td>
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<td>g / C, Green / Cycle</td>
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<td>0.47</td>
<td>0.47</td>
<td>0.59</td>
<td>0.45</td>
<td>0.24</td>
<td>0.24</td>
<td>0.24</td>
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<tr>
<td>(v / s)_i Volume / Saturation Flow Rate</td>
<td>0.11</td>
<td>0.31</td>
<td>0.04</td>
<td>0.06</td>
<td>0.22</td>
<td>0.16</td>
<td>0.08</td>
<td>0.26</td>
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<td>s, saturation flow rate [veh/h]</td>
<td>1101</td>
<td>1855</td>
<td>1577</td>
<td>987</td>
<td>1848</td>
<td>1704</td>
<td>1472</td>
<td>882</td>
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<td>c, Capacity [veh/h]</td>
<td>633</td>
<td>867</td>
<td>737</td>
<td>515</td>
<td>832</td>
<td>453</td>
<td>350</td>
<td>266</td>
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<td>d1, Uniform Delay [s]</td>
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<td>k, delay calibration</td>
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<td>0.19</td>
<td>0.19</td>
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<tr>
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<td>1.00</td>
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<td>1.00</td>
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<tr>
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<td>Rp, platoon ratio</td>
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<td>1.00</td>
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<td>PF, progression factor</td>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

## 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 |

<table>
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<tr>
<th>Lane Group LOS</th>
<th>A</th>
<th>C</th>
<th>B</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>C</th>
<th>D</th>
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<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>50th-Percentile Queue Length [veh/ln]</td>
<td>0.83</td>
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<td>0.64</td>
<td>0.45</td>
<td>5.22</td>
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<td>12.98</td>
<td>1.16</td>
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<td>8.96</td>
<td>8.36</td>
<td>3.54</td>
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<td>95th-Percentile Queue Length [ft/ln]</td>
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<td>28.95</td>
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<td>224.02</td>
<td>208.98</td>
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</table>
## Movement, Approach, & Intersection Results

<table>
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<th>d_M, Delay for Movement [s/veh]</th>
<th>8.57</th>
<th>20.25</th>
<th>12.07</th>
<th>9.94</th>
<th>17.44</th>
<th>17.44</th>
<th>29.61</th>
<th>29.61</th>
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<th>44.09</th>
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<td>A</td>
<td>C</td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>B</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>D</td>
<td>D</td>
<td>D</td>
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<td>17.44</td>
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<td>29.61</td>
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<td>44.09</td>
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<td>Approach LOS</td>
<td>B</td>
<td>B</td>
<td>C</td>
<td>D</td>
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## Other Modes

<table>
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<th>g_Walk.mi, Effective Walk Time [s]</th>
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<th>6.0</th>
<th>11.0</th>
<th>11.0</th>
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<tbody>
<tr>
<td></td>
<td>M_corner, Corner Circulation Area [ft²/ped]</td>
<td>1068.57</td>
<td>1533.98</td>
<td>1052.11</td>
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<td></td>
<td>M_CW, Crosswalk Circulation Area [ft²/ped]</td>
<td>362.94</td>
<td>700.72</td>
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<td></td>
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<td>34.23</td>
<td>29.76</td>
<td>29.76</td>
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<tr>
<td></td>
<td>I_p, Ped.int, Pedestrian LOS Score for Intersection</td>
<td>2.634</td>
<td>2.332</td>
<td>2.288</td>
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<tr>
<td></td>
<td>Crosswalk LOS</td>
<td>B</td>
<td>B</td>
<td>B</td>
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<tr>
<td></td>
<td>s_b, Saturation Flow Rate of the bicycle lane</td>
<td>2000</td>
<td>2000</td>
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<tr>
<td></td>
<td>c_b, Capacity of the bicycle lane [bicycles/h]</td>
<td>775</td>
<td>775</td>
<td>675</td>
<td>675</td>
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<tr>
<td></td>
<td>d_b, Bicycle Delay [s]</td>
<td>15.01</td>
<td>15.01</td>
<td>17.56</td>
<td>17.56</td>
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<td>I_b, int, Bicycle LOS Score for Intersection</td>
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<td>3.391</td>
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<td>2.647</td>
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<td>Bicycle LOS</td>
<td>D</td>
<td>C</td>
<td>C</td>
<td>B</td>
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</table>

## Sequence

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Ring 1</th>
<th>Ring 2</th>
<th>Ring 3</th>
<th>Ring 4</th>
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<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>-</td>
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<tr>
<td></td>
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<td>6</td>
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</tr>
</tbody>
</table>

---

TCGIS

Scenario 8: 8 School PM 2023 with Alts
Traffic Impact Study

TCGIS
**Intersection Level Of Service Report**

**Intersection 2: Horton Ave & Van Slyke Ave**

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

### Interseciton Setup

- **Crosswalk:** Yes
- **Grade [%]:** 0.00
- **Pocket Length [ft]:** 0
- **No. of Lanes in Pocket:** 12.00
- **Lane Width [ft]:**
  - Right: 12.00
  - Thru: 12.00
  - Left: 12.00
- **Turning Movement:**
  - Left: 12.00
  - Thru: 12.00
  - Right: 12.00

### Volumes

<table>
<thead>
<tr>
<th>Name</th>
<th>Van Slyke Ave</th>
<th>Churchill St</th>
<th>Horton Ave</th>
<th>Horton Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Volume Input [veh/h]</td>
<td>53</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Base Volume Adjustment Factor</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
</tr>
<tr>
<td>Heavy Vehicles Percentage [%]</td>
<td>13.00</td>
<td>3.00</td>
<td>3.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Growth Rate</td>
<td>1.09</td>
<td>1.03</td>
<td>1.09</td>
<td>1.00</td>
</tr>
<tr>
<td>In-Process Volume [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Site-Generated Trips [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Diverted Trips [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pass-by Trips [veh/h]</td>
<td>0</td>
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<tr>
<td>Existing Site Adjustment Volume [veh/h]</td>
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<td>Other Volume [veh/h]</td>
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<tr>
<td>Total Hourly Volume [veh/h]</td>
<td>78</td>
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<tr>
<td>Peak Hour Factor</td>
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<td>0.9130</td>
<td>0.9130</td>
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<tr>
<td>Other Adjustment Factor</td>
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<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
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<tr>
<td>Total 15-Minute Volume [veh/h]</td>
<td>21</td>
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<tr>
<td>Total Analysis Volume [veh/h]</td>
<td>85</td>
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<td>1</td>
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<tr>
<td>Pedestrian Volume [ped/h]</td>
<td>2</td>
<td>3</td>
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## Intersection Settings

<table>
<thead>
<tr>
<th>Priority Scheme</th>
<th>Stop</th>
<th>Stop</th>
<th>Free</th>
<th>Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flared Lane</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Area [veh]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Two-Stage Gap Acceptance</td>
<td>No</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Number of Storage Spaces in Median</td>
<td>0</td>
<td>0</td>
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</tbody>
</table>

## Movement, Approach, & Intersection Results

<table>
<thead>
<tr>
<th>V/C, Movement V/C Ratio</th>
<th>Stop</th>
<th>Stop</th>
<th>Free</th>
<th>Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>d_M, Delay for Movement [s/veh]</td>
<td>16.00</td>
<td>15.74</td>
<td>12.66</td>
<td>7.56</td>
</tr>
<tr>
<td>Movement LOS</td>
<td>C</td>
<td>C</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>95th-Percentile Queue Length [veh/ln]</td>
<td>0.78</td>
<td>0.78</td>
<td>0.78</td>
<td>0.01</td>
</tr>
<tr>
<td>95th-Percentile Queue Length [ft/ln]</td>
<td>19.52</td>
<td>19.52</td>
<td>19.52</td>
<td>0.32</td>
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<td>d_A, Approach Delay [s/veh]</td>
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<td>0.12</td>
<td>0.50</td>
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<tr>
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<td>C</td>
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<td>A</td>
<td>A</td>
</tr>
<tr>
<td>d_I, Intersection Delay [s/veh]</td>
<td>2.23</td>
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</tr>
<tr>
<td>Intersection LOS</td>
<td>C</td>
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</tr>
</tbody>
</table>
### Intersection Level Of Service Report

**Intersection 3: Van Slyke Ave & Churchill St**

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

### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Churchill St</th>
<th>Churchill St</th>
<th>Van Slyke Ave</th>
<th>Van Slyke Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turning Movement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
<td>Left</td>
<td>Thru</td>
</tr>
<tr>
<td>Lane Width [ft]</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>No. of Lanes in Pocket</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pocket Length [ft]</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Speed [mph]</td>
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<td>30.00</td>
<td>30.00</td>
<td>30.00</td>
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<td>Grade [%]</td>
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<td>0.00</td>
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<tr>
<td>Crosswalk</td>
<td>Yes</td>
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<td>Yes</td>
<td>No</td>
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### Volumes

<table>
<thead>
<tr>
<th>Name</th>
<th>Churchill St</th>
<th>Churchill St</th>
<th>Van Slyke Ave</th>
<th>Van Slyke Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Volume Input [veh/h]</td>
<td>14</td>
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<tr>
<td>Base Volume Adjustment Factor</td>
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<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
</tr>
<tr>
<td>Heavy Vehicles Percentage [%]</td>
<td>3.00</td>
<td>15.00</td>
<td>3.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Growth Rate</td>
<td>1.09</td>
<td>1.03</td>
<td>1.03</td>
<td>1.00</td>
</tr>
<tr>
<td>In-Process Volume [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Site-Generated Trips [veh/h]</td>
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</tr>
<tr>
<td>Diverted Trips [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pass-by Trips [veh/h]</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Existing Site Adjustment Volume [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Other Volume [veh/h]</td>
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<td>0</td>
</tr>
<tr>
<td>Total Hourly Volume [veh/h]</td>
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<td>4</td>
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<tr>
<td>Peak Hour Factor</td>
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<tr>
<td>Total 15-Minute Volume [veh/h]</td>
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<td>Total Analysis Volume [veh/h]</td>
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<tr>
<td>Pedestrian Volume [ped/h]</td>
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<td>1</td>
<td>3</td>
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</table>
### Intersection Settings

<table>
<thead>
<tr>
<th>Priority Scheme</th>
<th>Stop</th>
<th>Stop</th>
<th>Free</th>
<th>Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flared Lane</td>
<td></td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Storage Area [veh]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two-Stage Gap Acceptance</td>
<td></td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Number of Storage Spaces in Median</td>
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### Movement, Approach, & Intersection Results

<table>
<thead>
<tr>
<th>V/C, Movement V/C Ratio</th>
<th>0.03</th>
<th>0.01</th>
<th>0.01</th>
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<th>0.00</th>
<th>0.00</th>
<th>0.00</th>
<th>0.00</th>
<th>0.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>d_M, Delay for Movement [s/veh]</td>
<td>10.16</td>
<td>10.77</td>
<td>9.19</td>
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<td>Movement LOS</td>
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<td>B</td>
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<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>95th-Percentile Queue Length [veh/ln]</td>
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<td>0.13</td>
<td>0.13</td>
<td>0.00</td>
<td>0.00</td>
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<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.00</td>
</tr>
<tr>
<td>95th-Percentile Queue Length [ft/ln]</td>
<td>3.16</td>
<td>3.16</td>
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<td>0.17</td>
<td>0.17</td>
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<td>d_A, Approach Delay [s/veh]</td>
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<tr>
<td>Approach LOS</td>
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<td></td>
<td>A</td>
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<td>d_I, Intersection Delay [s/veh]</td>
<td></td>
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</tr>
</tbody>
</table>
### Intersection Level Of Service Report

**Intersection 4: Van Slyke Ave & Como Ave**

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

#### Interception Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Como Ave</th>
<th>Driveway</th>
<th>Van Slyke Ave</th>
<th>Van Slyke Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach</td>
<td>Northbound</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
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</table>

<table>
<thead>
<tr>
<th>Turning Movement</th>
<th>Left</th>
<th>Thru</th>
<th>Right</th>
<th>Left</th>
<th>Thru</th>
<th>Right</th>
<th>Left</th>
<th>Thru</th>
<th>Right</th>
<th>Left</th>
<th>Thru</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lane Width [ft]</td>
<td>12.00</td>
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<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
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<td>12.00</td>
<td>12.00</td>
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<tr>
<td>No. of Lanes in Pocket</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pocket Length [ft]</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
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<td>100.00</td>
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</tr>
<tr>
<td>Speed [mph]</td>
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</tr>
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<tr>
<td>Crosswalk</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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#### Volumes

<table>
<thead>
<tr>
<th>Name</th>
<th>Como Ave</th>
<th>Driveway</th>
<th>Van Slyke Ave</th>
<th>Van Slyke Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Volume Input [veh/h]</td>
<td>11</td>
<td>1</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>Base Volume Adjustment Factor</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
</tr>
<tr>
<td>Heavy Vehicles Percentage [%]</td>
<td>4.00</td>
<td>3.00</td>
<td>5.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Growth Rate</td>
<td>1.14</td>
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<td>1.14</td>
<td>1.03</td>
</tr>
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<td>In-Process Volume [veh/h]</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Site-Generated Trips [veh/h]</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
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<td>Pass-by Trips [veh/h]</td>
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TCGIS

Scenario 8: 8 School PM 2023 with Alts
Traffic Impact Study  E102  TCGIS
### Intersection Settings

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<td>Storage Area [veh]</td>
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### Movement, Approach, & Intersection Results

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<td>9.33</td>
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<td>B</td>
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### Intersection Level Of Service Report

**Intersection 5: Lexington Pkwy & Wynne Ave/Como Ave**

**Control Type:** Signalized  
**Analysis Method:** HCM 6th Edition  
**Analysis Period:** 15 minutes  
**Delay (sec / veh):** 12.4  
**Level Of Service:** B  
**Volume to Capacity (v/c):** 0.573

#### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Lexington Pkwy</th>
<th>Lexington Pkwy</th>
<th>Wynne Ave</th>
<th>Como Ave</th>
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<tbody>
<tr>
<td>Approach</td>
<td>Northbound</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
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<tr>
<td>Lane Configuration</td>
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<td></td>
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<tr>
<td>Turning Movement</td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
<td>Left</td>
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<td>Lane Width [ft]</td>
<td>12.00</td>
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<td>No. of Lanes in Pocket</td>
<td>1</td>
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<td>Pocket Length [ft]</td>
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<td>Speed [mph]</td>
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<td>Curb Present</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Crosswalk</td>
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#### Volumes

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<th>Lexington Pkwy</th>
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<th>Como Ave</th>
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<tbody>
<tr>
<td>Base Volume Input [veh/h]</td>
<td>43</td>
<td>637</td>
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<td>Heavy Vehicles Percentage [%]</td>
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<td>Growth Rate</td>
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<td>In-Process Volume [veh/h]</td>
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<tr>
<td>Site-Generated Trips [veh/h]</td>
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<tr>
<td>Diverted Trips [veh/h]</td>
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<tr>
<td>Pass-by Trips [veh/h]</td>
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<td>0</td>
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<tr>
<td>Existing Site Adjustment Volume [veh/h]</td>
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<tr>
<td>Other Volume [veh/h]</td>
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<td>Right-Turn on Red Volume [veh/h]</td>
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<td>Total 15-Minute Volume [veh/h]</td>
<td>12</td>
<td>182</td>
<td>13</td>
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<td>Total Analysis Volume [veh/h]</td>
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<td>728</td>
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<td>Presence of On-Street Parking</td>
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<td>On-Street Parking Maneuver Rate [veh/h]</td>
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<td>Local Bus Stopping Rate [veh/h]</td>
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TCGIS

Scenario 8: 8 School PM 2023 with Alts

Traffic Impact Study

E104

TCGIS
### Intersection Settings

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<th></th>
<th>Located in CBD</th>
<th>Signal Coordination Group</th>
<th>Cycle Length [s]</th>
<th>Coordination Type</th>
<th>Actuation Type</th>
<th>Offset [s]</th>
<th>Offset Reference</th>
<th>Permissive Mode</th>
<th>Lost time [s]</th>
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<td><strong>Located in CBD</strong></td>
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<td>-</td>
<td>Time of Day Pattern Coordinated</td>
<td>Fully actuated</td>
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<td>LeadGreen</td>
<td>SingleBand</td>
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### Phasing & Timing

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<th>Permiss</th>
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<tr>
<td>Lead / Lag</td>
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<td>-</td>
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<td>-</td>
<td>-</td>
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<td>Minimum Green [s]</td>
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<td>I2, Clearance Lost Time [s]</td>
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<td>3.0</td>
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<td>No</td>
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<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<td>Maximum Recall</td>
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<td>No</td>
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### Exclusive Pedestrian Phase

| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s]     | 0 |
| Pedestrian Clearance [s] | 0 |
### Lane Group Calculations

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<th>Lane Group</th>
<th>L</th>
<th>C</th>
<th>L</th>
<th>C</th>
<th>C</th>
<th>R</th>
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<td>C, Cycle Length [s]</td>
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<td>L, Total Lost Time per Cycle [s]</td>
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<td>l1_p, Permitted Start-Up Lost Time [s]</td>
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<td>0.04</td>
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<td>s, saturation flow rate [veh/h]</td>
<td>961</td>
<td>1818</td>
<td>686</td>
<td>1835</td>
<td>1665</td>
<td>1533</td>
<td>950</td>
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<td>c, Capacity [veh/h]</td>
<td>719</td>
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<td>374</td>
<td>1172</td>
<td>198</td>
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<td>3.65</td>
<td>4.28</td>
<td>14.23</td>
<td>7.45</td>
<td>35.07</td>
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<td>k, delay calibration</td>
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<td>l, Upstream Filtering Factor</td>
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### Lane Group Results

<table>
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<tr>
<td>X, volume / capacity</td>
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<td>d, Delay for Lane Group [s/veh]</td>
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<table>
<thead>
<tr>
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<table>
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<th>Critical Lane Group</th>
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<tbody>
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<td>No</td>
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| 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 |
### Movement, Approach, & Intersection Results

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<tr>
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<tr>
<td>A</td>
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<td>5.87</td>
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<td>B</td>
<td>8.79</td>
<td>36.59</td>
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<td>D</td>
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<td>51.98</td>
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### Other Modes

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

```
Ring 1  1  2  4  6  8 10 12 14 16
Ring 2  1  2  4  6  8 10 12 14 16
Ring 3  1  2  4  6  8 10 12 14 16
Ring 4  1  2  4  6  8 10 12 14 16
```

---

TCGIS

Scenario 8: 8 School PM 2023 with Alts

Traffic Impact Study

E107

TCGIS
## Intersection Level Of Service Report

### Intersection 6: Churchill St & Como Ave

| Control Type: | Two-way stop | Delay (sec / veh): | 11.0 |
| 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 |
| Lane Width [ft] | 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 |
| Pocket Length [ft] | 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 |
| Heavy Vehicles Percentage [%] | 3.00 | 3.00 | 3.00 | 3.00 | 15.00 | 10.00 | 3.00 | 3.00 | 3.00 |
| Growth Rate | 1.09 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.09 | 1.14 | 1.09 |
| In-Process Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Site-Generated Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diverted Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pass-by Trips [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Existing Site Adjustment Volume [veh/h] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -20 | 0 |
| Other Volume [veh/h] | 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 |
| Other Adjustment Factor | 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 |
### Intersection Settings

<table>
<thead>
<tr>
<th>Priority Scheme</th>
<th>Stop</th>
<th>Stop</th>
<th>Free</th>
<th>Free</th>
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</thead>
<tbody>
<tr>
<td>Flared Lane</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Area [veh]</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Two-Stage Gap Acceptance</td>
<td>No</td>
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<tr>
<td>Number of Storage Spaces in Median</td>
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### Movement, Approach, & Intersection Results

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<th>0.00</th>
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<th>0.00</th>
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<th>0.01</th>
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<tbody>
<tr>
<td>d_M, Delay for Movement [s/veh]</td>
<td>10.51</td>
<td>10.92</td>
<td>8.90</td>
<td>10.53</td>
<td>11.02</td>
<td>9.35</td>
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<td>A</td>
<td>B</td>
<td>B</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
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<td>A</td>
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<td>A</td>
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<tr>
<td>95th-Percentile Queue Length [veh/ln]</td>
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<td>0.05</td>
<td>0.05</td>
<td>0.11</td>
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Scenario 8: 8 School PM 2023 with Alts
Traffic Impact Study

TCGIS
E109
TGIS
### Intersection Setup

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<thead>
<tr>
<th>Name</th>
<th>West Parking Lot</th>
<th>Como Ave</th>
<th>Como Ave</th>
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<tbody>
<tr>
<td>Approach</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
</tr>
<tr>
<td>Lane Configuration</td>
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<td></td>
</tr>
<tr>
<td>Turning Movement</td>
<td>Left</td>
<td>Right</td>
<td>Left</td>
</tr>
<tr>
<td>Lane Width [ft]</td>
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<td>12.00</td>
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<tr>
<td>No. of Lanes in Pocket</td>
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<td>0</td>
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<tr>
<td>Pocket Length [ft]</td>
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<td>100.00</td>
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<td>Speed [mph]</td>
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<tr>
<td>Grade [%]</td>
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### Volumes

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<th>Como Ave</th>
<th>Como Ave</th>
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<tbody>
<tr>
<td>Base Volume Input [veh/h]</td>
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<td>Heavy Vehicles Percentage [%]</td>
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<td>In-Process Volume [veh/h]</td>
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<tr>
<td>Site-Generated Trips [veh/h]</td>
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<tr>
<td>Diverted Trips [veh/h]</td>
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<td>0</td>
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<tr>
<td>Pass-by Trips [veh/h]</td>
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<td>Total 15-Minute Volume [veh/h]</td>
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<td>Total Analysis Volume [veh/h]</td>
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### Intersection Settings

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<th>Free</th>
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<tbody>
<tr>
<td>Flared Lane</td>
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</tr>
<tr>
<td>Storage Area [veh]</td>
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<td>0</td>
</tr>
<tr>
<td>Two-Stage Gap Acceptance</td>
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<tr>
<td>Number of Storage Spaces in Median</td>
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### Movement, Approach, & Intersection Results

<table>
<thead>
<tr>
<th>V/C, Movement V/C Ratio</th>
<th>Stop</th>
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<th>Free</th>
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<tbody>
<tr>
<td>d_M, Delay for Movement [s/veh]</td>
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<td>9.51</td>
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<td>Movement LOS</td>
<td>B</td>
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<td>A</td>
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<tr>
<td>95th-Percentile Queue Length [veh/ln]</td>
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<td>0.11</td>
<td>0.04</td>
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<td>95th-Percentile Queue Length [ft/ln]</td>
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<td>2.82</td>
<td>0.94</td>
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<td>d_A, Approach Delay [s/veh]</td>
<td>9.67</td>
<td>1.76</td>
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<td>Approach LOS</td>
<td>A</td>
<td>A</td>
<td>A</td>
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<td>d_I, Intersection Delay [s/veh]</td>
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<tr>
<td>Intersection LOS</td>
<td>B</td>
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</tr>
</tbody>
</table>
## Intersection Level Of Service Report
### Intersection 8: Como Ave & Oxford St

| Control Type: | Two-way stop | Delay (sec / veh): | 11.6 |
| Analysis Period: | 15 minutes | Volume to Capacity (v/c): | 0.028 |

### Delay (sec / veh):
- 11.6

### Analysis Period:
- HCM 6th Edition

### Analysis Method:
- Two-way stop

### Control Type:
- Intersection 8: Como Ave & Oxford St

#### Crosswalk
- Yes

#### Grade [%]
- 30.00

#### Speed [mph]
- 100.00

#### Volume to Capacity (v/c):
- 0.028

#### Delay (sec / veh):
- 11.6

### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Oxford St</th>
<th>Como Ave</th>
<th>Como Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach</td>
<td>Northbound</td>
<td>Eastbound</td>
<td>Westbound</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lane Configuration</th>
<th>Left</th>
<th>Right</th>
<th>Thru</th>
<th>Right</th>
<th>Left</th>
<th>Thru</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turning Movement</td>
<td></td>
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#### Volumes

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### Movement, Approach, & Intersection Results

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Appendix E - Capacity Analysis Backup

Lane Configuration and Traffic Control

TCGIS

Scenario 8: 8 School PM 2023 with Alts

Traffic Impact Study
### Intersection Analysis Summary

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<td>1</td>
<td>Lexington Pkwy &amp; Como Ave/Horton Ave</td>
<td>Signalized</td>
<td>HCM 6th Edition</td>
<td>WB Thru</td>
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<td>Two-way stop</td>
<td>HCM 6th Edition</td>
<td>NB Left</td>
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<td>Van Slyke Ave &amp; Como Ave</td>
<td>Two-way stop</td>
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<td>NB Thru</td>
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<td>5</td>
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<td>6</td>
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<td>Two-way stop</td>
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<td>NB Thru</td>
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<td>7</td>
<td>Como Ave &amp; West Parking Lot</td>
<td>Two-way stop</td>
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</table>

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.
Appendix E - Capacity Analysis Backup

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

Control Type: Signalized
Analysis Method: HCM 6th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 26.0
Level Of Service: C
Volume to Capacity (v/c): 0.669

Vehicles

<table>
<thead>
<tr>
<th>Name</th>
<th>Lexington Pkwy</th>
<th>Lexington Pkwy</th>
<th>Como Ave</th>
<th>Horton Ave</th>
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<tr>
<td>Name</td>
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<td>37 377 15</td>
<td>33 278 140</td>
<td>32 126 27</td>
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<td>Heavy Vehicles Percentage [%]</td>
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<td>3.00 3.00 3.00</td>
<td>3.00 8.00 4.00</td>
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<td>1.03 1.03 1.03</td>
<td>1.03 1.03 1.03</td>
<td>1.03 1.03 1.03</td>
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<tr>
<td>In-Process Volume [veh/h]</td>
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<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
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<tr>
<td>Site-Generated Trips [veh/h]</td>
<td>0 0 0</td>
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<td>0 0 0</td>
<td>0 0 0</td>
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<tr>
<td>Diverted Trips [veh/h]</td>
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<td>0 0 0</td>
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<tr>
<td>Other Volume [veh/h]</td>
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<td>Right-Turn on Red Trips [veh/h]</td>
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<td>1.0000 1.0000 1.0000</td>
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<td>Total 15-Minute Volume [veh/h]</td>
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TCGIS
Scenario 9: 9 PM Existing 2023 with Alts
Traffic Impact Study
E117
TCGIS
### 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

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<td>0</td>
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<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>L, Upstream Filtering Factor</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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</tbody>
</table>

### Exclusive Pedestrian Phase

| Pedestrian Signal Group | 0 |
| Pedestrian Walk [s] | 0 |
| Pedestrian Clearance [s] | 0 |
## Lane Group Calculations

<table>
<thead>
<tr>
<th>Lane Group</th>
<th>L</th>
<th>C</th>
<th>R</th>
<th>L</th>
<th>C</th>
<th>R</th>
<th>C</th>
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<tbody>
<tr>
<td>C, Cycle Length [s]</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
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<tr>
<td>L, Total Lost Time per Cycle [s]</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>9.00</td>
<td>9.00</td>
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<tr>
<td>I1_p, Permitted Start-Up Lost Time [s]</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<td>I2, Clearance Lost Time [s]</td>
<td>0.00</td>
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<tr>
<td>g, Effective Green Time [s]</td>
<td>47</td>
<td>38</td>
<td>38</td>
<td>47</td>
<td>19</td>
<td>19</td>
<td>19</td>
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<tr>
<td>g / C, Green / Cycle</td>
<td>0.58</td>
<td>0.47</td>
<td>0.47</td>
<td>0.58</td>
<td>0.44</td>
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<tr>
<td>(v / s)_i Volume / Saturation Flow Rate</td>
<td>0.12</td>
<td>0.39</td>
<td>0.03</td>
<td>0.05</td>
<td>0.25</td>
<td>0.22</td>
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<tr>
<td>s, saturation flow rate [veh/h]</td>
<td>1065</td>
<td>1855</td>
<td>1577</td>
<td>882</td>
<td>1846</td>
<td>1604</td>
<td>1495</td>
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<tr>
<td>c, Capacity [veh/h]</td>
<td>583</td>
<td>872</td>
<td>741</td>
<td>401</td>
<td>815</td>
<td>441</td>
<td>365</td>
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<td>d1, Uniform Delay [s]</td>
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<td>18.32</td>
<td>11.59</td>
<td>12.05</td>
<td>16.58</td>
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<td>k, delay calibration</td>
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<td>0.50</td>
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<td>0.50</td>
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<td>d2, Incremental Delay [s]</td>
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<td>8.62</td>
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<td>d3, Initial Queue Delay [s]</td>
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<td>Rp, platoon ratio</td>
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<td>1.00</td>
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<tr>
<td>PF, progression factor</td>
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<td>1.00</td>
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## Lane Group Results

<table>
<thead>
<tr>
<th>Scenario 9: 9 PM Existing 2023 with Alts</th>
<th>L</th>
<th>C</th>
<th>R</th>
<th>L</th>
<th>C</th>
<th>R</th>
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</thead>
<tbody>
<tr>
<td>X, volume / capacity</td>
<td>0.23</td>
<td>0.82</td>
<td>0.06</td>
<td>0.11</td>
<td>0.56</td>
<td>0.80</td>
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<tr>
<td>d, Delay for Lane Group [s/veh]</td>
<td>9.48</td>
<td>26.94</td>
<td>11.76</td>
<td>12.60</td>
<td>19.37</td>
<td>34.41</td>
</tr>
<tr>
<td>Lane Group LOS</td>
<td>A</td>
<td>C</td>
<td>B</td>
<td>B</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Critical Lane Group</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>50th-Percentile Queue Length [veh/ln]</td>
<td>0.95</td>
<td>12.45</td>
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<td>0.35</td>
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<td>6.90</td>
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<td>50th-Percentile Queue Length [ft/ln]</td>
<td>23.83</td>
<td>311.29</td>
<td>11.84</td>
<td>8.76</td>
<td>160.39</td>
<td>172.49</td>
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<td>1.72</td>
<td>18.24</td>
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<tr>
<td>95th-Percentile Queue Length [ft/ln]</td>
<td>42.90</td>
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<td>264.24</td>
<td>280.18</td>
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## Movement, Approach, & Intersection Results

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<tbody>
<tr>
<td></td>
<td>9.48</td>
<td>A</td>
<td>C</td>
<td>23.55</td>
<td>C</td>
<td>26.04</td>
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<tr>
<td></td>
<td>26.94</td>
<td>B</td>
<td>B</td>
<td>18.78</td>
<td>B</td>
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<tr>
<td></td>
<td>11.76</td>
<td>B</td>
<td>B</td>
<td>32.19</td>
<td>B</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>12.60</td>
<td>C</td>
<td>C</td>
<td>41.35</td>
<td>D</td>
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<tr>
<td></td>
<td>19.37</td>
<td>C</td>
<td>C</td>
<td>41.35</td>
<td>D</td>
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<td></td>
<td>19.41</td>
<td>D</td>
<td>D</td>
<td>41.35</td>
<td>D</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>34.41</td>
<td>D</td>
<td>D</td>
<td>41.35</td>
<td>D</td>
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</tr>
<tr>
<td></td>
<td>25.73</td>
<td>D</td>
<td>D</td>
<td>41.35</td>
<td>D</td>
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<tr>
<td></td>
<td>41.35</td>
<td>D</td>
<td>D</td>
<td>41.35</td>
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### Other Modes

<table>
<thead>
<tr>
<th></th>
<th>g_Walk.mi, Effective Walk Time [s]</th>
<th>M_corner, Corner Circulation Area [ft²/ped]</th>
<th>M_CW, Crosswalk Circulation Area [ft²/ped]</th>
<th>d_p, Pedestrian Delay [s]</th>
<th>I_p.int, Pedestrian LOS Score for Intersection</th>
<th>Crosswalk LOS</th>
<th>s_b, Saturation Flow Rate of the bicycle lane</th>
<th>c_b, Capacity of the bicycle lane [bicycles/h]</th>
<th>d_b, Bicycle Delay [s]</th>
<th>I_b.int, Bicycle LOS Score for Intersection</th>
<th>Bicycle LOS</th>
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<tr>
<td></td>
<td>6.0</td>
<td>2315.23</td>
<td>852.74</td>
<td>34.23</td>
<td>2.627</td>
<td>B</td>
<td>2000</td>
<td>775</td>
<td>15.01</td>
<td>4.260</td>
<td>E</td>
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<td>2.416</td>
<td>C</td>
<td>2000</td>
<td>775</td>
<td>15.01</td>
<td>3.466</td>
<td>C</td>
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<td>2000</td>
<td>675</td>
<td>17.56</td>
<td>3.083</td>
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<td>0.00</td>
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<td>2.067</td>
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### Sequence

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<th>Ring 1</th>
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<th>Ring 3</th>
<th>Ring 4</th>
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<tr>
<td>1</td>
<td>4</td>
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<td>-</td>
</tr>
<tr>
<td>5</td>
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</tr>
<tr>
<td>-</td>
<td>-</td>
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</tr>
</tbody>
</table>

### Diagram

![Traffic Flow Diagram](image)
### Intersection Level Of Service Report

**Intersection 2: Horton Ave & Van Slyke Ave**

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

#### Delay (sec / veh): 15 minutes

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

#### Analysis Period

**Horton Ave**

<table>
<thead>
<tr>
<th>Name</th>
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<th>Churchill St</th>
<th>Horton Ave</th>
<th>Horton Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Approach</strong></td>
<td><strong>Northbound</strong></td>
<td><strong>Southbound</strong></td>
<td><strong>Eastbound</strong></td>
<td><strong>Westbound</strong></td>
</tr>
<tr>
<td><strong>Lane Configuration</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Turning Movement</strong></td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
<td>Left</td>
</tr>
<tr>
<td><strong>Lane Width [ft]</strong></td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td><strong>No. of Lanes in Pocket</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Pocket Length [ft]</strong></td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
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<tr>
<td><strong>Speed [mph]</strong></td>
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<td>30.00</td>
<td>30.00</td>
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<tr>
<td><strong>Grade [%]</strong></td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<tr>
<td><strong>Crosswalk</strong></td>
<td>Yes</td>
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<td>Yes</td>
<td>Yes</td>
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</table>

#### Volumes

<table>
<thead>
<tr>
<th>Name</th>
<th>Van Slyke Ave</th>
<th>Churchill St</th>
<th>Horton Ave</th>
<th>Horton Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base Volume Input [veh/h]</strong></td>
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<td>1</td>
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<td><strong>Base Volume Adjustment Factor</strong></td>
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<td>1.0000</td>
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<tr>
<td><strong>Heavy Vehicles Percentage [%]</strong></td>
<td>13.00</td>
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<td><strong>Growth Rate</strong></td>
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<td><strong>In-Process Volume [veh/h]</strong></td>
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<td><strong>Site-Generated Trips [veh/h]</strong></td>
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<td><strong>Diverted Trips [veh/h]</strong></td>
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<td><strong>Pass-by Trips [veh/h]</strong></td>
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<td><strong>Existing Site Adjustment Volume [veh/h]</strong></td>
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<td><strong>Other Volume [veh/h]</strong></td>
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<tr>
<td><strong>Total Hourly Volume [veh/h]</strong></td>
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<td>1</td>
<td>0</td>
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<tr>
<td><strong>Peak Hour Factor</strong></td>
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<td>0.9610</td>
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<td><strong>Other Adjustment Factor</strong></td>
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<td>1.0000</td>
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<td><strong>Total 15-Minute Volume [veh/h]</strong></td>
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<td><strong>Total Analysis Volume [veh/h]</strong></td>
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<td>1</td>
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<tr>
<td><strong>Pedestrian Volume [ped/h]</strong></td>
<td>2</td>
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<td>1</td>
<td>2</td>
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### Intersection Settings

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<th>Stop</th>
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<th>Free</th>
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<tr>
<td>Flared Lane</td>
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<td>Storage Area [veh]</td>
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<tr>
<td>Two-Stage Gap Acceptance</td>
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<tr>
<td>Number of Storage Spaces in Median</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
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</table>

### Movement, Approach, & Intersection Results

| V/C, Movement V/C Ratio                  | 0.08 | 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 |
| 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 |
| 95th-Percentile Queue Length [ft/ln]     | 7.23 | 7.23 | 7.23 | 0.00 | 0.00 | 0.00 | 0.22 | 0.22 | 0.22 |
| d_A, Approach Delay [s/veh]              | 14.70| 0.00 | 0.00 | 0.07 | 0.00 | 0.07 | 0.33 |      |      |
| Approach LOS                             | B    |      |      | A    |      |      |      |      |      |
| d_I, Intersection Delay [s/veh]           |      |      |      |      |      |      |      |      | 0.97 |
| Intersection LOS                          |      |      |      |      |      |      |      |      | B    |
### Intersection Level Of Service Report

**Intersection 3: Van Slyke Ave & Churchill St**

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

#### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Churchill St</th>
<th>Churchill St</th>
<th>Van Slyke Ave</th>
<th>Van Slyke Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach</td>
<td>Northeastbound</td>
<td>Southwestbound</td>
<td>Northwestbound</td>
<td>Southeastbound</td>
</tr>
<tr>
<td>Lane Configuration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turning Movement</td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
<td>Left</td>
</tr>
<tr>
<td>Pocket Length [ft]</td>
<td>100.00</td>
<td>100.00</td>
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#### Volumes

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<th>Churchill St</th>
<th>Van Slyke Ave</th>
<th>Van Slyke Ave</th>
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<tbody>
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<td>Base Volume Input [veh/h]</td>
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<td>4</td>
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<td>1.0000</td>
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<td>Heavy Vehicles Percentage [%]</td>
<td>3.00</td>
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<td>Growth Rate</td>
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<td>1.03</td>
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<td>In-Process Volume [veh/h]</td>
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</tr>
<tr>
<td>Site-Generated Trips [veh/h]</td>
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<td>0</td>
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<tr>
<td>Diverted Trips [veh/h]</td>
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<td>0</td>
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<tr>
<td>Pass-by Trips [veh/h]</td>
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<td>0</td>
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<tr>
<td>Existing Site Adjustment Volume [veh/h]</td>
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# Movement, Approach, & Intersection Results

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<td>0.00</td>
</tr>
<tr>
<td>Storage Area [veh]</td>
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<td>0.00</td>
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<td>Two-Stage Gap Acceptance</td>
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<table>
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<th>Free</th>
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<td>A</td>
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<td>0.92</td>
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</table>
### Intersection Level Of Service Report

**Intersection 4: Van Slyke Ave & Como Ave**

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

#### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Como Ave</th>
<th>Driveway</th>
<th>Van Slyke Ave</th>
<th>Van Slyke Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Approach</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lane Configuration</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Turning Movement</strong></td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
<td>Left</td>
</tr>
<tr>
<td><strong>Lane Width [ft]</strong></td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
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<tr>
<td><strong>No. of Lanes in Pocket</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td><strong>Pocket Length [ft]</strong></td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td><strong>Speed [mph]</strong></td>
<td>30.00</td>
<td>30.00</td>
<td>30.00</td>
<td>30.00</td>
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<tr>
<td><strong>Grade [%]</strong></td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<tr>
<td><strong>Crosswalk</strong></td>
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<td>Yes</td>
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<td>Yes</td>
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#### Volumes

<table>
<thead>
<tr>
<th>Name</th>
<th>Como Ave</th>
<th>Driveway</th>
<th>Van Slyke Ave</th>
<th>Van Slyke Ave</th>
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</thead>
<tbody>
<tr>
<td><strong>Base Volume Input [veh/h]</strong></td>
<td>8</td>
<td>1</td>
<td>23</td>
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<td><strong>Base Volume Adjustment Factor</strong></td>
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<tr>
<td><strong>Heavy Vehicles Percentage [%]</strong></td>
<td>4.00</td>
<td>3.00</td>
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<tr>
<td><strong>Growth Rate</strong></td>
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<td>1.03</td>
<td>1.05</td>
<td>1.03</td>
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<tr>
<td><strong>In-Process Volume [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Site-Generated Trips [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Diverted Trips [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Pass-by Trips [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td><strong>Existing Site Adjustment Volume [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td><strong>Total Hourly Volume [veh/h]</strong></td>
<td>8</td>
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<td>24</td>
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<td><strong>Peak Hour Factor</strong></td>
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<td><strong>Other Adjustment Factor</strong></td>
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<td>3</td>
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<td><strong>Total Analysis Volume [veh/h]</strong></td>
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### Intersection Settings

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<th>Priority Scheme</th>
<th>Stop</th>
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<th>Free</th>
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</thead>
<tbody>
<tr>
<td>Flared Lane</td>
<td>No</td>
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</tr>
<tr>
<td>Storage Area [veh]</td>
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<tr>
<td>Two-Stage Gap Acceptance</td>
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<td>No</td>
<td></td>
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<tr>
<td>Number of Storage Spaces in Median</td>
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### Movement, Approach, & Intersection Results

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<th>V/C, Movement V/C Ratio</th>
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<tr>
<td>d_M, Delay for Movement [s/veh]</td>
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<td>9.83</td>
<td>8.51</td>
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<td>A</td>
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<td>A</td>
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<td>A</td>
<td>A</td>
<td>A</td>
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<td>0.14</td>
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### Intersectio Level Of Service Report

**Intersection 5: Lexington Pkwy & Wynne Ave/Como Ave**

**Control Type:** Signalized  
**Analysis Method:** HCM 6th Edition  
**Analysis Period:** 15 minutes

<table>
<thead>
<tr>
<th>Name</th>
<th>Lexington Pkwy Northbound</th>
<th>Lexington Pkwy Southbound</th>
<th>Wynne Ave Eastbound</th>
<th>Como Ave Westbound</th>
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<tbody>
<tr>
<td>Lane Configuration</td>
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<tr>
<td>Turning Movement</td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
<td>Left</td>
</tr>
<tr>
<td>Lane Width [ft]</td>
<td>12.00</td>
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<td>Yes</td>
<td>Yes</td>
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<td>Crosswalk</td>
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<td>Yes</td>
<td>Yes</td>
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<td>Delay (sec / veh):</td>
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<tr>
<td>Site-Generated Trips [veh/h]</td>
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</tr>
<tr>
<td>Diverted Trips [veh/h]</td>
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</tr>
<tr>
<td>Pass-by Trips [veh/h]</td>
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<tr>
<td>Existing Site Adjustment Volume [veh/h]</td>
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<td>0</td>
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<td>Other Volume [veh/h]</td>
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<td>Right-Turn on Red Volume [veh/h]</td>
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<td>66</td>
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<tr>
<td>Peak Hour Factor</td>
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<td>0.9430</td>
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<tr>
<td>Total 15-Minute Volume [veh/h]</td>
<td>17</td>
<td>231</td>
<td>10</td>
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<td>Total Analysis Volume [veh/h]</td>
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<td>Presence of On-Street Parking</td>
<td>No</td>
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<td>No</td>
<td>No</td>
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<tr>
<td>On-Street Parking Maneuver Rate [/h]</td>
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**TCGIS**  
Scenario 9: 9 PM Existing 2023 with Alts  
Traffic Impact Study  
E127  
TCGIS
### Intersection Settings

<table>
<thead>
<tr>
<th>Feature</th>
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<tr>
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</tr>
<tr>
<td>Cycle Length [s]</td>
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<tr>
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<td>Time of Day Pattern Coordinated</td>
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<td>Permissive Mode</td>
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### Phasing & Timing

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<td>Control Type</td>
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<td>Signal group</td>
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<td>Auxiliary Signal Groups</td>
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<td>Lead / Lag</td>
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<td>Minimum Green [s]</td>
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<td>Maximum Green [s]</td>
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<td>Amber [s]</td>
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<td>All red [s]</td>
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<td>Split [s]</td>
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<td>Vehicle Extension [s]</td>
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<td>Walk [s]</td>
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<td>Pedestrian Clearance [s]</td>
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<td>Rest In Walk</td>
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<td>I2,  Clearance Lost Time [s]</td>
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<td>Maximum Recall</td>
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<td>Detector Length [ft]</td>
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### Exclusive Pedestrian Phase

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## Lane Group Calculations

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<td>(v / s)_i Volume / Saturation Flow Rate</td>
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<td>0.53</td>
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<td>PF, progression factor</td>
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## Lane Group Results

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<tr>
<th>Lane Group</th>
<th>X, volume / capacity</th>
<th>0.10</th>
<th>0.69</th>
<th>0.07</th>
<th>0.52</th>
<th>0.16</th>
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<tr>
<td>d, Delay for Lane Group [s/veh]</td>
<td>3.87</td>
<td>7.35</td>
<td>18.38</td>
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<td>A</td>
<td>B</td>
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<td>D</td>
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<td>Critical Lane Group</td>
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<td>No</td>
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<td>50th-Percentile Queue Length [veh/ln]</td>
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### Movement, Approach, & Intersection Results

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### Approach, & Intersection Results

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### Other Modes

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<tr>
<td>M_corner, Corner Circulation Area [ft²/ped]</td>
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<td>2300.97</td>
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<td>M_CW, Crosswalk Circulation Area [ft²/ped]</td>
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<td>2949.28</td>
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<td>d_p, Pedestrian Delay [s]</td>
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<td>2.557</td>
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<td>A</td>
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### Sequence

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

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

#### Intersection Setup

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<th>Como Ave</th>
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<tbody>
<tr>
<td><strong>Approach</strong></td>
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<td>Southbound</td>
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<td>Eastbound</td>
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<td>Westbound</td>
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<td><strong>Lane Configuration</strong></td>
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<td>Left</td>
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<td>Right</td>
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<td>Lane Width [ft]</td>
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#### Volumes

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<td><strong>Diverted Trips [veh/h]</strong></td>
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<td><strong>Pass-by Trips [veh/h]</strong></td>
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<td><strong>Existing Site Adjustment Volume [veh/h]</strong></td>
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<td><strong>Pedestrian Volume [ped/h]</strong></td>
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### Intersection Settings

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### Movement, Approach, & Intersection Results

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<td>9.91</td>
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<td>Movement LOS</td>
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<td>A</td>
<td>A</td>
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</tr>
<tr>
<td>95th-Percentile Queue Length [veh/ln]</td>
<td>0.06</td>
<td>0.06</td>
<td>0.06</td>
<td>0.03</td>
</tr>
<tr>
<td>95th-Percentile Queue Length [ft/ln]</td>
<td>1.48</td>
<td>1.48</td>
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<td>0.69</td>
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<tr>
<td>d_A, Approach Delay [s/veh]</td>
<td>9.44</td>
<td>9.13</td>
<td>0.51</td>
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<td>Approach LOS</td>
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<td>A</td>
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<td>d_I, Intersection Delay [s/veh]</td>
<td></td>
<td></td>
<td></td>
<td>1.73</td>
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<tr>
<td>Intersection LOS</td>
<td>A</td>
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</tbody>
</table>
### Intersection Level Of Service Report

**Intersection 7: Como Ave & West Parking Lot**

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

#### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>West Parking Lot</th>
<th>Como Ave</th>
<th>Como Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach</td>
<td>Southbound</td>
<td>Eastbound</td>
<td>Westbound</td>
</tr>
<tr>
<td>Turning Movement</td>
<td>Left</td>
<td>Right</td>
<td>Left</td>
</tr>
<tr>
<td>Lane Width [ft]</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>No. of Lanes in Pocket</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pocket Length [ft]</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Speed [mph]</td>
<td>30.00</td>
<td>30.00</td>
<td>30.00</td>
</tr>
<tr>
<td>Grade [%]</td>
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<td>0.00</td>
<td>0.00</td>
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<td>Crosswalk</td>
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<td>Yes</td>
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#### Volumes

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<th>West Parking Lot</th>
<th>Como Ave</th>
<th>Como Ave</th>
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</thead>
<tbody>
<tr>
<td>Base Volume Input [veh/h]</td>
<td>2</td>
<td>9</td>
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<td>Base Volume Adjustment Factor</td>
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<td>1.0000</td>
<td>1.0000</td>
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<tr>
<td>Heavy Vehicles Percentage [%]</td>
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<td>Growth Rate</td>
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<td>1.11</td>
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<tr>
<td>In-Process Volume [veh/h]</td>
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<td>0</td>
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<tr>
<td>Site-Generated Trips [veh/h]</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Diverted Trips [veh/h]</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pass-by Trips [veh/h]</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Existing Site Adjustment Volume [veh/h]</td>
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<tr>
<td>Other Volume [veh/h]</td>
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<td>0</td>
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<tr>
<td>Total Hourly Volume [veh/h]</td>
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<td>20</td>
<td>15</td>
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<td>Peak Hour Factor</td>
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<td>0.8810</td>
<td>0.8810</td>
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<tr>
<td>Other Adjustment Factor</td>
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<td>1.0000</td>
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<tr>
<td>Total 15-Minute Volume [veh/h]</td>
<td>2</td>
<td>6</td>
<td>4</td>
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<tr>
<td>Total Analysis Volume [veh/h]</td>
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<td>17</td>
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<tr>
<td>Pedestrian Volume [ped/h]</td>
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### Intersection Settings

<table>
<thead>
<tr>
<th>Priority Scheme</th>
<th>Stop</th>
<th>Free</th>
<th>Free</th>
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<tbody>
<tr>
<td>Flared Lane</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Area [veh]</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Two-Stage Gap Acceptance</td>
<td>No</td>
<td></td>
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</tr>
<tr>
<td>Number of Storage Spaces in Median</td>
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<td>0</td>
<td>0</td>
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### Movement, Approach, & Intersection Results

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<tr>
<th>V/C, Movement V/C Ratio</th>
<th>0.01</th>
<th>0.02</th>
<th>0.01</th>
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<th>0.00</th>
<th>0.00</th>
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<tr>
<td>d_M, Delay for Movement [s/veh]</td>
<td>9.44</td>
<td>8.73</td>
<td>7.39</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<td>Movement LOS</td>
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<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>95th-Percentile Queue Length [veh/in]</td>
<td>0.10</td>
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<td>0.03</td>
<td>0.03</td>
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<td>95th-Percentile Queue Length [ft/in]</td>
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<td>1.93</td>
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<td>A</td>
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<tr>
<td>d_I, Intersection Delay [s/veh]</td>
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<td>2.93</td>
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<tr>
<td>Intersection LOS</td>
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### Traffic Impact Study

**Intersection Level Of Service Report**

**Intersection 8: Como Ave & Oxford St**

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

#### Intersection Setup

<table>
<thead>
<tr>
<th>Name</th>
<th>Northbound</th>
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<th>Westbound</th>
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<tbody>
<tr>
<td><strong>Approach</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lane Configuration</strong></td>
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</tr>
<tr>
<td>Turning Movement</td>
<td>Left</td>
<td>Right</td>
<td>Thru</td>
</tr>
<tr>
<td>Lane Width [ft]</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>No. of Lanes in Pocket</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pocket Length [ft]</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Speed [mph]</td>
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<td>30.00</td>
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<tr>
<td>Grade [%]</td>
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<td>0.00</td>
<td>0.00</td>
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<tr>
<td>Crosswalk</td>
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#### Volumes

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<th>Oxford St</th>
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<th>Como Ave</th>
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<tr>
<td><strong>Base Volume Input [veh/h]</strong></td>
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<td>1.0000</td>
</tr>
<tr>
<td><strong>Heavy Vehicles Percentage [%]</strong></td>
<td>3.00</td>
<td>3.00</td>
<td>3.00</td>
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<tr>
<td><strong>Growth Rate</strong></td>
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<td>1.03</td>
<td>1.05</td>
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<tr>
<td><strong>In-Process Volume [veh/h]</strong></td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Site-Generated Trips [veh/h]</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Diverted Trips [veh/h]</strong></td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Pass-byTrips [veh/h]</strong></td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Existing Site Adjustment Volume [veh/h]</strong></td>
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<td>-7</td>
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<tr>
<td><strong>Other Volume [veh/h]</strong></td>
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<td><strong>Total Hourly Volume [veh/h]</strong></td>
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<td><strong>Peak Hour Factor</strong></td>
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<td><strong>Other Adjustment Factor</strong></td>
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<tr>
<td><strong>Total 15-Minute Volume [veh/h]</strong></td>
<td>2</td>
<td>1</td>
<td>10</td>
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<tr>
<td><strong>Total Analysis Volume [veh/h]</strong></td>
<td>8</td>
<td>3</td>
<td>40</td>
</tr>
<tr>
<td><strong>Pedestrian Volume [ped/h]</strong></td>
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<td>69</td>
<td>0</td>
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### Intersection Settings

<table>
<thead>
<tr>
<th>Priority Scheme</th>
<th>Stop</th>
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<th>Free</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flared Lane</td>
<td>No</td>
<td></td>
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</tr>
<tr>
<td>Storage Area [veh]</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Two-Stage Gap Acceptance</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Storage Spaces in Median</td>
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<td>0</td>
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</table>

### Movement, Approach, & Intersection Results

<table>
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<tr>
<th>Movement, Approach &amp; Intersection Results</th>
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</tr>
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<tbody>
<tr>
<td>V/C, Movement V/C Ratio</td>
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<td>0.00</td>
</tr>
<tr>
<td>d_M, Delay for Movement [s/veh]</td>
<td>9.74</td>
<td>8.62</td>
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<td>Movement LOS</td>
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</tr>
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<td>95th-Percentile Queue Length [veh/ln]</td>
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<tr>
<td>95th-Percentile Queue Length [ft/ln]</td>
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<td>1.02</td>
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<tr>
<td>d_A, Approach Delay [s/veh]</td>
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<tr>
<td>Approach LOS</td>
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<td>Intersection LOS</td>
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Appendix E - Capacity Analysis Backup

Traffic Volume - Future Total Volume

TCGIS
Version 6.00-02

Scenario 9: 9 PM Existing 2023 with Alts
Traffic Impact Study