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Transportation Planning & Engineering

TRAFFIC IMPACT ANALYSIS

CASCADE CHRISTIAN SCHOOLS EXPANSION

815 21ST Street SE, Puyallup, Washington

February 24, 2025

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CASCADE CHRISTIAN SCHOOLS EXPANSION TRAFFIC IMPACT ANALYSIS

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CASCADE CHRISTIAN SCHOOLS EXPANSION
TRAFFIC IMPACT ANALYSIS

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1. INTRODUCTION

Heath & Associates has been engaged to prepare a Traffic Impact Analysis (TIA) in support of a Conditional Use Permit (CUP) to permit the addition and use of eleven double portables to the Cascade Christion School (CCS) campus located at 815 21st Street SE in the city of Puyallup. This report analyzes CCS's baseline conditions, including operations from the recent addition of 324 elementary school students, and evaluates future conditions assuming full enrollment capacity. Currently, CCS has an enrollment of 995 students.[1] With the portable classroom additions, the total capacity by occupant load calculations is 1,341 students; however, CCS anticipates a maximum enrollment of 1,100 in the coming years. This analysis considers the more conservative estimate of 1,341 students.

2. PROJECT DESCRIPTION

Cascade Christian Schools has relocated their elementary school from the previous, temporary location of Motion Church (601 9th Avenue SE) approximately one mile east to their existing junior high, high school, and administrative offices campus (815 21st Street SE). The proposed CUP includes eleven double portables. These portables include sixteen general classrooms, two restrooms, one library, one computer lab, one band room, and one office.

Bell times between the elementary school and the junior high and high school are separated by 30 to 45 minutes. This approach helps minimize traffic overlap and reduce congestion during student drop-off and pick-up. Refer to **Table 1** below for the bell schedule.

Table 1: Bell Times, Cascade Christian School

School	Start Time	Dismissal Time
Junior High/High School	7:45 AM	2:45 PM
Elementary School	8:30 AM	3:15 PM

The school site is bordered to the west by 21st Street SE and lies south of Pioneer Way E within 17.37-acres on tax parcel 0420352159. CCS has also recently acquired another 2.84-acres (tax parcel: 0420352021) which is situated to the southeast of the existing campus. Plans for the use of this parcel are still in development and is therefore not considered in scope of this CUP or analysis.

[1] Enrollment as of October 2, 2024. Junior High and High School account for the remaining 671 students

Access to and from the school is available by an outbound only driveway on the north end of the site and an inbound only driveway approximately 175-feet to the south. **Figure 1** provides an aerial vicinity image of the surrounding roadway system.

Figure 1: Vicinity Map

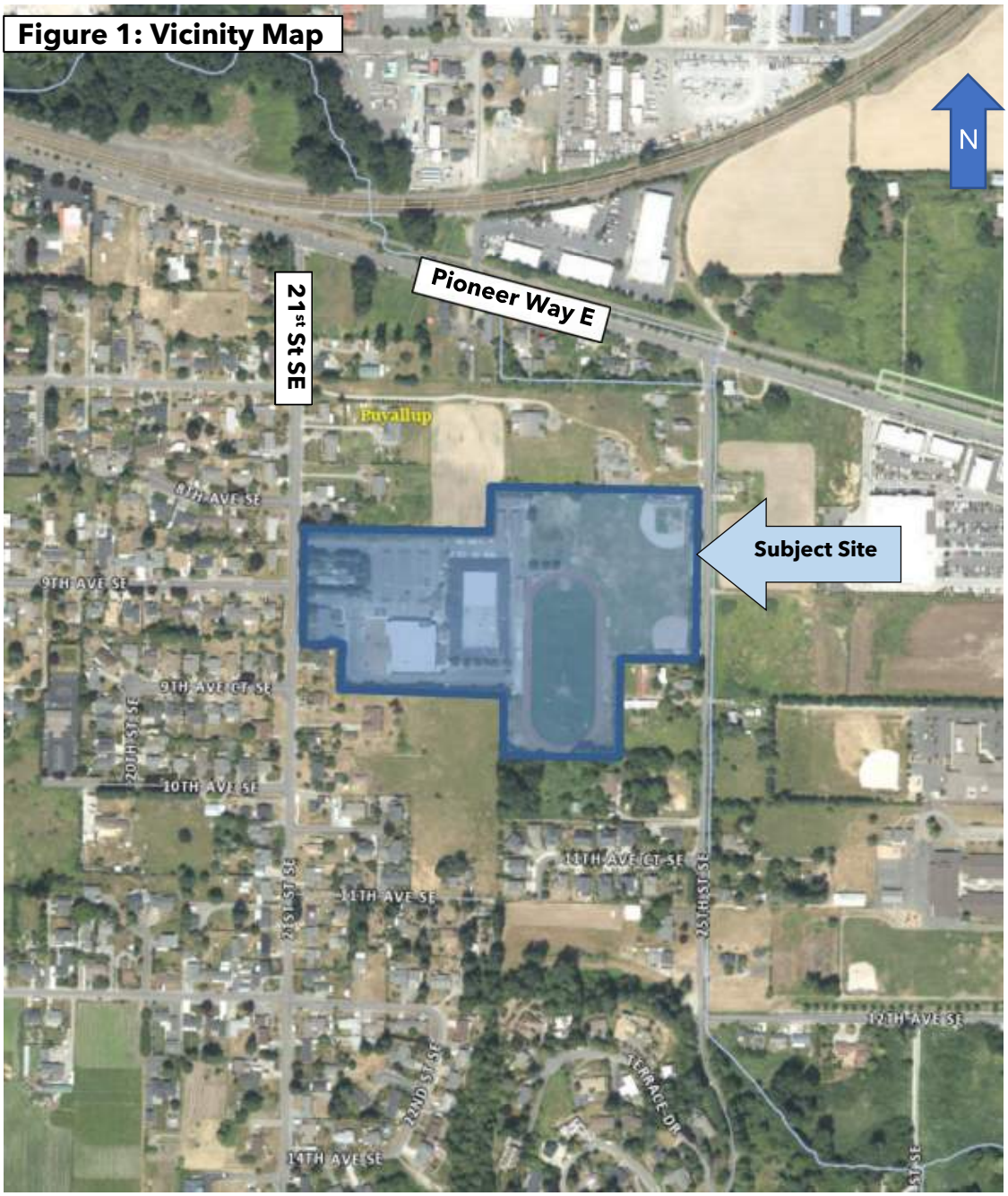
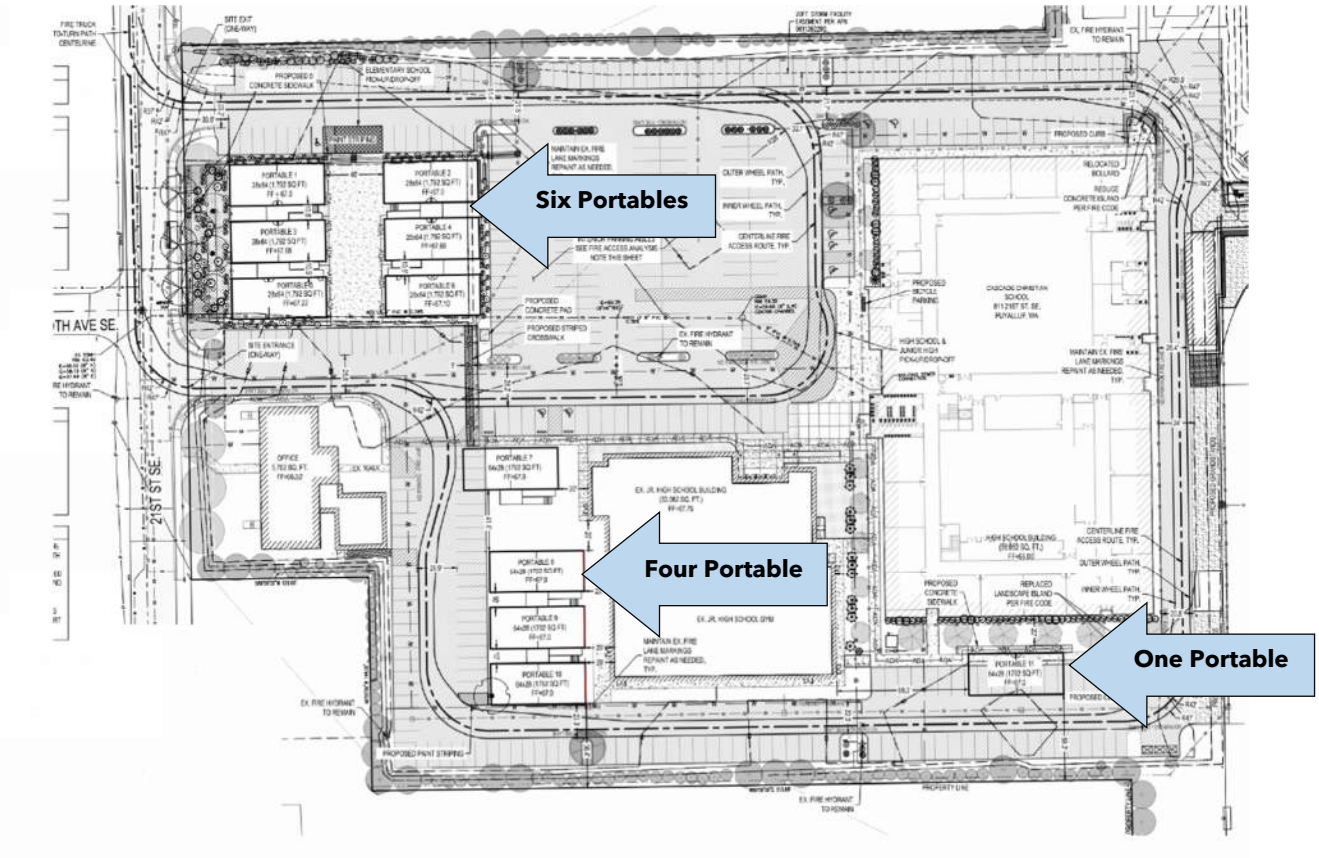


Figure 2 below displays the site plan and location of the proposed seven portables.

Figure 2: Conceptual Site Plan



As shown, a total of 11 double-portable structures are proposed. The six portables placed in the northwest portion of the site would accommodate eight new elementary classrooms, restrooms, a library, a computer/resource lab, and an office.

A portion of the elementary students would also be in the existing junior high building. These displaced junior high students would be relocated into classrooms within the double portables adjacent to the west side of the junior high building. These four portables include six classrooms, restrooms, and a band room.

Lastly, one portable containing two classrooms is located on the south side of the high school. Refer to the appendix for a full-size site plan.

3. EXISTING CONDITIONS

3.1 Existing Roadways

Key study area roadways are listed and described in Table 2 below.

Table 2: Roadway Network

Functional Classification	Roadway	Speed Limit	Lanes	Sidewalk	Bike Facilities
Major Arterial	Pioneer Way E	35	4	Yes[1]	No
	Shaw Road	35	2-5	Some	No
Minor Arterial	15th Street SE	30	4	Yes	No
Major Collector	7th Avenue SE	25	2	No	No
Minor Collector	21st Street SE	25	2	Yes[2]	No
Local Roadway	9th Avenue SE	25	2	Yes	No

[1] Sidewalk on south side of road only.
[2] Sidewalk only on the east side of road, from just south of Cascade Christian School to Pioneer Way E.

The main roadway providing ingress and egress to the Cascade Christian School campus is 21st Street SE. The road is approximately 32-34 feet in width with two travel lanes. Two speed tables, separated by 530-feet and accompanied by 15 mph advisory speed signs, are located along the roadway segment. One speed table is located north of the school and one to the south. Moreover, a radar speed sign is installed in the southbound direction, south of Pioneer Way E.

3.2 Roadway Improvements

A review of the City of Puyallup Six-Year Comprehensive Transportation Improvement Program (2023-2028) shows two improvement projects in the subject vicinity.

Table 3: Transportation Improvement Projects

Name	Location	Improvement	Cost
Pioneer Way E (Project #8, Active Transportation)	21st St SE to Shaw Road	Design & construct Shared Use Path Construction Start: TBD	$5,300,000
Pioneer Way E (Project #25, Intersection Improvements)	5th St SE to Shaw Road (5 intersections)	Deploy Intelligent Transportation System signal improvements Construction Start: TBD	$2,100,000

Both nearby projects have construction start dates listed as "to be determined" and therefore are not considered in the future horizon analysis.

3.3 Transit Service

The nearest public transit is available over one mile to the west on S Meridian and 3rd Street SE via Pierce Transit Route 402. Little to no public transit use is expected by students attending the school. Cascade Christian School does not provide regular busing service currently. There are occasional buses for school sporting activities.

3.4 Non-Motorist Facilities

- 21st Street SE: has a sidewalk extending from the site frontage to Pioneer Way E. Per the City's Transportation section of their Comprehensive Plan, 21st Street SE is listed in the Pedestrian Priority Network (Map 7-8) with planned sidewalks south of the current terminus.
- Pioneer Way E: has a sidewalk along the south side. This section of road is listed in the City's Bicycle Priority Network for a potential future shared-use path.
- 7th Avenue SE: currently lacks sidewalks but is listed under both Pedestrian Priority and Bicycle Priority Networks for a potential future shared-use path.
- 9th Avenue SE: sidewalks are available along both sides of the roadway.

3.5 Existing Volumes

Heath & Associates has conducted several site visits and observations with data collection prior to the elementary school occupying the site in April 2024 and May 2024. Counts were then retaken in October 2024 to capture the recent addition of the elementary school students for CCS's 2024 school year. During the traffic study scoping process, the City of Puyallup requested the following seven intersections be evaluated:

- SR 512 WB Ramps/Pioneer Way E
- SR 512 EB Ramps/Pioneer Way E
- 15th Street SE/Pioneer Way E
- 21st Street SE/Pioneer Way E
- 21st Street SE/Exit Driveway for the School
- 21st Street SE/Entry Driveway/9th Avenue SE
- Shaw Road E/Pioneer Way E

It should be noted that additional site visits were conducted in an ongoing effort to evaluate changes in student pick-up and drop-off with additional observations in December 2024 and January 2025. These conditions and observations will be discussed in later sections. However, the turning movement volumes presented in this analysis reflect conditions from the April counts, where longer back-ups and queues were observed as this was prior to the implementation of several mitigating strategies that will be further discussed.

Data were collected from 7:00 to 9:00 AM[2] and from 2:00 to 6:00 PM to capture the peak hours for both school activity and the adjacent streets. The counts were tabulated in 15-minute intervals and the four consecutive highest intervals is considered the "peak hour." The peak hour was identified to evaluate conditions at the outlying intersections (locations beyond 21st Street SE) as this represents worst case conditions and accounts for the overlapping traffic from the elementary and junior high/high school traffic.

Based on the data the following hours were identified at the peak generating periods from CCS:

School AM Peak Hour

- 7:30 to 8:30 AM

School PM Peak Hour

- 2:45 to 3:45 PM

Adjacent Street PM Peak Hour

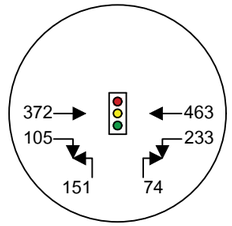
- 4:00 to 6:00 PM

  The adjacent street peak hour varies between study intersections, but all occur between 4:00 and 6:00 PM.

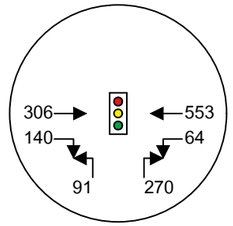
Figures 3, 4, and 5 show the turning movement volumes at each of the study intersections for each study hour.

[2] Counts were extended to 10:00 AM at the site driveway but volumes dropped off substantially after 8:45 AM.

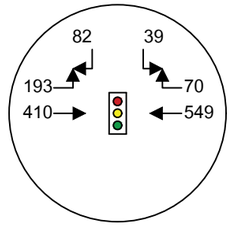
1. E PIONEER/SR 512 WB RAMPS



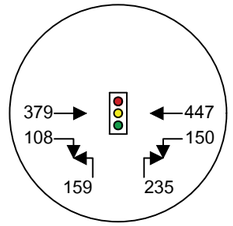
2. E PIONEER/SR 512 EB RAMPS



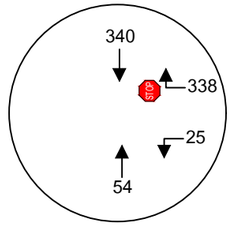
3. E PIONEER/15TH ST SE



4. E PIONEER/21st ST SE



5. 21Sst ST SE/EXIT DRIVE



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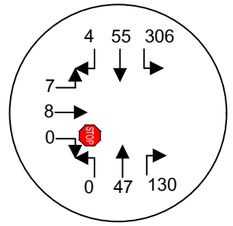
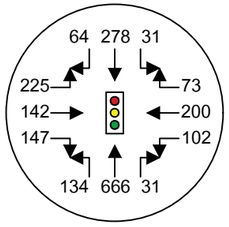


7. E PIONEER/SHAW RD E



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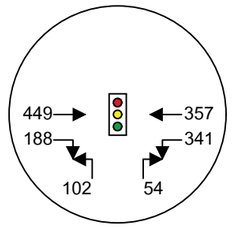
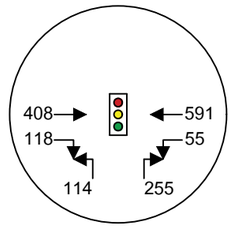
CASCADE CHRISTIAN SCHOOL EXPANSION

EXISTING AM PEAK HOUR OF SCHOOL (7:30-8:30 AM)
FIG 3

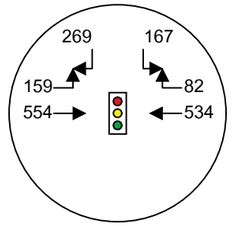
1. E PIONEER/SR 512 WB RAMPS



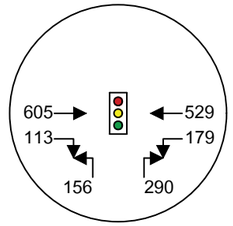
2. E PIONEER/SR 512 EB RAMPS



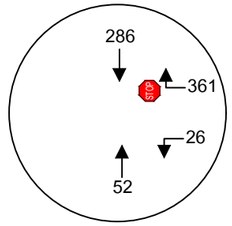
3. E PIONEER/15TH ST SE



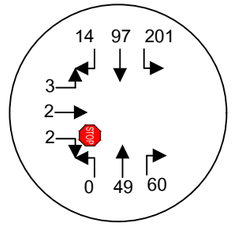
4. E PIONEER/21st ST SE



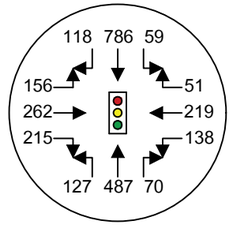
5. 21Sst ST SE/EXIT DRIVE



6. 21st ST SE/ENTRY DRIVE



7. E PIONEER/SHAW RD E



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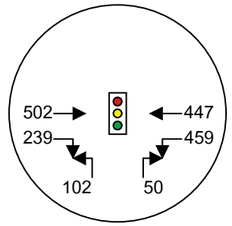
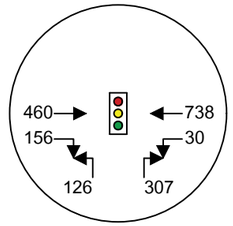
CASCADE CHRISTIAN SCHOOL EXPANSION

EXISTING PM PEAK HOUR OF SCHOOLS (2:45 - 3:45 PM)
FIG 4

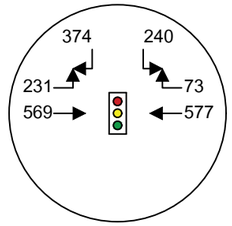
1. E PIONEER/SR 512 WB RAMPS



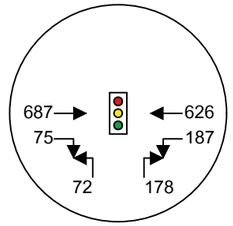
2. E PIONEER/SR 512 EB RAMPS



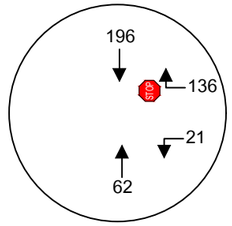
3. E PIONEER/15TH ST SE



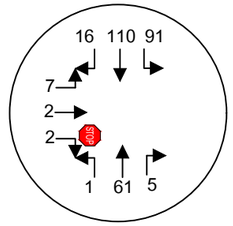
4. E PIONEER/21st ST SE



5. 21Sst ST SE/EXIT DRIVE



6. 21st ST SE/ENTRY DRIVE



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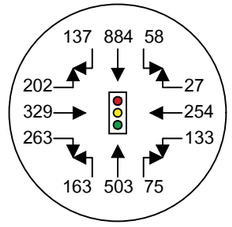

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CASCADE CHRISTIAN SCHOOL EXPANSION

EXISTING PM PEAK HOUR OF STREET
FIG 5

3.6 Unserved Demand

Unserved demand refers to the portion of traffic demand that is not fully accommodated within a signal cycle, resulting in residual queues or delays due to insufficient green time allocation, inadequate capacity, or excessive congestion. Unserved demand was reviewed at all study intersection during each analysis period by observing video footage. In review, unserved demand was noted at the following two intersections.

Shaw Road E/Pioneer Way E: Congestion along Shaw Road E starts accumulating around 2:30 PM in the southbound direction and continues throughout the evening peak period. The unserved queues were estimated to back-up to around 800 feet – or around 80 vehicles accounting for two southbound lanes and assuming 20 feet per vehicle.

Pioneer Way E/21st Street SE: Unserved demand was observed solely in the westbound inside left turn/through lane during the school's AM and PM peak hours. The shared movement lane benefits from a protected left-turn green phase in the morning and afternoon to accommodate the high volume of left turns directed toward the school. However, observations showed that the protected green phase ended before fully clearing the demand, resulting in 2-6 vehicles remaining queued and in the permissive phase. This pattern was noted during both the AM and PM periods, occurring with and without queue spillback on 21st Street SE.

Level of service has been adjusted to account for the unserved demand at each intersection.

3.7 Queuing

Junior High and High School Arrival Period

Junior high and high school arrival activity begins around 7:20 AM and lasts until about 7:45 AM. Activity peaks around 7:30-7:35 AM. While vehicles did move slowly on 21st Street SE, it was a continuously moving queue. The first figure below shows the continuous flow on 21st Street SE. By 7:45, the street is clear, as shown in the second photo. The slow-moving line of vehicles caused some vehicles to wait through more than one cycle westbound on Pioneer Way E.

Elementary School Arrival Period

Elementary school arrival activity begins around 8:15 AM and last until about 8:30 AM. Queues along 21st Street SE are generally rolling queues that do not extend past the intersection of 7th Avenue SE/21st Street SE. The exception was a brief queue at 8:20 AM that created a ~350-foot line of stopped vehicles on 21st Street SE, when an internal site delay occurred. The photos below show the peak on-street queue on 21st Street SE at the entry driveway and then from 7th Avenue SE.

The queue of stopped vehicles does not extend to the intersection of 7th Avenue SE/21st Street E. The elementary school traffic remains continuous with static queues only occurring at the access, for vehicles making a northbound right into the site. With less than half the enrollment, there are fewer elementary students than junior high/high school students. By 8:30 AM, only a small number of vehicles are entering and leaving the site.

Dismissal Period – Entire School

Existing afternoon pick-up activity results in a more continuous queue compared to the morning drop-off. Vehicles began to arrive on-site to pick up students around 2:40 PM. Some drivers also parked along 21st Street SE to pick up students. Queues began to extend back onto 21st Street SE at about 3:05 PM until 3:30 PM. The longest queues extended out onto 21st Street SE/Pioneer Way E around 3:20 PM to 3:25 PM, with a max off-site queue length of around 1,600 feet.

Queues began to reach the intersection of 7th Avenue SE & 21st Street SE shortly after 3:10 PM, peaking around 3:25 PM. By 3:30 PM, queues dissipated and no longer extend to 7th Avenue SE.

At the entry point to the school, queued vehicle spilled over onto 21st Street SE. The first photo shows the vehicles queuing onto the street. The second shows how the queue clears by 3:30.

As shown, much of the school afternoon activity subsided by 3:30 PM. Overall, while congestion is noted during both school pick-up and drop-off periods, the concentrated activity typically lasts between 15-30 minutes. It should be noted that the April and May observations had slightly lower junior high and high school queues. In those observations, the peak queue reached just beyond the 7th Street SE intersection. However, this was prior to the elementary school occupying the site. Additionally, activity in the beginning of the school year (September/October) is typically its highest as parents are still learning the routes and procedures. Gradually throughout the school year, parents become familiar and pick-up and drop-off process can become more efficient.

Unserved demand at 21st Street SE/Pioneer Way E

As previously mentioned, some westbound vehicles cannot proceed through this intersection in one signal cycle (e.g., they do not make it through on one green arrow and one green permitted). The westbound left turn arrow is active on average for about 16 seconds, followed by a variable permissive green of around 42 seconds. Eastbound traffic often blocks westbound lefts to 21st Street SE. Eastbound through and right turn volumes means that some permitted westbound left turn vehicles (who must yield) cannot proceed. The figure below shows these unserved vehicles.

While some unserved demand was due to the queue on 21st Street SE reaching to Pioneer, most of the unserved demand was due to the limited protected green time. Therefore, it is recommended that the City of Puyallup extend the westbound left-turn arrow green time by 5-10 seconds during the school's peak AM and PM periods. This is further discussed in later sections.

3.8 Safety Analysis

Collision history was requested in the study area from WSDOT. **Table 4** summarizes collisions in the study area over the past five years. A total of 20 collisions were recorded, 16 of which occurred on Pioneer Way E or near 21st Street SE.

Table 4: Collision History Severity

Crash Type	Number of Crashes (2019-2023) 21st St SE/Pioneer area
Fatal	0
Incapacitating Injury	1
Non-incapacitating Injury	2
Possible Injury	6
Property Damage Only	11

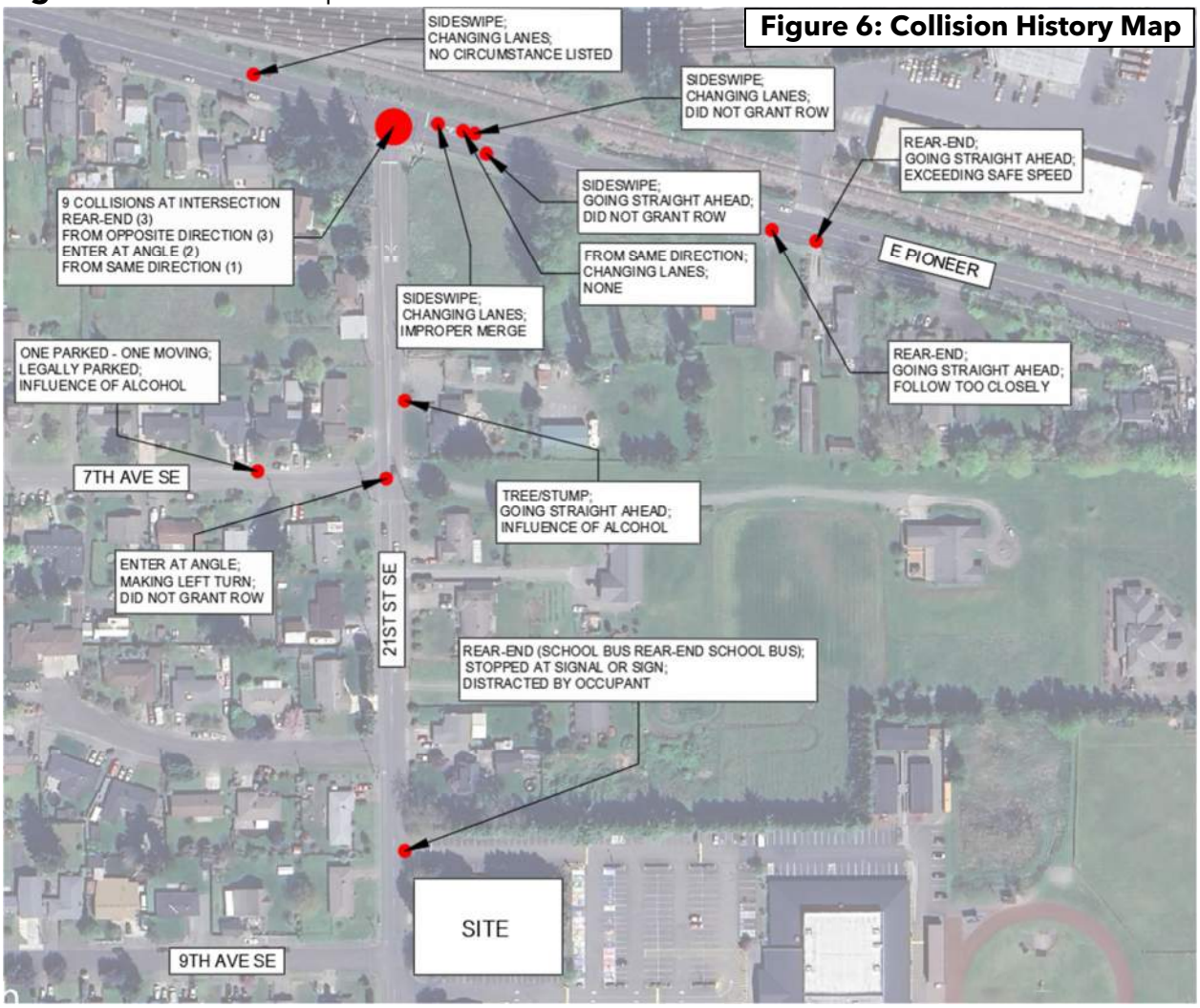
Incapacitating Injury: The incident occurred at the intersection of 7th Avenue SE/21st Street SE. A driver turning eastbound from 7th Avenue SE to 21st Street SE did not grant the right of way to a through vehicle traveling south on 21st Street SE.

Non-incapacitating Injury: There were two incidents reported with suspected minor injuries. One occurred at the intersection of Pioneer Way E/21st Street SE. A westbound driver turning southbound from Pioneer Way E to 21st Street SE did not grant the right of way to a through vehicle eastbound on Pioneer Way E. A second collision took place at a driveway on Pioneer Way E, 0.11 miles east of the intersection. One driver was stopped in the roadway, heading west. A second driver rear-ended the first vehicle.

Possible Injury: Four of these six incidents occurred at the intersection of 21st Street SE/Pioneer Way E, and two were midblock on Pioneer Way E, east of 21st Street SE. Three of these were rear-end collisions and one was a sideswipe. One incident was an entering at-angle collision, and the sixth was one left turn colliding with a through vehicle. Two incidents resulted from improper turns. One collision resulted from exceeding a reasonable safe speed, one from following too closely, one from an unknown distraction, and one from not granting right of way.

Property-damage only: The property-damage-only incidents included driving under the influence (2), not granting right of way (2), distracted driver (1), one driver exceeding a reasonably safe speed and disregarding the signal at 21st Street SE/Pioneer Way E (1), following too closely (1), improper backing (1), improper merge (1), and no specific contributing factor listed (2).

Figure 6 shows the map locations for each recorded incident.



Vehicle Speeds

At the City's request, speed data were collected along 21st Street SE to evaluate the effectiveness of the existing speed tables and determine if additional traffic calming measures are needed. Traffic speeds were monitored using the speed feedback sign in the southbound direction, with a total of 100 speed samples recorded (50 in the AM and 50 in the PM) during free-flow conditions before school congestion.

The results showed an average speed of 24 MPH and an 85th percentile speed of 27 MPH. Given the posted speed limit of 25 MPH and the absence of reduced school zone speed limits, the data indicate that most vehicles are operating within the posted speed limits. Based on these findings, additional traffic calming measures do not appear necessary at this time.

3.9 Level of Service

Level of service (LOS) is a measure used to evaluate the performance and efficiency of a roadway or intersection based on traffic flow and delay. It is graded from A (free flow) to F (high congestion) [3], with each grade reflecting increasing levels of delay and traffic disruption. Level of service calculations were made using the *Synchro 12* analysis program. For signalized intersections, LOS is determined by the intersection's overall weighted average delay. At stop-controlled intersections, delays and LOS are reported for the worst movement.

1. **Peak Hour Analysis:** This is the traditional peak hour analysis approach. Peak hour analysis assesses the busiest 15-minute period in the hour with the highest recorded counts and adjusts the volumes into hourly flow rates using the peak hour factor. This analysis was applied to the outlying intersections and is considered conservate in that it evaluates the highest congested period.

Table 5 presents existing LOS and delays for all intersections during the AM and PM peak hours of the school. It also shows level of service for all study intersections for the PM peak hour of the street.

[3] *Signalized Intersections - Level of Service*

Level of Service	Control Delay per Vehicle (sec)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

Stop Controlled Intersections – Level of Service

Level of Service	Control Delay per Vehicle (sec)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Highway Capacity Manual, 7th Edition

Table 5: Existing Peak Hour Levels of Service

Delays given in seconds per vehicle

		AM Peak	PM Peak	
		Combined Schools 7:30-8:30	Combined Schools 2:45-3:45	Street Peak (varies)[4]
Intersection	**Control**	**LOS (Delay)**	**LOS (Delay)**	**LOS (Delay)**
SR 512 WB Ramps/ Pioneer Way E	Signal	B (10.7)	B (14.2)	B (15.6)
SR 512 EB Ramps/ Pioneer Way E	Signal	B (10.0)	B (10.0)	B (10.2)
15th Street SE/ Pioneer Way E	Signal	B (10.0)	B (13.5)	B (19.0)
21st Street SE/ Pioneer Way E	Signal	B (11.6)	B (11.3)	B (10.6)
21st Street SE/ School Exit Drive	Stop	B (13.4)	B (12.5)	A (9.5)
21st Street SE/ School Entry Drive	Stop	**E (49.1)**	B (15.0)	B (11.0)
Shaw Road E/ Pioneer Way E	Signal	D (41.6)	**F (88.8)**	**F (110.1)**

City Level of Service Standard: LOS D

Peak hour analyses show that study intersections operate at LOS B or better during each peak hour except for the intersection of Shaw Road E/Pioneer Way E operating at LOS F during both of the PM peak hours. Operational issues at this intersection are related to a roadway network problem. A bottleneck exists downstream on Shaw Road E, where the road narrows from five lanes to two. This creates queuing that extends north through the Shaw Road E/Pioneer Way E intersection and impacts operations with unserved demand. This causes heavy delays for the southbound movements.

Lastly, the CCS entrance operate with LOS E conditions in the AM peak hour due to the high volume of arriving vehicles.

[4] Data were collected from 4:00 to 6:00 PM. The individual study intersection peak hours varied from 4:00-5:00 PM 4:15 – 5:15 PM, and 4:30 to 5:30 PM.

3.10 Implemented Mitigation Strategies

Throughout the traffic study process, several efforts were incorporated to improve conditions that were observed in April, May, and October 2024. These include the following:

1. **Staggered Drop-Off and Pick-Up Times**
   - A 30–45-minute offset between bell schedules minimizes traffic overlap between junior high/high school and elementary school, reducing congestion during peak times.

2. **Implementation of Driveline – A Student Pick-Up Management Tool**
   - Staff input student ID numbers as vehicles arrive, streamlining and improving the efficiency during the pick-up process.

3. **Signage**
   - A-frame signs were placed along 9th Street, indicating no parking or driveway blocking zones to improve traffic flow and reduce obstructions.

4. **Increased On-Site Staffing and Traffic Control**
   - Additional staff were deployed to manage traffic flow efficiently. This involves staff directing vehicles around the back of the school when queues start to accumulate near 21st Street.
   - CCS established an "on-call" response team to provide additional traffic support during peak times if needed.
   - Staff, volunteers, and security personnel have been trained to assist with drop-off and pick-up procedures, enhancing overall efficiency.

5. **Parental Communication and Engagement**
   - Parents were informed of the procedural changes and educated on the importance of a quick and efficient drop-off and pick-up process to minimize delays and improve overall traffic operations.

6. **Revised On-Site Routing**
   - Implemented several changes to on-site drop-off/pick-up areas to assess most efficient plan.

7. **Elementary Pick-Up Protocol**
   - To reduce the off-site queues, the elementary school has implemented a rotating system where one grade level per week is designated to park on-site and use a walk-up pick-up process instead of entering the vehicle pick-up queue. This approach optimizes the use of available parking spaces during pick-up times and helps reduce overall queue lengths.

With implementing the above mitigations, observations in December 2024 and January 2025 revealed improved conditions. Figure 7 below illustrates the drop-off and pick-up areas. Note that elementary school uses both the blue and red queue lines where junior high and high school use the blue line only (in addition to available parking stalls).

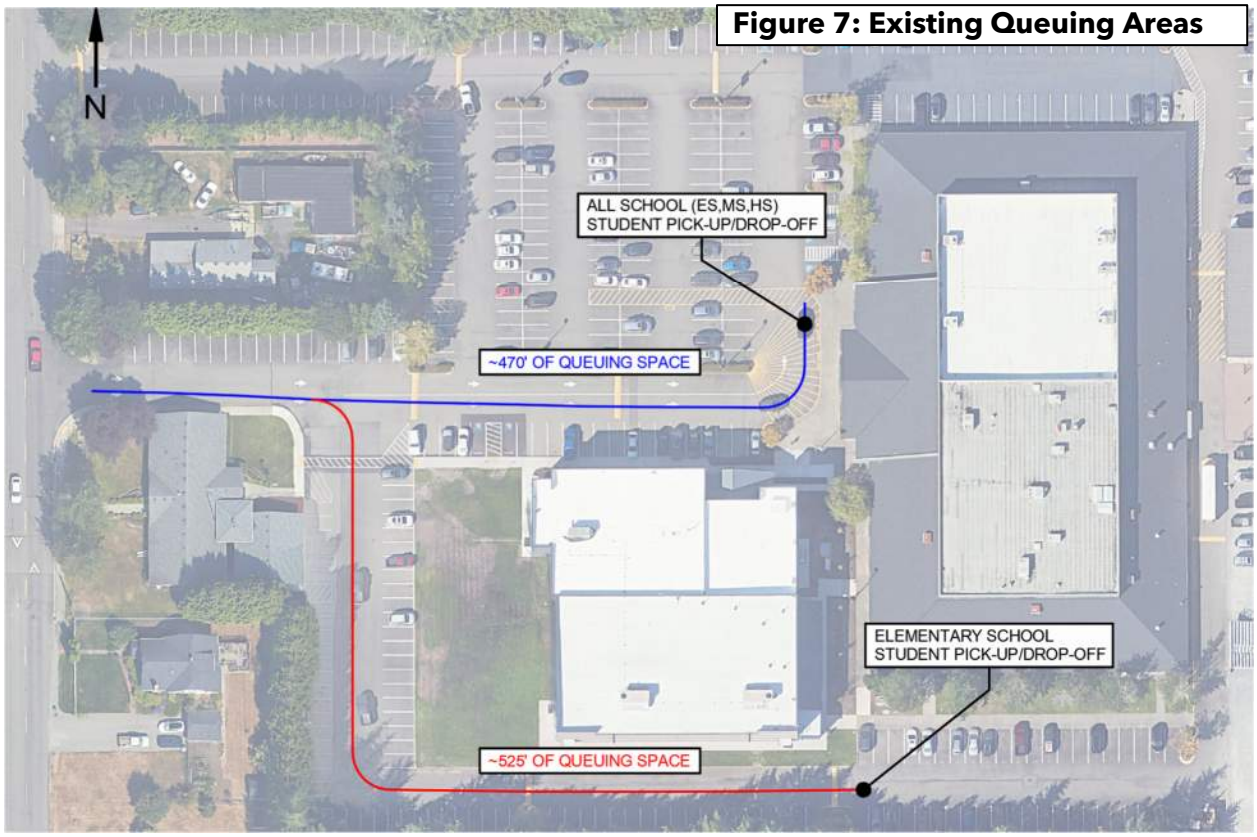


Figure 7: Existing Queuing Areas

Findings

Comparing queues from pre and post strategies indicates significantly improved conditions. Whereas before there were around 40 or more vehicles backing up on 21st Street SE, queues in December/January, with the strategies in-place, were around 6-8 vehicles. Attached to this appendix are photos from the video recordings showing the differences.

4. FUTURE TRAFFIC DEMAND AND ANALYSIS

4.1 Project Trip Generation

The enrollment for the Cascade Christian School campus was 995 students during the October 2024 data collection. This includes all high school, junior high school, and elementary school students. While the maximum capacity with the added portables would be 1,341 students, CCS does not anticipate exceeding 1,100 students. However, the higher count (1,341 students) is used in the analysis.

Trip generation for the additional student capacity was estimated by deriving trip rates per students from the October 2024 field counts[5]. The trip rates below reflect values from CCS's busiest hour in each of the three study periods which were 7:30-8:30 AM, 2:45-3:45 PM, and 4:30-5:30 PM. **Table 6** shows the derived trip generation rates for the three analysis periods. It should be noted that the trip rates also include other site activity such as the administrative offices (over 30 employees) and after school activities.

Table 6: Peak Hour Trip Vehicle Rates, Cascade Christian School

AM Peak School	PM Peak School	PM Peak Street
0.84/student	0.68/student	0.27/student

The trip generation rates were applied to the proposed increase in school capacity, assuming an additional capacity of 346 students. **Table 7** shows the expected trips for each period of analysis.

Table 7: Weekday Project Trip Generation

Land Use	Additional Students	AM Peak School			PM Peak School			PM Peak Street		
		In	Out	Total	In	Out	Total	In	Out	Total
Cascade Christian School	346	158	133	**291**	88	147	**235**	35	58	**93**

With full capacity of the school, it is expected to generate an additional 291 AM peak trips (158 entering, 133 exiting). During the PM peak hour of the school, the additional capacity is expected to generate 235 trips (88 entering, 147 exiting). For the PM peak hour of the street, 93 trips are expected (35 entering, 58 exiting). Like many schools, Cascade Christian School has after school activities and athletics, so there are still some school-related trips during the PM peak hour of the street.

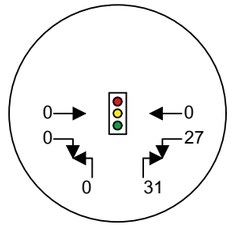
[5] Student attendance at the time of the October 3, 2024, field counts was 960 and is used in the trip rate derivations for future conditions. Recognizing that a certain level of student absenteeism is typical, this trip rate was applied to a projected future increase of 195 students.

The trips outlined in Table 9 were added to the outlying intersections for the peak hour analysis.

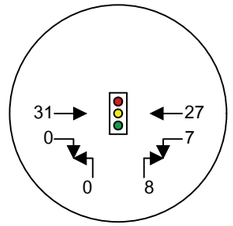
4.2 Distribution and Assignment

Trip distribution describes the process by which project-generated trips are dispersed on the roadway network surrounding the site. Trips were distributed based on existing traffic patterns identified from the field counts. These indicated that most of the traffic is destined to and from Pioneer Way E (~75% of traffic). Other routes include 21st Street SE south of the school (~10%), and 7th Avenue SE (~15%). **Figures 8, 9, and 10** illustrate peak hour distribution and assignment for the project.

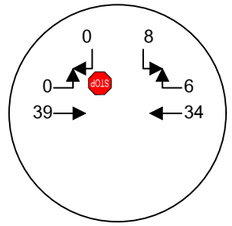
1. E PIONEER/SR 512 WB RAMPS



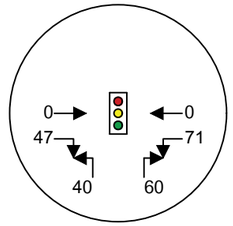
2. E PIONEER/SR 512 EB RAMPS



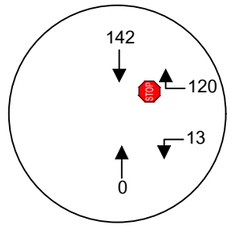
3. E PIONEER/15TH ST SE



4. E PIONEER/21st ST SE



5. 21Sst ST SE/EXIT DRIVE



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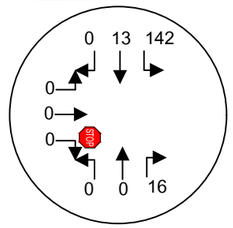
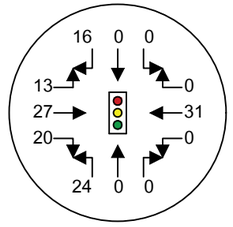


7. E PIONEER/SHAW RD E



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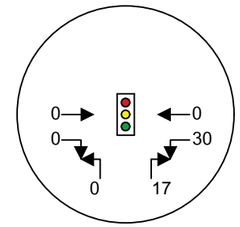
CASCADE CHRISTIAN SCHOOL EXPANSION

TRIP DISTRIBUTION AND ASSIGNMENT AM PEAK HOUR OF SCHOOL

FIG 8

1. E PIONEER/SR 512 WB RAMPS



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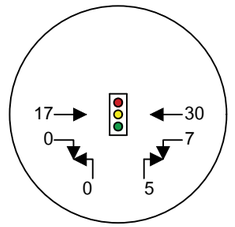

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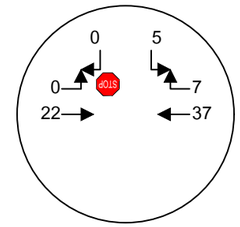

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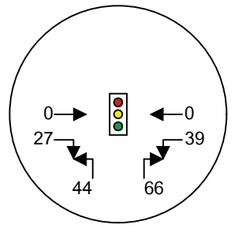

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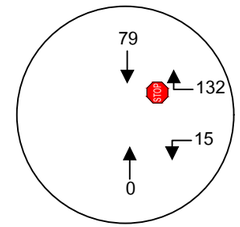

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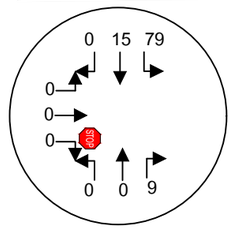

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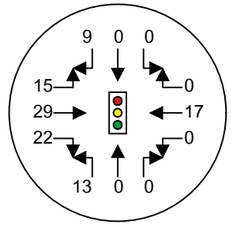

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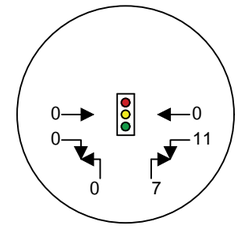
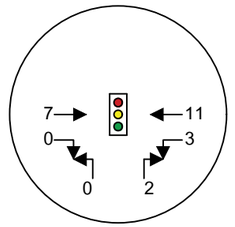
CASCADE CHRISTIAN SCHOOL EXPANSION

TRIP DISTRIBUTION AND ASSIGNMENT PM PEAK HOUR OF SCHOOL
FIG 9

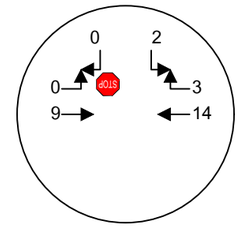
1. E PIONEER/SR 512 WB RAMPS



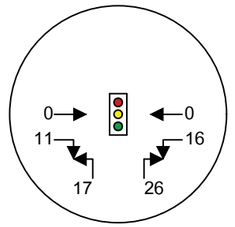
2. E PIONEER/SR 512 EB RAMPS



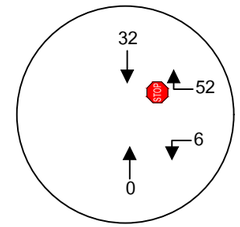
3. E PIONEER/15TH ST SE



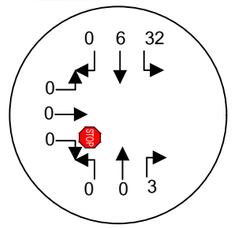
4. E PIONEER/21st ST SE



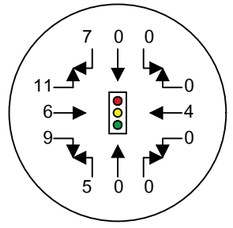
6. 21Sst ST SE/EXIT DRIVE



7. 21st ST SE/ENTRY DRIVE



8. E PIONEER/SHAW RD E



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CASCADE CHRISTIAN SCHOOL EXPANSION

TRIP DISTRIBUTION AND ASSIGNMENT PM PEAK HOUR OF SCHOOL - STREET PEAK
FIG 10

4.3 Future Peak Hour Volumes

A seven-year horizon of 2031 was used for future analysis. Forecast 2031 volumes were derived by applying a 2 percent compound annual growth rate (for seven years) to the existing volumes.[6] This growth rate only applied to the background volumes (non-school related movements) for the intersections along 21st Street SE. Consequently, outlying intersections account for some growth assumptions to school related traffic which should be considered conservative.

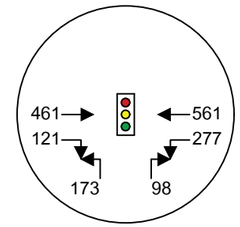
Pipeline traffic from the following projects in the study area were also added to determine the total future without project peak hour volumes:

- Pioneer Logistics[7]
- Easton Manor
- Cascade Shaw
- East Town Crossing

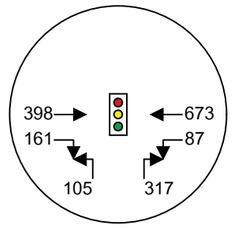
Future 2031 without project volumes are illustrated in **Figures 11, 12, and 13. Figures 14, 15, and 16** show the future with project volumes for all study periods.

[6] Based on information from City of Puyallup staff, May 24, 2024, Zoom meeting.
[7] The actual end user for the Pioneer Logistics project is not known. The pipeline volumes used in these analyses is a worst-case assumption.

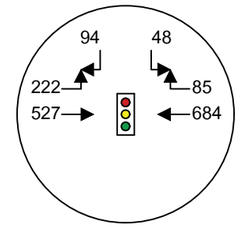
1. E PIONEER/SR 512 WB RAMPS



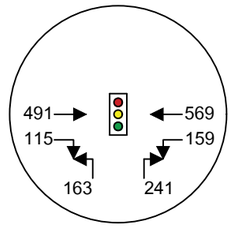
2. E PIONEER/SR 512 EB RAMPS



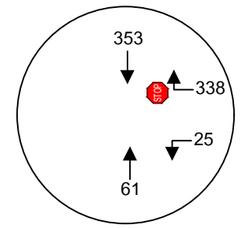
3. E PIONEER/15TH ST SE



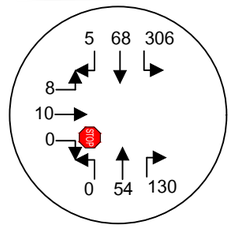
4. E PIONEER/21st ST SE



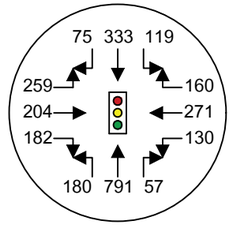
5. 21Sst ST SE/EXIT DRIVE



6. 21st ST SE/ENTRY DRIVE



7. E PIONEER/SHAW RD E



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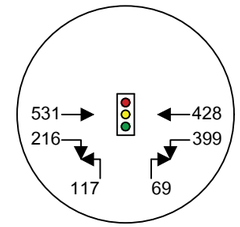
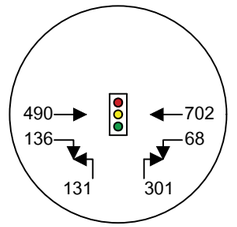
CASCADE CHRISTIAN SCHOOL EXPANSION

FUTURE WITHOUT PROJECT 2031 AM PEAK HOUR OF SCHOOL (7:30-8:30 AM)
FIG 11

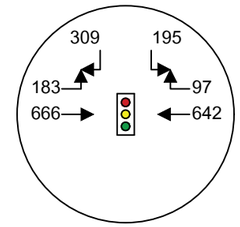
1. E PIONEER/SR 512 WB RAMPS



2. E PIONEER/SR 512 EB RAMPS



3. E PIONEER/15TH ST SE



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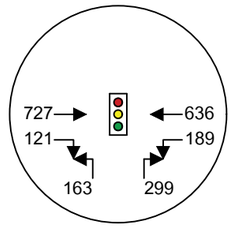
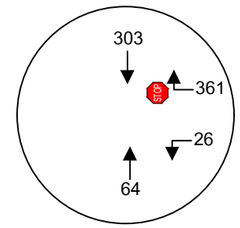
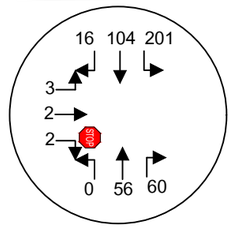


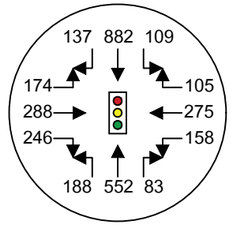
6. 21Sst ST SE/EXIT DRIVE



7. 21st ST SE/ENTRY DRIVE



8. E PIONEER/SHAW RD E



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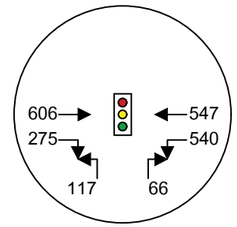
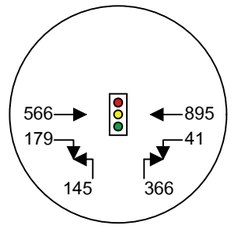
CASCADE CHRISTIAN SCHOOL EXPANSION

FUTURE WITHOUT PROJECT 2031 PM PEAK HOUR OF SCHOOL (2:45-3:45 PM)
FIG 12

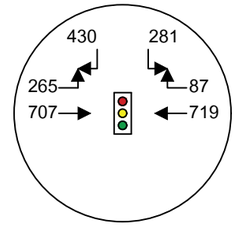
1. E PIONEER/SR 512 WB RAMPS



2. E PIONEER/SR 512 EB RAMPS



3. E PIONEER/15TH ST SE



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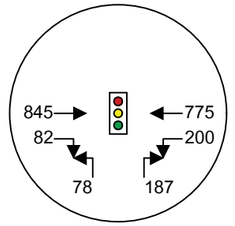

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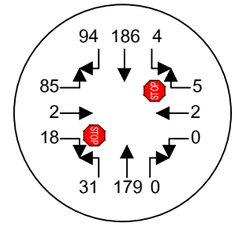
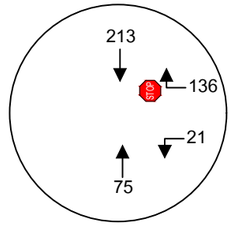
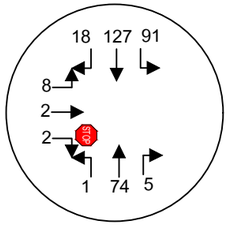


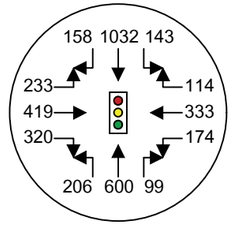
6. 21Sst ST SE/EXIT DRIVE



7. 21st ST SE/ENTRY DRIVE



8. E PIONEER/SHAW RD E



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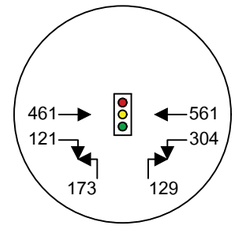
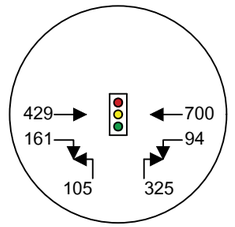
CASCADE CHRISTIAN SCHOOL EXPANSION

FUTURE WITHOUT PROJECT 2031 PM PEAK HOUR OF STREET
FIG 13

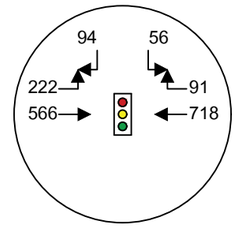
1. E PIONEER/SR 512 WB RAMPS



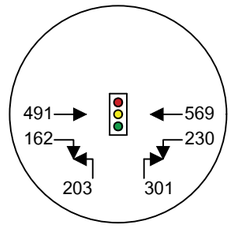
2. E PIONEER/SR 512 EB RAMPS



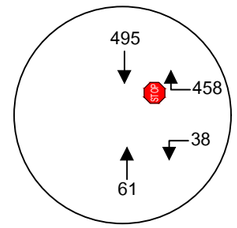
3. E PIONEER/15TH ST SE



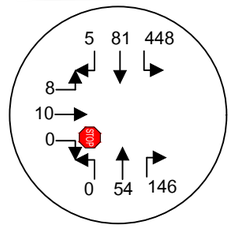
4. E PIONEER/21st ST SE



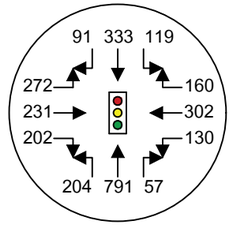
5. 21Sst ST SE/EXIT DRIVE



6. 21st ST SE/ENTRY DRIVE



7. E PIONEER/SHAW RD E



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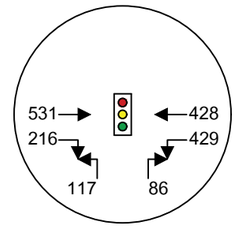
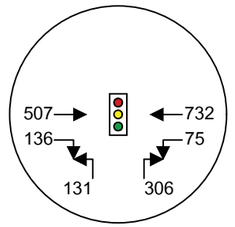
CASCADE CHRISTIAN SCHOOL EXPANSION

FUTURE WITH PROJECT 2031 AM PEAK HOUR OF SCHOOL (7:30-8:30 AM)
FIG 14

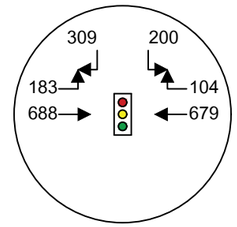
1. E PIONEER/SR 512 WB RAMPS



2. E PIONEER/SR 512 EB RAMPS



3. E PIONEER/15TH ST SE



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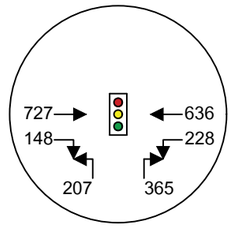
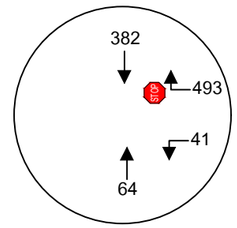
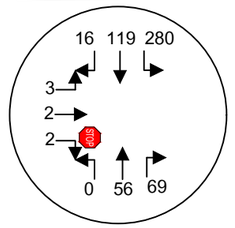


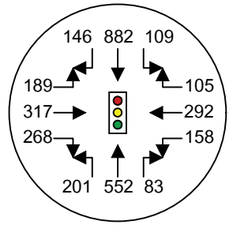
5. 21Sst ST SE/EXIT DRIVE



6. 21st ST SE/ENTRY DRIVE



7. E PIONEER/SHAW RD E



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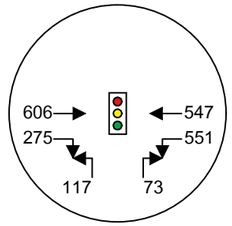
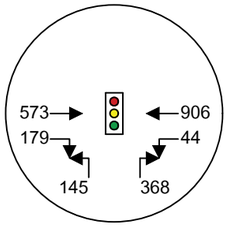
CASCADE CHRISTIAN SCHOOL EXPANSION

FUTURE WITH PROJECT 2031 PM PEAK HOUR OF SCHOOL (2:45-3:45 PM)
FIG 15

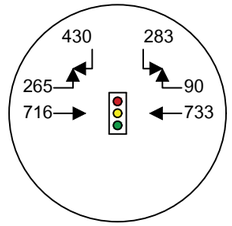
1. E PIONEER/SR 512 WB RAMPS



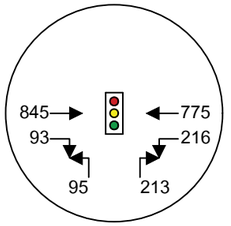
2. E PIONEER/SR 512 EB RAMPS



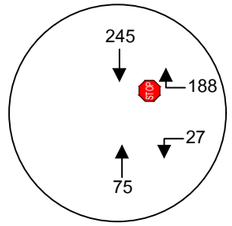
3. E PIONEER/15TH ST SE



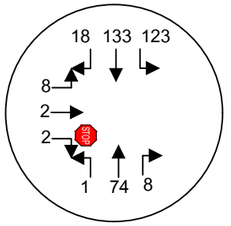
4. E PIONEER/21st ST SE



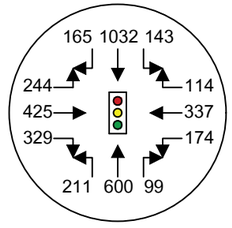
5. 21Sst ST SE/EXIT DRIVE



6. 21st ST SE/ENTRY DRIVE



7. E PIONEER/SHAW RD E



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CASCADE CHRISTIAN SCHOOL EXPANSION

FUTURE WITH PROJECT 2031 PM PEAK HOUR OF STREET
FIG 16

4.4 Level of Service

Level of service analyses were conducted for the peak study hours under forecast 2031 conditions. The analyses consider conditions without and with the additional school project trips added to the local roadway system. **Table 8** presents future without and with project LOS and delays

Table 8: Future 2031 Peak Hour Levels of Service

Delays given in seconds per vehicle

Intersection	Control	Project Status	AM Peak Combined Schools 7:30-8:30 LOS (Delay)	PM Peak Combined Schools 2:45-3:45 LOS (Delay)	PM Peak Street Peak (varies)[8] LOS (Delay)
SR 512 WB Ramps/ Pioneer Way E	Signal	Without	B (12.2)	B (17.0)	C (20.9)
		With	B (12.9)	B (18.2)	C (21.6)
SR 512 EB Ramps/ Pioneer Way E	Signal	Without	B (11.7)	B (11.5)	B (12.1)
		With	B (12.1)	B (11.7)	B (12.2)
15th Street SE/ Pioneer Way E	Signal	Without	B (10.7)	B (16.5)	C (28.1)
		With	B (10.8)	B (17.1)	C (28.7)
21st Street SE/ Pioneer Way E	Signal	Without	B (14.1)	B (12.4)	B (11.3)
		With	B (17.9)	B (13.9)	B (11.8)
21st Street SE/ Exit Drive	Stop	Without	B (13.7)	B (12.8)	A (9.6)
		With	C (20.4)	C (17.5)	B (10.0)
21st Street SE/ Entry Drive	Stop	Without	**F (56.7)**	C (15.3)	B (11.5)
		With	**F (430)**	C (20.6)	B (12.3)
Shaw Road E/ Pioneer Way E	Signal	Without	**E (63.3)**	**F (103.7)**	**F (147.5)**
		With	**E (74.7)**	**F (104.3)**	**F (151.6)**

City Level of Service Standard: LOS D

All study intersections beside Shaw Road E/Pioneer Way E and 21st Street SE and the school entrance are shown to continue meeting City LOS standards in all peak hour study scenarios.

[8] Data were collected from 4:00 to 6:00 PM. The individual study intersection peak hours varied from 4:00-5:00 PM, 4:15 – 5:15 PM, and 4:30 to 5:30 PM.

Shaw Road E/Pioneer E: is projected to operate with LOS E/F conditions with or without the portable additions to CCS. Operational issues at this intersection are related to a roadway network problem, as discussed under Section 3. A bottleneck exists downstream on Shaw Road E, where the road narrows from five lanes to two. Until that bottleneck is improved, this intersection will likely continue to operate poorly.

21st Street SE/9th Avenue SE/Entry Drive: is project to operate at LOS F in the AM school peak hour, with delays primarily resulting from vehicles exiting 9th Avenue SE and either entering the school or turning onto 21st Street SE. This is due to the high arrival rate in the AM. While delays may be high, they are short in duration as the school's peak activity tends to last 10-15 minutes.

Field observations indicated that drivers frequently left gaps to allow side-street vehicles to enter, a behavior not fully captured in the modeling software. As a result, the analysis provides a conservative estimate of delays. Given the planned improvements outlined in Section 3, observed driver behavior, and the short window of peak congestion, no mitigation measures are recommended at the site entrance at this time. However, the City will require ongoing monitoring of pick-up and drop-off operations, as discussed in the following section.

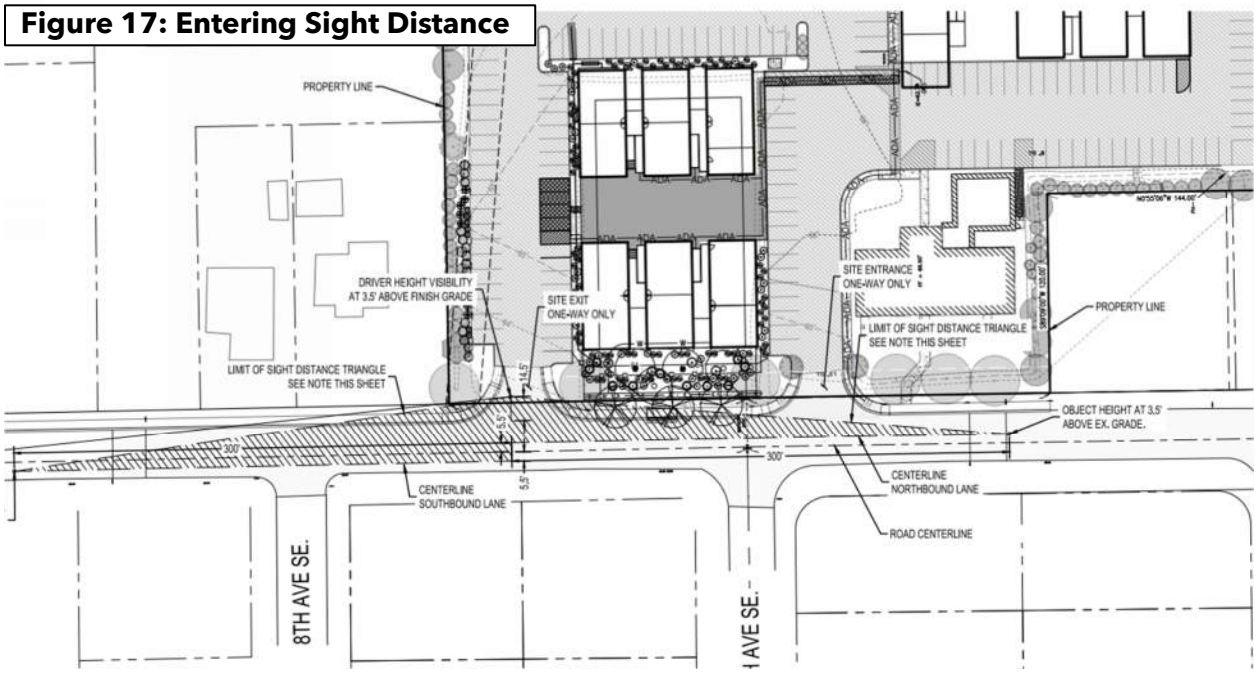
4.5 Site Access and School Zone

Sight Distance

The site will continue to provide access via an inbound-only and an outbound-only driveway to 21st Street SE. A sight distance exhibit below (full-size in the appendix) illustrates the required 300-foot sight lines at the exit driveway. As shown, sight lines are unobstructed except for the planned street trees located between the two driveways.

Street trees are commonly found within sight distance triangles and should be designed to minimize visibility obstructions while maintaining a minimum branch clearance of seven to eight feet above the roadway. However, the City may consider evaluating whether street trees in this location are necessary.

Figure 17: Entering Sight Distance



School Zone

Presently there is no school zone along 21st Street SE. Establishing a school zone—including the implementation of reduced speed limits—is typically under the jurisdiction of the local municipality. Based on review of the site activity, few walkers were noted as CCS has no specific enrollment boundaries resulting in students from various locations—often outside of walking proximity. Additionally, speed data showed no significant speeding concerns, with 85% of recorded vehicles traveling at or below 27 MPH. Whether to establish a school zone, and taking into consideration factors such as enforcement, will ultimately be determined by the City.

5. MITIGATION

In working with the City of Puyallup, the following mitigation measures are identified. With the proposed Conditional Use Permit (CUP) approval, the CCS campus will be allowed to operate at a maximum student capacity of 1,341 students, compared to the present 925 students. To adequately mitigate traffic queuing impacts the following countermeasures and conditions are required:

1. With utilization of only the existing drop-off and pick-up location on 21st Street SE, students will be capped at 1,065, which is a 15% increase over the present 925 students (vested capacity).

2. CCS to continue to refine and modify on-site routing configurations, channelization, training CCS staff for streamlined pick-up and drop-off procedures, consider off-site van or bus service to shuttle students on and off campus, and other strategies to optimize pick-up and drop-off activity.

3. Approximately 6 months from final installation of the portables to be allowed by the CUP approval, a meeting will be held on site while school is in session at CCS with City staff to observe drop-off and pick-up procedures and functional operation.

4. Payment of Traffic Impact Fees which will be evaluated separately and is based on the previous vested student capacity (925) compared to the proposed student capacity (1,341).

5. Prior to the submittal of any new/future permit, development application, Conditional Use Permit application or modifications as part of the CCS campus (including properties owned by Friends of CCS), CCS will be required to evaluate operational issues caused by excessive queuing along 21st Street SE. If the existing congestion on 21st Street SE has not been substantially mitigated by the countermeasures listed above, the applicant will be required to construct a secondary access and queuing area from 25th Street SE or equivalent capacity improvement. Alternatively, if student enrollment exceeds 1,065 students, up to a maximum of 1,341 students, an alternate access and queuing area from 25th Street SE or equivalent capacity improvement will be required. The alternative access and queuing area (adjacent to 25th Street SE) is expected to be paved and must meet City engineering standards. Additionally, a traffic analysis will be required during the preliminary review of the access on 25th Street NW.

   A conceptual illustration of an alternative queuing location on 25th Street NW is shown below.

Alternative Drop-Off and Pick-Up Plans

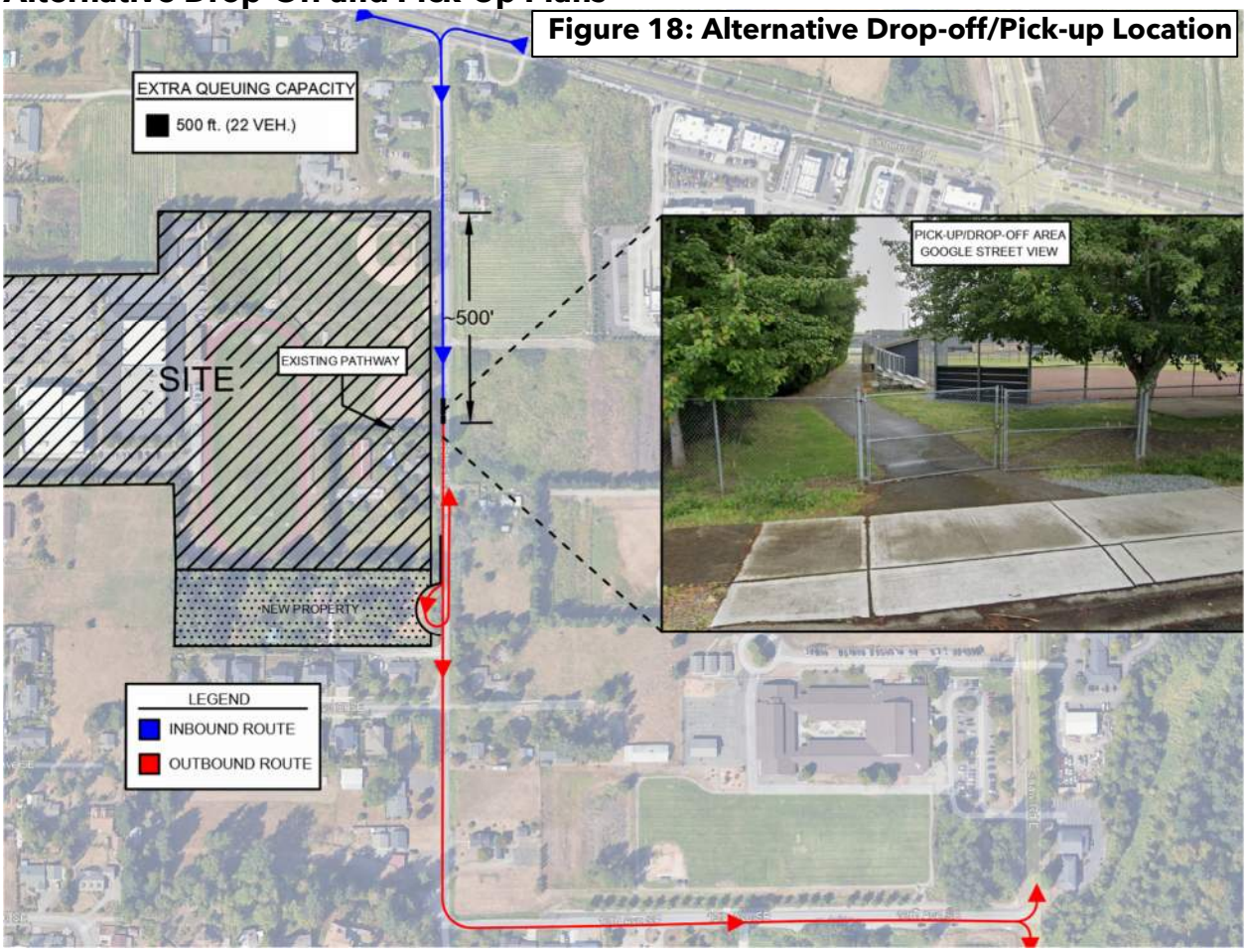


Figure 18: Alternative Drop-off/Pick-up Location

Another consideration includes: **Signal Changes to 21st Street SE/Pioneer Way E**

One recommendation is to adjust the signal timing at this intersection, specifically by increasing the protected green time for the westbound left-turn movement. This change would help reduce the unserved demand for this movement. Setting the signal to maximum recall during the school's AM and PM peak periods could further improve traffic flow. An additional 5–10 seconds of protected green time is estimated to accommodate full demand; however, this timing should be monitored continuously to maintain optimal performance.

6. CONCLUSION

Cascade Christian School (CCS) is applying for a Conditional Use Permit (CUP) to support the addition of 11 double portables to its campus. This expansion would increase the previously approved student capacity from 925 to 1,341 students. The portables include 16 general classrooms and ancillary spaces for restrooms, office, library, computer lab, and a band room. Figure 2 illustrates the site plan and planned location for the portables. No changes with respect to the site accesses on 21st Street SE is planned under this CUP.

Based on data collected by Heath & Associates in October 2024, local trip rates were developed to reflect the full buildout scenario of 1,341 students. Under these conditions, the school is projected to generate an additional 291 vehicle trips during the AM peak hour (7:30–8:30 AM), 235 trips during the PM school peak hour (2:45–3:45 PM), and 93 trips during the adjacent street's PM peak hour (4:30–5:30 PM). The elementary school's bell schedule is offset by 45 minutes in the morning and 30 minutes in the afternoon from the junior high and high school schedules, helping to reduce traffic congestion by minimizing overlap.

Several site observations were conducted while school was in session throughout 2024 and early 2025. Initial observations showed significant queuing on 21st Street SE during peak drop-off and pick-up periods, with queues extending onto Pioneer Way. However, CCS has actively implemented several mitigation measures to improve traffic flow, as discussed in previous sections. As a result, peak queues have been reduced from over 40 vehicles to fewer than 10 on 21st Street SE. CCS will continue to refine and evaluate operational improvements as needed.

Overall, with the mitigation measures outlined in Section 5, traffic conditions are expected to remain manageable, and no additional off-site improvements are identified at this time. CCS may enroll up to 1,065 students before triggering another traffic analysis and a potential evaluation of the need for a secondary access point. To ensure traffic operations remain acceptable and do not adversely impact surrounding roadways, CCS will conduct ongoing monitoring of pick-up and drop-off procedures. Additionally, an on-site evaluation will be coordinated with the City of Puyallup six months after CUP approval to assess conditions and determine if any further adjustments are necessary.

CASCADE CHRISTIAN SCHOOLS CONDITIONAL USE PERMIT UPDATE
TRAFFIC IMPACT ANALYSIS

APPENDIX:
Count Data –
AM Peak Hour

Heath & Associates

PO Box 397 Puyallup, WA 98371

File Name : 5314oC
Site Code : 00005314
Start Date : 10/3/2024
Page No : 1

Groups Printed- Passenger + - Heavy

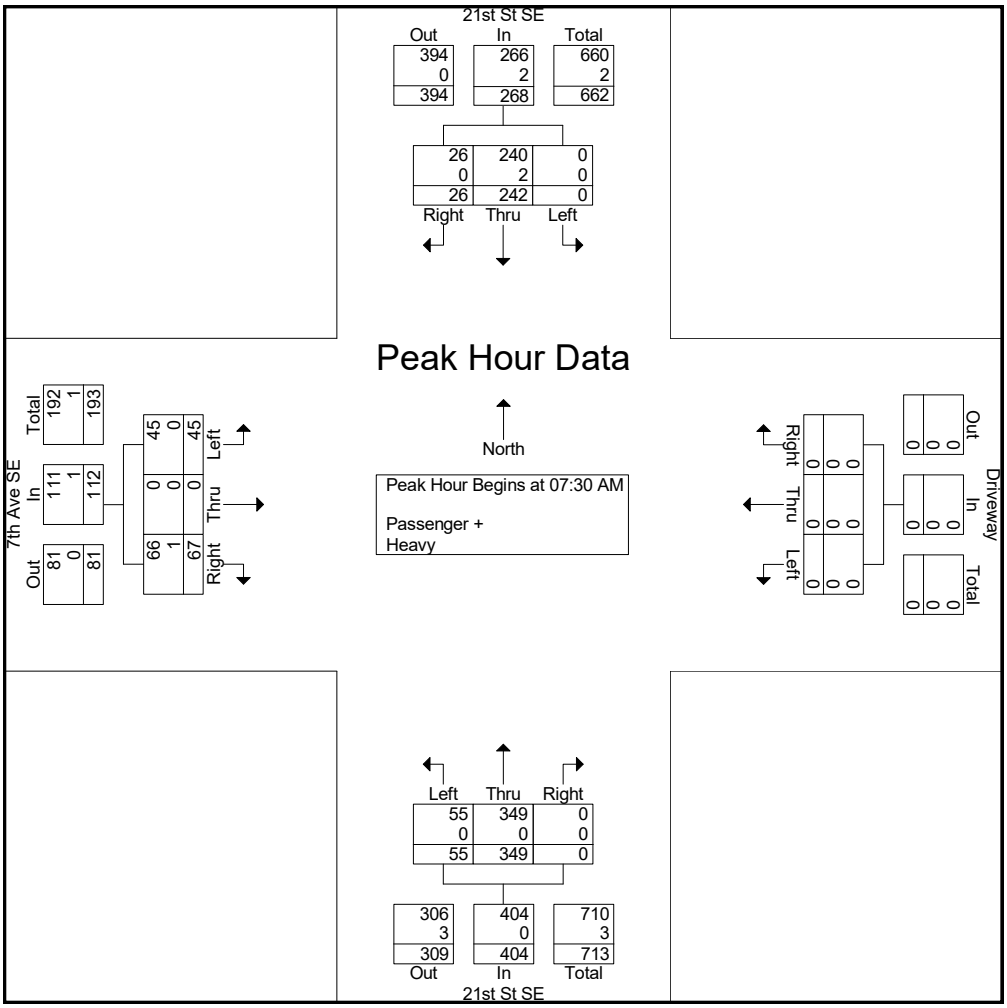
	21st St SE Southbound				Driveway Westbound				21st St SE Northbound				7th Ave SE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	23	49	0	72	0	0	0	0	0	27	6	33	7	0	13	20	125
07:15 AM	9	118	0	127	0	0	0	0	1	80	8	89	37	0	7	44	260
07:30 AM	1	97	0	98	0	0	0	0	0	145	19	164	29	0	3	32	294
07:45 AM	9	16	0	25	0	0	0	0	0	52	8	60	4	0	18	22	107
Total	42	280	0	322	0	0	0	0	1	304	41	346	77	0	41	118	786
08:00 AM	8	39	0	47	0	0	0	0	0	25	5	30	12	0	11	23	100
08:15 AM	8	90	0	98	0	0	0	0	0	127	23	150	22	0	13	35	283
08:30 AM	11	23	0	34	0	0	0	0	0	37	9	46	2	0	14	16	96
08:45 AM	13	10	0	23	0	0	0	0	0	18	0	18	3	0	15	18	59
Total	40	162	0	202	0	0	0	0	0	207	37	244	39	0	53	92	538
Grand Total	82	442	0	524	0	0	0	0	1	511	78	590	116	0	94	210	1324
Apprch %	15.6	84.4	0		0	0	0		0.2	86.6	13.2		55.2	0	44.8		
Total %	6.2	33.4	0	39.6	0	0	0	0	0.1	38.6	5.9	44.6	8.8	0	7.1	15.9	
Passenger +	82	440	0	522	0	0	0	0	1	511	77	589	115	0	92	207	1318
% Passenger +	100	99.5	0	99.6	0	0	0	0	100	100	98.7	99.8	99.1	0	97.9	98.6	99.5
Heavy	0	2	0	2	0	0	0	0	0	0	1	1	1	0	2	3	6
% Heavy	0	0.5	0	0.4	0	0	0	0	0	0	1.3	0.2	0.9	0	2.1	1.4	0.5

Heath & Associates

PO Box 397 Puyallup, WA 98371

File Name : 5314oC
Site Code : 00005314
Start Date : 10/3/2024
Page No : 2

	21st St SE Southbound				Driveway Westbound				21st St SE Northbound				7th Ave SE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	1	**97**	0	**98**	0	0	0	0	0	**145**	19	**164**	**29**	0	3	32	**294**
07:45 AM	**9**	16	0	25	0	0	0	0	0	52	8	60	4	0	**18**	22	107
08:00 AM	8	39	0	47	0	0	0	0	0	25	5	30	12	0	11	23	100
08:15 AM	8	90	0	98	0	0	0	0	0	127	**23**	150	22	0	13	**35**	283
Total Volume	26	242	0	268	0	0	0	0	0	349	55	404	67	0	45	112	784
% App. Total	9.7	90.3	0		0	0	0		0	86.4	13.6		59.8	0	40.2		
PHF	.722	.624	.000	.684	.000	.000	.000	.000	.000	.602	.598	.616	.578	.000	.625	.800	.667
Passenger +	26	240	0	266	0	0	0	0	0	349	55	404	66	0	45	111	781
% Passenger +	100	99.2	0	99.3	0	0	0	0	0	100	100	100	98.5	0	100	99.1	99.6
Heavy	0	2	0	2	0	0	0	0	0	0	0	0	1	0	0	1	3
% Heavy	0	0.8	0	0.7	0	0	0	0	0	0	0	0	1.5	0	0	0.9	0.4



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File Name : 5314oA
Site Code : 00005314
Start Date : 10/3/2024
Page No : 1

Groups Printed- Passenger + - Heavy

	21st St SE Southbound				South Access Westbound				21st St SE Northbound				9th Ave SE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	1	1	50	52	0	0	0	0	5	9	0	14	0	0	1	1	67
07:15 AM	2	4	135	141	0	0	0	0	54	9	0	63	0	2	3	5	209
07:30 AM	1	13	130	144	0	0	0	0	79	7	0	86	0	8	0	8	238
07:45 AM	0	13	22	35	0	0	0	0	8	12	0	20	0	0	2	2	57
Total	4	31	337	372	0	0	0	0	146	37	0	183	0	10	6	16	571
08:00 AM	2	16	45	63	0	0	0	0	11	14	0	25	0	0	3	3	91
08:15 AM	1	13	109	123	0	0	0	0	32	14	0	46	0	0	2	2	171
08:30 AM	0	14	17	31	0	0	0	0	1	11	0	12	0	0	2	2	45
08:45 AM	0	8	5	13	0	0	0	0	0	6	0	6	0	0	0	0	19
Total	3	51	176	230	0	0	0	0	44	45	0	89	0	0	7	7	326
09:00 AM	0	6	4	10	0	0	0	0	0	17	0	17	0	0	0	0	27
09:15 AM	1	7	6	14	0	0	0	0	1	10	1	12	0	0	1	1	27
09:30 AM	0	14	8	22	0	0	0	0	0	10	0	10	0	0	3	3	35
09:45 AM	1	5	3	9	0	0	0	0	1	6	0	7	0	0	1	1	17
Total	2	32	21	55	0	0	0	0	2	43	1	46	0	0	5	5	106
Grand Total	9	114	534	657	0	0	0	0	192	125	1	318	0	10	18	28	1003
Apprch %	1.4	17.4	81.3		0	0	0		60.4	39.3	0.3		0	35.7	64.3		
Total %	0.9	11.4	53.2	65.5	0	0	0	0	19.1	12.5	0.1	31.7	0	1	1.8	2.8	
Passenger +	9	111	534	654	0	0	0	0	192	123	1	316	0	10	17	27	997
% Passenger +	100	97.4	100	99.5	0	0	0	0	100	98.4	100	99.4	0	100	94.4	96.4	99.4
Heavy	0	3	0	3	0	0	0	0	0	2	0	2	0	0	1	1	6
% Heavy	0	2.6	0	0.5	0	0	0	0	0	1.6	0	0.6	0	0	5.6	3.6	0.6

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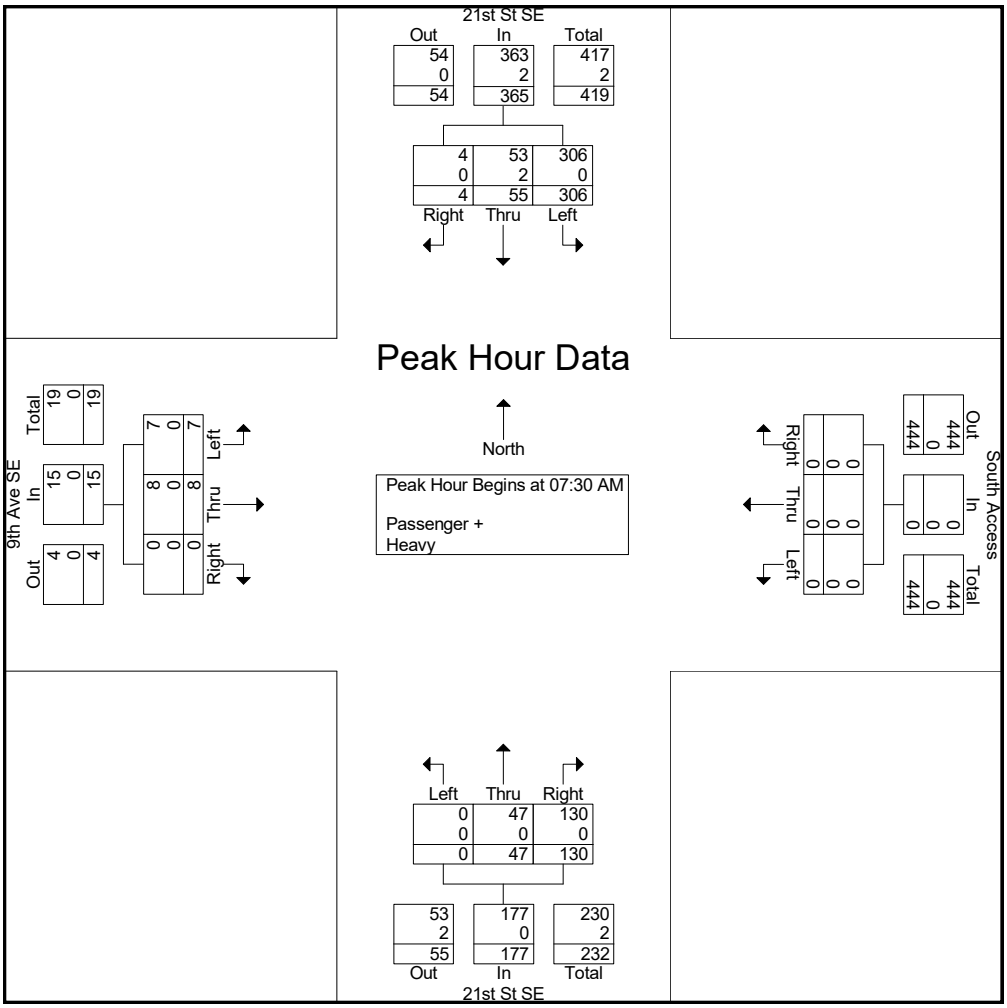
File Name : 5314oA
Site Code : 00005314
Start Date : 10/3/2024
Page No : 2

	21st St SE Southbound				South Access Westbound				21st St SE Northbound				9th Ave SE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	1	13	**130**	**144**	0	0	0	0	**79**	7	0	**86**	0	**8**	0	**8**	**238**
07:45 AM	0	13	22	35	0	0	0	0	8	12	0	20	0	0	2	2	57
08:00 AM	**2**	**16**	45	63	0	0	0	0	11	**14**	0	25	0	0	**3**	3	91
08:15 AM	1	13	109	123	0	0	0	0	32	14	0	46	0	0	2	2	171
Total Volume	4	55	306	365	0	0	0	0	130	47	0	177	0	8	7	15	557
% App. Total	1.1	15.1	83.8		0	0	0		73.4	26.6	0		0	53.3	46.7		
PHF	.500	.859	.588	.634	.000	.000	.000	.000	.411	.839	.000	.515	.000	.250	.583	.469	.585
Passenger +	4	53	306	363	0	0	0	0	130	47	0	177	0	8	7	15	555
% Passenger +	100	96.4	100	99.5	0	0	0	0	100	100	0	100	0	100	100	100	99.6
Heavy	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
% Heavy	0	3.6	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0.4



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File Name : 5314oB
Site Code : 00005314
Start Date : 10/3/2024
Page No : 1

Groups Printed- Passenger + - Heavy

	21st St SE Southbound			CC Exit Westbound			21st St SE Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
07:00 AM	52	0	52	21	1	22	0	10	10	84
07:15 AM	141	0	141	82	2	84	0	12	12	237
07:30 AM	142	0	142	151	7	158	0	7	7	307
07:45 AM	26	0	26	44	5	49	0	14	14	89
Total	361	0	361	298	15	313	0	43	43	717
08:00 AM	52	0	52	11	3	14	0	17	17	83
08:15 AM	120	0	120	132	10	142	0	16	16	278
08:30 AM	31	0	31	32	3	35	0	13	13	79
08:45 AM	13	0	13	11	0	11	0	6	6	30
Total	216	0	216	186	16	202	0	52	52	470
Grand Total	577	0	577	484	31	515	0	95	95	1187
Apprch %	100	0		94	6		0	100		
Total %	48.6	0	48.6	40.8	2.6	43.4	0	8	8	
Passenger +	575	0	575	484	31	515	0	94	94	1184
% Passenger +	99.7	0	99.7	100	100	100	0	98.9	98.9	99.7
Heavy	2	0	2	0	0	0	0	1	1	3
% Heavy	0.3	0	0.3	0	0	0	0	1.1	1.1	0.3

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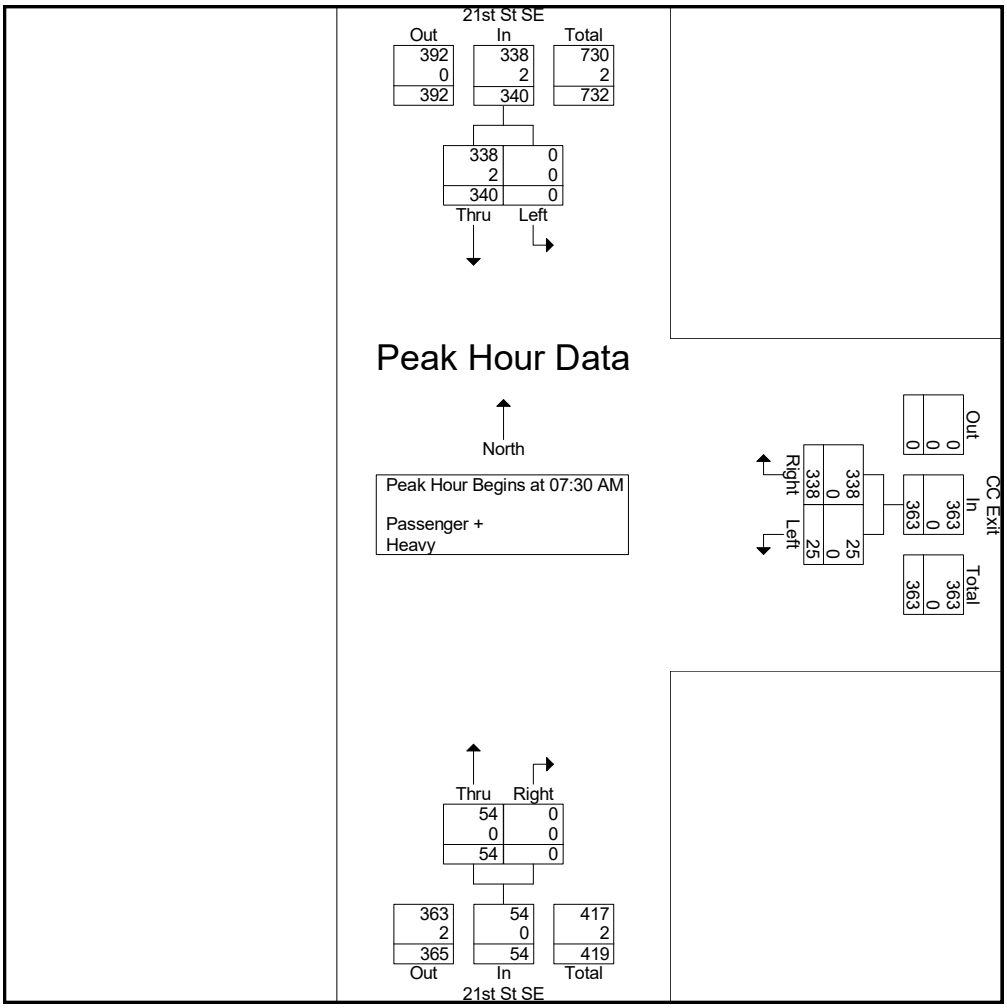
File Name : 5314oB
Site Code : 00005314
Start Date : 10/3/2024
Page No : 2

	21st St SE Southbound			CC Exit Westbound			21st St SE Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	**142**	0	**142**	**151**	7	**158**	0	7	7	**307**
07:45 AM	26	0	26	44	5	49	0	14	14	89
08:00 AM	52	0	52	11	3	14	0	**17**	**17**	83
08:15 AM	120	0	120	132	**10**	142	0	16	16	278
Total Volume	340	0	340	338	25	363	0	54	54	757
% App. Total	100	0		93.1	6.9		0	100		
PHF	.599	.000	.599	.560	.625	.574	.000	.794	.794	.616
Passenger +	338	0	338	338	25	363	0	54	54	755
% Passenger +	99.4	0	99.4	100	100	100	0	100	100	99.7
Heavy	2	0	2	0	0	0	0	0	0	2
% Heavy	0.6	0	0.6	0	0	0	0	0	0	0.3



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File Name : 5314oD
Site Code : 00005314
Start Date : 10/3/2024
Page No : 1

Groups Printed- Passenger + - Heavy

	E Pioneer Westbound			21st St SE Northbound			E Pioneer Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
07:00 AM	102	53	155	29	10	39	17	65	82	276
07:15 AM	118	79	197	39	45	84	59	97	156	437
07:30 AM	128	38	166	88	64	152	46	89	135	453
07:45 AM	138	18	156	49	27	76	8	80	88	320
Total	486	188	674	205	146	351	130	331	461	1486
08:00 AM	81	29	110	20	12	32	15	89	104	246
08:15 AM	100	65	165	78	56	134	39	121	160	459
08:30 AM	101	20	121	31	24	55	9	94	103	279
08:45 AM	105	21	126	23	12	35	3	89	92	253
Total	387	135	522	152	104	256	66	393	459	1237
Grand Total	873	323	1196	357	250	607	196	724	920	2723
Apprch %	73	27		58.8	41.2		21.3	78.7		
Total %	32.1	11.9	43.9	13.1	9.2	22.3	7.2	26.6	33.8	
Passenger +	821	323	1144	355	250	605	196	685	881	2630
% Passenger +	94	100	95.7	99.4	100	99.7	100	94.6	95.8	96.6
Heavy	52	0	52	2	0	2	0	39	39	93
% Heavy	6	0	4.3	0.6	0	0.3	0	5.4	4.2	3.4

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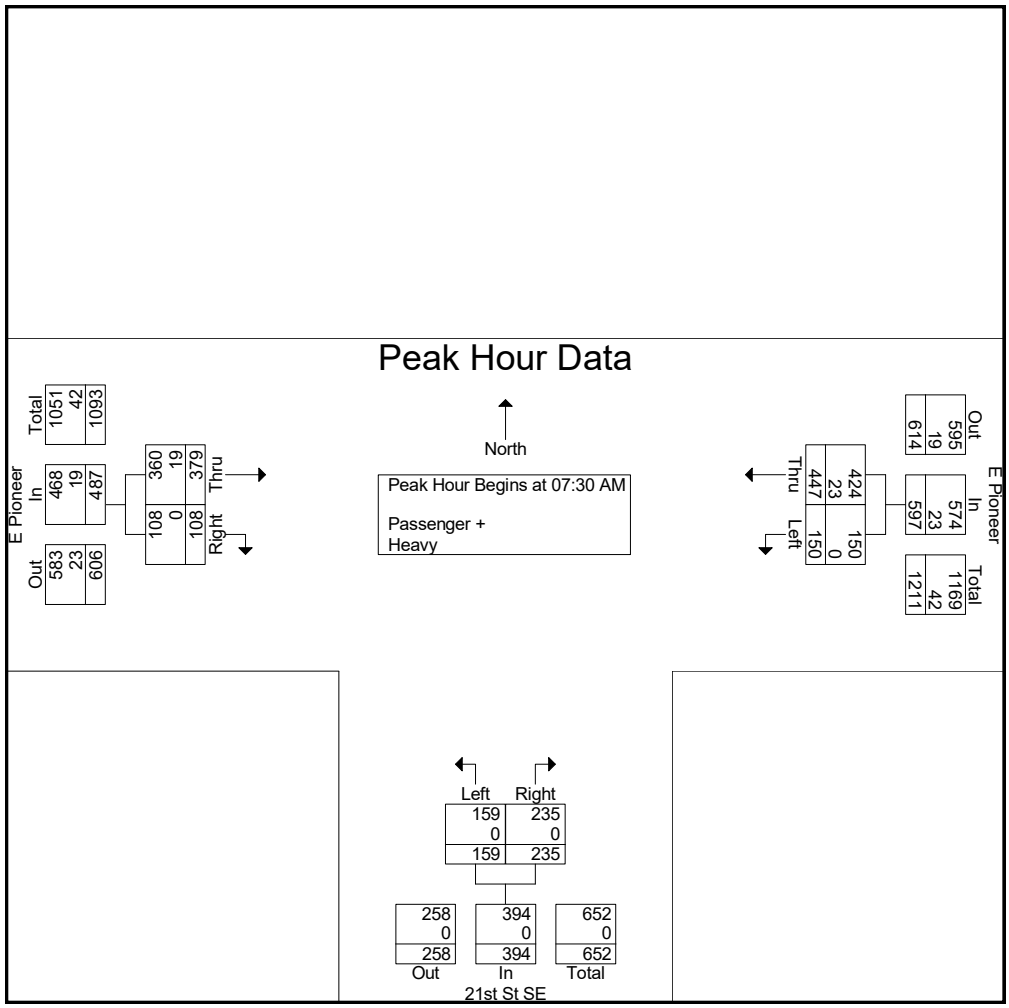
File Name : 5314oD
Site Code : 00005314
Start Date : 10/3/2024
Page No : 2

	E Pioneer Westbound			21st St SE Northbound			E Pioneer Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	128	38	**166**	**88**	**64**	**152**	**46**	89	135	453
07:45 AM	**138**	18	156	49	27	76	8	80	88	320
08:00 AM	81	29	110	20	12	32	15	89	104	246
08:15 AM	100	**65**	165	78	56	134	39	**121**	**160**	**459**
Total Volume	447	150	597	235	159	394	108	379	487	1478
% App. Total	74.9	25.1		59.6	40.4		22.2	77.8		
PHF	.810	.577	.899	.668	.621	.648	.587	.783	.761	.805
Passenger +	424	150	574	235	159	394	108	360	468	1436
% Passenger +	94.9	100	96.1	100	100	100	100	95.0	96.1	97.2
Heavy	23	0	23	0	0	0	0	19	19	42
% Heavy	5.1	0	3.9	0	0	0	0	5.0	3.9	2.8



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File Name : 5314oF
Site Code : 00005314
Start Date : 10/1/2024
Page No : 1

Groups Printed- Passenger + - Heavy

	15th St SE Southbound			E Pioneer Westbound			E Pioneer Eastbound			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
07:00 AM	18	10	28	13	98	111	77	39	116	255
07:15 AM	23	20	43	24	129	153	159	50	209	405
07:30 AM	13	12	25	22	168	190	96	53	149	364
07:45 AM	20	9	29	18	158	176	87	49	136	341
Total	74	51	125	77	553	630	419	191	610	1365
08:00 AM	23	9	32	13	103	116	97	54	151	299
08:15 AM	26	9	35	17	120	137	130	37	167	339
08:30 AM	28	5	33	17	123	140	73	28	101	274
08:45 AM	27	8	35	15	107	122	95	37	132	289
Total	104	31	135	62	453	515	395	156	551	1201
Grand Total	178	82	260	139	1006	1145	814	347	1161	2566
Apprch %	68.5	31.5		12.1	87.9		70.1	29.9		
Total %	6.9	3.2	10.1	5.4	39.2	44.6	31.7	13.5	45.2	
Passenger +	166	75	241	135	967	1102	775	336	1111	2454
% Passenger +	93.3	91.5	92.7	97.1	96.1	96.2	95.2	96.8	95.7	95.6
Heavy	12	7	19	4	39	43	39	11	50	112
% Heavy	6.7	8.5	7.3	2.9	3.9	3.8	4.8	3.2	4.3	4.4

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File Name : 5314oF
Site Code : 00005314
Start Date : 10/1/2024
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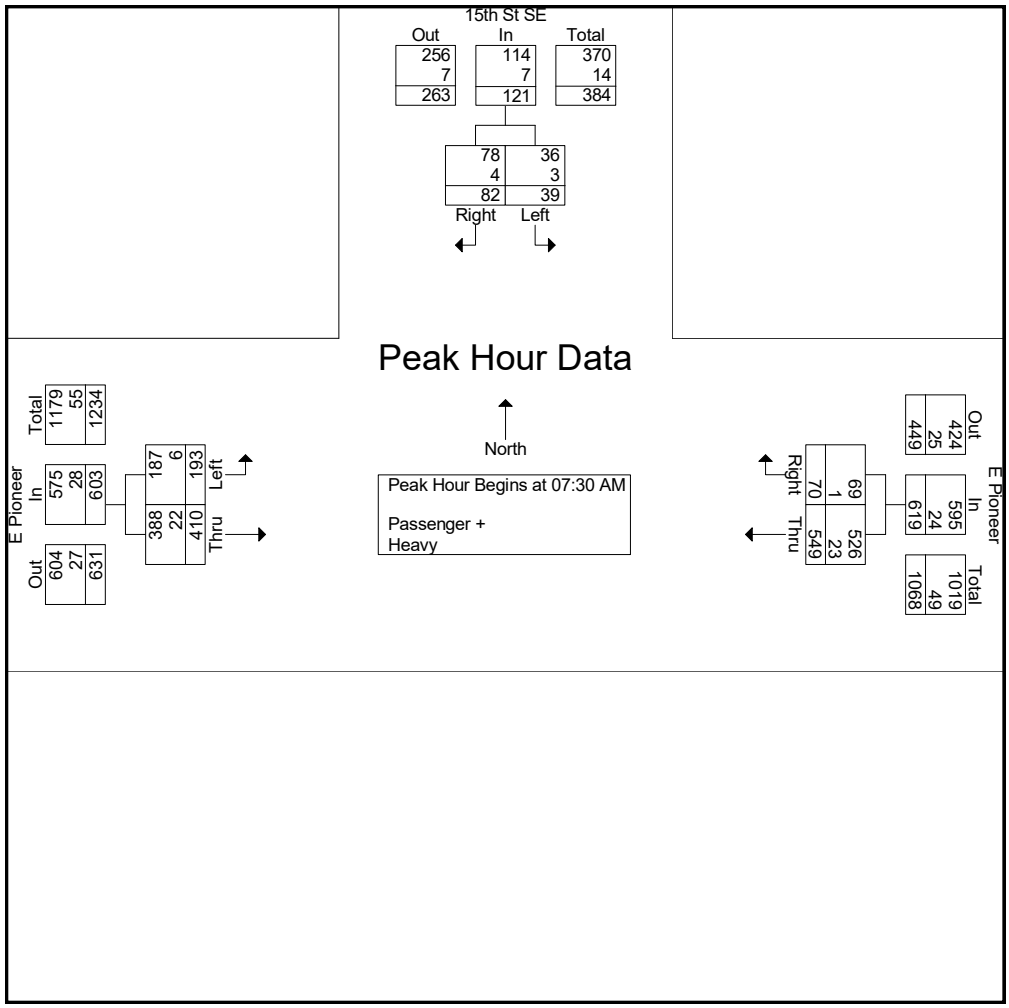
	15th St SE Southbound			E Pioneer Westbound			E Pioneer Eastbound			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	13	**12**	25	**22**	**168**	**190**	96	53	149	**364**
07:45 AM	20	9	29	18	158	176	87	49	136	341
08:00 AM	23	9	32	13	103	116	97	**54**	151	299
08:15 AM	**26**	9	**35**	17	120	137	**130**	37	**167**	339
Total Volume	82	39	121	70	549	619	410	193	603	1343
% App. Total	67.8	32.2		11.3	88.7		68	32		
PHF	.788	.813	.864	.795	.817	.814	.788	.894	.903	.922
Passenger +	78	36	114	69	526	595	388	187	575	1284
% Passenger +	95.1	92.3	94.2	98.6	95.8	96.1	94.6	96.9	95.4	95.6
Heavy	4	3	7	1	23	24	22	6	28	59
% Heavy	4.9	7.7	5.8	1.4	4.2	3.9	5.4	3.1	4.6	4.4



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File Name : 5314oG
Site Code : 00005314
Start Date : 10/1/2024
Page No : 1

Groups Printed- Passenger + - Heavy

	E Pioneer Westbound			SR 512 EB Ramps Northbound			E Pioneer Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
07:00 AM	114	15	129	52	14	66	53	55	108	303
07:15 AM	119	23	142	58	12	70	53	122	175	387
07:30 AM	145	22	167	58	14	72	48	100	148	387
07:45 AM	157	12	169	65	21	86	28	61	89	344
Total	535	72	607	233	61	294	182	338	520	1421
08:00 AM	129	11	140	74	32	106	30	66	96	342
08:15 AM	122	19	141	73	24	97	34	79	113	351
08:30 AM	125	14	139	43	25	68	33	63	96	303
08:45 AM	112	7	119	58	28	86	39	63	102	307
Total	488	51	539	248	109	357	136	271	407	1303
Grand Total	1023	123	1146	481	170	651	318	609	927	2724
Apprch %	89.3	10.7		73.9	26.1		34.3	65.7		
Total %	37.6	4.5	42.1	17.7	6.2	23.9	11.7	22.4	34	
Passenger +	973	121	1094	469	165	634	287	582	869	2597
% Passenger +	95.1	98.4	95.5	97.5	97.1	97.4	90.3	95.6	93.7	95.3
Heavy	50	2	52	12	5	17	31	27	58	127
% Heavy	4.9	1.6	4.5	2.5	2.9	2.6	9.7	4.4	6.3	4.7

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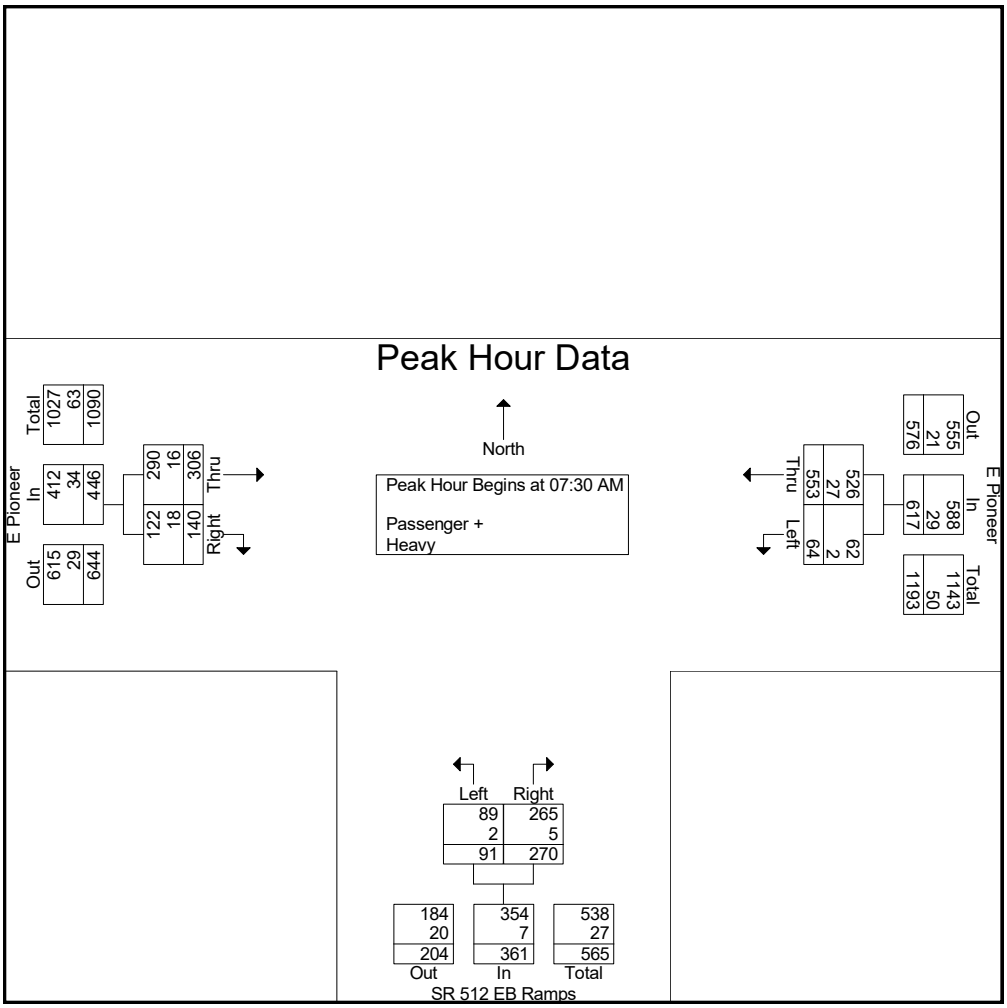
File Name : 5314oG
Site Code : 00005314
Start Date : 10/1/2024
Page No : 2

	E Pioneer Westbound			SR 512 EB Ramps Northbound			E Pioneer Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	145	**22**	167	58	14	72	**48**	**100**	**148**	**387**
07:45 AM	**157**	12	**169**	65	21	86	28	61	89	344
08:00 AM	129	11	140	**74**	**32**	**106**	30	66	96	342
08:15 AM	122	19	141	73	24	97	34	79	113	351
Total Volume	553	64	617	270	91	361	140	306	446	1424
% App. Total	89.6	10.4		74.8	25.2		31.4	68.6		
PHF	.881	.727	.913	.912	.711	.851	.729	.765	.753	.920
Passenger +	526	62	588	265	89	354	122	290	412	1354
% Passenger +	95.1	96.9	95.3	98.1	97.8	98.1	87.1	94.8	92.4	95.1
Heavy	27	2	29	5	2	7	18	16	34	70
% Heavy	4.9	3.1	4.7	1.9	2.2	1.9	12.9	5.2	7.6	4.9



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File Name : 5314oH
Site Code : 00005314
Start Date : 10/1/2024
Page No : 1

Groups Printed- Passenger + - Heavy

	E Pioneer Westbound			SR 512 WB Ramps Northbound			E Pioneer Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
07:00 AM	86	39	125	16	32	48	14	93	107	280
07:15 AM	89	57	146	31	18	49	27	143	170	365
07:30 AM	110	64	174	27	28	55	29	116	145	374
07:45 AM	142	61	203	13	51	64	19	74	93	360
Total	427	221	648	87	129	216	89	426	515	1379
08:00 AM	118	51	169	15	40	55	22	84	106	330
08:15 AM	93	57	150	19	32	51	35	98	133	334
08:30 AM	99	61	160	9	34	43	34	90	124	327
08:45 AM	115	41	156	8	45	53	27	94	121	330
Total	425	210	635	51	151	202	118	366	484	1321
Grand Total	852	431	1283	138	280	418	207	792	999	2700
Apprch %	66.4	33.6		33	67		20.7	79.3		
Total %	31.6	16	47.5	5.1	10.4	15.5	7.7	29.3	37	
Passenger +	823	409	1232	131	268	399	196	766	962	2593
% Passenger +	96.6	94.9	96	94.9	95.7	95.5	94.7	96.7	96.3	96
Heavy	29	22	51	7	12	19	11	26	37	107
% Heavy	3.4	5.1	4	5.1	4.3	4.5	5.3	3.3	3.7	4

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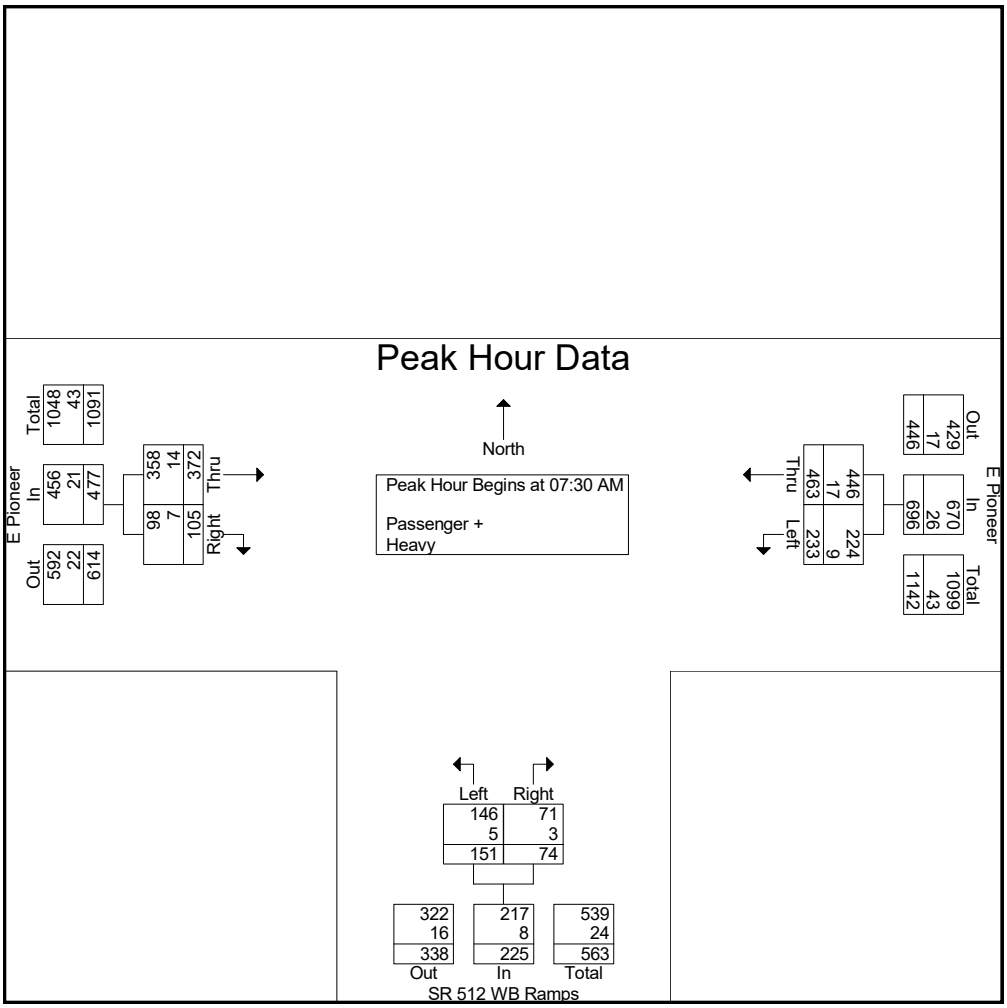
File Name : 5314oH
Site Code : 00005314
Start Date : 10/1/2024
Page No : 2

	E Pioneer Westbound			SR 512 WB Ramps Northbound			E Pioneer Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	110	**64**	174	**27**	28	55	29	**116**	**145**	**374**
07:45 AM	**142**	61	**203**	13	**51**	**64**	19	74	93	360
08:00 AM	118	51	169	15	40	55	22	84	106	330
08:15 AM	93	57	150	19	32	51	**35**	98	133	334
Total Volume	463	233	696	74	151	225	105	372	477	1398
% App. Total	66.5	33.5		32.9	67.1		22	78		
PHF	.815	.910	.857	.685	.740	.879	.750	.802	.822	.934
Passenger +	446	224	670	71	146	217	98	358	456	1343
% Passenger +	96.3	96.1	96.3	95.9	96.7	96.4	93.3	96.2	95.6	96.1
Heavy	17	9	26	3	5	8	7	14	21	55
% Heavy	3.7	3.9	3.7	4.1	3.3	3.6	6.7	3.8	4.4	3.9



Heath & Associates

PO Box 397 Puyallup, WA 98371

File Name : 5314oE
Site Code : 00005314
Start Date : 10/1/2024
Page No : 1

Groups Printed- Passenger + - Heavy

	Shaw Rd Southbound				E Pioneer Westbound				Shaw Rd Northbound				E Pioneer Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	15	67	10	92	14	56	12	82	4	179	40	223	14	38	45	97	494
07:15 AM	39	71	7	117	17	96	20	133	3	186	55	244	26	40	50	116	610
07:30 AM	25	60	7	92	26	79	22	127	3	169	31	203	34	45	63	142	564
07:45 AM	11	74	8	93	18	45	36	99	4	208	28	240	30	30	58	118	550
Total	90	272	32	394	75	276	90	441	14	742	154	910	104	153	216	473	2218
08:00 AM	13	81	8	102	16	34	18	68	17	171	36	224	30	32	39	101	495
08:15 AM	15	63	8	86	13	42	26	81	7	118	39	164	53	35	65	153	484
08:30 AM	7	85	3	95	17	54	26	97	10	146	29	185	27	23	44	94	471
08:45 AM	12	70	7	89	25	48	17	90	11	137	28	176	35	31	31	97	452
Total	47	299	26	372	71	178	87	336	45	572	132	749	145	121	179	445	1902
Grand Total	137	571	58	766	146	454	177	777	59	1314	286	1659	249	274	395	918	4120
Apprch %	17.9	74.5	7.6		18.8	58.4	22.8		3.6	79.2	17.2		27.1	29.8	43		
Total %	3.3	13.9	1.4	18.6	3.5	11	4.3	18.9	1.4	31.9	6.9	40.3	6	6.7	9.6	22.3	
Passenger +	136	551	50	737	119	420	173	712	58	1279	275	1612	239	256	390	885	3946
% Passenger +	99.3	96.5	86.2	96.2	81.5	92.5	97.7	91.6	98.3	97.3	96.2	97.2	96	93.4	98.7	96.4	95.8
Heavy	1	20	8	29	27	34	4	65	1	35	11	47	10	18	5	33	174
% Heavy	0.7	3.5	13.8	3.8	18.5	7.5	2.3	8.4	1.7	2.7	3.8	2.8	4	6.6	1.3	3.6	4.2

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File Name : 5314oE
Site Code : 00005314
Start Date : 10/1/2024
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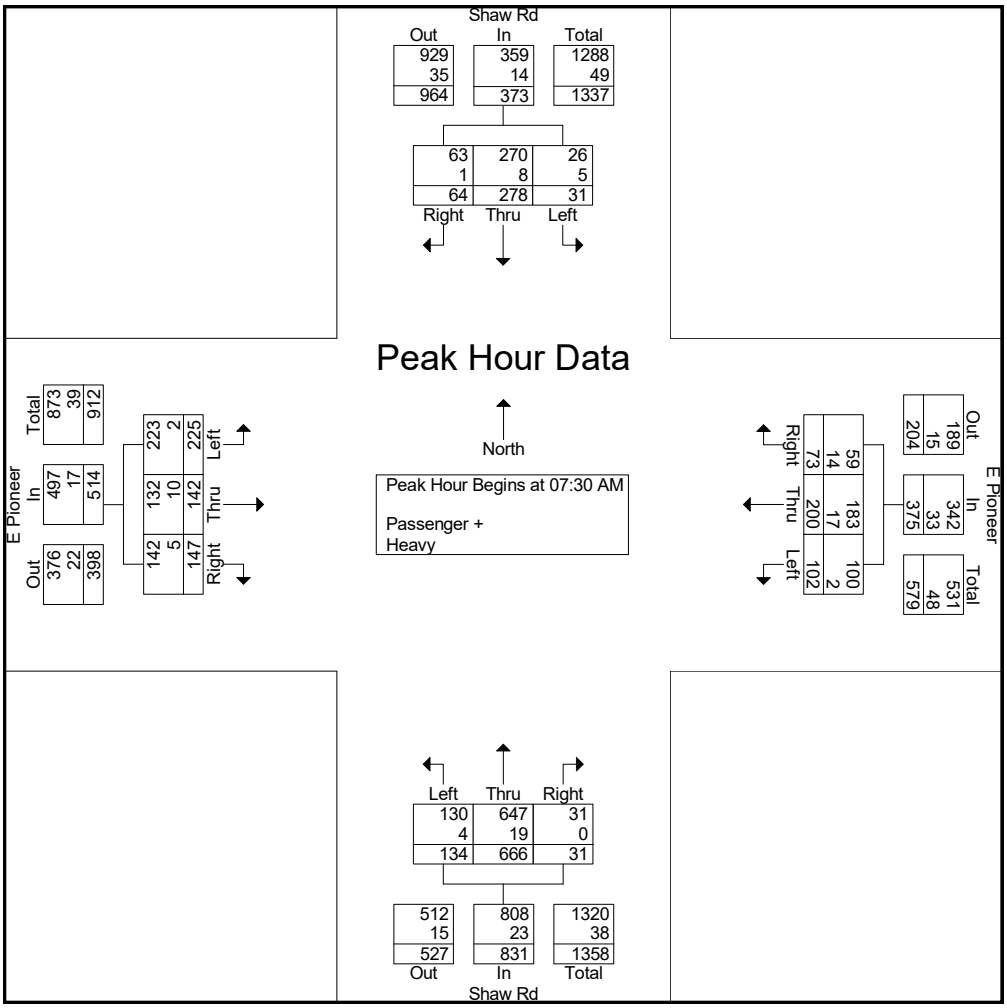
	Shaw Rd Southbound				E Pioneer Westbound				Shaw Rd Northbound				E Pioneer Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**25**	60	7	92	**26**	**79**	22	**127**	3	169	31	203	34	**45**	63	142	**564**
07:45 AM	11	74	**8**	93	18	45	**36**	99	4	**208**	28	**240**	30	30	58	118	550
08:00 AM	13	**81**	8	**102**	16	34	18	68	**17**	171	36	224	30	32	39	101	495
08:15 AM	15	63	8	86	13	42	26	81	7	118	**39**	164	**53**	35	**65**	**153**	484
Total Volume	64	278	31	373	73	200	102	375	31	666	134	831	147	142	225	514	2093
% App. Total	17.2	74.5	8.3		19.5	53.3	27.2		3.7	80.1	16.1		28.6	27.6	43.8		
PHF	.640	.858	.969	.914	.702	.633	.708	.738	.456	.800	.859	.866	.693	.789	.865	.840	.928
Passenger +	63	270	26	359	59	183	100	342	31	647	130	808	142	132	223	497	2006
% Passenger +	98.4	97.1	83.9	96.2	80.8	91.5	98.0	91.2	100	97.1	97.0	97.2	96.6	93.0	99.1	96.7	95.8
Heavy	1	8	5	14	14	17	2	33	0	19	4	23	5	10	2	17	87
% Heavy	1.6	2.9	16.1	3.8	19.2	8.5	2.0	8.8	0	2.9	3.0	2.8	3.4	7.0	0.9	3.3	4.2



CASCADE CHRISTIAN SCHOOLS CONDITIONAL USE PERMIT UPDATE
TRAFFIC IMPACT ANALYSIS

APPENDIX:
Count Data
PM Peak Hour(s)

Heath & Associates

PO Box 397 Puyallup, WA 98371

File Name : 5314oL
Site Code : 00005314
Start Date : 10/1/2024
Page No : 1

Groups Printed- Passenger + - Heavy

	15th St SE Southbound			E Pioneer Westbound			E Pioneer Eastbound			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
02:00 PM	41	19	60	17	84	101	107	35	142	303
02:15 PM	55	36	91	11	76	87	111	33	144	322
02:30 PM	59	37	96	15	110	125	128	43	171	392
02:45 PM	57	35	92	22	150	172	108	32	140	404
Total	212	127	339	65	420	485	454	143	597	1421
03:00 PM	55	37	92	13	114	127	159	40	199	418
03:15 PM	67	39	106	23	126	149	159	34	193	448
03:30 PM	90	56	146	24	144	168	128	53	181	495
03:45 PM	86	52	138	14	113	127	127	69	196	461
Total	298	184	482	74	497	571	573	196	769	1822
04:00 PM	112	51	163	19	157	176	117	94	211	550
04:15 PM	75	46	121	22	151	173	135	62	197	491
04:30 PM	97	57	154	16	147	163	136	54	190	507
04:45 PM	102	67	169	18	128	146	136	54	190	505
Total	386	221	607	75	583	658	524	264	788	2053
05:00 PM	100	70	170	17	151	168	162	61	223	561
05:15 PM	97	52	149	27	136	163	130	42	172	484
05:30 PM	74	42	116	20	112	132	127	49	176	424
05:45 PM	56	45	101	20	117	137	94	56	150	388
Total	327	209	536	84	516	600	513	208	721	1857
Grand Total	1223	741	1964	298	2016	2314	2064	811	2875	7153
Apprch %	62.3	37.7		12.9	87.1		71.8	28.2		
Total %	17.1	10.4	27.5	4.2	28.2	32.4	28.9	11.3	40.2	
Passenger +	1200	723	1923	284	1968	2252	2011	777	2788	6963
% Passenger +	98.1	97.6	97.9	95.3	97.6	97.3	97.4	95.8	97	97.3
Heavy	23	18	41	14	48	62	53	34	87	190
% Heavy	1.9	2.4	2.1	4.7	2.4	2.7	2.6	4.2	3	2.7

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File Name : 5314oL
Site Code : 00005314
Start Date : 10/1/2024
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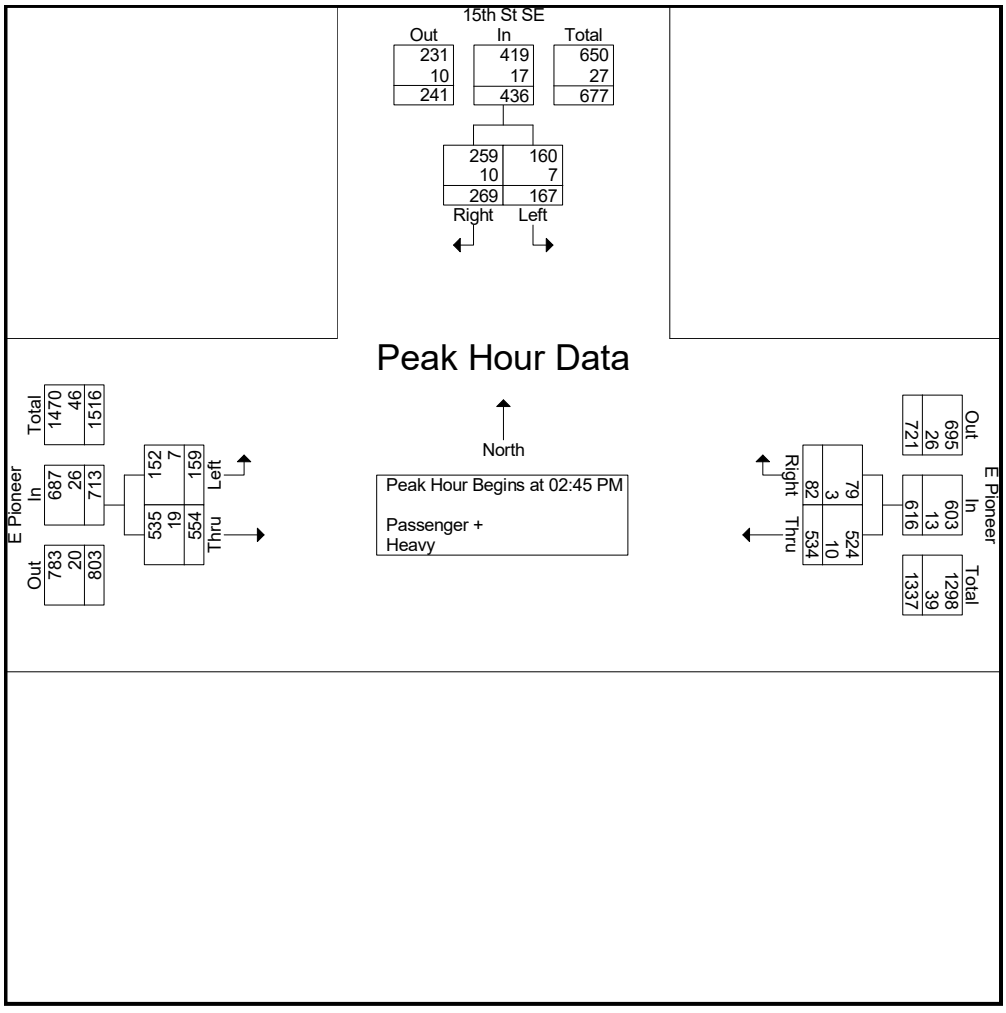
	15th St SE Southbound			E Pioneer Westbound			E Pioneer Eastbound			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 02:45 PM to 03:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 02:45 PM										
02:45 PM	57	35	92	22	**150**	**172**	108	32	140	404
03:00 PM	55	37	92	13	114	127	**159**	40	**199**	418
03:15 PM	67	39	106	23	126	149	159	34	193	448
03:30 PM	**90**	**56**	**146**	**24**	144	168	128	**53**	181	**495**
Total Volume	269	167	436	82	534	616	554	159	713	1765
% App. Total	61.7	38.3		13.3	86.7		77.7	22.3		
PHF	.747	.746	.747	.854	.890	.895	.871	.750	.896	.891
Passenger +	259	160	419	79	524	603	535	152	687	1709
% Passenger +	96.3	95.8	96.1	96.3	98.1	97.9	96.6	95.6	96.4	96.8
Heavy	10	7	17	3	10	13	19	7	26	56
% Heavy	3.7	4.2	3.9	3.7	1.9	2.1	3.4	4.4	3.6	3.2



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PO Box 397 Puyallup, WA 98371

File Name : 5314oL
Site Code : 00005314
Start Date : 10/1/2024
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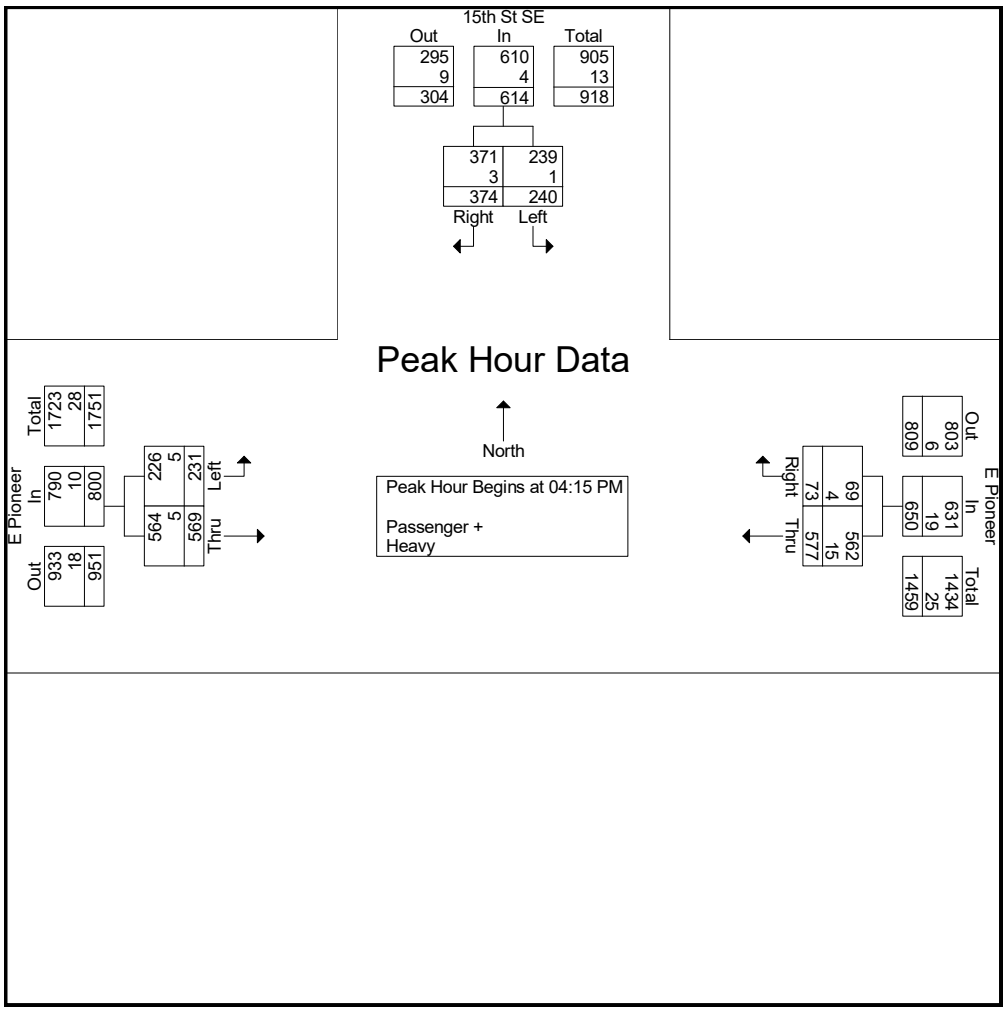
	15th St SE Southbound			E Pioneer Westbound			E Pioneer Eastbound			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	75	46	121	**22**	**151**	**173**	135	**62**	197	491
04:30 PM	97	57	154	16	147	163	136	54	190	507
04:45 PM	**102**	67	169	18	128	146	136	54	190	505
05:00 PM	100	**70**	**170**	17	151	168	**162**	61	**223**	**561**
Total Volume	374	240	614	73	577	650	569	231	800	2064
% App. Total	60.9	39.1		11.2	88.8		71.1	28.9		
PHF	.917	.857	.903	.830	.955	.939	.878	.931	.897	.920
Passenger +	371	239	610	69	562	631	564	226	790	2031
% Passenger +	99.2	99.6	99.3	94.5	97.4	97.1	99.1	97.8	98.8	98.4
Heavy	3	1	4	4	15	19	5	5	10	33
% Heavy	0.8	0.4	0.7	5.5	2.6	2.9	0.9	2.2	1.3	1.6



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PO Box 397 Puyallup, WA 98371

File Name : 5314oJ
Site Code : 00005314
Start Date : 10/3/2024
Page No : 1

Groups Printed- Passenger + - Heavy

	21st St SE Southbound				Private Driveway Westbound				21st St SE Northbound				7th Ave SE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
02:00 PM	19	20	0	39	0	0	0	0	0	7	0	7	6	0	17	23	69
02:15 PM	12	50	0	62	0	0	0	0	0	9	9	18	10	0	13	23	103
02:30 PM	13	60	0	73	0	0	0	0	0	74	7	81	5	0	11	16	170
02:45 PM	19	47	0	66	0	0	0	0	0	89	9	98	9	0	13	22	186
Total	63	177	0	240	0	0	0	0	0	179	25	204	30	0	54	84	528
03:00 PM	16	79	0	95	0	0	0	0	0	70	8	78	25	0	24	49	222
03:15 PM	17	61	0	78	0	0	0	0	0	130	21	151	10	0	16	26	255
03:30 PM	16	30	0	46	0	0	0	0	0	86	19	105	6	0	15	21	172
03:45 PM	12	30	0	42	0	0	0	0	0	42	8	50	7	0	20	27	119
Total	61	200	0	261	0	0	0	0	0	328	56	384	48	0	75	123	768
04:00 PM	15	44	0	59	0	0	0	0	0	43	7	50	4	0	18	22	131
04:15 PM	20	50	0	70	0	0	0	0	0	26	4	30	4	0	24	28	128
04:30 PM	24	47	0	71	0	0	0	0	0	64	7	71	4	0	19	23	165
04:45 PM	20	41	0	61	0	0	0	0	0	31	5	36	2	0	12	14	111
Total	79	182	0	261	0	0	0	0	0	164	23	187	14	0	73	87	535
05:00 PM	18	32	0	50	0	0	0	0	0	47	13	60	7	0	19	26	136
05:15 PM	18	24	0	42	0	0	0	0	0	44	4	48	5	0	19	24	114
05:30 PM	14	23	0	37	0	0	0	0	0	25	1	26	5	0	17	22	85
05:45 PM	16	21	0	37	0	0	0	0	0	20	1	21	1	0	13	14	72
Total	66	100	0	166	0	0	0	0	0	136	19	155	18	0	68	86	407
Grand Total	269	659	0	928	0	0	0	0	0	807	123	930	110	0	270	380	2238
Apprch %	29	71	0		0	0	0		0	86.8	13.2		28.9	0	71.1		
Total %	12	29.4	0	41.5	0	0	0	0	0	36.1	5.5	41.6	4.9	0	12.1	17	
Passenger +	263	651	0	914	0	0	0	0	0	796	121	917	106	0	265	371	2202
% Passenger +	97.8	98.8	0	98.5	0	0	0	0	0	98.6	98.4	98.6	96.4	0	98.1	97.6	98.4
Heavy	6	8	0	14	0	0	0	0	0	11	2	13	4	0	5	9	36
% Heavy	2.2	1.2	0	1.5	0	0	0	0	0	1.4	1.6	1.4	3.6	0	1.9	2.4	1.6

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File Name : 5314oJ
Site Code : 00005314
Start Date : 10/3/2024
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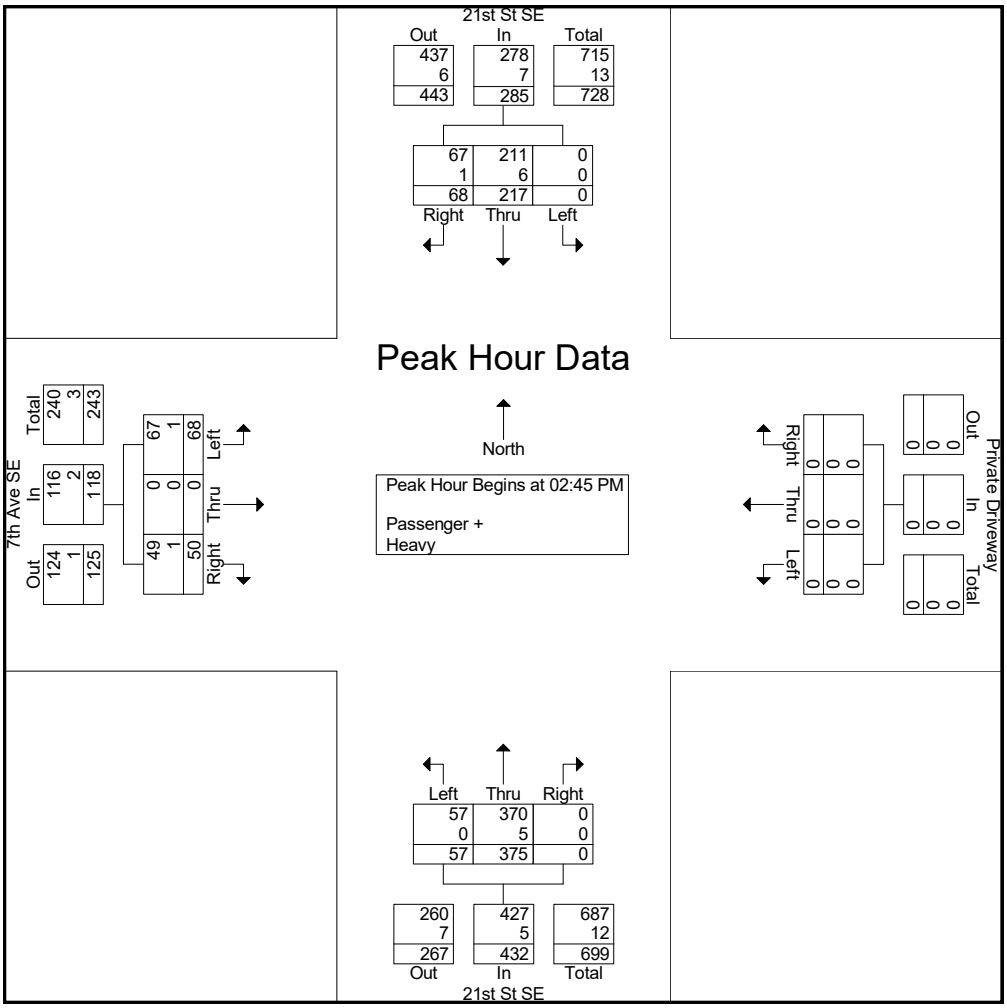
	21st St SE Southbound				Private Driveway Westbound				21st St SE Northbound				7th Ave SE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 02:45 PM to 03:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:45 PM																	
02:45 PM	**19**	47	0	66	0	0	0	0	0	89	9	98	9	0	13	22	186
03:00 PM	16	**79**	0	**95**	0	0	0	0	0	70	8	78	**25**	0	**24**	**49**	222
03:15 PM	17	61	0	78	0	0	0	0	0	**130**	**21**	**151**	10	0	16	26	**255**
03:30 PM	16	30	0	46	0	0	0	0	0	86	19	105	6	0	15	21	172
Total Volume	68	217	0	285	0	0	0	0	0	375	57	432	50	0	68	118	835
% App. Total	23.9	76.1	0		0	0	0		0	86.8	13.2		42.4	0	57.6		
PHF	.895	.687	.000	.750	.000	.000	.000	.000	.000	.721	.679	.715	.500	.000	.708	.602	.819
Passenger +	67	211	0	278	0	0	0	0	0	370	57	427	49	0	67	116	821
% Passenger +	98.5	97.2	0	97.5	0	0	0	0	0	98.7	100	98.8	98.0	0	98.5	98.3	98.3
Heavy	1	6	0	7	0	0	0	0	0	5	0	5	1	0	1	2	14
% Heavy	1.5	2.8	0	2.5	0	0	0	0	0	1.3	0	1.2	2.0	0	1.5	1.7	1.7



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Site Code : 00005314
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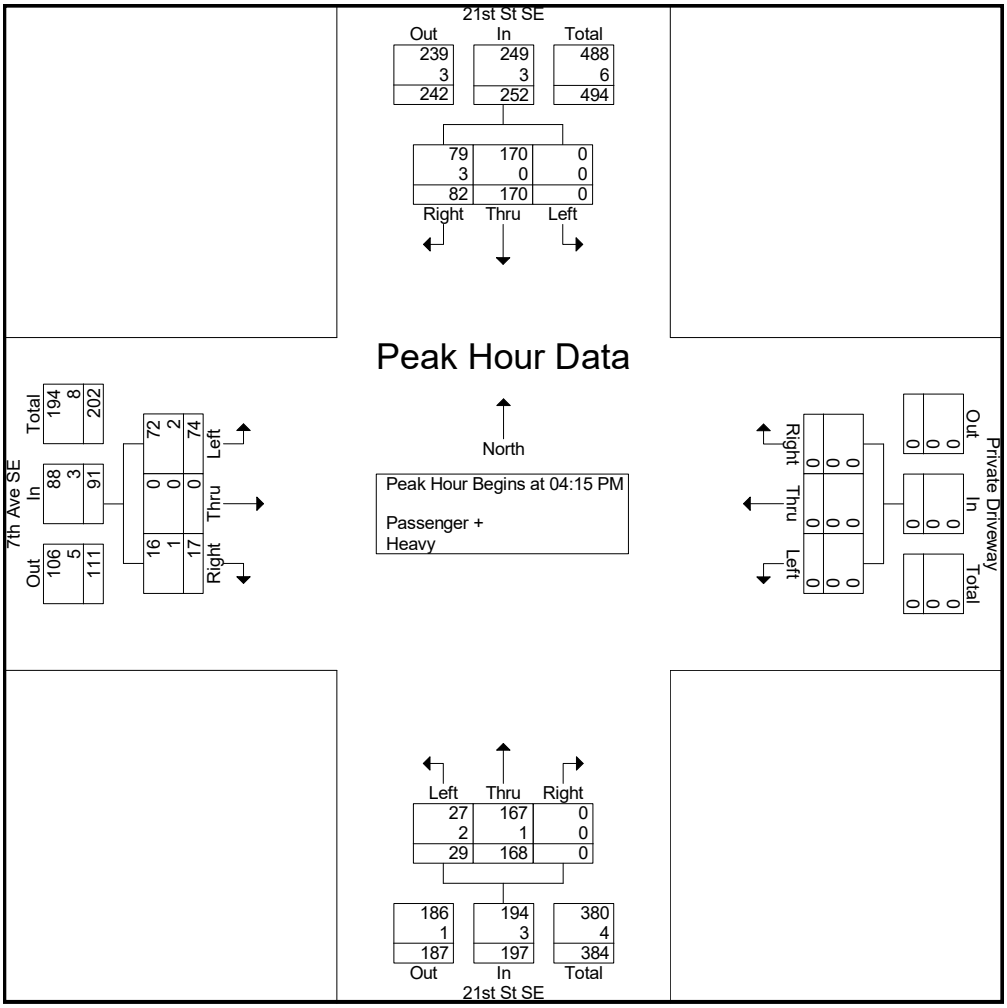
Page No : 3

	21st St SE Southbound				Private Driveway Westbound				21st St SE Northbound				7th Ave SE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	20	**50**	0	70	0	0	0	0	0	26	4	30	4	0	**24**	**28**	128
04:30 PM	**24**	47	0	**71**	0	0	0	0	0	**64**	7	**71**	4	0	19	23	**165**
04:45 PM	20	41	0	61	0	0	0	0	0	31	5	36	2	0	12	14	111
05:00 PM	18	32	0	50	0	0	0	0	0	47	**13**	60	**7**	0	19	26	136
Total Volume	82	170	0	252	0	0	0	0	0	168	29	197	17	0	74	91	540
% App. Total	32.5	67.5	0		0	0	0		0	85.3	14.7		18.7	0	81.3		
PHF	.854	.850	.000	.887	.000	.000	.000	.000	.000	.656	.558	.694	.607	.000	.771	.813	.818
Passenger +	79	170	0	249	0	0	0	0	0	167	27	194	16	0	72	88	531
% Passenger +	96.3	100	0	98.8	0	0	0	0	0	99.4	93.1	98.5	94.1	0	97.3	96.7	98.3
Heavy	3	0	0	3	0	0	0	0	0	1	2	3	1	0	2	3	9
% Heavy	3.7	0	0	1.2	0	0	0	0	0	0.6	6.9	1.5	5.9	0	2.7	3.3	1.7



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PO Box 397 Puyallup, WA 98371

File Name : 5314OctB
Site Code : 00005314
Start Date : 10/3/2024
Page No : 1

Groups Printed- Passenger + - Heavy

	21st St SE Southbound				South Access Westbound				21st St SE Northbound				9th Ave SE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
02:00 PM	3	10	13	26	0	0	0	0	1	6	0	7	0	0	0	0	33
02:15 PM	2	16	41	59	0	0	0	0	2	12	0	14	0	0	1	1	74
02:30 PM	7	14	40	61	0	0	0	0	3	12	1	16	1	1	0	2	79
02:45 PM	1	17	42	60	0	0	0	0	8	7	0	15	1	0	1	2	77
Total	13	57	136	206	0	0	0	0	14	37	1	52	2	1	2	5	263
03:00 PM	5	28	69	102	0	0	0	0	30	17	0	47	0	2	1	3	152
03:15 PM	6	27	74	107	0	0	0	0	18	13	0	31	1	0	1	2	140
03:30 PM	2	25	16	43	0	0	0	0	4	12	0	16	0	0	0	0	59
03:45 PM	3	16	17	36	0	0	0	0	0	14	0	14	0	0	1	1	51
Total	16	96	176	288	0	0	0	0	52	56	0	108	1	2	3	6	402
04:00 PM	2	26	23	51	0	0	0	0	2	22	1	25	0	0	1	1	77
04:15 PM	3	19	29	51	0	0	0	0	0	10	0	10	2	1	4	7	68
04:30 PM	7	24	20	51	0	0	0	0	3	14	0	17	0	1	2	3	71
04:45 PM	4	24	19	47	0	0	0	0	0	15	0	15	0	0	0	0	62
Total	16	93	91	200	0	0	0	0	5	61	1	67	2	2	7	11	278
05:00 PM	4	19	24	47	1	0	0	1	3	14	0	17	0	0	2	2	67
05:15 PM	2	15	13	30	0	0	0	0	0	11	0	11	0	0	3	3	44
05:30 PM	3	20	5	28	1	0	0	1	0	10	1	11	1	0	1	2	42
05:45 PM	3	16	2	21	1	0	0	1	0	10	0	10	0	0	0	0	32
Total	12	70	44	126	3	0	0	3	3	45	1	49	1	0	6	7	185
Grand Total	57	316	447	820	3	0	0	3	74	199	3	276	6	5	18	29	1128
Apprch %	7	38.5	54.5		100	0	0		26.8	72.1	1.1		20.7	17.2	62.1		
Total %	5.1	28	39.6	72.7	0.3	0	0	0.3	6.6	17.6	0.3	24.5	0.5	0.4	1.6	2.6	
Passenger +	55	308	445	808	3	0	0	3	74	192	3	269	4	5	18	27	1107
% Passenger +	96.5	97.5	99.6	98.5	100	0	0	100	100	96.5	100	97.5	66.7	100	100	93.1	98.1
Heavy	2	8	2	12	0	0	0	0	0	7	0	7	2	0	0	2	21
% Heavy	3.5	2.5	0.4	1.5	0	0	0	0	0	3.5	0	2.5	33.3	0	0	6.9	1.9

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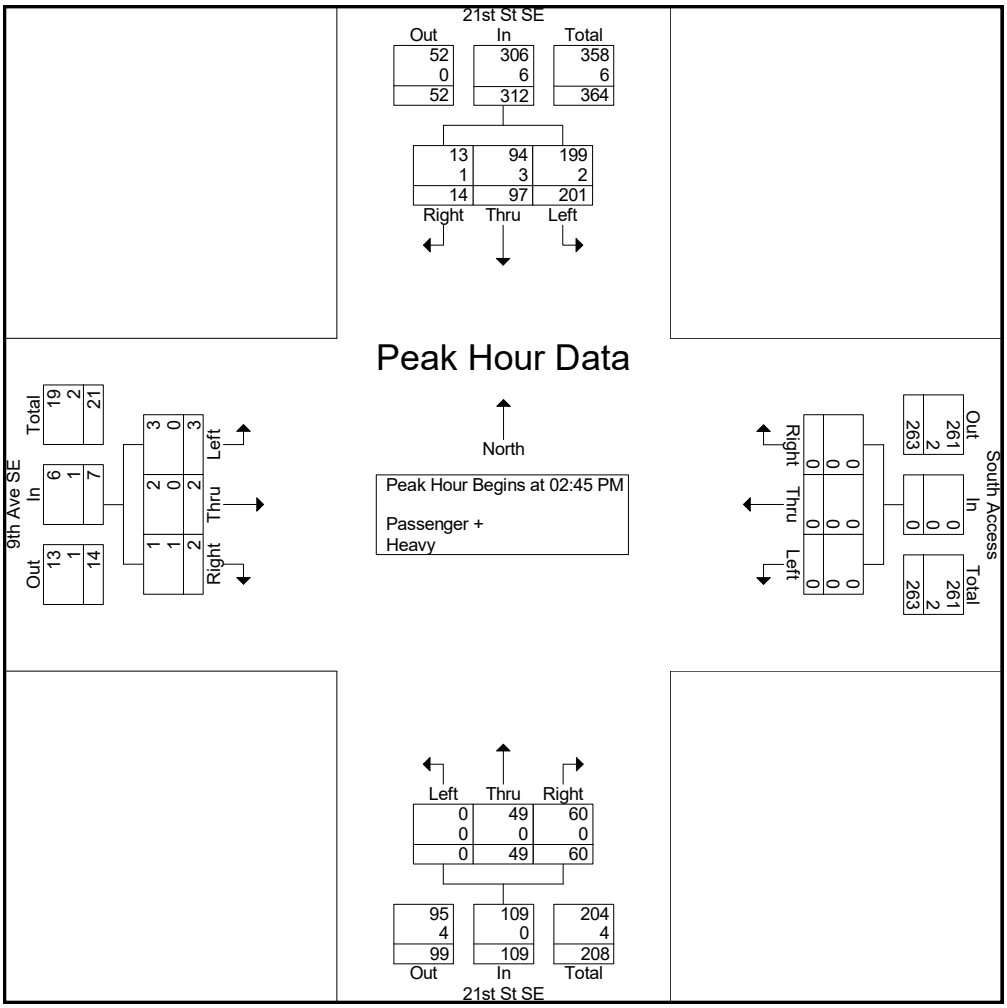
File Name : 5314OctB
Site Code : 00005314
Start Date : 10/3/2024
Page No : 2

	21st St SE Southbound				South Access Westbound				21st St SE Northbound				9th Ave SE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 02:45 PM to 03:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:45 PM																	
02:45 PM	1	17	42	60	0	0	0	0	8	7	0	15	**1**	0	**1**	2	77
03:00 PM	5	**28**	69	102	0	0	0	0	**30**	**17**	0	**47**	0	**2**	1	**3**	**152**
03:15 PM	**6**	27	**74**	**107**	0	0	0	0	18	13	0	31	1	0	1	2	140
03:30 PM	2	25	16	43	0	0	0	0	4	12	0	16	0	0	0	0	59
Total Volume	14	97	201	312	0	0	0	0	60	49	0	109	2	2	3	7	428
% App. Total	4.5	31.1	64.4		0	0	0		55	45	0		28.6	28.6	42.9		
PHF	.583	.866	.679	.729	.000	.000	.000	.000	.500	.721	.000	.580	.500	.250	.750	.583	.704
Passenger +	13	94	199	306	0	0	0	0	60	49	0	109	1	2	3	6	421
% Passenger +	92.9	96.9	99.0	98.1	0	0	0	0	100	100	0	100	50.0	100	100	85.7	98.4
Heavy	1	3	2	6	0	0	0	0	0	0	0	0	1	0	0	1	7
% Heavy	7.1	3.1	1.0	1.9	0	0	0	0	0	0	0	0	50.0	0	0	14.3	1.6



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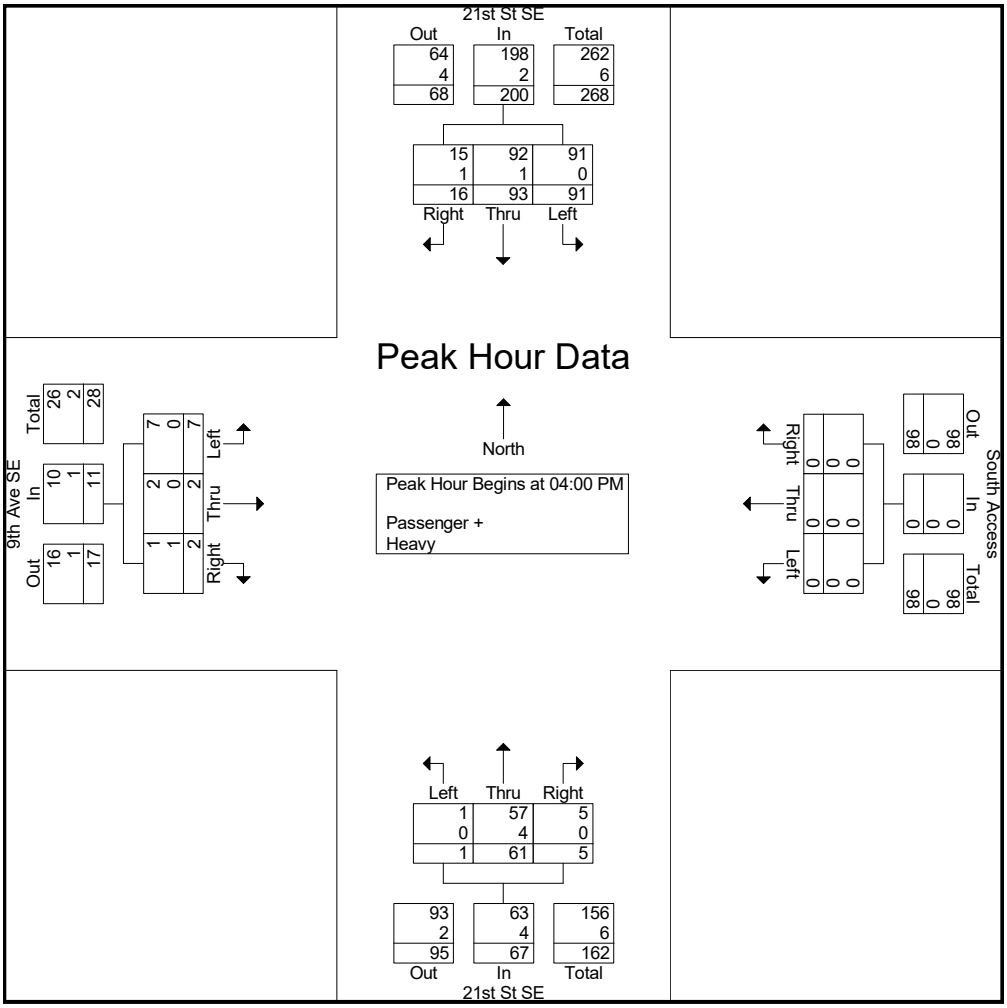
File Name : 5314OctB
Site Code : 00005314
Start Date : 10/3/2024
Page No : 3

	21st St SE Southbound				South Access Westbound				21st St SE Northbound				9th Ave SE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	2	**26**	23	**51**	0	0	0	0	2	**22**	**1**	**25**	0	0	1	1	**77**
04:15 PM	3	19	**29**	51	0	0	0	0	0	10	0	10	**2**	**1**	**4**	**7**	68
04:30 PM	**7**	24	20	51	0	0	0	0	**3**	14	0	17	0	1	2	3	71
04:45 PM	4	24	19	47	0	0	0	0	0	15	0	15	0	0	0	0	62
Total Volume	16	93	91	200	0	0	0	0	5	61	1	67	2	2	7	11	278
% App. Total	8	46.5	45.5		0	0	0		7.5	91	1.5		18.2	18.2	63.6		
PHF	.571	.894	.784	.980	.000	.000	.000	.000	.417	.693	.250	.670	.250	.500	.438	.393	.903
Passenger +	15	92	91	198	0	0	0	0	5	57	1	63	1	2	7	10	271
% Passenger +	93.8	98.9	100	99.0	0	0	0	0	100	93.4	100	94.0	50.0	100	100	90.9	97.5
Heavy	1	1	0	2	0	0	0	0	0	4	0	4	1	0	0	1	7
% Heavy	6.3	1.1	0	1.0	0	0	0	0	0	6.6	0	6.0	50.0	0	0	9.1	2.5



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PO Box 397 Puyallup, WA 98371

File Name : 5314oi
Site Code : 00005314
Start Date : 10/3/2024
Page No : 1

Groups Printed- Passenger + - Heavy

	21st St SE Southbound			CC Exit Westbound			21st St SE Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
02:00 PM	26	0	26	2	1	3	0	6	6	35
02:15 PM	59	0	59	9	2	11	0	13	13	83
02:30 PM	61	1	62	59	3	62	0	12	12	136
02:45 PM	55	0	55	83	4	87	0	8	8	150
Total	201	1	202	153	10	163	0	39	39	404
03:00 PM	93	1	94	60	5	65	0	18	18	177
03:15 PM	99	0	99	134	9	143	0	14	14	256
03:30 PM	39	0	39	84	8	92	0	12	12	143
03:45 PM	36	1	37	32	3	35	0	15	15	87
Total	267	2	269	310	25	335	0	59	59	663
04:00 PM	51	0	51	24	2	26	0	23	23	100
04:15 PM	51	0	51	18	3	21	0	14	14	86
04:30 PM	51	0	51	51	5	56	0	16	16	123
04:45 PM	47	0	47	21	4	25	0	15	15	87
Total	200	0	200	114	14	128	0	68	68	396
05:00 PM	47	0	47	46	9	55	0	17	17	119
05:15 PM	30	0	30	34	4	38	0	14	14	82
05:30 PM	28	1	29	10	2	12	0	12	12	53
05:45 PM	21	0	21	6	1	7	0	11	11	39
Total	126	1	127	96	16	112	0	54	54	293
Grand Total	794	4	798	673	65	738	0	220	220	1756
Apprch %	99.5	0.5		91.2	8.8		0	100		
Total %	45.2	0.2	45.4	38.3	3.7	42	0	12.5	12.5	
Passenger +	782	4	786	670	65	735	0	213	213	1734
% Passenger +	98.5	100	98.5	99.6	100	99.6	0	96.8	96.8	98.7
Heavy	12	0	12	3	0	3	0	7	7	22
% Heavy	1.5	0	1.5	0.4	0	0.4	0	3.2	3.2	1.3

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Start Date : 10/3/2024
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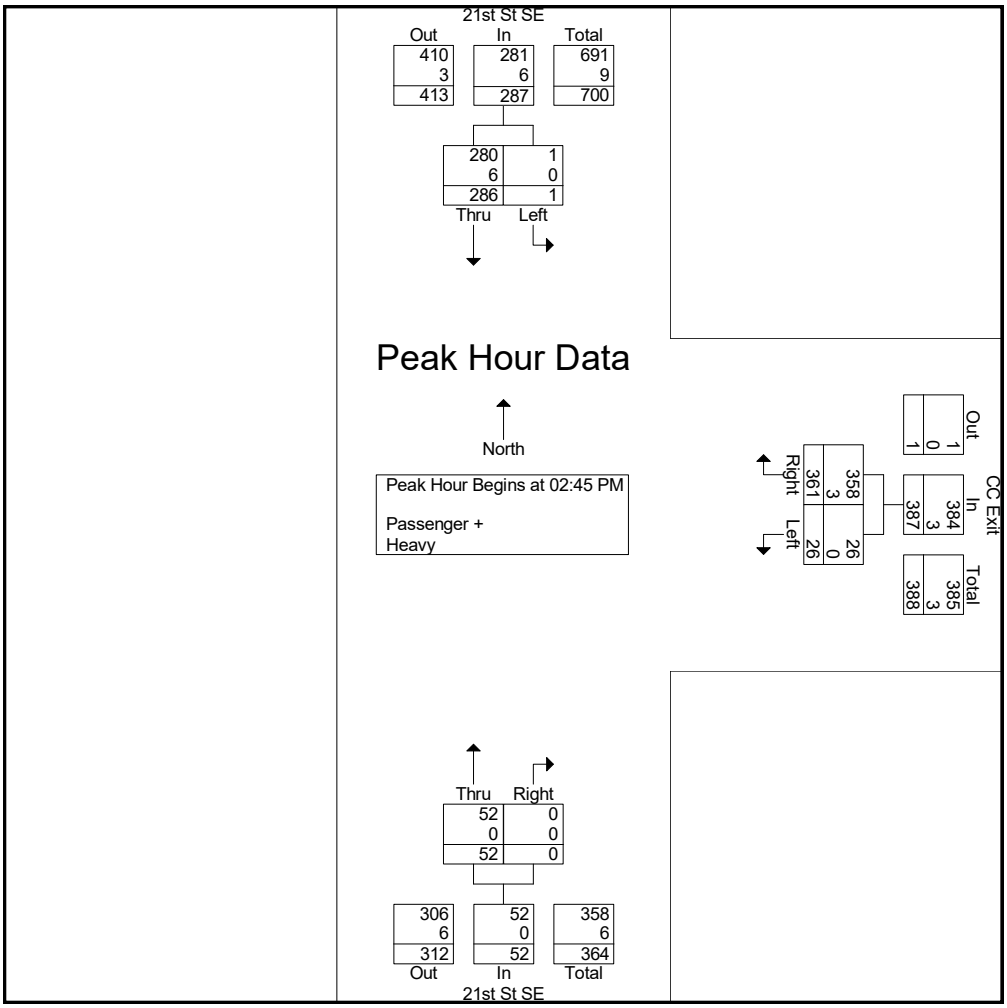
	21st St SE Southbound			CC Exit Westbound			21st St SE Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 02:45 PM to 03:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 02:45 PM										
02:45 PM	55	0	55	83	4	87	0	8	8	150
03:00 PM	93	**1**	94	60	5	65	0	**18**	**18**	177
03:15 PM	**99**	0	**99**	**134**	**9**	**143**	0	14	14	**256**
03:30 PM	39	0	39	84	8	92	0	12	12	143
Total Volume	286	1	287	361	26	387	0	52	52	726
% App. Total	99.7	0.3		93.3	6.7		0	100		
PHF	.722	.250	.725	.674	.722	.677	.000	.722	.722	.709
Passenger +	280	1	281	358	26	384	0	52	52	717
% Passenger +	97.9	100	97.9	99.2	100	99.2	0	100	100	98.8
Heavy	6	0	6	3	0	3	0	0	0	9
% Heavy	2.1	0	2.1	0.8	0	0.8	0	0	0	1.2



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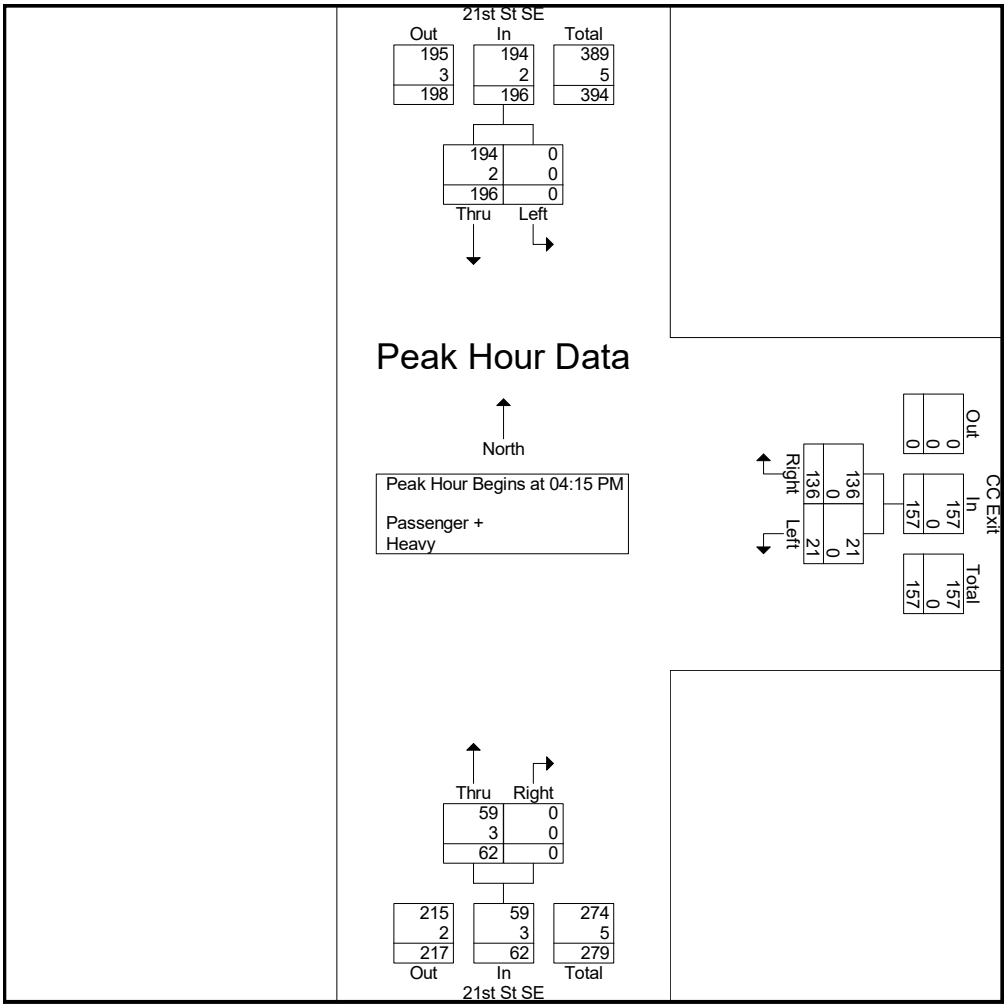
File Name : 5314oi
Site Code : 00005314
Start Date : 10/3/2024
Page No : 3

	21st St SE Southbound			CC Exit Westbound			21st St SE Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	**51**	0	**51**	18	3	21	0	14	14	86
04:30 PM	51	0	51	**51**	5	**56**	0	16	16	**123**
04:45 PM	47	0	47	21	4	25	0	15	15	87
05:00 PM	47	0	47	46	**9**	55	0	**17**	**17**	119
Total Volume	196	0	196	136	21	157	0	62	62	415
% App. Total	100	0		86.6	13.4		0	100		
PHF	.961	.000	.961	.667	.583	.701	.000	.912	.912	.843
Passenger +	194	0	194	136	21	157	0	59	59	410
% Passenger +	99.0	0	99.0	100	100	100	0	95.2	95.2	98.8
Heavy	2	0	2	0	0	0	0	3	3	5
% Heavy	1.0	0	1.0	0	0	0	0	4.8	4.8	1.2



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File Name : 5314oK
Site Code : 00005314
Start Date : 10/3/2024
Page No : 1

Groups Printed- Passenger + - Heavy

	E Pioneer Way Westbound			21st St SE Northbound			E Pioneer Way Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
02:00 PM	107	35	142	21	4	25	9	124	133	300
02:15 PM	95	36	131	16	3	19	27	119	146	296
02:30 PM	99	43	142	51	32	83	27	116	143	368
02:45 PM	131	51	182	64	34	98	18	130	148	428
Total	432	165	597	152	73	225	81	489	570	1392
03:00 PM	114	54	168	69	32	101	53	163	216	485
03:15 PM	122	41	163	99	44	143	30	163	193	499
03:30 PM	162	33	195	58	46	104	12	149	161	460
03:45 PM	116	34	150	49	11	60	9	149	158	368
Total	514	162	676	275	133	408	104	624	728	1812
04:00 PM	186	43	229	42	18	60	15	147	162	451
04:15 PM	153	53	206	44	12	56	21	146	167	429
04:30 PM	159	54	213	56	29	85	19	171	190	488
04:45 PM	157	46	203	29	18	47	20	163	183	433
Total	655	196	851	171	77	248	75	627	702	1801
05:00 PM	157	34	191	49	13	62	15	207	222	475
05:15 PM	144	31	175	45	21	66	10	145	155	396
05:30 PM	120	27	147	33	13	46	13	175	188	381
05:45 PM	131	33	164	20	12	32	7	134	141	337
Total	552	125	677	147	59	206	45	661	706	1589
Grand Total	2153	648	2801	745	342	1087	305	2401	2706	6594
Apprch %	76.9	23.1		68.5	31.5		11.3	88.7		
Total %	32.7	9.8	42.5	11.3	5.2	16.5	4.6	36.4	41	
Passenger +	2079	636	2715	736	338	1074	300	2343	2643	6432
% Passenger +	96.6	98.1	96.9	98.8	98.8	98.8	98.4	97.6	97.7	97.5
Heavy	74	12	86	9	4	13	5	58	63	162
% Heavy	3.4	1.9	3.1	1.2	1.2	1.2	1.6	2.4	2.3	2.5

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File Name : 5314oK
Site Code : 00005314
Start Date : 10/3/2024
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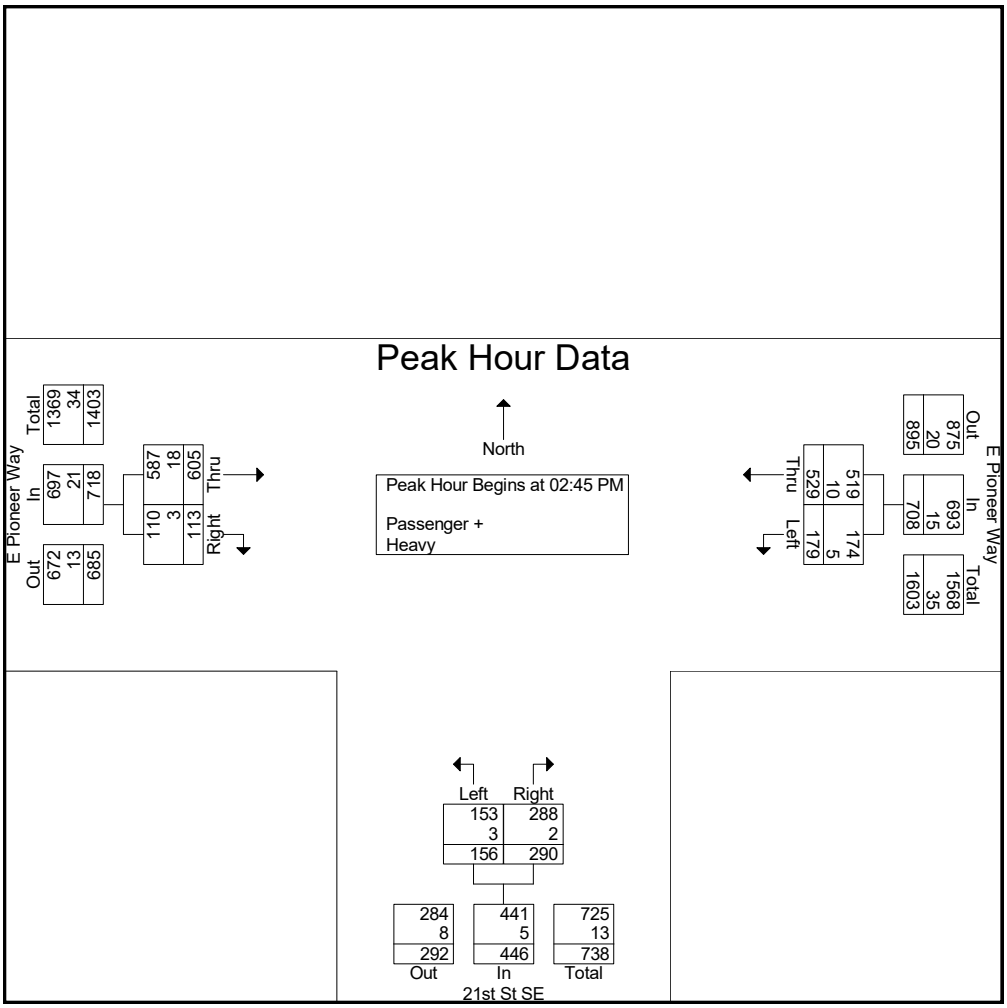
	E Pioneer Way Westbound			21st St SE Northbound			E Pioneer Way Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 02:45 PM to 03:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 02:45 PM										
02:45 PM	131	51	182	64	34	98	18	130	148	428
03:00 PM	114	**54**	168	69	32	101	**53**	**163**	**216**	485
03:15 PM	122	41	163	**99**	44	**143**	30	163	193	**499**
03:30 PM	**162**	33	**195**	58	**46**	104	12	149	161	460
Total Volume	529	179	708	290	156	446	113	605	718	1872
% App. Total	74.7	25.3		65	35		15.7	84.3		
PHF	.816	.829	.908	.732	.848	.780	.533	.928	.831	.938
Passenger +	519	174	693	288	153	441	110	587	697	1831
% Passenger +	98.1	97.2	97.9	99.3	98.1	98.9	97.3	97.0	97.1	97.8
Heavy	10	5	15	2	3	5	3	18	21	41
% Heavy	1.9	2.8	2.1	0.7	1.9	1.1	2.7	3.0	2.9	2.2



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File Name : 5314oK
Site Code : 00005314
Start Date : 10/3/2024
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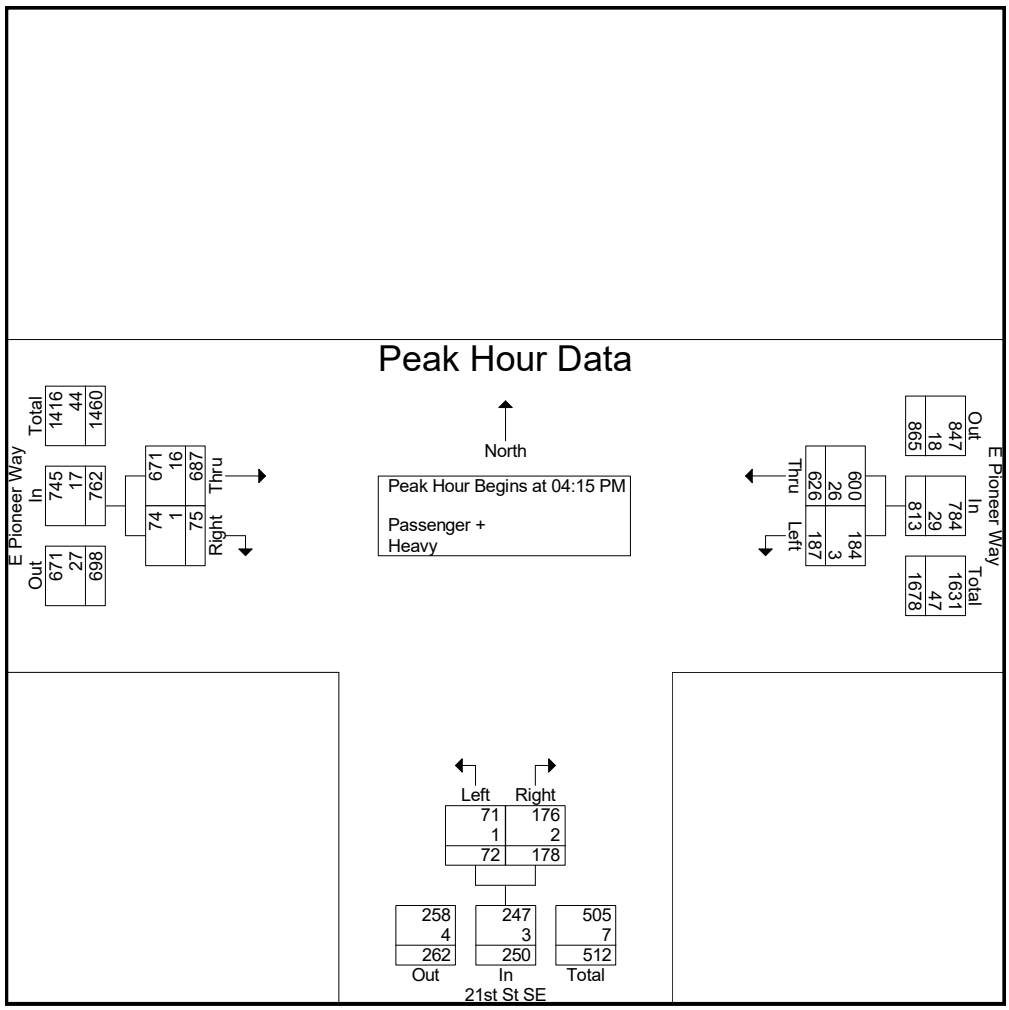
	E Pioneer Way Westbound			21st St SE Northbound			E Pioneer Way Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	153	53	206	44	12	56	**21**	146	167	429
04:30 PM	**159**	**54**	**213**	**56**	**29**	**85**	19	171	190	**488**
04:45 PM	157	46	203	29	18	47	20	163	183	433
05:00 PM	157	34	191	49	13	62	15	**207**	**222**	475
Total Volume	626	187	813	178	72	250	75	687	762	1825
% App. Total	77	23		71.2	28.8		9.8	90.2		
PHF	.984	.866	.954	.795	.621	.735	.893	.830	.858	.935
Passenger +	600	184	784	176	71	247	74	671	745	1776
% Passenger +	95.8	98.4	96.4	98.9	98.6	98.8	98.7	97.7	97.8	97.3
Heavy	26	3	29	2	1	3	1	16	17	49
% Heavy	4.2	1.6	3.6	1.1	1.4	1.2	1.3	2.3	2.2	2.7



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File Name : 5314oO
Site Code : 00005314
Start Date : 10/1/2024
Page No : 1

Groups Printed- Passenger + - Heavy

	Shaw Rd E Southbound				E Pioneer Westbound				Shaw Rd E Northbound				E Pioneer Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
02:00 PM	16	165	19	200	10	52	18	80	12	108	31	151	47	46	26	119	550
02:15 PM	22	161	12	195	19	62	24	105	14	114	29	157	37	50	25	112	569
02:30 PM	31	179	20	230	22	64	28	114	14	123	53	190	31	45	25	101	635
02:45 PM	36	178	16	230	18	59	34	111	12	101	42	155	36	63	48	147	643
Total	105	683	67	855	69	237	104	410	52	446	155	653	151	204	124	479	2397
03:00 PM	19	216	12	247	11	52	38	101	28	132	35	195	59	56	38	153	696
03:15 PM	32	185	15	232	9	48	29	86	13	112	22	147	78	68	40	186	651
03:30 PM	31	207	16	254	13	60	37	110	17	142	28	187	42	75	30	147	698
03:45 PM	26	219	14	259	11	68	43	122	16	88	30	134	38	67	47	152	667
Total	108	827	57	992	44	228	147	419	74	474	115	663	217	266	155	638	2712
04:00 PM	41	196	16	253	9	54	26	89	23	116	34	173	51	62	65	178	693
04:15 PM	49	226	29	304	15	81	40	136	19	108	53	180	35	55	52	142	762
04:30 PM	38	219	16	273	5	64	32	101	17	113	44	174	67	77	55	199	747
04:45 PM	39	244	15	298	8	59	39	106	22	144	39	205	57	84	56	197	806
Total	167	885	76	1128	37	258	137	432	81	481	170	732	210	278	228	716	3008
05:00 PM	25	153	12	190	9	64	34	107	18	109	49	176	88	96	51	235	708
05:15 PM	35	268	15	318	5	67	28	100	18	137	31	186	51	72	40	163	767
05:30 PM	17	169	11	197	13	46	33	92	14	125	38	177	52	65	51	168	634
05:45 PM	37	190	15	242	11	69	37	117	8	115	41	164	53	58	41	152	675
Total	114	780	53	947	38	246	132	416	58	486	159	703	244	291	183	718	2784
Grand Total	494	3175	253	3922	188	969	520	1677	265	1887	599	2751	822	1039	690	2551	10901
Apprch %	12.6	81	6.5		11.2	57.8	31		9.6	68.6	21.8		32.2	40.7	27		
Total %	4.5	29.1	2.3	36	1.7	8.9	4.8	15.4	2.4	17.3	5.5	25.2	7.5	9.5	6.3	23.4	
Passenger +	487	3129	240	3856	165	935	516	1616	262	1834	585	2681	795	1007	680	2482	10635
% Passenger +	98.6	98.6	94.9	98.3	87.8	96.5	99.2	96.4	98.9	97.2	97.7	97.5	96.7	96.9	98.6	97.3	97.6
Heavy	7	46	13	66	23	34	4	61	3	53	14	70	27	32	10	69	266
% Heavy	1.4	1.4	5.1	1.7	12.2	3.5	0.8	3.6	1.1	2.8	2.3	2.5	3.3	3.1	1.4	2.7	2.4

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File Name : 5314oO
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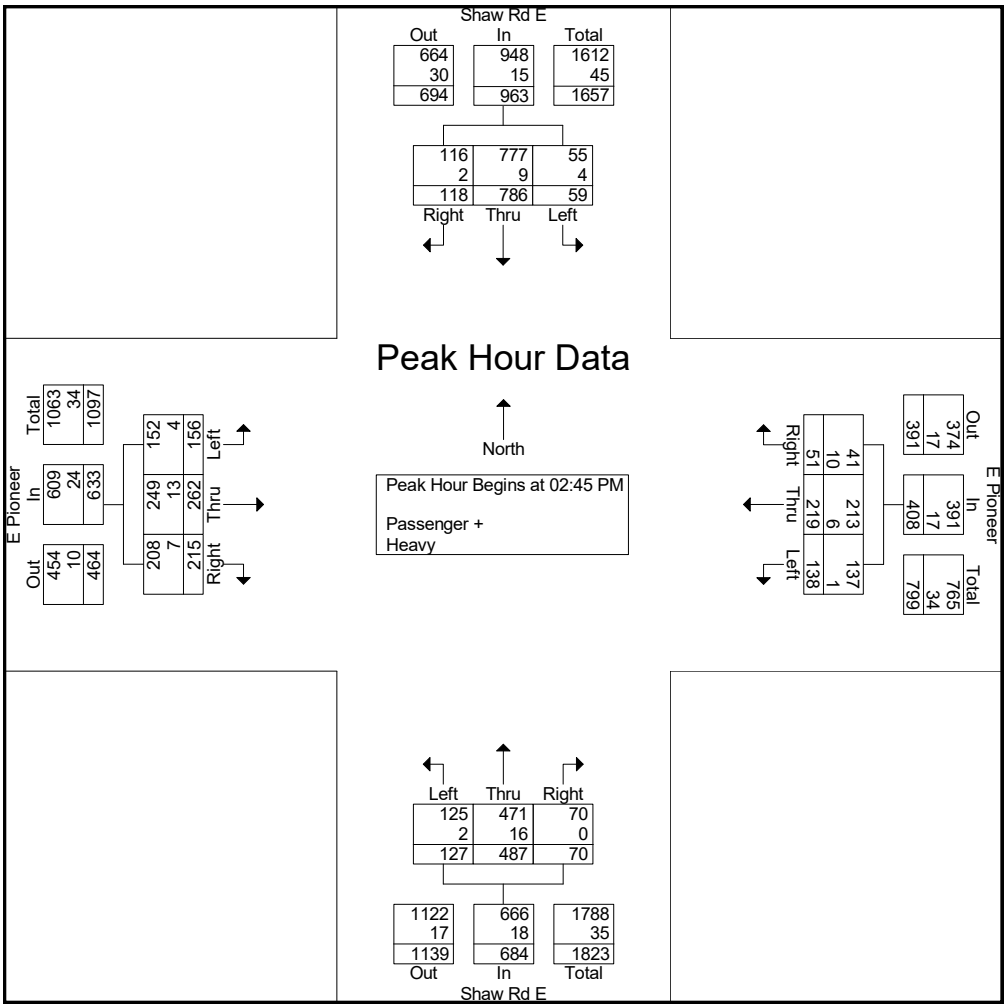
	Shaw Rd E Southbound				E Pioneer Westbound				Shaw Rd E Northbound				E Pioneer Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 02:45 PM to 03:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:45 PM																	
02:45 PM	**36**	178	**16**	230	**18**	59	34	**111**	12	101	**42**	155	36	63	**48**	147	643
03:00 PM	19	**216**	12	247	11	52	**38**	101	**28**	132	35	**195**	59	56	38	153	696
03:15 PM	32	185	15	232	9	48	29	86	13	112	22	147	**78**	68	40	**186**	651
03:30 PM	31	207	16	**254**	13	**60**	37	110	17	**142**	28	187	42	**75**	30	147	**698**
Total Volume	118	786	59	963	51	219	138	408	70	487	127	684	215	262	156	633	2688
% App. Total	12.3	81.6	6.1		12.5	53.7	33.8		10.2	71.2	18.6		34	41.4	24.6		
PHF	.819	.910	.922	.948	.708	.913	.908	.919	.625	.857	.756	.877	.689	.873	.813	.851	.963
Passenger +	116	777	55	948	41	213	137	391	70	471	125	666	208	249	152	609	2614
% Passenger +	98.3	98.9	93.2	98.4	80.4	97.3	99.3	95.8	100	96.7	98.4	97.4	96.7	95.0	97.4	96.2	97.2
Heavy	2	9	4	15	10	6	1	17	0	16	2	18	7	13	4	24	74
% Heavy	1.7	1.1	6.8	1.6	19.6	2.7	0.7	4.2	0	3.3	1.6	2.6	3.3	5.0	2.6	3.8	2.8



Heath & Associates

PO Box 397 Puyallup, WA 98371

File Name : 5314oO
Site Code : 00005314
Start Date : 10/1/2024
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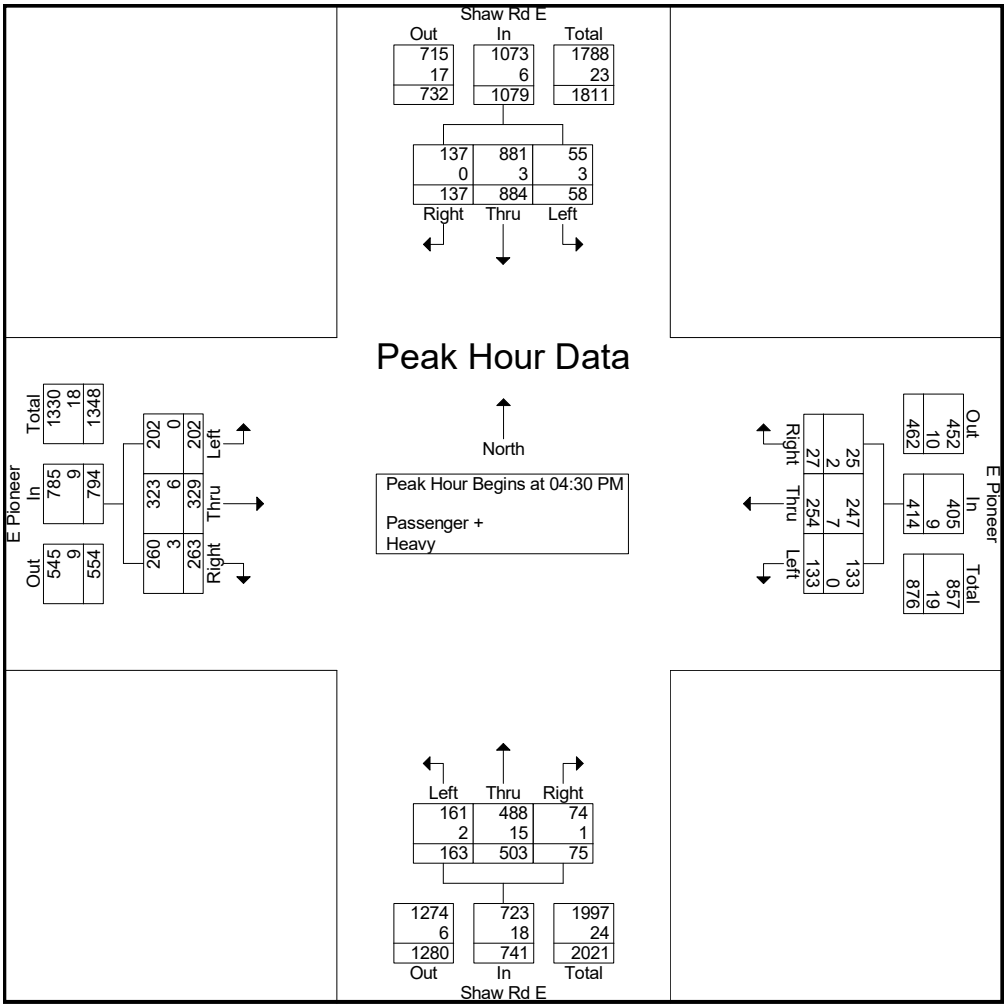
	Shaw Rd E Southbound				E Pioneer Westbound				Shaw Rd E Northbound				E Pioneer Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	38	219	**16**	273	5	64	32	101	17	113	44	174	67	77	55	199	747
04:45 PM	**39**	244	15	298	8	59	**39**	106	**22**	**144**	39	**205**	57	84	**56**	197	**806**
05:00 PM	25	153	12	190	**9**	64	34	**107**	18	109	**49**	176	**88**	**96**	51	**235**	708
05:15 PM	35	**268**	15	**318**	5	**67**	28	100	18	137	31	186	51	72	40	163	767
Total Volume	137	884	58	1079	27	254	133	414	75	503	163	741	263	329	202	794	3028
% App. Total	12.7	81.9	5.4		6.5	61.4	32.1		10.1	67.9	22		33.1	41.4	25.4		
PHF	.878	.825	.906	.848	.750	.948	.853	.967	.852	.873	.832	.904	.747	.857	.902	.845	.939
Passenger +	137	881	55	1073	25	247	133	405	74	488	161	723	260	323	202	785	2986
% Passenger +	100	99.7	94.8	99.4	92.6	97.2	100	97.8	98.7	97.0	98.8	97.6	98.9	98.2	100	98.9	98.6
Heavy	0	3	3	6	2	7	0	9	1	15	2	18	3	6	0	9	42
% Heavy	0	0.3	5.2	0.6	7.4	2.8	0	2.2	1.3	3.0	1.2	2.4	1.1	1.8	0	1.1	1.4



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PO Box 397 Puyallup, WA 98371

File Name : 5314oN
Site Code : 00005314
Start Date : 10/1/2024
Page No : 1

Groups Printed- Passenger + - Heavy

	E Pioneer Westbound			SR 512 EB Ramps Northbound			E Pioneer Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
02:00 PM	113	9	122	51	28	79	24	90	114	315
02:15 PM	104	12	116	70	24	94	21	72	93	303
02:30 PM	137	6	143	67	28	95	21	75	96	334
02:45 PM	152	12	164	60	36	96	23	72	95	355
Total	506	39	545	248	116	364	89	309	398	1307
03:00 PM	133	11	144	59	27	86	26	115	141	371
03:15 PM	129	12	141	74	21	95	41	114	155	391
03:30 PM	177	20	197	62	30	92	28	107	135	424
03:45 PM	144	7	151	75	38	113	30	105	135	399
Total	583	50	633	270	116	386	125	441	566	1585
04:00 PM	181	7	188	71	33	104	54	125	179	471
04:15 PM	171	7	178	76	34	110	41	121	162	450
04:30 PM	203	7	210	49	24	73	31	119	150	433
04:45 PM	183	9	192	111	35	146	30	95	125	463
Total	738	30	768	307	126	433	156	460	616	1817
05:00 PM	161	11	172	78	32	110	32	96	128	410
05:15 PM	163	9	172	57	24	81	27	117	144	397
05:30 PM	137	7	144	66	27	93	19	86	105	342
05:45 PM	154	6	160	62	27	89	16	74	90	339
Total	615	33	648	263	110	373	94	373	467	1488
Grand Total	2442	152	2594	1088	468	1556	464	1583	2047	6197
Apprch %	94.1	5.9		69.9	30.1		22.7	77.3		
Total %	39.4	2.5	41.9	17.6	7.6	25.1	7.5	25.5	33	
Passenger +	2385	145	2530	1051	451	1502	444	1538	1982	6014
% Passenger +	97.7	95.4	97.5	96.6	96.4	96.5	95.7	97.2	96.8	97
Heavy	57	7	64	37	17	54	20	45	65	183
% Heavy	2.3	4.6	2.5	3.4	3.6	3.5	4.3	2.8	3.2	3

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Site Code : 00005314
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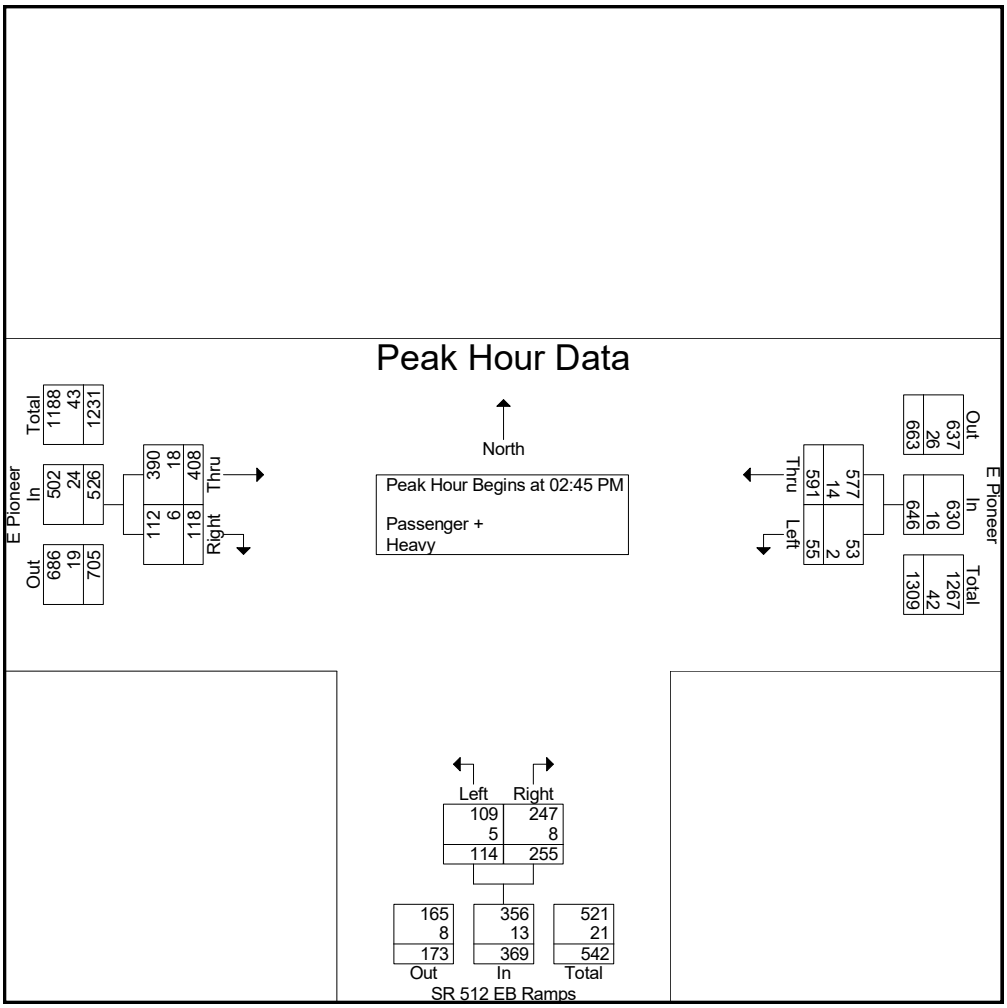
	E Pioneer Westbound			SR 512 EB Ramps Northbound			E Pioneer Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 02:45 PM to 03:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 02:45 PM										
02:45 PM	152	12	164	60	**36**	**96**	23	72	95	355
03:00 PM	133	11	144	59	27	86	26	**115**	141	371
03:15 PM	129	12	141	**74**	21	95	**41**	114	**155**	391
03:30 PM	**177**	**20**	**197**	62	30	92	28	107	135	**424**
Total Volume	591	55	646	255	114	369	118	408	526	1541
% App. Total	91.5	8.5		69.1	30.9		22.4	77.6		
PHF	.835	.688	.820	.861	.792	.961	.720	.887	.848	.909
Passenger +	577	53	630	247	109	356	112	390	502	1488
% Passenger +	97.6	96.4	97.5	96.9	95.6	96.5	94.9	95.6	95.4	96.6
Heavy	14	2	16	8	5	13	6	18	24	53
% Heavy	2.4	3.6	2.5	3.1	4.4	3.5	5.1	4.4	4.6	3.4



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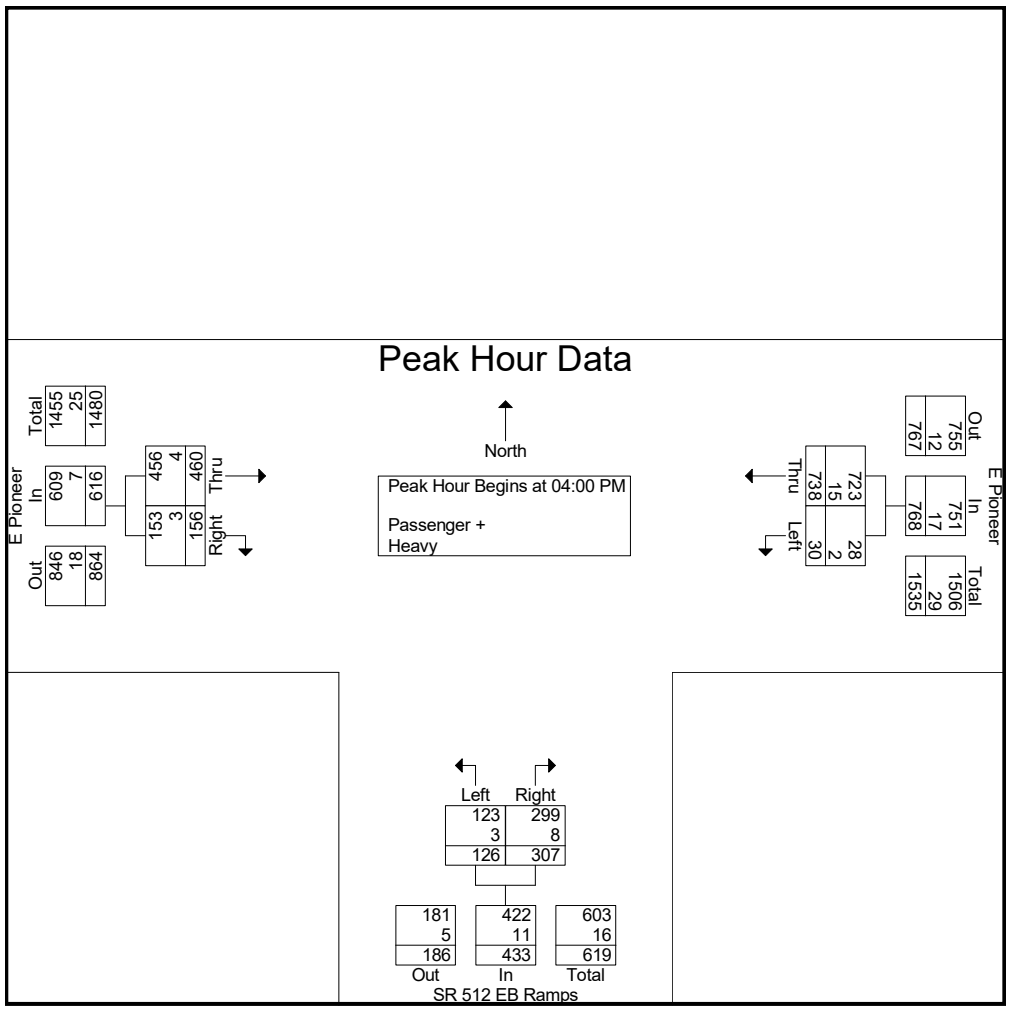
File Name : 5314oN
Site Code : 00005314
Start Date : 10/1/2024
Page No : 3

	E Pioneer Westbound			SR 512 EB Ramps Northbound			E Pioneer Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	181	7	188	71	33	104	**54**	**125**	**179**	**471**
04:15 PM	171	7	178	76	34	110	41	121	162	450
04:30 PM	**203**	7	**210**	49	24	73	31	119	150	433
04:45 PM	183	**9**	192	**111**	**35**	**146**	30	95	125	463
Total Volume	738	30	768	307	126	433	156	460	616	1817
% App. Total	96.1	3.9		70.9	29.1		25.3	74.7		
PHF	.909	.833	.914	.691	.900	.741	.722	.920	.860	.964
Passenger +	723	28	751	299	123	422	153	456	609	1782
% Passenger +	98.0	93.3	97.8	97.4	97.6	97.5	98.1	99.1	98.9	98.1
Heavy	15	2	17	8	3	11	3	4	7	35
% Heavy	2.0	6.7	2.2	2.6	2.4	2.5	1.9	0.9	1.1	1.9



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PO Box 397 Puyallup, WA 98371

File Name : 5314oM
Site Code : 00005314
Start Date : 10/1/2024
Page No : 1

Groups Printed- Passenger + - Heavy

	E Pioneer Westbound			SR 512 WB Ramps Northbound			E Pioneer Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
02:00 PM	87	51	138	15	28	43	31	95	126	307
02:15 PM	76	47	123	17	20	37	37	92	129	289
02:30 PM	79	60	139	15	36	51	38	78	116	306
02:45 PM	104	78	182	10	26	36	47	79	126	344
Total	346	236	582	57	110	167	153	344	497	1246
03:00 PM	83	71	154	12	26	38	54	104	158	350
03:15 PM	75	84	159	19	23	42	32	136	168	369
03:30 PM	95	108	203	13	27	40	55	130	185	428
03:45 PM	104	88	192	17	29	46	25	130	155	393
Total	357	351	708	61	105	166	166	500	666	1540
04:00 PM	146	100	246	15	23	38	18	158	176	460
04:15 PM	127	74	201	21	23	44	37	108	145	390
04:30 PM	120	117	237	10	30	40	52	147	199	476
04:45 PM	128	101	229	15	34	49	74	98	172	450
Total	521	392	913	61	110	171	181	511	692	1776
05:00 PM	102	126	228	16	20	36	51	127	178	442
05:15 PM	97	115	212	9	18	27	62	130	192	431
05:30 PM	86	90	176	7	20	27	59	115	174	377
05:45 PM	123	81	204	17	33	50	19	77	96	350
Total	408	412	820	49	91	140	191	449	640	1600
Grand Total	1632	1391	3023	228	416	644	691	1804	2495	6162
Apprch %	54	46		35.4	64.6		27.7	72.3		
Total %	26.5	22.6	49.1	3.7	6.8	10.5	11.2	29.3	40.5	
Passenger +	1571	1355	2926	218	403	621	669	1750	2419	5966
% Passenger +	96.3	97.4	96.8	95.6	96.9	96.4	96.8	97	97	96.8
Heavy	61	36	97	10	13	23	22	54	76	196
% Heavy	3.7	2.6	3.2	4.4	3.1	3.6	3.2	3	3	3.2

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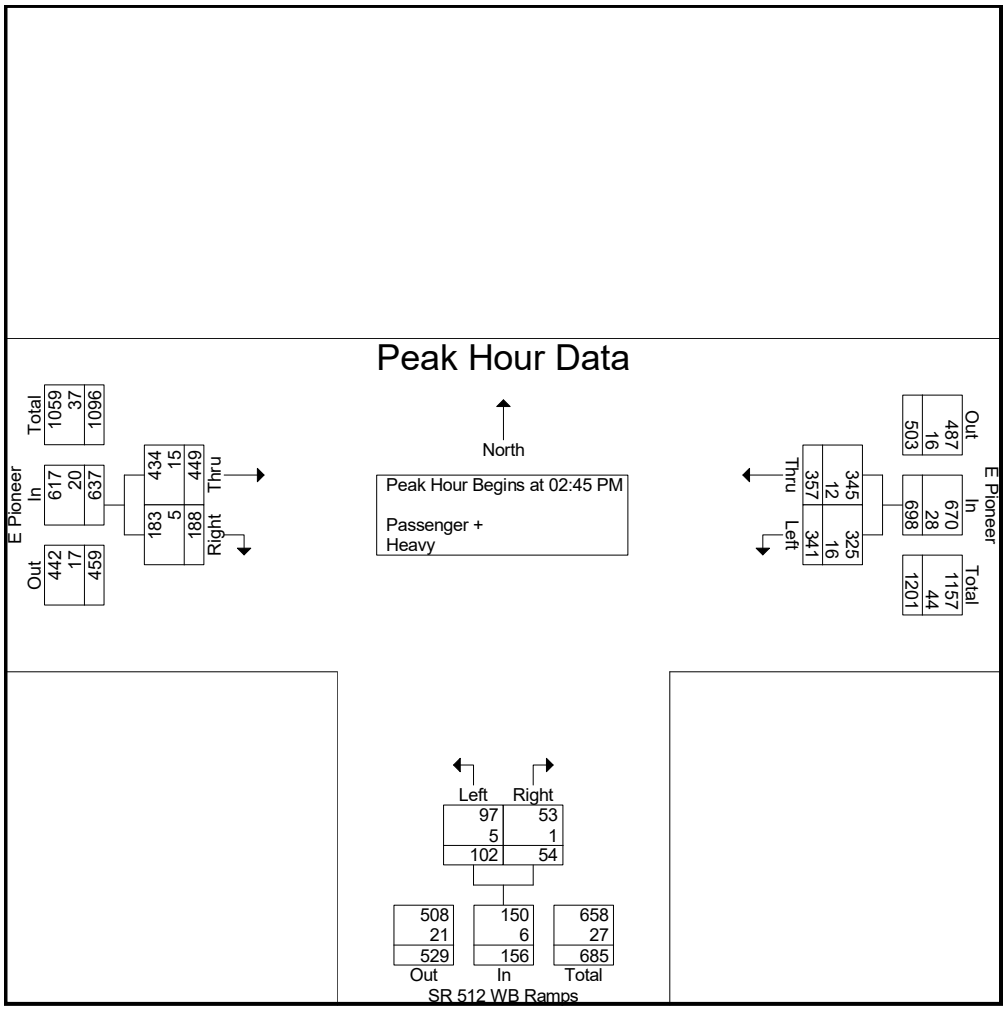
File Name : 5314oM
Site Code : 00005314
Start Date : 10/1/2024
Page No : 2

	E Pioneer Westbound			SR 512 WB Ramps Northbound			E Pioneer Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 02:45 PM to 03:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 02:45 PM										
02:45 PM	**104**	78	182	10	26	36	47	79	126	344
03:00 PM	83	71	154	12	26	38	54	104	158	350
03:15 PM	75	84	159	**19**	23	**42**	32	**136**	168	369
03:30 PM	95	**108**	**203**	13	**27**	40	**55**	130	**185**	**428**
Total Volume	357	341	698	54	102	156	188	449	637	1491
% App. Total	51.1	48.9		34.6	65.4		29.5	70.5		
PHF	.858	.789	.860	.711	.944	.929	.855	.825	.861	.871
Passenger +	345	325	670	53	97	150	183	434	617	1437
% Passenger +	96.6	95.3	96.0	98.1	95.1	96.2	97.3	96.7	96.9	96.4
Heavy	12	16	28	1	5	6	5	15	20	54
% Heavy	3.4	4.7	4.0	1.9	4.9	3.8	2.7	3.3	3.1	3.6



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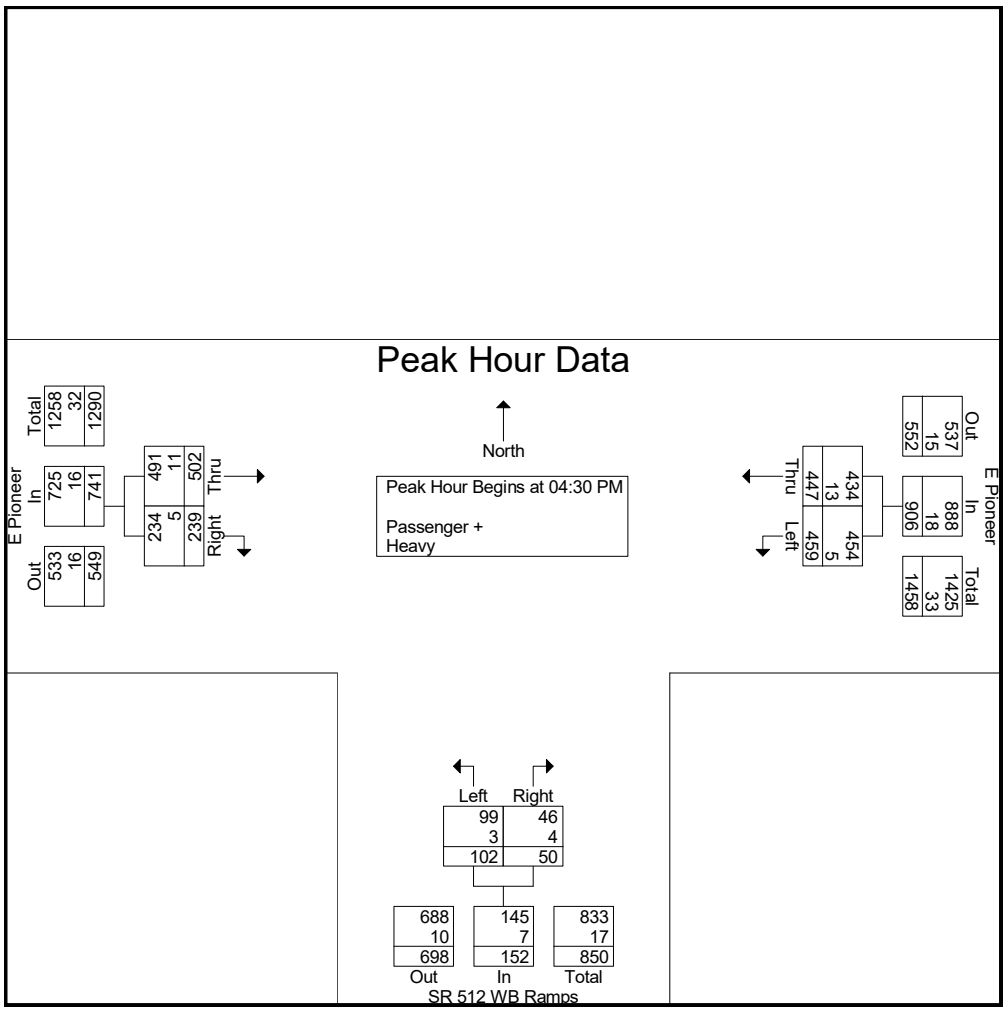
File Name : 5314oM
Site Code : 00005314
Start Date : 10/1/2024
Page No : 3

	E Pioneer Westbound			SR 512 WB Ramps Northbound			E Pioneer Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	120	117	**237**	10	30	40	52	**147**	**199**	**476**
04:45 PM	**128**	101	229	15	**34**	**49**	**74**	98	172	450
05:00 PM	102	**126**	228	**16**	20	36	51	127	178	442
05:15 PM	97	115	212	9	18	27	62	130	192	431
Total Volume	447	459	906	50	102	152	239	502	741	1799
% App. Total	49.3	50.7		32.9	67.1		32.3	67.7		
PHF	.873	.911	.956	.781	.750	.776	.807	.854	.931	.945
Passenger +	434	454	888	46	99	145	234	491	725	1758
% Passenger +	97.1	98.9	98.0	92.0	97.1	95.4	97.9	97.8	97.8	97.7
Heavy	13	5	18	4	3	7	5	11	16	41
% Heavy	2.9	1.1	2.0	8.0	2.9	4.6	2.1	2.2	2.2	2.3



CASCADE CHRISTIAN SCHOOLS CONDITIONAL USE PERMIT UPDATE
TRAFFIC IMPACT ANALYSIS

APPENDIX:
Speed Data

CCS - December 19th, 2024 Heath & Associates

Speed Sign Data along 21st St SE

AM	
22	21
27	22
24	24
18	25
21	19
29	16
21	23
18	15
25	26
17	27
25	22
23	25
24	24
17	33
25	27
27	25
22	27
24	28
19	26
25	25
23	24
27	27
19	18
23	29
28	26
Average	23.54
85th %:	27

PM	
27	23
19	25
23	25
24	23
27	24
26	24
23	21
32	19
26	24
25	24
19	26
24	24
24	22
23	20
22	22
21	24
19	25
24	24
21	20
29	19
22	31
20	22
23	24
24	25
23	26
Average	23.52
85th %:	26

CASCADE CHRISTIAN SCHOOLS CONDITIONAL USE PERMIT UPDATE
TRAFFIC IMPACT ANALYSIS

APPENDIX:
CCS Queue Comparison

CCS – Queuing Comparisons (October-December)


400854 2024/12/18 15:15:37
40+ vehicles on 21st


401932 2024/12/18 15:18:37


400854 2024/12/19 15:14:33
~6 vehicles on 21st


401932 2024/12/19 15:17:37
No notable back-ups


200702 2025/01/23 15:12:16
~8 vehicles on 21st


200261 2025/01/23 15:12:23
No notable back-ups

CASCADE CHRISTIAN SCHOOLS CONDITIONAL USE PERMIT UPDATE
TRAFFIC IMPACT ANALYSIS

APPENDIX:

Trip Generation Rates

	Inbound			Outbound			
Time	SBL	NBR	EB			Total	Running Hrly Tot.
7:00	50	5	0	21	1	77	
15	135	54	2	82	2	275	
30	130	79	8	151	7	375	
45	22	8	0	44	5	79	806
8:00	45	11	0	11	3	70	799
15	109	32	0	132	10	283	807
30	17	1	0	32	3	53	485
45	5	0	0	11	0	16	422
2:00	13	1	0	2	1	17	
15	41	2	0	9	2	54	
30	40	3	1	59	3	106	
45	42	8	0	83	4	137	314
3:00	69	30	2	60	5	166	463
15	74	18	0	134	9	235	644
30	16	4	0	84	8	112	650
45	17	0	0	32	3	52	565
4:00	23	2	0	24	2	51	
15	29	0	1	18	3	51	
30	20	3	1	51	5	80	
45	19	0	0	21	4	44	226
5:00	24	3	0	46	9	82	257
15	13	0	0	34	4	51	257
30	5	0	0	10	2	17	194
45	2	0	0	6	1	9	159

Site AM Peak

Hour	7:30-8:30
Trips	807
Trips/Stud	0.84

Students Attendence at time of counts
960

Site PM Peak

Hour	2:45-3:45
Trips	650
Trips/Stud	0.68

Adj. Street Peak

Hour	4:30-5:30
Trips	257
Trips/Stud	0.27

CASCADE CHRISTIAN SCHOOLS CONDITIONAL USE PERMIT UPDATE
TRAFFIC IMPACT ANALYSIS

APPENDIX:
Level of Service Analysis
Existing Conditions - AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	372	105	233	463	151	74
Future Volume (veh/h)	372	105	233	463	151	74
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1796	1841	1841	1856	1841
Adj Flow Rate, veh/h	400	113	251	498	162	80
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	4	7	4	4	3	4
Cap, veh/h	770	215	340	2099	280	247
Arrive On Green	0.29	0.29	0.19	0.60	0.16	0.16
Sat Flow, veh/h	2789	754	1753	3589	1767	1560
Grp Volume(v), veh/h	258	255	251	498	162	80
Grp Sat Flow(s),veh/h/ln	1749	1702	1753	1749	1767	1560
Q Serve(g_s), s	4.6	4.7	5.0	2.5	3.2	1.7
Cycle Q Clear(g_c), s	4.6	4.7	5.0	2.5	3.2	1.7
Prop In Lane		0.44	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	500	486	340	2099	280	247
V/C Ratio(X)	0.52	0.52	0.74	0.24	0.58	0.32
Avail Cap(c_a), veh/h	2793	2718	1953	9903	1684	1486
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.1	11.2	14.1	3.5	14.5	13.9
Incr Delay (d2), s/veh	0.8	0.9	3.2	0.1	1.9	0.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.5	2.0	0.4	1.2	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	12.0	12.1	17.3	3.5	16.4	14.7
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	513			749	242	
Approach Delay, s/veh	12.0			8.1	15.8	
Approach LOS	B			A	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	11.7	15.1				26.9	10.4
Change Period (Y+Rc), s	4.5	4.5				4.5	4.5
Max Green Setting (Gmax), s	41.5	59.5				105.5	35.5
Max Q Clear Time (g_c+I1), s	7.0	6.7				4.5	5.2
Green Ext Time (p_c), s	0.8	3.8				4.1	0.7

Intersection Summary							
HCM 7th Control Delay, s/veh			10.7				
HCM 7th LOS			B				

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	306	140	64	553	91	270
Future Volume (veh/h)	306	140	64	553	91	270
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1826	1707	1856	1826	1870	1870
Adj Flow Rate, veh/h	333	152	70	601	99	293
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	13	3	5	2	2
Cap, veh/h	653	292	125	1665	468	417
Arrive On Green	0.28	0.28	0.07	0.48	0.26	0.26
Sat Flow, veh/h	2419	1041	1767	3561	1781	1585
Grp Volume(v), veh/h	246	239	70	601	99	293
Grp Sat Flow(s),veh/h/ln	1735	1634	1767	1735	1781	1585
Q Serve(g_s), s	4.2	4.3	1.3	3.8	1.5	5.8
Cycle Q Clear(g_c), s	4.2	4.3	1.3	3.8	1.5	5.8
Prop In Lane		0.64	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	487	459	125	1665	468	417
V/C Ratio(X)	0.51	0.52	0.56	0.36	0.21	0.70
Avail Cap(c_a), veh/h	2404	2265	1086	7387	2367	2106
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.6	10.6	15.7	5.7	10.1	11.7
Incr Delay (d2), s/veh	0.8	0.9	3.9	0.1	0.2	2.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.3	0.6	0.9	0.5	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	11.4	11.5	19.7	5.9	10.3	13.8
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	485			671	392	
Approach Delay, s/veh	11.4			7.3	12.9	
Approach LOS	B			A	B	

Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	13.7	7.0	14.3	21.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	46.5	21.5	48.5	74.5
Max Q Clear Time (g_c+I1), s	7.8	3.3	6.3	5.8
Green Ext Time (p_c), s	1.4	0.1	3.4	5.1

Intersection Summary	
HCM 7th Control Delay, s/veh	10.0
HCM 7th LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	193	410	549	70	39	82
Future Volume (veh/h)	193	410	549	70	39	82
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	0.97	0.97	0.97
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1826	1841	1885	1781	1826
Adj Flow Rate, veh/h	210	446	597	76	42	89
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	5	4	1	8	5
Cap, veh/h	287	2161	1044	133	222	203
Arrive On Green	0.16	0.62	0.34	0.34	0.13	0.13
Sat Flow, veh/h	1767	3561	3168	391	1649	1504
Grp Volume(v), veh/h	210	446	339	334	42	89
Grp Sat Flow(s),veh/h/ln	1767	1735	1749	1717	1649	1504
Q Serve(g_s), s	4.2	2.1	5.9	5.9	0.8	2.0
Cycle Q Clear(g_c), s	4.2	2.1	5.9	5.9	0.8	2.0
Prop In Lane	1.00			0.23	1.00	1.00
Lane Grp Cap(c), veh/h	287	2161	594	583	222	203
V/C Ratio(X)	0.73	0.21	0.57	0.57	0.19	0.44
Avail Cap(c_a), veh/h	1928	9018	2426	2383	1088	993
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	3.0	10.0	10.1	14.3	14.8
Incr Delay (d2), s/veh	3.6	0.0	0.9	0.9	0.4	1.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.2	1.7	1.7	0.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	18.4	3.1	10.9	10.9	14.7	16.3
LnGrp LOS	B	A	B	B	B	B
Approach Vol, veh/h		656	673		131	
Approach Delay, s/veh		8.0	10.9		15.8	
Approach LOS		A	B		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		27.6		9.5	10.5	17.1
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		96.5		24.5	40.5	51.5
Max Q Clear Time (g_c+I1), s		4.1		4.0	6.2	7.9
Green Ext Time (p_c), s		3.2		0.3	0.6	4.6

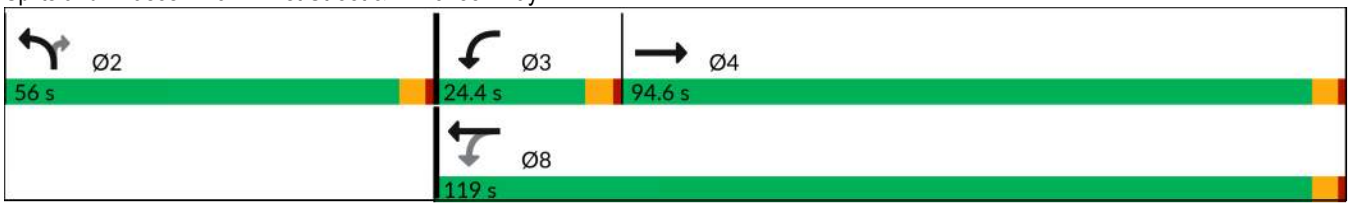
Intersection Summary	
HCM 7th Control Delay, s/veh	10.0
HCM 7th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	379	108	150	447	159	235
Future Volume (vph)	379	108	150	447	159	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		165	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		90	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	0.99				0.99	0.98
Frt	0.967					0.850
Flt Protected				0.988	0.950	
Satd. Flow (prot)	3102	0	0	3193	1711	1531
Flt Permitted				0.616	0.950	
Satd. Flow (perm)	3102	0	0	1991	1701	1503
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	31					294
Link Speed (mph)	35			35	25	
Link Distance (ft)	627			605	465	
Travel Time (s)	12.2			11.8	12.7	
Confl. Peds. (#/hr)		2	2		2	2
Confl. Bikes (#/hr)						
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	2%	2%	5%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	474	135	188	559	199	294
Shared Lane Traffic (%)						
Lane Group Flow (vph)	609	0	0	747	199	294
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	94.6		24.4	119.0	56.0	56.0
Total Split (%)	54.1%		13.9%	68.0%	32.0%	32.0%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	4.5			4.5	4.5	4.5
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		Min	Min	None	None
Act Effct Green (s)	19.5			30.0	13.4	13.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Actuated g/C Ratio	0.37			0.57	0.25	0.25
v/c Ratio	0.52			0.59	0.46	0.49
Control Delay (s/veh)	13.8			9.1	22.2	6.1
Queue Delay	0.0			0.0	0.0	0.0
Total Delay (s/veh)	13.8			9.1	22.2	6.1
LOS	B			A	C	A
Approach Delay (s/veh)	13.8			9.1	12.6	
Approach LOS	B			A	B	
Queue Length 50th (ft)	67			57	48	0
Queue Length 95th (ft)	105			96	114	35
Internal Link Dist (ft)	547			525	385	
Turn Bay Length (ft)					165	
Base Capacity (vph)	3102			2122	1574	1406
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.20			0.35	0.13	0.21

Intersection Summary			
Area Type:	Other		
Cycle Length: 175			
Actuated Cycle Length: 52.8			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay (s/veh): 11.6		Intersection LOS: B	
Intersection Capacity Utilization 51.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: E 21st Street & E Pioneer Way



Intersection	
Int Delay, s/veh	6.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	338	54	0	0	340
Future Vol, veh/h	25	338	54	0	0	340
Conflicting Peds, #/hr	2	2	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	62	62	62	62	62	62
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	545	87	0	0	548

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	637	89	0	-	-	-
Stage 1	87	-	-	-	-	-
Stage 2	550	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	441	969	-	0	0	-
Stage 1	936	-	-	0	0	-
Stage 2	578	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	440	966	-	-	-	-
Mov Cap-2 Maneuver	440	-	-	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	576	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	13.47	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	440	966	-
HCM Lane V/C Ratio	-	0.092	0.564	-
HCM Ctrl Dly (s/v)	-	14	13.4	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.3	3.6	-

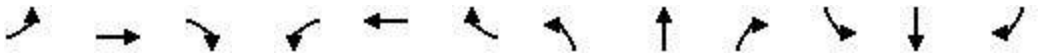
Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	7	8	0	0	0	0	0	47	130	306	55	4
Future Vol, veh/h	7	8	0	0	0	0	0	47	130	306	55	4
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	58	58	58	58	58	58	58	58	58	58	58
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	4	2
Mvmt Flow	12	14	0	0	0	0	0	81	224	528	95	7

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1238	1463	102	104	0	0	307	0	0
Stage 1	1155	1155	-	-	-	-	-	-	-
Stage 2	83	307	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	194	129	953	1488	-	-	1253	-	-
Stage 1	300	271	-	-	-	-	-	-	-
Stage 2	940	661	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	107	0	948	1485	-	-	1253	-	-
Mov Cap-2 Maneuver	107	0	-	-	-	-	-	-	-
Stage 1	299	0	-	-	-	-	-	-	-
Stage 2	519	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	49.15	0	8.34
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1485	-	-	107	1182	-	-
HCM Lane V/C Ratio	-	-	-	0.242	0.421	-	-
HCM Ctrl Dly (s/v)	0	-	-	49.1	9.9	0	-
HCM Lane LOS	A	-	-	E	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.9	2.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	142	147	102	200	73	134	666	31	31	278	64
Future Volume (veh/h)	225	142	147	102	200	73	134	666	31	31	278	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1796	1856	1870	1767	1618	1856	1856	1885	1663	1856	1870
Adj Flow Rate, veh/h	242	153	158	110	215	78	144	716	33	33	299	69
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	7	3	2	9	19	3	3	1	16	3	2
Cap, veh/h	293	481	414	344	241	87	745	1383	64	242	965	219
Arrive On Green	0.12	0.27	0.27	0.05	0.20	0.20	0.22	0.40	0.40	0.15	0.34	0.34
Sat Flow, veh/h	1795	1796	1548	1781	1231	446	3428	3427	158	1584	2845	646
Grp Volume(v), veh/h	242	153	158	110	0	293	144	368	381	33	183	185
Grp Sat Flow(s),veh/h/ln	1795	1796	1548	1781	0	1677	1714	1763	1822	1584	1763	1728
Q Serve(g_s), s	14.6	9.5	7.2	6.6	0.0	23.8	4.8	22.0	22.1	2.5	10.7	11.1
Cycle Q Clear(g_c), s	14.6	9.5	7.2	6.6	0.0	23.8	4.8	22.0	22.1	2.5	10.7	11.1
Prop In Lane	1.00		1.00	1.00		0.27	1.00		0.09	1.00		0.37
Lane Grp Cap(c), veh/h	293	481	414	344	0	328	745	711	736	242	598	586
V/C Ratio(X)	0.83	0.32	0.38	0.32	0.00	0.89	0.19	0.52	0.52	0.14	0.31	0.31
Avail Cap(c_a), veh/h	303	685	590	344	0	509	745	711	736	242	598	586
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.3	41.0	15.8	42.8	0.0	54.9	44.8	31.5	31.5	51.3	34.1	34.2
Incr Delay (d2), s/veh	16.4	0.4	0.6	0.5	0.0	12.3	0.1	2.7	2.6	0.3	1.3	1.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	4.3	2.6	3.1	0.0	11.1	2.1	9.9	10.2	1.0	4.8	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	55.7	41.4	16.4	43.3	0.0	67.2	44.9	34.2	34.1	51.5	35.4	35.6
LnGrp LOS	E	D	B	D		E	D	C	C	D	D	D
Approach Vol, veh/h		553			403			893			401	
Approach Delay, s/veh		40.5			60.7			35.9			36.8	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.9	61.0	11.1	42.0	34.9	52.0	21.2	31.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	56.5	6.6	53.4	14.5	47.5	17.5	42.5
Max Q Clear Time (g_c+I1), s	4.5	24.1	8.6	11.5	6.8	13.1	16.6	25.8
Green Ext Time (p_c), s	0.0	5.0	0.0	1.4	0.2	2.2	0.1	1.5

Intersection Summary	
HCM 7th Control Delay, s/veh	41.6
HCM 7th LOS	D

CASCADE CHRISTIAN SCHOOLS CONDITIONAL USE PERMIT UPDATE
TRAFFIC IMPACT ANALYSIS

APPENDIX:
Level of Service Analysis
Existing Conditions - PM Peak Hour(s)

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	449	188	341	357	105	54
Future Volume (veh/h)	449	188	341	357	105	54
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1826	1856	1826	1870
Adj Flow Rate, veh/h	516	216	392	410	121	62
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	5	3	5	2
Cap, veh/h	821	342	479	2481	203	185
Arrive On Green	0.34	0.34	0.28	0.70	0.12	0.12
Sat Flow, veh/h	2516	1010	1739	3618	1739	1585
Grp Volume(v), veh/h	375	357	392	410	121	62
Grp Sat Flow(s),veh/h/ln	1763	1670	1739	1763	1739	1585
Q Serve(g_s), s	8.9	9.0	10.6	2.0	3.3	1.8
Cycle Q Clear(g_c), s	8.9	9.0	10.6	2.0	3.3	1.8
Prop In Lane		0.60	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	597	566	479	2481	203	185
V/C Ratio(X)	0.63	0.63	0.82	0.17	0.60	0.34
Avail Cap(c_a), veh/h	2093	1983	1440	7421	1232	1123
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.9	13.9	17.0	2.5	21.0	20.4
Incr Delay (d2), s/veh	1.1	1.2	3.5	0.0	2.8	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	3.2	4.2	0.3	1.4	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	15.0	15.1	20.5	2.5	23.8	21.4
LnGrp LOS	B	B	C	A	C	C
Approach Vol, veh/h	732			802	183	
Approach Delay, s/veh	15.1			11.3	23.0	
Approach LOS	B			B	C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	18.3	21.5				39.8	10.3
Change Period (Y+Rc), s	4.5	4.5				4.5	4.5
Max Green Setting (Gmax), s	41.5	59.5				105.5	35.5
Max Q Clear Time (g_c+I1), s	12.6	11.0				4.0	5.3
Green Ext Time (p_c), s	1.3	5.9				3.3	0.5

Intersection Summary	
HCM 7th Control Delay, s/veh	14.2
HCM 7th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	408	118	55	591	114	255
Future Volume (veh/h)	408	118	55	591	114	255
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1826	1841	1870	1841	1856
Adj Flow Rate, veh/h	448	130	60	649	125	280
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	4	5	4	2	4	3
Cap, veh/h	832	239	110	1767	446	401
Arrive On Green	0.31	0.31	0.06	0.50	0.25	0.25
Sat Flow, veh/h	2769	770	1753	3647	1753	1572
Grp Volume(v), veh/h	291	287	60	649	125	280
Grp Sat Flow(s),veh/h/ln	1749	1699	1753	1777	1753	1572
Q Serve(g_s), s	5.0	5.1	1.2	4.1	2.1	5.9
Cycle Q Clear(g_c), s	5.0	5.1	1.2	4.1	2.1	5.9
Prop In Lane		0.45	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	544	528	110	1767	446	401
V/C Ratio(X)	0.54	0.54	0.55	0.37	0.28	0.70
Avail Cap(c_a), veh/h	2337	2271	1038	7295	2246	2015
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.3	10.4	16.5	5.6	10.9	12.3
Incr Delay (d2), s/veh	0.8	0.9	4.2	0.1	0.3	2.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.5	0.5	1.0	0.7	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	11.2	11.2	20.7	5.7	11.2	14.5
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	578			709	405	
Approach Delay, s/veh	11.2			7.0	13.5	
Approach LOS	B			A	B	

Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	13.7	6.8	15.8	22.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	46.5	21.5	48.5	74.5
Max Q Clear Time (g_c+I1), s	7.9	3.2	7.1	6.1
Green Ext Time (p_c), s	1.4	0.1	4.1	5.6

Intersection Summary	
HCM 7th Control Delay, s/veh	10.0
HCM 7th LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	159	554	534	82	167	269
Future Volume (veh/h)	159	554	534	82	167	269
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	0.97	0.97	0.97
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1841	1856	1870	1841	1841	1841
Adj Flow Rate, veh/h	179	622	600	92	188	302
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	4	3	2	4	4	4
Cap, veh/h	240	1934	959	147	440	391
Arrive On Green	0.14	0.55	0.31	0.31	0.26	0.26
Sat Flow, veh/h	1753	3618	3137	466	1704	1516
Grp Volume(v), veh/h	179	622	350	342	188	302
Grp Sat Flow(s),veh/h/ln	1753	1763	1777	1732	1704	1516
Q Serve(g_s), s	4.6	4.5	7.8	7.9	4.3	8.6
Cycle Q Clear(g_c), s	4.6	4.5	7.8	7.9	4.3	8.6
Prop In Lane	1.00			0.27	1.00	1.00
Lane Grp Cap(c), veh/h	240	1934	560	546	440	391
V/C Ratio(X)	0.75	0.32	0.62	0.63	0.43	0.77
Avail Cap(c_a), veh/h	1525	7309	1966	1917	897	798
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.3	5.8	13.6	13.6	14.4	16.0
Incr Delay (d2), s/veh	4.6	0.1	1.2	1.2	0.7	3.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	1.1	2.7	2.6	1.5	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	23.9	5.9	14.8	14.8	15.1	19.3
LnGrp LOS	C	A	B	B	B	B
Approach Vol, veh/h		801	692		490	
Approach Delay, s/veh		9.9	14.8		17.6	
Approach LOS		A	B		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		30.0		16.5	10.9	19.2
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		96.5		24.5	40.5	51.5
Max Q Clear Time (g_c+I1), s		6.5		10.6	6.6	9.9
Green Ext Time (p_c), s		4.8		1.4	0.5	4.7

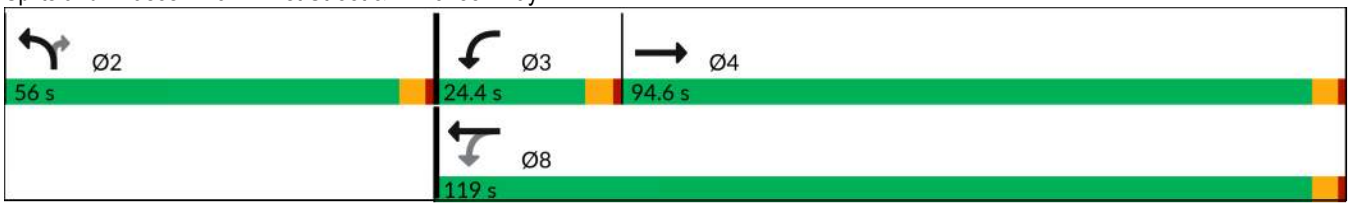
Intersection Summary	
HCM 7th Control Delay, s/veh	13.5
HCM 7th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	605	113	179	529	156	290
Future Volume (vph)	605	113	179	529	156	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		165	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		90	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00				0.99	0.98
Frt	0.976					0.850
Flt Protected				0.988	0.950	
Satd. Flow (prot)	3178	0	0	3256	1711	1546
Flt Permitted				0.578	0.950	
Satd. Flow (perm)	3178	0	0	1905	1701	1518
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	18					309
Link Speed (mph)	35			35	25	
Link Distance (ft)	627			605	465	
Travel Time (s)	12.2			11.8	12.7	
Confl. Peds. (#/hr)		2	2		2	2
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	2%	2%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	644	120	190	563	166	309
Shared Lane Traffic (%)						
Lane Group Flow (vph)	764	0	0	753	166	309
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	94.6		24.4	119.0	56.0	56.0
Total Split (%)	54.1%		13.9%	68.0%	32.0%	32.0%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	4.5			4.5	4.5	4.5
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		Min	Min	None	None
Act Effct Green (s)	21.5			31.9	12.5	12.5

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Actuated g/C Ratio	0.40			0.59	0.23	0.23
v/c Ratio	0.59			0.59	0.42	0.52
Control Delay (s/veh)	14.4			8.5	22.6	6.6
Queue Delay	0.0			0.0	0.0	0.0
Total Delay (s/veh)	14.4			8.5	22.6	6.6
LOS	B			A	C	A
Approach Delay (s/veh)	14.4			8.5	12.2	
Approach LOS	B			A	B	
Queue Length 50th (ft)	89			54	42	0
Queue Length 95th (ft)	160			108	113	56
Internal Link Dist (ft)	547			525	385	
Turn Bay Length (ft)					165	
Base Capacity (vph)	3178			2048	1580	1426
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.24			0.37	0.11	0.22

Intersection Summary			
Area Type:	Other		
Cycle Length: 175			
Actuated Cycle Length: 53.7			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay (s/veh): 11.6		Intersection LOS: B	
Intersection Capacity Utilization 60.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: E 21st Street & E Pioneer Way



Intersection	
Int Delay, s/veh	6.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	361	52	0	0	286
Future Vol, veh/h	26	361	52	0	0	286
Conflicting Peds, #/hr	2	2	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	508	73	0	0	403

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	478	75	0	-	-	-
Stage 1	73	-	-	-	-	-
Stage 2	405	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	546	986	-	0	0	-
Stage 1	950	-	-	0	0	-
Stage 2	674	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	545	984	-	-	-	-
Mov Cap-2 Maneuver	545	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	672	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	12.48	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	545	984	-
HCM Lane V/C Ratio	-	0.067	0.517	-
HCM Ctrl Dly (s/v)	-	12.1	12.5	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.2	3.1	-

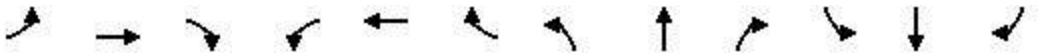
Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	2	2	0	0	0	0	49	60	201	97	14
Future Vol, veh/h	3	2	2	0	0	0	0	49	60	201	97	14
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	2	2	50	2	2	2	2	2	2	2	3	7
Mvmt Flow	4	3	3	0	0	0	0	70	86	287	139	20

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	797	883	153	161	0	0	158	0	0
Stage 1	725	725	-	-	-	-	-	-	-
Stage 2	72	158	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.7	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.75	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	356	285	782	1419	-	-	1422	-	-
Stage 1	480	430	-	-	-	-	-	-	-
Stage 2	951	767	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	275	0	778	1415	-	-	1422	-	-
Mov Cap-2 Maneuver	275	0	-	-	-	-	-	-	-
Stage 1	478	0	-	-	-	-	-	-	-
Stage 2	738	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	14.96	0	5.26
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1415	-	-	371	1131	-	-
HCM Lane V/C Ratio	-	-	-	0.027	0.202	-	-
HCM Ctrl Dly (s/v)	0	-	-	15	8.2	0	-
HCM Lane LOS	A	-	-	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.8	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	262	215	138	219	51	127	487	70	59	786	118
Future Volume (veh/h)	156	262	215	138	219	51	127	487	70	59	786	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	8	80	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1826	1856	1885	1856	1604	1870	1856	1885	1796	1885	1870
Adj Flow Rate, veh/h	162	273	224	144	228	53	132	507	73	61	819	123
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	5	3	1	3	20	2	3	1	7	1	2
Cap, veh/h	234	400	339	210	259	60	919	1245	178	345	1199	41
Arrive On Green	0.09	0.22	0.22	0.05	0.18	0.18	0.27	0.40	0.40	0.20	0.34	0.34
Sat Flow, veh/h	1767	1826	1546	1795	1450	337	3456	3084	442	1711	3116	468
Grp Volume(v), veh/h	162	273	224	144	0	281	132	289	291	61	471	471
Grp Sat Flow(s),veh/h/ln	1767	1826	1546	1795	0	1788	1728	1763	1763	1711	1791	1793
Q Serve(g_s), s	10.2	19.2	10.7	6.6	0.0	21.5	4.1	16.4	16.5	4.1	33.0	33.0
Cycle Q Clear(g_c), s	10.2	19.2	10.7	6.6	0.0	21.5	4.1	16.4	16.5	4.1	33.0	33.0
Prop In Lane	1.00		1.00	1.00		0.19	1.00		0.25	1.00		0.26
Lane Grp Cap(c), veh/h	234	400	339	210	0	319	919	711	712	345	608	632
V/C Ratio(X)	0.69	0.68	0.66	0.68	0.00	0.88	0.14	0.41	0.41	0.18	0.77	0.75
Avail Cap(c_a), veh/h	300	696	590	210	0	543	919	711	712	345	608	608
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	50.2	16.6	50.6	0.0	56.1	39.2	29.8	29.8	47.4	46.2	46.2
Incr Delay (d2), s/veh	4.7	2.1	2.2	8.9	0.0	8.8	0.1	1.7	1.7	0.2	9.3	7.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	135.6	113.8
%ile BackOfQ(50%),veh/ln	4.7	9.0	4.0	2.2	0.0	10.4	1.8	7.3	7.3	3.4	45.2	42.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	46.9	52.2	18.8	59.4	0.0	64.9	39.3	31.5	31.6	52.3	191.2	167.9
LnGrp LOS	D	D	B	E		E	D	C	C	D	F	F
Approach Vol, veh/h		659			425			712			1003	
Approach Delay, s/veh		39.6			63.1			33.0			171.8	
Approach LOS		D			E			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.7	61.0	11.1	35.2	41.7	52.0	16.8	29.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	56.5	6.6	53.4	14.5	47.5	17.5	42.5
Max Q Clear Time (g_c+I1), s	6.1	18.5	8.6	21.2	6.1	35.0	12.2	23.5
Green Ext Time (p_c), s	0.0	3.8	0.0	2.4	0.2	4.8	0.2	1.5

Intersection Summary	
HCM 7th Control Delay, s/veh	88.8
HCM 7th LOS	F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	502	239	459	447	102	50
Future Volume (veh/h)	502	239	459	447	102	50
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1856	1856	1781
Adj Flow Rate, veh/h	534	254	488	476	109	53
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	1	3	3	8
Cap, veh/h	804	381	571	2611	180	154
Arrive On Green	0.34	0.34	0.32	0.74	0.10	0.10
Sat Flow, veh/h	2430	1108	1795	3618	1767	1510
Grp Volume(v), veh/h	406	382	488	476	109	53
Grp Sat Flow(s),veh/h/ln	1777	1667	1795	1763	1767	1510
Q Serve(g_s), s	11.1	11.2	14.6	2.3	3.4	1.9
Cycle Q Clear(g_c), s	11.1	11.2	14.6	2.3	3.4	1.9
Prop In Lane		0.66	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	611	574	571	2611	180	154
V/C Ratio(X)	0.66	0.67	0.85	0.18	0.60	0.34
Avail Cap(c_a), veh/h	1846	1732	1301	6496	1096	936
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.0	16.0	18.3	2.2	24.6	23.9
Incr Delay (d2), s/veh	1.2	1.3	3.8	0.0	3.2	1.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	4.1	6.1	0.4	1.5	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	17.2	17.3	22.1	2.3	27.8	25.2
LnGrp LOS	B	B	C	A	C	C
Approach Vol, veh/h	788			964	162	
Approach Delay, s/veh	17.3			12.3	27.0	
Approach LOS	B			B	C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	22.7	24.2				46.9	10.3
Change Period (Y+Rc), s	4.5	4.5				4.5	4.5
Max Green Setting (Gmax), s	41.5	59.5				105.5	35.5
Max Q Clear Time (g_c+I1), s	16.6	13.2				4.3	5.4
Green Ext Time (p_c), s	1.6	6.5				3.9	0.5

Intersection Summary	
HCM 7th Control Delay, s/veh	15.6
HCM 7th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	460	156	30	738	126	307
Future Volume (veh/h)	460	156	30	738	126	307
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1870	1796	1870	1870	1856
Adj Flow Rate, veh/h	479	162	31	769	131	320
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	2	7	2	2	3
Cap, veh/h	864	290	63	1720	496	438
Arrive On Green	0.33	0.33	0.04	0.48	0.28	0.28
Sat Flow, veh/h	2725	884	1711	3647	1781	1572
Grp Volume(v), veh/h	325	316	31	769	131	320
Grp Sat Flow(s),veh/h/ln	1791	1723	1711	1777	1781	1572
Q Serve(g_s), s	5.6	5.7	0.7	5.4	2.2	7.0
Cycle Q Clear(g_c), s	5.6	5.7	0.7	5.4	2.2	7.0
Prop In Lane		0.51	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	588	566	63	1720	496	438
V/C Ratio(X)	0.55	0.56	0.49	0.45	0.26	0.73
Avail Cap(c_a), veh/h	2294	2206	971	6991	2187	1931
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.4	10.5	17.9	6.4	10.6	12.4
Incr Delay (d2), s/veh	0.8	0.9	5.9	0.2	0.3	2.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.8	0.3	1.4	0.7	2.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	11.3	11.3	23.8	6.6	10.9	14.7
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	641			800	451	
Approach Delay, s/veh	11.3			7.3	13.6	
Approach LOS	B			A	B	

Timer - Assigned Phs	2	3	4		8
Phs Duration (G+Y+Rc), s	15.0	5.9	16.9		22.8
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	46.5	21.5	48.5		74.5
Max Q Clear Time (g_c+I1), s	9.0	2.7	7.7		7.4
Green Ext Time (p_c), s	1.6	0.0	4.6		7.0

Intersection Summary	
HCM 7th Control Delay, s/veh	10.2
HCM 7th LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	231	569	577	73	240	374
Future Volume (veh/h)	231	569	577	73	240	374
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	0.97	0.97	0.97
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1885	1856	1811	1885	1885
Adj Flow Rate, veh/h	251	618	627	79	261	407
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	1	3	6	1	1
Cap, veh/h	316	1952	908	114	533	475
Arrive On Green	0.18	0.54	0.29	0.29	0.31	0.31
Sat Flow, veh/h	1781	3676	3197	390	1745	1553
Grp Volume(v), veh/h	251	618	356	350	261	407
Grp Sat Flow(s),veh/h/ln	1781	1791	1763	1732	1745	1553
Q Serve(g_s), s	8.1	5.7	10.8	10.8	7.4	14.8
Cycle Q Clear(g_c), s	8.1	5.7	10.8	10.8	7.4	14.8
Prop In Lane	1.00			0.23	1.00	1.00
Lane Grp Cap(c), veh/h	316	1952	516	507	533	475
V/C Ratio(X)	0.79	0.32	0.69	0.69	0.49	0.86
Avail Cap(c_a), veh/h	1198	5741	1508	1481	710	632
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.7	7.5	18.9	18.9	17.1	19.7
Incr Delay (d2), s/veh	4.5	0.1	1.7	1.7	0.7	8.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	1.7	4.1	4.1	2.8	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	28.2	7.6	20.5	20.6	17.8	28.5
LnGrp LOS	C	A	C	C	B	C
Approach Vol, veh/h		869	706		668	
Approach Delay, s/veh		13.6	20.6		24.3	
Approach LOS		B	C		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		37.3		22.9	15.2	22.1
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		96.5		24.5	40.5	51.5
Max Q Clear Time (g_c+I1), s		7.7		16.8	10.1	12.8
Green Ext Time (p_c), s		4.7		1.6	0.7	4.8

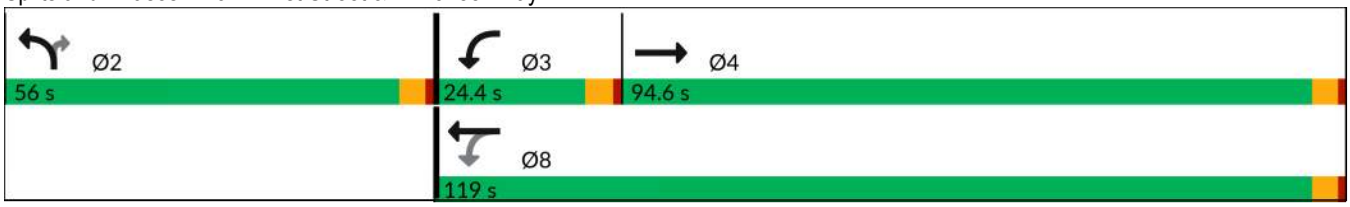
Intersection Summary	
HCM 7th Control Delay, s/veh	19.0
HCM 7th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	687	75	187	626	72	178
Future Volume (vph)	687	75	187	626	72	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		165	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		90	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00				0.99	0.98
Frt	0.985					0.850
Flt Protected				0.989	0.950	
Satd. Flow (prot)	3247	0	0	3218	1728	1546
Flt Permitted				0.580	0.950	
Satd. Flow (perm)	3247	0	0	1887	1717	1518
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	10					189
Link Speed (mph)	35			35	25	
Link Distance (ft)	627			605	465	
Travel Time (s)	12.2			11.8	12.7	
Confl. Peds. (#/hr)		2	2		2	2
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	1%	2%	4%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	731	80	199	666	77	189
Shared Lane Traffic (%)						
Lane Group Flow (vph)	811	0	0	865	77	189
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	94.6		24.4	119.0	56.0	56.0
Total Split (%)	54.1%		13.9%	68.0%	32.0%	32.0%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	4.5			4.5	4.5	4.5
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		Min	Min	None	None
Act Effct Green (s)	21.1			31.5	9.6	9.6

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Actuated g/C Ratio	0.42			0.62	0.19	0.19
v/c Ratio	0.60			0.65	0.23	0.43
Control Delay (s/veh)	13.1			8.1	21.3	7.5
Queue Delay	0.0			0.0	0.0	0.0
Total Delay (s/veh)	13.1			8.1	21.3	7.5
LOS	B			A	C	A
Approach Delay (s/veh)	13.1			8.1	11.5	
Approach LOS	B			A	B	
Queue Length 50th (ft)	85			52	18	0
Queue Length 95th (ft)	155			112	60	47
Internal Link Dist (ft)	547			525	385	
Turn Bay Length (ft)					165	
Base Capacity (vph)	3247			2037	1623	1437
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.25			0.42	0.05	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 175			
Actuated Cycle Length: 50.5			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay (s/veh): 10.6		Intersection LOS: B	
Intersection Capacity Utilization 60.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: E 21st Street & E Pioneer Way



Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	74	0	17	0	0	0	29	168	0	0	170	82
Future Vol, veh/h	74	0	17	0	0	0	29	168	0	0	170	82
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	3	1	6	1	1	1	7	1	1	1	1	4
Mvmt Flow	90	0	21	0	0	0	35	205	0	0	207	100

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	537	537	261	487	587	209	309	0	0	207	0	0
Stage 1	259	259	-	278	278	-	-	-	-	-	-	-
Stage 2	278	278	-	209	309	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.51	6.26	7.11	6.51	6.21	4.17	-	-	4.11	-	-
Critical Hdwy Stg 1	6.13	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.009	3.354	3.509	4.009	3.309	2.263	-	-	2.209	-	-
Pot Cap-1 Maneuver	453	452	768	493	423	834	1223	-	-	1370	-	-
Stage 1	743	695	-	731	683	-	-	-	-	-	-	-
Stage 2	727	683	-	795	661	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	437	436	764	462	408	831	1221	-	-	1369	-	-
Mov Cap-2 Maneuver	437	436	-	462	408	-	-	-	-	-	-	-
Stage 1	742	694	-	706	659	-	-	-	-	-	-	-
Stage 2	701	659	-	772	660	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	14.89	0	1.18	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	265	-	-	475	-	1369	-	-
HCM Lane V/C Ratio	0.029	-	-	0.234	-	-	-	-
HCM Control Delay (s/veh)	8	0	-	14.9	0	0	-	-
HCM Lane LOS	A	A	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.9	-	0	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	136	62	0	0	196
Future Vol, veh/h	21	136	62	0	0	196
Conflicting Peds, #/hr	2	2	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	1	1	5	1	1	1
Mvmt Flow	25	162	74	0	0	233

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	309	76	0	-	-	-
Stage 1	74	-	-	-	-	-
Stage 2	235	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	-	-
Pot Cap-1 Maneuver	685	988	-	0	0	-
Stage 1	952	-	-	0	0	-
Stage 2	806	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	684	986	-	-	-	-
Mov Cap-2 Maneuver	684	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	804	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.52	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	684	986	-
HCM Lane V/C Ratio	-	0.037	0.164	-
HCM Control Delay (s/veh)	-	10.5	9.4	-
HCM Lane LOS	-	B	A	-
HCM 95th %tile Q(veh)	-	0.1	0.6	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	7	2	2	0	0	0	1	61	5	91	93	16
Future Vol, veh/h	7	2	2	0	0	0	1	61	5	91	93	16
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	1	1	50	1	1	1	1	7	1	1	1	6
Mvmt Flow	8	2	2	0	0	0	1	68	6	101	103	18

Major/Minor	Minor2				Major1			Major2		
Conflicting Flow All	388	394	116		123	0	0	75	0	0
Stage 1	316	316	-		-	-	-	-	-	-
Stage 2	72	78	-		-	-	-	-	-	-
Critical Hdwy	6.41	6.51	6.7		4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	5.41	5.51	-		-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	5.51	-		-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.75		2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	617	544	821		1470	-	-	1530	-	-
Stage 1	741	656	-		-	-	-	-	-	-
Stage 2	953	832	-		-	-	-	-	-	-
Platoon blocked, %						-	-		-	-
Mov Cap-1 Maneuver	570	0	817		1467	-	-	1530	-	-
Mov Cap-2 Maneuver	570	0	-		-	-	-	-	-	-
Stage 1	739	0	-		-	-	-	-	-	-
Stage 2	884	0	-		-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	11.01	0.11	3.42
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	26	-	-	611	796	-	-
HCM Lane V/C Ratio	0.001	-	-	0.02	0.066	-	-
HCM Control Delay (s/veh)	7.5	0	-	11	7.5	0	-
HCM Lane LOS	A	A	-	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	202	329	263	133	254	27	163	503	75	58	884	137
Future Volume (veh/h)	202	329	263	133	254	27	163	503	75	58	884	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	8	80	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1885	1885	1856	1796	1885	1856	1885	1826	1885	1885
Adj Flow Rate, veh/h	215	350	280	141	270	29	173	535	80	62	940	146
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	2	1	1	3	7	1	3	1	5	1	1
Cap, veh/h	275	463	389	196	305	33	827	1237	184	301	1190	48
Arrive On Green	0.11	0.25	0.25	0.05	0.19	0.19	0.24	0.40	0.40	0.17	0.34	0.34
Sat Flow, veh/h	1795	1870	1572	1795	1644	177	3483	3066	457	1739	3100	481
Grp Volume(v), veh/h	215	350	280	141	0	299	173	307	308	62	543	543
Grp Sat Flow(s),veh/h/ln	1795	1870	1572	1795	0	1820	1742	1763	1760	1739	1791	1790
Q Serve(g_s), s	13.2	24.2	13.7	6.6	0.0	22.4	5.6	17.6	17.7	4.3	40.2	40.3
Cycle Q Clear(g_c), s	13.2	24.2	13.7	6.6	0.0	22.4	5.6	17.6	17.7	4.3	40.2	40.3
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.26	1.00		0.27
Lane Grp Cap(c), veh/h	275	463	389	196	0	338	827	711	710	301	608	630
V/C Ratio(X)	0.78	0.76	0.72	0.72	0.00	0.89	0.21	0.43	0.43	0.21	0.89	0.86
Avail Cap(c_a), veh/h	304	713	600	196	0	553	827	711	710	301	608	607
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	48.7	17.3	50.2	0.0	55.6	42.8	30.1	30.2	50.7	46.2	46.3
Incr Delay (d2), s/veh	11.4	2.5	2.5	12.1	0.0	9.7	0.1	1.9	1.9	0.3	18.1	14.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.4	189.1	166.3
%ile BackOfQ(50%),veh/ln	6.7	11.6	5.2	2.3	0.0	11.1	2.4	7.8	7.9	3.6	55.7	53.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	51.9	51.3	19.8	62.4	0.0	65.3	43.0	32.0	32.1	57.5	253.4	227.0
LnGrp LOS	D	D	B	E		E	D	C	C	E	F	F
Approach Vol, veh/h		845			440			788			1148	
Approach Delay, s/veh		41.0			64.4			34.5			230.3	
Approach LOS		D			E			C			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.7	61.0	11.1	39.2	37.7	52.0	19.8	30.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	56.5	6.6	53.4	14.5	47.5	17.5	42.5
Max Q Clear Time (g_c+I1), s	6.3	19.7	8.6	26.2	7.6	42.3	15.2	24.4
Green Ext Time (p_c), s	0.0	4.0	0.0	3.2	0.3	3.0	0.1	1.6

Intersection Summary	
HCM 7th Control Delay, s/veh	110.1
HCM 7th LOS	F

CASCADE CHRISTIAN SCHOOLS CONDITIONAL USE PERMIT UPDATE
TRAFFIC IMPACT ANALYSIS

APPENDIX:

Level of Service Analysis
Future Without Project - AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	461	121	277	561	173	98
Future Volume (veh/h)	461	121	277	561	173	98
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1796	1841	1841	1856	1841
Adj Flow Rate, veh/h	496	130	298	603	186	105
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	4	7	4	4	3	4
Cap, veh/h	850	222	386	2212	290	256
Arrive On Green	0.31	0.31	0.22	0.63	0.16	0.16
Sat Flow, veh/h	2835	715	1753	3589	1767	1560
Grp Volume(v), veh/h	315	311	298	603	186	105
Grp Sat Flow(s),veh/h/ln	1749	1709	1753	1749	1767	1560
Q Serve(g_s), s	6.7	6.8	7.1	3.4	4.3	2.7
Cycle Q Clear(g_c), s	6.7	6.8	7.1	3.4	4.3	2.7
Prop In Lane		0.42	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	542	530	386	2212	290	256
V/C Ratio(X)	0.58	0.59	0.77	0.27	0.64	0.41
Avail Cap(c_a), veh/h	2356	2303	1647	8355	1421	1254
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.8	12.8	16.2	3.6	17.3	16.6
Incr Delay (d2), s/veh	1.0	1.0	3.3	0.1	2.4	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	2.4	2.8	0.7	1.7	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	13.8	13.9	19.5	3.7	19.6	17.6
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	626			901	291	
Approach Delay, s/veh	13.8			8.9	18.9	
Approach LOS	B			A	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	14.2	18.2				32.4	11.7
Change Period (Y+Rc), s	4.5	4.5				4.5	4.5
Max Green Setting (Gmax), s	41.5	59.5				105.5	35.5
Max Q Clear Time (g_c+I1), s	9.1	8.8				5.4	6.3
Green Ext Time (p_c), s	0.9	4.8				5.2	0.9

Intersection Summary	
HCM 7th Control Delay, s/veh	12.2
HCM 7th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	398	161	87	673	105	317
Future Volume (veh/h)	398	161	87	673	105	317
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1826	1707	1856	1826	1870	1870
Adj Flow Rate, veh/h	433	175	95	732	114	345
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	13	3	5	2	2
Cap, veh/h	746	299	142	1726	509	453
Arrive On Green	0.31	0.31	0.08	0.50	0.29	0.29
Sat Flow, veh/h	2507	967	1767	3561	1781	1585
Grp Volume(v), veh/h	310	298	95	732	114	345
Grp Sat Flow(s),veh/h/ln	1735	1648	1767	1735	1781	1585
Q Serve(g_s), s	6.2	6.3	2.2	5.6	2.0	8.2
Cycle Q Clear(g_c), s	6.2	6.3	2.2	5.6	2.0	8.2
Prop In Lane		0.59	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	536	509	142	1726	509	453
V/C Ratio(X)	0.58	0.59	0.67	0.42	0.22	0.76
Avail Cap(c_a), veh/h	2027	1926	915	6226	1995	1776
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.1	12.1	18.6	6.6	11.3	13.5
Incr Delay (d2), s/veh	1.0	1.1	5.4	0.2	0.2	2.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	2.0	1.0	1.5	0.7	2.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	13.1	13.2	23.9	6.8	11.5	16.2
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	608			827	459	
Approach Delay, s/veh	13.1			8.8	15.1	
Approach LOS	B			A	B	

Timer - Assigned Phs	2	3	4		8
Phs Duration (G+Y+Rc), s	16.4	7.8	17.3		25.2
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	46.5	21.5	48.5		74.5
Max Q Clear Time (g_c+I1), s	10.2	4.2	8.3		7.6
Green Ext Time (p_c), s	1.6	0.2	4.4		6.6

Intersection Summary	
HCM 7th Control Delay, s/veh	11.7
HCM 7th LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	222	527	684	85	48	94
Future Volume (veh/h)	222	527	684	85	48	94
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	0.97	0.97	0.97
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1826	1841	1885	1781	1826
Adj Flow Rate, veh/h	241	573	743	92	52	102
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	5	4	1	8	5
Cap, veh/h	321	2324	1184	146	198	181
Arrive On Green	0.18	0.67	0.38	0.38	0.12	0.12
Sat Flow, veh/h	1767	3561	3178	382	1649	1504
Grp Volume(v), veh/h	241	573	421	414	52	102
Grp Sat Flow(s),veh/h/ln	1767	1735	1749	1719	1649	1504
Q Serve(g_s), s	5.5	2.8	8.4	8.4	1.2	2.7
Cycle Q Clear(g_c), s	5.5	2.8	8.4	8.4	1.2	2.7
Prop In Lane	1.00			0.22	1.00	1.00
Lane Grp Cap(c), veh/h	321	2324	671	659	198	181
V/C Ratio(X)	0.75	0.25	0.63	0.63	0.26	0.56
Avail Cap(c_a), veh/h	1669	7808	2100	2065	942	859
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.6	2.8	10.7	10.7	17.1	17.8
Incr Delay (d2), s/veh	3.6	0.1	1.0	1.0	0.7	2.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.3	2.5	2.5	0.4	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	20.2	2.9	11.7	11.7	17.8	20.5
LnGrp LOS	C	A	B	B	B	C
Approach Vol, veh/h		814	835		154	
Approach Delay, s/veh		8.0	11.7		19.6	
Approach LOS		A	B		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		33.2		9.7	12.3	20.9
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		96.5		24.5	40.5	51.5
Max Q Clear Time (g_c+I1), s		4.8		4.7	7.5	10.4
Green Ext Time (p_c), s		4.3		0.4	0.7	6.0

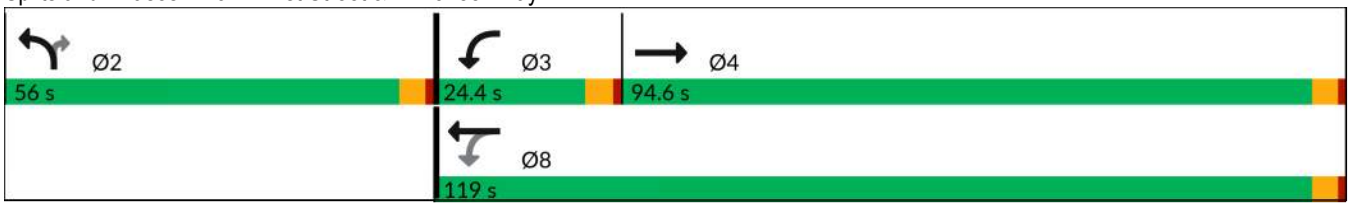
Intersection Summary	
HCM 7th Control Delay, s/veh	10.7
HCM 7th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	491	115	159	569	163	241
Future Volume (vph)	491	115	159	569	163	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		165	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		90	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	0.99				0.99	0.98
Frt	0.972					0.850
Flt Protected				0.989	0.950	
Satd. Flow (prot)	3118	0	0	3194	1711	1531
Flt Permitted				0.584	0.950	
Satd. Flow (perm)	3118	0	0	1886	1701	1503
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	24					301
Link Speed (mph)	35			35	25	
Link Distance (ft)	627			605	465	
Travel Time (s)	12.2			11.8	12.7	
Confl. Peds. (#/hr)		2	2		2	2
Confl. Bikes (#/hr)						
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	2%	2%	5%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	614	144	199	711	204	301
Shared Lane Traffic (%)						
Lane Group Flow (vph)	758	0	0	910	204	301
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	94.6		24.4	119.0	56.0	56.0
Total Split (%)	54.1%		13.9%	68.0%	32.0%	32.0%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	4.5			4.5	4.5	4.5
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		Min	Min	None	None
Act Effct Green (s)	32.0			42.9	17.7	17.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Actuated g/C Ratio	0.45			0.61	0.25	0.25
v/c Ratio	0.53			0.72	0.48	0.50
Control Delay (s/veh)	14.3			12.9	29.5	6.8
Queue Delay	0.0			0.0	0.0	0.0
Total Delay (s/veh)	14.3			12.9	29.5	6.8
LOS	B			B	C	A
Approach Delay (s/veh)	14.3			12.9	16.0	
Approach LOS	B			B	B	
Queue Length 50th (ft)	103			90	71	0
Queue Length 95th (ft)	171			169	160	37
Internal Link Dist (ft)	547			525	385	
Turn Bay Length (ft)					165	
Base Capacity (vph)	3015			1998	1313	1224
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.25			0.46	0.16	0.25

Intersection Summary			
Area Type:	Other		
Cycle Length: 175			
Actuated Cycle Length: 70.5			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay (s/veh): 14.1		Intersection LOS: B	
Intersection Capacity Utilization 58.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: E 21st Street & E Pioneer Way



Intersection	
Int Delay, s/veh	6.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	338	61	0	0	353
Future Vol, veh/h	25	338	61	0	0	353
Conflicting Peds, #/hr	2	2	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	62	62	62	62	62	62
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	545	98	0	0	569

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	670	100	0	-	-	-
Stage 1	98	-	-	-	-	-
Stage 2	571	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	422	955	-	0	0	-
Stage 1	926	-	-	0	0	-
Stage 2	565	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	421	953	-	-	-	-
Mov Cap-2 Maneuver	421	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	564	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	13.76	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	421	953	-
HCM Lane V/C Ratio	-	0.096	0.572	-
HCM Ctrl Dly (s/v)	-	14.4	13.7	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.3	3.7	-

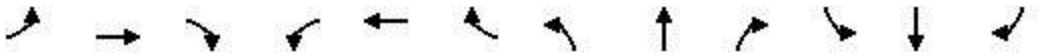
Intersection	
Int Delay, s/veh	7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	8	10	0	0	0	0	0	54	130	306	68	5
Future Vol, veh/h	8	10	0	0	0	0	0	54	130	306	68	5
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	58	58	58	58	58	58	58	58	58	58	58
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	4	2
Mvmt Flow	14	17	0	0	0	0	0	93	224	528	117	9

Major/Minor	Minor2				Major1			Major2		
Conflicting Flow All	1274	1498	126		128	0	0	319	0	0
Stage 1	1179	1179	-		-	-	-	-	-	-
Stage 2	95	319	-		-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22		4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-		-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-		-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318		2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	185	122	925		1458	-	-	1241	-	-
Stage 1	292	264	-		-	-	-	-	-	-
Stage 2	929	653	-		-	-	-	-	-	-
Platoon blocked, %						-	-		-	-
Mov Cap-1 Maneuver	100	0	921		1455	-	-	1241	-	-
Mov Cap-2 Maneuver	100	0	-		-	-	-	-	-	-
Stage 1	292	0	-		-	-	-	-	-	-
Stage 2	503	0	-		-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	56.7	0	8.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1455	-	-	100	1153	-	-
HCM Lane V/C Ratio	-	-	-	0.311	0.425	-	-
HCM Ctrl Dly (s/v)	0	-	-	56.7	10	0	-
HCM Lane LOS	A	-	-	F	B	A	-
HCM 95th %tile Q(veh)	0	-	-	1.2	2.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	259	204	182	130	271	160	180	791	57	119	333	75
Future Volume (veh/h)	259	204	182	130	271	160	180	791	57	119	333	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1796	1856	1870	1767	1618	1856	1856	1885	1663	1856	1870
Adj Flow Rate, veh/h	278	219	196	140	291	172	194	851	61	128	358	81
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	7	3	2	9	19	3	3	1	16	3	2
Cap, veh/h	293	669	577	412	304	180	386	1344	96	77	968	216
Arrive On Green	0.13	0.37	0.37	0.05	0.29	0.29	0.11	0.40	0.40	0.05	0.34	0.34
Sat Flow, veh/h	1795	1796	1549	1781	1034	611	3428	3330	239	1584	2854	638
Grp Volume(v), veh/h	278	219	196	140	0	463	194	451	461	128	219	220
Grp Sat Flow(s),veh/h/ln	1795	1796	1549	1781	0	1645	1714	1763	1806	1584	1763	1729
Q Serve(g_s), s	16.1	12.2	9.1	6.6	0.0	38.7	7.5	28.7	28.7	6.8	13.1	13.5
Cycle Q Clear(g_c), s	16.1	12.2	9.1	6.6	0.0	38.7	7.5	28.7	28.7	6.8	13.1	13.5
Prop In Lane	1.00		1.00	1.00		0.37	1.00		0.13	1.00		0.37
Lane Grp Cap(c), veh/h	293	669	577	412	0	484	386	711	729	77	598	587
V/C Ratio(X)	0.95	0.33	0.34	0.34	0.00	0.96	0.50	0.63	0.63	1.67	0.37	0.37
Avail Cap(c_a), veh/h	293	685	591	412	0	499	386	711	729	77	598	587
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.1	31.4	16.3	33.2	0.0	48.5	58.4	33.4	33.5	66.6	34.9	35.0
Incr Delay (d2), s/veh	39.1	0.3	0.3	0.5	0.0	28.9	1.0	4.3	4.2	351.7	1.7	1.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	5.4	3.3	3.5	0.0	19.6	3.3	13.0	13.3	10.2	5.9	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	78.1	31.7	16.6	33.7	0.0	77.4	59.4	37.7	37.6	418.3	36.6	36.8
LnGrp LOS	E	C	B	C		E	E	D	D	F	D	D
Approach Vol, veh/h		693			603			1106			567	
Approach Delay, s/veh		46.1			67.3			41.5			122.9	
Approach LOS		D			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	61.0	11.1	56.6	20.3	52.0	22.0	45.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	56.5	6.6	53.4	14.5	47.5	17.5	42.5
Max Q Clear Time (g_c+I1), s	8.8	30.7	8.6	14.2	9.5	15.5	18.1	40.7
Green Ext Time (p_c), s	0.0	6.2	0.0	2.0	0.3	2.7	0.0	0.5

Intersection Summary	
HCM 7th Control Delay, s/veh	63.3
HCM 7th LOS	E

CASCADE CHRISTIAN SCHOOLS CONDITIONAL USE PERMIT UPDATE
TRAFFIC IMPACT ANALYSIS

APPENDIX:
Level of Service Analysis
Future Without Project - PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	531	216	399	428	117	69
Future Volume (veh/h)	531	216	399	428	117	69
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1826	1856	1826	1870
Adj Flow Rate, veh/h	610	248	459	492	134	79
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	5	3	5	2
Cap, veh/h	884	359	531	2607	202	184
Arrive On Green	0.36	0.36	0.31	0.74	0.12	0.12
Sat Flow, veh/h	2537	993	1739	3618	1739	1585
Grp Volume(v), veh/h	440	418	459	492	134	79
Grp Sat Flow(s),veh/h/ln	1763	1674	1739	1763	1739	1585
Q Serve(g_s), s	13.2	13.2	15.5	2.6	4.6	2.9
Cycle Q Clear(g_c), s	13.2	13.2	15.5	2.6	4.6	2.9
Prop In Lane		0.59	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	638	605	531	2607	202	184
V/C Ratio(X)	0.69	0.69	0.86	0.19	0.66	0.43
Avail Cap(c_a), veh/h	1684	1599	1158	5971	991	903
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.9	16.9	20.4	2.5	26.4	25.6
Incr Delay (d2), s/veh	1.3	1.4	4.3	0.0	3.7	1.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	4.9	6.5	0.5	2.0	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	18.3	18.3	24.7	2.5	30.1	27.2
LnGrp LOS	B	B	C	A	C	C
Approach Vol, veh/h	858			951	213	
Approach Delay, s/veh	18.3			13.2	29.0	
Approach LOS	B			B	C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	23.5	27.0				50.6	11.7
Change Period (Y+Rc), s	4.5	4.5				4.5	4.5
Max Green Setting (Gmax), s	41.5	59.5				105.5	35.5
Max Q Clear Time (g_c+I1), s	17.5	15.2				4.6	6.6
Green Ext Time (p_c), s	1.5	7.3				4.0	0.6

Intersection Summary							
HCM 7th Control Delay, s/veh			17.0				
HCM 7th LOS			B				

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	490	136	68	702	131	301
Future Volume (veh/h)	490	136	68	702	131	301
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1826	1841	1870	1841	1856
Adj Flow Rate, veh/h	538	149	75	771	144	331
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	4	5	4	2	4	3
Cap, veh/h	903	249	121	1809	488	438
Arrive On Green	0.33	0.33	0.07	0.51	0.28	0.28
Sat Flow, veh/h	2798	746	1753	3647	1753	1572
Grp Volume(v), veh/h	347	340	75	771	144	331
Grp Sat Flow(s),veh/h/ln	1749	1704	1753	1777	1753	1572
Q Serve(g_s), s	7.0	7.0	1.8	5.8	2.7	8.2
Cycle Q Clear(g_c), s	7.0	7.0	1.8	5.8	2.7	8.2
Prop In Lane		0.44	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	583	568	121	1809	488	438
V/C Ratio(X)	0.59	0.60	0.62	0.43	0.29	0.76
Avail Cap(c_a), veh/h	2001	1950	889	6248	1924	1726
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	11.8	19.2	6.5	12.0	14.0
Incr Delay (d2), s/veh	1.0	1.0	5.0	0.2	0.3	2.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.3	0.8	1.6	0.9	2.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	12.7	12.8	24.2	6.7	12.3	16.6
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	687			846	475	
Approach Delay, s/veh	12.7			8.2	15.3	
Approach LOS	B			A	B	

Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	16.3	7.4	18.6	26.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	46.5	21.5	48.5	74.5
Max Q Clear Time (g_c+I1), s	10.2	3.8	9.0	7.8
Green Ext Time (p_c), s	1.7	0.1	5.0	7.0

Intersection Summary	
HCM 7th Control Delay, s/veh	11.5
HCM 7th LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	183	666	642	97	195	309
Future Volume (veh/h)	183	666	642	97	195	309
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	0.97	0.97	0.97
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1841	1856	1870	1841	1841	1841
Adj Flow Rate, veh/h	206	748	721	109	219	347
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	4	3	2	4	4	4
Cap, veh/h	266	2009	1039	157	469	417
Arrive On Green	0.15	0.57	0.34	0.34	0.28	0.28
Sat Flow, veh/h	1753	3618	3143	461	1704	1516
Grp Volume(v), veh/h	206	748	420	410	219	347
Grp Sat Flow(s),veh/h/ln	1753	1763	1777	1733	1704	1516
Q Serve(g_s), s	6.6	6.7	11.8	11.9	6.2	12.5
Cycle Q Clear(g_c), s	6.6	6.7	11.8	11.9	6.2	12.5
Prop In Lane	1.00			0.27	1.00	1.00
Lane Grp Cap(c), veh/h	266	2009	605	591	469	417
V/C Ratio(X)	0.77	0.37	0.69	0.69	0.47	0.83
Avail Cap(c_a), veh/h	1223	5859	1576	1537	719	640
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.7	6.8	16.5	16.5	17.5	19.8
Incr Delay (d2), s/veh	4.8	0.1	1.4	1.5	0.7	5.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	1.9	4.4	4.3	2.3	10.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	28.4	6.9	18.0	18.0	18.2	25.4
LnGrp LOS	C	A	B	B	B	C
Approach Vol, veh/h		954	830		566	
Approach Delay, s/veh		11.6	18.0		22.6	
Approach LOS		B	B		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		37.6		20.5	13.3	24.3
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		96.5		24.5	40.5	51.5
Max Q Clear Time (g_c+I1), s		8.7		14.5	8.6	13.9
Green Ext Time (p_c), s		6.0		1.5	0.6	5.9

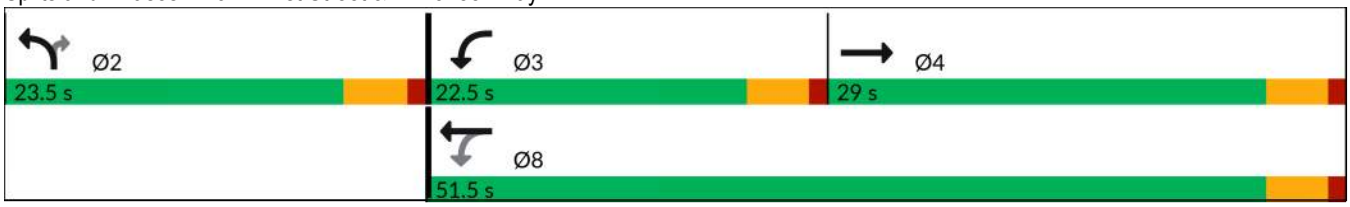
Intersection Summary	
HCM 7th Control Delay, s/veh	16.5
HCM 7th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	727	121	189	636	163	299
Future Volume (vph)	727	121	189	636	163	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		165	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		90	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.979					0.850
Flt Protected				0.989	0.950	
Satd. Flow (prot)	3207	0	0	3242	1711	1531
Flt Permitted				0.552	0.950	
Satd. Flow (perm)	3207	0	0	1810	1711	1531
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	27					318
Link Speed (mph)	35			35	25	
Link Distance (ft)	627			605	466	
Travel Time (s)	12.2			11.8	12.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	2%	2%	3%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	773	129	201	677	173	318
Shared Lane Traffic (%)						
Lane Group Flow (vph)	902	0	0	878	173	318
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	29.0		22.5	51.5	23.5	23.5
Total Split (%)	38.7%		30.0%	68.7%	31.3%	31.3%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	4.5			4.5	4.5	4.5
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		Min	Min	None	None
Act Effct Green (s)	24.3			34.8	11.6	11.6

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Actuated g/C Ratio	0.43			0.62	0.21	0.21
v/c Ratio	0.64			0.69	0.49	0.56
Control Delay (s/veh)	14.1			9.6	26.6	7.4
Queue Delay	0.0			0.0	0.0	0.0
Total Delay (s/veh)	14.1			9.6	26.6	7.4
LOS	B			A	C	A
Approach Delay (s/veh)	14.1			9.6	14.2	
Approach LOS	B			A	B	
Queue Length 50th (ft)	106			62	48	0
Queue Length 95th (ft)	192			129	122	59
Internal Link Dist (ft)	547			525	386	
Turn Bay Length (ft)					165	
Base Capacity (vph)	1684			1679	611	751
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.54			0.52	0.28	0.42

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 55.9			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay (s/veh): 12.4		Intersection LOS: B	
Intersection Capacity Utilization 67.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: E 21st Street & E Pioneer Way



Intersection	
Int Delay, s/veh	6.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	361	64	0	0	303
Future Vol, veh/h	26	361	64	0	0	303
Conflicting Peds, #/hr	2	2	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	508	90	0	0	427

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	519	92	0	-	-	-
Stage 1	90	-	-	-	-	-
Stage 2	429	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	517	965	-	0	0	-
Stage 1	933	-	-	0	0	-
Stage 2	657	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	516	963	-	-	-	-
Mov Cap-2 Maneuver	516	-	-	-	-	-
Stage 1	933	-	-	-	-	-
Stage 2	655	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	12.82	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	516	963	-
HCM Lane V/C Ratio	-	0.071	0.528	-
HCM Ctrl Dly (s/v)	-	12.5	12.8	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.2	3.2	-

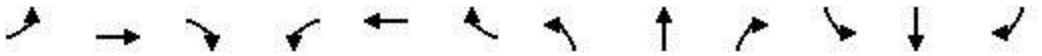
Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	3	2	2	0	0	0	0	56	60	201	104	16
Future Vol, veh/h	3	2	2	0	0	0	0	56	60	201	104	16
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	2	2	50	2	2	2	2	2	2	2	3	7
Mvmt Flow	4	3	3	0	0	0	0	80	86	287	149	23

Major/Minor	Minor2				Major1			Major2		
Conflicting Flow All	818	904	164		173	0	0	168	0	0
Stage 1	736	736	-		-	-	-	-	-	-
Stage 2	82	168	-		-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.7		4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-		-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-		-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.75		2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	345	277	770		1403	-	-	1410	-	-
Stage 1	474	425	-		-	-	-	-	-	-
Stage 2	941	760	-		-	-	-	-	-	-
Platoon blocked, %						-	-		-	-
Mov Cap-1 Maneuver	266	0	766		1400	-	-	1410	-	-
Mov Cap-2 Maneuver	266	0	-		-	-	-	-	-	-
Stage 1	473	0	-		-	-	-	-	-	-
Stage 2	727	0	-		-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	15.28	0	5.14
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1400	-	-	360	1098	-	-
HCM Lane V/C Ratio	-	-	-	0.028	0.204	-	-
HCM Ctrl Dly (s/v)	0	-	-	15.3	8.2	0	-
HCM Lane LOS	A	-	-	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.8	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	288	246	158	275	105	188	552	83	109	882	137
Future Volume (veh/h)	174	288	246	158	275	105	188	552	83	109	882	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	8	80	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1826	1856	1885	1856	1604	1870	1856	1885	1796	1885	1870
Adj Flow Rate, veh/h	181	300	256	165	286	109	196	575	86	114	919	143
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	5	3	1	3	20	2	3	1	7	1	2
Cap, veh/h	236	525	445	263	312	119	682	1237	184	227	1191	47
Arrive On Green	0.09	0.29	0.29	0.05	0.24	0.24	0.20	0.40	0.40	0.13	0.34	0.34
Sat Flow, veh/h	1767	1826	1548	1795	1273	485	3456	3066	457	1711	3099	482
Grp Volume(v), veh/h	181	300	256	165	0	395	196	330	331	114	531	531
Grp Sat Flow(s),veh/h/ln	1767	1826	1548	1795	0	1759	1728	1763	1760	1711	1791	1790
Q Serve(g_s), s	10.4	19.6	12.5	6.6	0.0	30.6	6.8	19.2	19.4	8.7	39.0	39.0
Cycle Q Clear(g_c), s	10.4	19.6	12.5	6.6	0.0	30.6	6.8	19.2	19.4	8.7	39.0	39.0
Prop In Lane	1.00		1.00	1.00		0.28	1.00		0.26	1.00		0.27
Lane Grp Cap(c), veh/h	236	525	445	263	0	431	682	711	710	227	608	630
V/C Ratio(X)	0.77	0.57	0.57	0.63	0.00	0.92	0.29	0.46	0.47	0.50	0.87	0.84
Avail Cap(c_a), veh/h	298	696	590	263	0	534	682	711	710	227	608	607
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.5	42.5	17.0	44.1	0.0	51.5	47.8	30.6	30.7	57.6	46.2	46.3
Incr Delay (d2), s/veh	8.9	1.0	1.2	4.7	0.0	18.3	0.2	2.2	2.2	1.7	16.0	12.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.9	180.3	157.5
%ile BackOfQ(50%),veh/ln	5.1	9.0	4.6	2.4	0.0	15.6	2.9	8.6	8.6	6.2	53.9	51.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	46.3	43.5	18.2	48.8	0.0	69.8	48.0	32.8	32.9	77.2	242.5	216.7
LnGrp LOS	D	D	B	D		E	D	C	C	E	F	F
Approach Vol, veh/h		737			560			857			1176	
Approach Delay, s/veh		35.4			63.6			36.3			214.8	
Approach LOS		D			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.1	61.0	11.1	44.8	32.1	52.0	17.1	38.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	56.5	6.6	53.4	14.5	47.5	17.5	42.5
Max Q Clear Time (g_c+I1), s	10.7	21.4	8.6	21.6	8.8	41.0	12.4	32.6
Green Ext Time (p_c), s	0.0	4.4	0.0	2.8	0.3	3.5	0.2	1.7

Intersection Summary	
HCM 7th Control Delay, s/veh	103.7
HCM 7th LOS	F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	606	275	540	547	117	66
Future Volume (veh/h)	606	275	540	547	117	66
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1856	1856	1781
Adj Flow Rate, veh/h	645	293	574	582	124	70
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	1	3	3	8
Cap, veh/h	874	397	635	2754	179	153
Arrive On Green	0.37	0.37	0.35	0.78	0.10	0.10
Sat Flow, veh/h	2466	1078	1795	3618	1767	1510
Grp Volume(v), veh/h	483	455	574	582	124	70
Grp Sat Flow(s),veh/h/ln	1777	1673	1795	1763	1767	1510
Q Serve(g_s), s	18.1	18.1	23.3	3.3	5.2	3.3
Cycle Q Clear(g_c), s	18.1	18.1	23.3	3.3	5.2	3.3
Prop In Lane		0.64	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	655	616	635	2754	179	153
V/C Ratio(X)	0.74	0.74	0.90	0.21	0.69	0.46
Avail Cap(c_a), veh/h	1380	1300	973	4856	819	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.0	21.0	23.5	2.2	33.3	32.4
Incr Delay (d2), s/veh	1.6	1.8	8.0	0.0	4.7	2.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	7.0	10.8	0.7	2.4	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	22.6	22.7	31.5	2.2	38.0	34.6
LnGrp LOS	C	C	C	A	D	C
Approach Vol, veh/h	938			1156	194	
Approach Delay, s/veh	22.7			16.8	36.7	
Approach LOS	C			B	D	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	31.6	32.7				64.3	12.3
Change Period (Y+Rc), s	4.5	4.5				4.5	4.5
Max Green Setting (Gmax), s	41.5	59.5				105.5	35.5
Max Q Clear Time (g_c+I1), s	25.3	20.1				5.3	7.2
Green Ext Time (p_c), s	1.9	8.2				4.9	0.6

Intersection Summary			
HCM 7th Control Delay, s/veh		20.9	
HCM 7th LOS		C	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	566	179	41	895	145	366
Future Volume (veh/h)	566	179	41	895	145	366
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1870	1796	1870	1870	1856
Adj Flow Rate, veh/h	590	186	43	932	151	381
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	2	7	2	2	3
Cap, veh/h	948	298	79	1769	546	482
Arrive On Green	0.35	0.35	0.05	0.50	0.31	0.31
Sat Flow, veh/h	2773	843	1711	3647	1781	1572
Grp Volume(v), veh/h	394	382	43	932	151	381
Grp Sat Flow(s),veh/h/ln	1791	1731	1711	1777	1781	1572
Q Serve(g_s), s	8.4	8.4	1.1	8.2	3.0	10.2
Cycle Q Clear(g_c), s	8.4	8.4	1.1	8.2	3.0	10.2
Prop In Lane		0.49	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	634	613	79	1769	546	482
V/C Ratio(X)	0.62	0.62	0.55	0.53	0.28	0.79
Avail Cap(c_a), veh/h	1889	1826	800	5759	1802	1590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.3	12.3	21.5	7.9	12.1	14.6
Incr Delay (d2), s/veh	1.0	1.0	5.8	0.2	0.3	3.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	2.8	0.5	2.4	1.0	3.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	13.3	13.4	27.3	8.1	12.4	17.6
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	776			975	532	
Approach Delay, s/veh	13.3			8.9	16.1	
Approach LOS	B			A	B	

Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	18.6	6.6	20.8	27.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	46.5	21.5	48.5	74.5
Max Q Clear Time (g_c+I1), s	12.2	3.1	10.4	10.2
Green Ext Time (p_c), s	1.9	0.1	5.8	9.2

Intersection Summary	
HCM 7th Control Delay, s/veh	12.1
HCM 7th LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	265	707	719	87	281	430
Future Volume (veh/h)	265	707	719	87	281	430
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	0.97	0.97	0.97
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1885	1856	1811	1885	1885
Adj Flow Rate, veh/h	288	768	782	95	305	467
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	1	3	6	1	1
Cap, veh/h	341	2066	1024	124	540	481
Arrive On Green	0.19	0.58	0.33	0.33	0.31	0.31
Sat Flow, veh/h	1781	3676	3211	379	1745	1553
Grp Volume(v), veh/h	288	768	442	435	305	467
Grp Sat Flow(s),veh/h/ln	1781	1791	1763	1734	1745	1553
Q Serve(g_s), s	12.3	9.1	17.8	17.8	11.6	23.5
Cycle Q Clear(g_c), s	12.3	9.1	17.8	17.8	11.6	23.5
Prop In Lane	1.00			0.22	1.00	1.00
Lane Grp Cap(c), veh/h	341	2066	579	570	540	481
V/C Ratio(X)	0.84	0.37	0.76	0.76	0.56	0.97
Avail Cap(c_a), veh/h	912	4367	1147	1128	540	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.9	9.0	23.8	23.8	22.9	27.0
Incr Delay (d2), s/veh	5.7	0.1	2.1	2.2	1.4	33.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	3.1	7.2	7.1	4.7	4.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	36.6	9.1	25.9	26.0	24.2	60.6
LnGrp LOS	D	A	C	C	C	E
Approach Vol, veh/h		1056	877		772	
Approach Delay, s/veh		16.6	26.0		46.2	
Approach LOS		B	C		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		50.1		29.0	19.6	30.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		96.5		24.5	40.5	51.5
Max Q Clear Time (g_c+I1), s		11.1		25.5	14.3	19.8
Green Ext Time (p_c), s		6.2		0.0	0.8	6.2

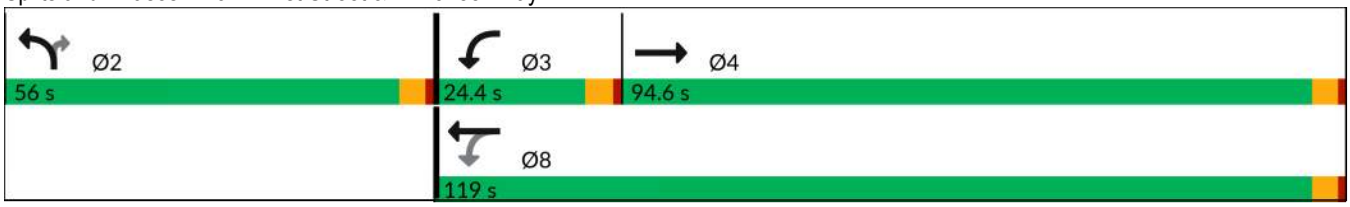
Intersection Summary	
HCM 7th Control Delay, s/veh	28.1
HCM 7th LOS	C

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	845	82	200	775	78	187
Future Volume (vph)	845	82	200	775	78	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		165	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		90	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00				0.99	0.98
Frt	0.987					0.850
Flt Protected				0.990	0.950	
Satd. Flow (prot)	3255	0	0	3220	1728	1546
Flt Permitted				0.550	0.950	
Satd. Flow (perm)	3255	0	0	1789	1717	1518
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	9					199
Link Speed (mph)	35			35	25	
Link Distance (ft)	627			605	465	
Travel Time (s)	12.2			11.8	12.7	
Confl. Peds. (#/hr)		2	2		2	2
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	1%	2%	4%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	899	87	213	824	83	199
Shared Lane Traffic (%)						
Lane Group Flow (vph)	986	0	0	1037	83	199
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	94.6		24.4	119.0	56.0	56.0
Total Split (%)	54.1%		13.9%	68.0%	32.0%	32.0%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	4.5			4.5	4.5	4.5
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		Min	Min	None	None
Act Effct Green (s)	37.2			48.2	11.8	11.8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Actuated g/C Ratio	0.53			0.69	0.17	0.17
v/c Ratio	0.57			0.76	0.28	0.47
Control Delay (s/veh)	11.2			9.9	34.0	10.0
Queue Delay	0.0			0.0	0.0	0.0
Total Delay (s/veh)	11.2			9.9	34.0	10.0
LOS	B			A	C	A
Approach Delay (s/veh)	11.2			9.9	17.0	
Approach LOS	B			A	B	
Queue Length 50th (ft)	126			82	29	0
Queue Length 95th (ft)	190			136	97	64
Internal Link Dist (ft)	547			525	385	
Turn Bay Length (ft)					165	
Base Capacity (vph)	3159			1912	1330	1214
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.31			0.54	0.06	0.16

Intersection Summary			
Area Type:	Other		
Cycle Length: 175			
Actuated Cycle Length: 69.9			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay (s/veh): 11.3		Intersection LOS: B	
Intersection Capacity Utilization 69.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: E 21st Street & E Pioneer Way



Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	85	2	18	0	2	5	31	179	0	4	186	94
Future Vol, veh/h	85	2	18	0	2	5	31	179	0	4	186	94
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	3	1	6	1	1	1	7	1	1	1	1	4
Mvmt Flow	104	2	22	0	2	6	38	218	0	5	227	115

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	593	592	288	536	649	222	343	0	0	220	0	0
Stage 1	296	296	-	296	296	-	-	-	-	-	-	-
Stage 2	297	296	-	240	353	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.51	6.26	7.11	6.51	6.21	4.17	-	-	4.11	-	-
Critical Hdwy Stg 1	6.13	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.009	3.354	3.509	4.009	3.309	2.263	-	-	2.209	-	-
Pot Cap-1 Maneuver	416	421	742	457	390	820	1188	-	-	1355	-	-
Stage 1	710	670	-	715	670	-	-	-	-	-	-	-
Stage 2	709	670	-	766	633	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	392	402	738	421	373	817	1186	-	-	1353	-	-
Mov Cap-2 Maneuver	392	402	-	421	373	-	-	-	-	-	-	-
Stage 1	706	666	-	688	645	-	-	-	-	-	-	-
Stage 2	674	645	-	735	629	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	17.03	10.99	1.2	0.11
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	266	-	-	426	610	24	-	-
HCM Lane V/C Ratio	0.032	-	-	0.3	0.014	0.004	-	-
HCM Control Delay (s/veh)	8.1	0	-	17	11	7.7	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	0	0	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	136	75	0	0	213
Future Vol, veh/h	21	136	75	0	0	213
Conflicting Peds, #/hr	2	2	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	1	1	5	1	1	1
Mvmt Flow	25	162	89	0	0	254

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	345	91	0	-	-	-
Stage 1	89	-	-	-	-	-
Stage 2	256	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	-	-
Pot Cap-1 Maneuver	654	969	-	0	0	-
Stage 1	937	-	-	0	0	-
Stage 2	789	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	652	967	-	-	-	-
Mov Cap-2 Maneuver	652	-	-	-	-	-
Stage 1	937	-	-	-	-	-
Stage 2	787	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.64	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	652	967	-
HCM Lane V/C Ratio	-	0.038	0.168	-
HCM Control Delay (s/veh)	-	10.7	9.5	-
HCM Lane LOS	-	B	A	-
HCM 95th %tile Q(veh)	-	0.1	0.6	-

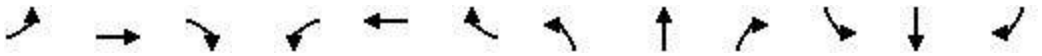
Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	8	2	2	0	0	0	1	74	5	91	127	18
Future Vol, veh/h	8	2	2	0	0	0	1	74	5	91	127	18
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	1	1	50	1	1	1	1	7	1	1	1	6
Mvmt Flow	9	2	2	0	0	0	1	82	6	101	141	20

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	442	447	155	163	0	0	90	0	0
Stage 1	355	355	-	-	-	-	-	-	-
Stage 2	86	92	-	-	-	-	-	-	-
Critical Hdwy	6.41	6.51	6.7	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	5.41	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.75	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	575	508	779	1422	-	-	1512	-	-
Stage 1	712	631	-	-	-	-	-	-	-
Stage 2	939	821	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	530	0	775	1418	-	-	1512	-	-
Mov Cap-2 Maneuver	530	0	-	-	-	-	-	-	-
Stage 1	709	0	-	-	-	-	-	-	-
Stage 2	868	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	11.52	0.09	2.91
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	22	-	-	566	677	-	-
HCM Lane V/C Ratio	0.001	-	-	0.024	0.067	-	-
HCM Control Delay (s/veh)	7.5	0	-	11.5	7.6	0	-
HCM Lane LOS	A	A	-	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	419	320	174	333	114	206	600	99	143	1032	158
Future Volume (veh/h)	233	419	320	174	333	114	206	600	99	143	1032	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	8	80	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1885	1885	1856	1796	1885	1856	1885	1826	1885	1885
Adj Flow Rate, veh/h	248	446	340	185	354	121	219	638	105	152	1098	168
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	2	1	1	3	7	1	3	1	5	1	1
Cap, veh/h	272	653	549	237	375	128	473	1218	200	124	1182	55
Arrive On Green	0.11	0.35	0.35	0.05	0.28	0.28	0.14	0.40	0.40	0.07	0.34	0.34
Sat Flow, veh/h	1795	1870	1574	1795	1316	450	3483	3019	496	1739	3108	474
Grp Volume(v), veh/h	248	446	340	185	0	475	219	372	371	152	632	634
Grp Sat Flow(s),veh/h/ln	1795	1870	1574	1795	0	1766	1742	1763	1752	1739	1791	1791
Q Serve(g_s), s	13.5	28.5	17.4	6.6	0.0	36.8	8.1	22.3	22.4	10.0	47.5	47.5
Cycle Q Clear(g_c), s	13.5	28.5	17.4	6.6	0.0	36.8	8.1	22.3	22.4	10.0	47.5	47.5
Prop In Lane	1.00		1.00	1.00		0.25	1.00		0.28	1.00		0.26
Lane Grp Cap(c), veh/h	272	653	549	237	0	503	473	711	707	124	608	629
V/C Ratio(X)	0.91	0.68	0.62	0.78	0.00	0.94	0.46	0.52	0.52	1.22	1.04	1.01
Avail Cap(c_a), veh/h	296	713	600	237	0	536	473	711	707	124	608	608
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	38.9	18.1	44.7	0.0	49.0	55.8	31.6	31.6	65.0	46.2	46.3
Incr Delay (d2), s/veh	29.5	2.4	1.7	15.4	0.0	25.0	0.7	2.7	2.8	151.9	47.1	38.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	231.4	237.0	229.0
%ile BackOfQ(50%),veh/ln	8.0	13.4	6.5	4.1	0.0	19.6	3.6	10.0	10.0	17.7	68.7	68.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	64.9	41.3	19.8	60.1	0.0	74.0	56.5	34.3	34.4	448.3	330.3	313.4
LnGrp LOS	E	D	B	E		E	E	C	C	F	F	F
Approach Vol, veh/h		1034			660			962			1418	
Approach Delay, s/veh		39.9			70.1			39.4			335.4	
Approach LOS		D			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	61.0	11.1	53.4	23.5	52.0	20.1	44.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	56.5	6.6	53.4	14.5	47.5	17.5	42.5
Max Q Clear Time (g_c+I1), s	12.0	24.4	8.6	30.5	10.1	49.5	15.5	38.8
Green Ext Time (p_c), s	0.0	5.0	0.0	4.0	0.3	0.0	0.1	1.0

Intersection Summary	
HCM 7th Control Delay, s/veh	147.5
HCM 7th LOS	F

CASCADE CHRISTIAN SCHOOLS CONDITIONAL USE PERMIT UPDATE
TRAFFIC IMPACT ANALYSIS

APPENDIX:

Level of Service Analysis
Future With Project - AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	461	121	304	561	173	129
Future Volume (veh/h)	461	121	304	561	173	129
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1796	1841	1841	1856	1841
Adj Flow Rate, veh/h	496	130	327	603	186	139
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	4	7	4	4	3	4
Cap, veh/h	836	218	416	2239	290	256
Arrive On Green	0.30	0.30	0.24	0.64	0.16	0.16
Sat Flow, veh/h	2835	715	1753	3589	1767	1560
Grp Volume(v), veh/h	315	311	327	603	186	139
Grp Sat Flow(s),veh/h/ln	1749	1709	1753	1749	1767	1560
Q Serve(g_s), s	7.0	7.1	8.0	3.4	4.5	3.8
Cycle Q Clear(g_c), s	7.0	7.1	8.0	3.4	4.5	3.8
Prop In Lane		0.42	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	533	521	416	2239	290	256
V/C Ratio(X)	0.59	0.60	0.79	0.27	0.64	0.54
Avail Cap(c_a), veh/h	2264	2213	1583	8028	1365	1205
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.5	13.6	16.4	3.6	18.0	17.6
Incr Delay (d2), s/veh	1.0	1.1	3.3	0.1	2.4	1.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	2.5	3.2	0.7	1.8	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	14.6	14.7	19.7	3.7	20.3	19.4
LnGrp LOS	B	B	B	A	C	B
Approach Vol, veh/h	626			930	325	
Approach Delay, s/veh	14.6			9.3	19.9	
Approach LOS	B			A	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	15.4	18.5				33.9	12.0
Change Period (Y+Rc), s	4.5	4.5				4.5	4.5
Max Green Setting (Gmax), s	41.5	59.5				105.5	35.5
Max Q Clear Time (g_c+I1), s	10.0	9.1				5.4	6.5
Green Ext Time (p_c), s	1.0	4.8				5.2	1.0

Intersection Summary	
HCM 7th Control Delay, s/veh	12.9
HCM 7th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	429	161	94	700	105	325
Future Volume (veh/h)	429	161	94	700	105	325
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1826	1707	1856	1826	1870	1870
Adj Flow Rate, veh/h	466	175	102	761	114	353
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	13	3	5	2	2
Cap, veh/h	782	292	145	1744	514	457
Arrive On Green	0.32	0.32	0.08	0.50	0.29	0.29
Sat Flow, veh/h	2562	921	1767	3561	1781	1585
Grp Volume(v), veh/h	326	315	102	761	114	353
Grp Sat Flow(s),veh/h/ln	1735	1657	1767	1735	1781	1585
Q Serve(g_s), s	6.8	6.9	2.4	6.0	2.1	8.8
Cycle Q Clear(g_c), s	6.8	6.9	2.4	6.0	2.1	8.8
Prop In Lane		0.56	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	549	525	145	1744	514	457
V/C Ratio(X)	0.59	0.60	0.71	0.44	0.22	0.77
Avail Cap(c_a), veh/h	1951	1863	881	5994	1921	1709
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.4	12.4	19.3	6.8	11.7	14.0
Incr Delay (d2), s/veh	1.0	1.1	6.2	0.2	0.2	2.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.2	1.1	1.6	0.7	3.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	13.4	13.5	25.5	7.0	11.9	16.9
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	641			863	467	
Approach Delay, s/veh	13.5			9.2	15.6	
Approach LOS	B			A	B	

Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	16.9	8.0	18.2	26.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	46.5	21.5	48.5	74.5
Max Q Clear Time (g_c+I1), s	10.8	4.4	8.9	8.0
Green Ext Time (p_c), s	1.6	0.2	4.6	6.9

Intersection Summary	
HCM 7th Control Delay, s/veh	12.1
HCM 7th LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	222	566	718	91	56	94
Future Volume (veh/h)	222	566	718	91	56	94
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	0.97	0.97	0.97
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1826	1841	1885	1781	1826
Adj Flow Rate, veh/h	241	615	780	99	61	102
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	5	4	1	8	5
Cap, veh/h	319	2352	1218	155	196	179
Arrive On Green	0.18	0.68	0.40	0.40	0.12	0.12
Sat Flow, veh/h	1767	3561	3168	390	1649	1504
Grp Volume(v), veh/h	241	615	443	436	61	102
Grp Sat Flow(s),veh/h/ln	1767	1735	1749	1718	1649	1504
Q Serve(g_s), s	5.7	3.1	9.1	9.1	1.5	2.8
Cycle Q Clear(g_c), s	5.7	3.1	9.1	9.1	1.5	2.8
Prop In Lane	1.00			0.23	1.00	1.00
Lane Grp Cap(c), veh/h	319	2352	693	680	196	179
V/C Ratio(X)	0.76	0.26	0.64	0.64	0.31	0.57
Avail Cap(c_a), veh/h	1614	7549	2031	1995	911	831
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	2.8	10.8	10.8	17.9	18.5
Incr Delay (d2), s/veh	3.6	0.1	1.0	1.0	0.9	2.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.3	2.8	2.7	0.6	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	20.9	2.9	11.8	11.8	18.8	21.3
LnGrp LOS	C	A	B	B	B	C
Approach Vol, veh/h		856	879		163	
Approach Delay, s/veh		7.9	11.8		20.3	
Approach LOS		A	B		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		34.6		9.8	12.5	22.1
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		96.5		24.5	40.5	51.5
Max Q Clear Time (g_c+I1), s		5.1		4.8	7.7	11.1
Green Ext Time (p_c), s		4.7		0.4	0.7	6.4

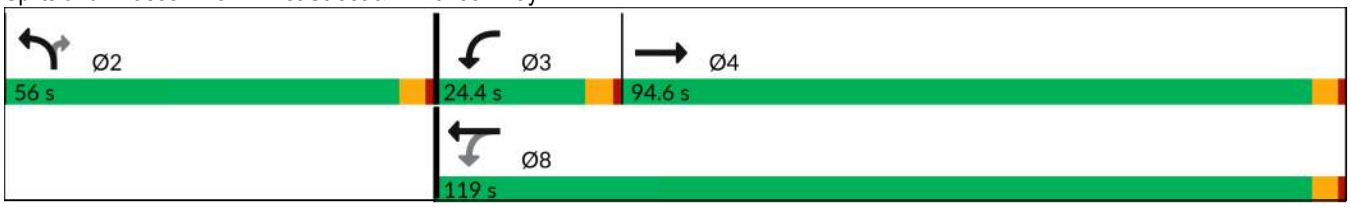
Intersection Summary	
HCM 7th Control Delay, s/veh	10.8
HCM 7th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	491	162	230	569	203	301
Future Volume (vph)	491	162	230	569	203	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		165	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		90	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	0.99				0.99	0.98
Frt	0.963					0.850
Flt Protected				0.986	0.950	
Satd. Flow (prot)	3089	0	0	3190	1711	1531
Flt Permitted				0.555	0.950	
Satd. Flow (perm)	3089	0	0	1796	1701	1503
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	38					376
Link Speed (mph)	35			35	25	
Link Distance (ft)	627			605	465	
Travel Time (s)	12.2			11.8	12.7	
Confl. Peds. (#/hr)		2	2		2	2
Confl. Bikes (#/hr)						
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	2%	2%	5%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	614	203	288	711	254	376
Shared Lane Traffic (%)						
Lane Group Flow (vph)	817	0	0	999	254	376
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	94.6		24.4	119.0	56.0	56.0
Total Split (%)	54.1%		13.9%	68.0%	32.0%	32.0%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	4.5			4.5	4.5	4.5
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		Min	Min	None	None
Act Effct Green (s)	54.3			65.8	25.9	25.9

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Actuated g/C Ratio	0.53			0.65	0.25	0.25
v/c Ratio	0.49			0.80	0.59	0.57
Control Delay (s/veh)	14.3			17.9	44.4	8.0
Queue Delay	0.0			0.0	0.0	0.0
Total Delay (s/veh)	14.3			17.9	44.4	8.0
LOS	B			B	D	A
Approach Delay (s/veh)	14.3			17.9	22.7	
Approach LOS	B			B	C	
Queue Length 50th (ft)	155			161	132	0
Queue Length 95th (ft)	203			219	299	38
Internal Link Dist (ft)	547			525	385	
Turn Bay Length (ft)					165	
Base Capacity (vph)	2674			1759	988	1026
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.31			0.57	0.26	0.37

Intersection Summary			
Area Type:	Other		
Cycle Length: 175			
Actuated Cycle Length: 102			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay (s/veh): 17.9		Intersection LOS: B	
Intersection Capacity Utilization 64.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: E 21st Street & E Pioneer Way



Intersection	
Int Delay, s/veh	9.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	38	458	61	0	0	495
Future Vol, veh/h	38	458	61	0	0	495
Conflicting Peds, #/hr	2	2	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	62	62	62	62	62	62
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	61	739	98	0	0	798

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	899	100	0	-	-	-
Stage 1	98	-	-	-	-	-
Stage 2	800	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	310	955	-	0	0	-
Stage 1	926	-	-	0	0	-
Stage 2	442	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	309	953	-	-	-	-
Mov Cap-2 Maneuver	309	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	441	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	20.4	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	309	953	-
HCM Lane V/C Ratio	-	0.198	0.775	-
HCM Ctrl Dly (s/v)	-	19.5	20.5	-
HCM Lane LOS	-	C	C	-
HCM 95th %tile Q(veh)	-	0.7	8	-

Intersection	
Int Delay, s/veh	18.1

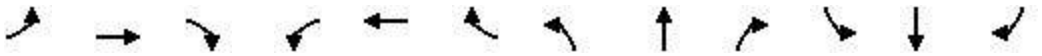
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	8	10	0	0	0	0	0	54	146	448	81	5
Future Vol, veh/h	8	10	0	0	0	0	0	54	146	448	81	5
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	58	58	58	58	58	58	58	58	58	58	58
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	4	2
Mvmt Flow	14	17	0	0	0	0	0	93	252	772	140	9

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1786	2038	148	150	0	0	347	0	0
Stage 1	1691	1691	-	-	-	-	-	-	-
Stage 2	95	347	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	90	57	899	1431	-	-	1212	-	-
Stage 1	164	149	-	-	-	-	-	-	-
Stage 2	929	635	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	27	0	895	1428	-	-	1212	-	-
Mov Cap-2 Maneuver	27	0	-	-	-	-	-	-	-
Stage 1	164	0	-	-	-	-	-	-	-
Stage 2	282	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	$ 432.37	0	10.93
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1428	-	-	27	1111	-	-
HCM Lane V/C Ratio	-	-	-	1.142	0.637	-	-
HCM Ctrl Dly (s/v)	0	-	-	$ 432.4	13	0	-
HCM Lane LOS	A	-	-	F	B	A	-
HCM 95th %tile Q(veh)	0	-	-	3.7	4.8	-	-

Notes	
~: Volume exceeds capacity	$: Delay exceeds 300s
+: Computation Not Defined	*: All major volume in platoon



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	272	231	202	130	302	160	204	791	57	119	333	91
Future Volume (veh/h)	272	231	202	130	302	160	204	791	57	119	333	91
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1796	1856	1870	1767	1618	1856	1856	1885	1663	1856	1870
Adj Flow Rate, veh/h	292	248	217	140	325	172	219	851	61	128	358	98
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	7	3	2	9	19	3	3	1	16	3	2
Cap, veh/h	280	685	591	397	328	174	355	1344	96	62	928	250
Arrive On Green	0.13	0.38	0.38	0.05	0.30	0.30	0.10	0.40	0.40	0.04	0.34	0.34
Sat Flow, veh/h	1795	1796	1549	1781	1081	572	3428	3330	239	1584	2734	738
Grp Volume(v), veh/h	292	248	217	140	0	497	219	451	461	128	229	227
Grp Sat Flow(s),veh/h/ln	1795	1796	1549	1781	0	1653	1714	1763	1806	1584	1763	1709
Q Serve(g_s), s	17.5	13.9	10.3	6.6	0.0	41.9	8.6	28.7	28.7	5.5	13.8	14.2
Cycle Q Clear(g_c), s	17.5	13.9	10.3	6.6	0.0	41.9	8.6	28.7	28.7	5.5	13.8	14.2
Prop In Lane	1.00		1.00	1.00		0.35	1.00		0.13	1.00		0.43
Lane Grp Cap(c), veh/h	280	685	591	397	0	502	355	711	729	62	598	580
V/C Ratio(X)	1.04	0.36	0.37	0.35	0.00	0.99	0.62	0.63	0.63	2.06	0.38	0.39
Avail Cap(c_a), veh/h	280	685	591	397	0	502	355	711	729	62	598	580
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.1	31.1	16.5	32.5	0.0	48.5	60.1	33.4	33.5	67.3	35.1	35.2
Incr Delay (d2), s/veh	65.8	0.3	0.4	0.5	0.0	37.6	3.2	4.3	4.2	526.7	1.9	2.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.2	6.1	3.7	3.6	0.0	22.3	3.9	13.0	13.3	11.3	6.2	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	109.9	31.4	16.9	33.0	0.0	86.1	63.3	37.7	37.6	593.9	37.0	37.2
LnGrp LOS	F	C	B	C		F	E	D	D	F	D	D
Approach Vol, veh/h		757			637			1131			584	
Approach Delay, s/veh		57.5			74.4			42.6			159.1	
Approach LOS		E			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	61.0	11.1	57.9	19.0	52.0	22.0	47.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	56.5	6.6	53.4	14.5	47.5	17.5	42.5
Max Q Clear Time (g_c+I1), s	7.5	30.7	8.6	15.9	10.6	16.2	19.5	43.9
Green Ext Time (p_c), s	0.0	6.2	0.0	2.3	0.3	2.8	0.0	0.0

Intersection Summary	
HCM 7th Control Delay, s/veh	74.7
HCM 7th LOS	E

CASCADE CHRISTIAN SCHOOLS CONDITIONAL USE PERMIT UPDATE
TRAFFIC IMPACT ANALYSIS

APPENDIX:

Level of Service Analysis
Future With Project - PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	531	216	429	428	117	86
Future Volume (veh/h)	531	216	429	428	117	86
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1826	1856	1826	1870
Adj Flow Rate, veh/h	610	248	493	492	134	99
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	5	3	5	2
Cap, veh/h	870	353	562	2636	200	182
Arrive On Green	0.36	0.36	0.32	0.75	0.12	0.12
Sat Flow, veh/h	2537	993	1739	3618	1739	1585
Grp Volume(v), veh/h	440	418	493	492	134	99
Grp Sat Flow(s),veh/h/ln	1763	1674	1739	1763	1739	1585
Q Serve(g_s), s	14.1	14.1	17.6	2.7	4.8	3.9
Cycle Q Clear(g_c), s	14.1	14.1	17.6	2.7	4.8	3.9
Prop In Lane		0.59	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	627	596	562	2636	200	182
V/C Ratio(X)	0.70	0.70	0.88	0.19	0.67	0.54
Avail Cap(c_a), veh/h	1599	1518	1100	5669	941	858
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	18.1	21.0	2.4	27.8	27.4
Incr Delay (d2), s/veh	1.4	1.5	4.6	0.0	3.8	2.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	5.3	7.4	0.6	2.1	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	19.6	19.7	25.5	2.5	31.7	29.9
LnGrp LOS	B	B	C	A	C	C
Approach Vol, veh/h	858			985	233	
Approach Delay, s/veh	19.6			14.0	30.9	
Approach LOS	B			B	C	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	25.7	27.8				53.6	12.0
Change Period (Y+Rc), s	4.5	4.5				4.5	4.5
Max Green Setting (Gmax), s	41.5	59.5				105.5	35.5
Max Q Clear Time (g_c+I1), s	19.6	16.1				4.7	6.8
Green Ext Time (p_c), s	1.6	7.3				4.0	0.7

Intersection Summary		
HCM 7th Control Delay, s/veh		18.2
HCM 7th LOS		B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	507	136	75	732	131	306
Future Volume (veh/h)	507	136	75	732	131	306
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1826	1841	1870	1841	1856
Adj Flow Rate, veh/h	557	149	82	804	144	336
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	4	5	4	2	4	3
Cap, veh/h	921	245	127	1823	491	440
Arrive On Green	0.34	0.34	0.07	0.51	0.28	0.28
Sat Flow, veh/h	2821	727	1753	3647	1753	1572
Grp Volume(v), veh/h	356	350	82	804	144	336
Grp Sat Flow(s),veh/h/ln	1749	1707	1753	1777	1753	1572
Q Serve(g_s), s	7.4	7.4	2.0	6.2	2.8	8.5
Cycle Q Clear(g_c), s	7.4	7.4	2.0	6.2	2.8	8.5
Prop In Lane		0.43	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	590	576	127	1823	491	440
V/C Ratio(X)	0.60	0.61	0.65	0.44	0.29	0.76
Avail Cap(c_a), veh/h	1949	1903	866	6085	1874	1681
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.0	12.0	19.6	6.7	12.3	14.3
Incr Delay (d2), s/veh	1.0	1.0	5.4	0.2	0.3	2.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	2.4	0.9	1.7	1.0	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	13.0	13.1	25.1	6.8	12.6	17.1
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	706			886	480	
Approach Delay, s/veh	13.0			8.5	15.8	
Approach LOS	B			A	B	

Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	16.7	7.6	19.2	26.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	46.5	21.5	48.5	74.5
Max Q Clear Time (g_c+I1), s	10.5	4.0	9.4	8.2
Green Ext Time (p_c), s	1.7	0.2	5.2	7.4

Intersection Summary	
HCM 7th Control Delay, s/veh	11.7
HCM 7th LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	183	686	679	104	200	309
Future Volume (veh/h)	183	686	679	104	200	309
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	0.97	0.97	0.97
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1841	1856	1870	1841	1841	1841
Adj Flow Rate, veh/h	206	771	763	117	225	347
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	4	3	2	4	4	4
Cap, veh/h	264	2042	1078	165	465	413
Arrive On Green	0.15	0.58	0.35	0.35	0.27	0.27
Sat Flow, veh/h	1753	3618	3136	466	1704	1516
Grp Volume(v), veh/h	206	771	445	435	225	347
Grp Sat Flow(s),veh/h/ln	1753	1763	1777	1732	1704	1516
Q Serve(g_s), s	6.9	7.2	13.1	13.1	6.7	13.1
Cycle Q Clear(g_c), s	6.9	7.2	13.1	13.1	6.7	13.1
Prop In Lane	1.00			0.27	1.00	1.00
Lane Grp Cap(c), veh/h	264	2042	629	614	465	413
V/C Ratio(X)	0.78	0.38	0.71	0.71	0.48	0.84
Avail Cap(c_a), veh/h	1169	5603	1507	1469	688	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.8	6.9	16.9	16.9	18.5	20.8
Incr Delay (d2), s/veh	4.9	0.1	1.5	1.5	0.8	6.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	2.0	4.9	4.8	2.5	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	29.7	7.0	18.4	18.4	19.3	27.5
LnGrp LOS	C	A	B	B	B	C
Approach Vol, veh/h		977	880		572	
Approach Delay, s/veh		11.8	18.4		24.3	
Approach LOS		B	B		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		39.7		21.1	13.7	26.0
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		96.5		24.5	40.5	51.5
Max Q Clear Time (g_c+I1), s		9.2		15.1	8.9	15.1
Green Ext Time (p_c), s		6.3		1.4	0.6	6.4

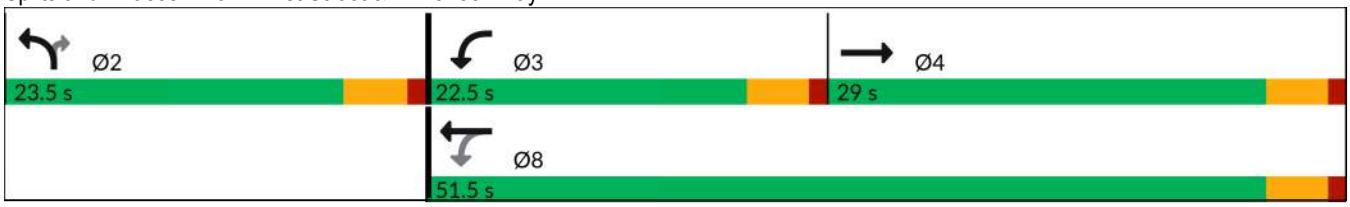
Intersection Summary	
HCM 7th Control Delay, s/veh	17.1
HCM 7th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	727	148	228	636	207	365
Future Volume (vph)	727	148	228	636	207	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		165	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		90	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.975					0.850
Flt Protected				0.987	0.950	
Satd. Flow (prot)	3195	0	0	3237	1711	1531
Flt Permitted				0.531	0.950	
Satd. Flow (perm)	3195	0	0	1741	1711	1531
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	34					388
Link Speed (mph)	35			35	25	
Link Distance (ft)	627			605	466	
Travel Time (s)	12.2			11.8	12.7	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	2%	2%	3%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	773	157	243	677	220	388
Shared Lane Traffic (%)						
Lane Group Flow (vph)	930	0	0	920	220	388
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	29.0		22.5	51.5	23.5	23.5
Total Split (%)	38.7%		30.0%	68.7%	31.3%	31.3%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	4.5			4.5	4.5	4.5
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		Min	Min	None	None
Act Effct Green (s)	26.3			36.8	13.3	13.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Actuated g/C Ratio	0.44			0.62	0.22	0.22
v/c Ratio	0.65			0.75	0.58	0.60
Control Delay (s/veh)	14.8			12.1	29.1	7.4
Queue Delay	0.0			0.0	0.0	0.0
Total Delay (s/veh)	14.8			12.1	29.1	7.4
LOS	B			B	C	A
Approach Delay (s/veh)	14.8			12.1	15.2	
Approach LOS	B			B	B	
Queue Length 50th (ft)	120			76	69	0
Queue Length 95th (ft)	203			141	153	64
Internal Link Dist (ft)	547			525	386	
Turn Bay Length (ft)					165	
Base Capacity (vph)	1636			1545	573	771
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.57			0.60	0.38	0.50

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 59.6			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay (s/veh): 13.9		Intersection LOS: B	
Intersection Capacity Utilization 71.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: E 21st Street & E Pioneer Way



Intersection	
Int Delay, s/veh	9.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	493	64	0	0	382
Future Vol, veh/h	41	493	64	0	0	382
Conflicting Peds, #/hr	2	2	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	694	90	0	0	538

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	630	92	0	-	-	-
Stage 1	90	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	445	965	-	0	0	-
Stage 1	933	-	-	0	0	-
Stage 2	584	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	444	963	-	-	-	-
Mov Cap-2 Maneuver	444	-	-	-	-	-
Stage 1	933	-	-	-	-	-
Stage 2	583	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	17.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	444	963	-
HCM Lane V/C Ratio	-	0.13	0.721	-
HCM Ctrl Dly (s/v)	-	14.3	17.8	-
HCM Lane LOS	-	B	C	-
HCM 95th %tile Q(veh)	-	0.4	6.5	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	3	2	2	0	0	0	0	56	69	280	119	16
Future Vol, veh/h	3	2	2	0	0	0	0	56	69	280	119	16
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	2	2	50	2	2	2	2	2	2	2	3	7
Mvmt Flow	4	3	3	0	0	0	0	80	99	400	170	23

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1065	1164	185	195	0	0	181	0	0
Stage 1	983	983	-	-	-	-	-	-	-
Stage 2	82	181	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.7	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.75	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	246	194	748	1378	-	-	1395	-	-
Stage 1	362	327	-	-	-	-	-	-	-
Stage 2	941	750	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	166	0	744	1375	-	-	1395	-	-
Mov Cap-2 Maneuver	166	0	-	-	-	-	-	-	-
Stage 1	362	0	-	-	-	-	-	-	-
Stage 2	637	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	20.57	0	5.81
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1375	-	-	241	1186	-	-
HCM Lane V/C Ratio	-	-	-	0.041	0.287	-	-
HCM Ctrl Dly (s/v)	0	-	-	20.6	8.6	0	-
HCM Lane LOS	A	-	-	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.2	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	189	317	268	158	292	105	201	552	83	109	882	146
Future Volume (veh/h)	189	317	268	158	292	105	201	552	83	109	882	146
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	8	80	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1826	1856	1885	1856	1604	1870	1856	1885	1796	1885	1870
Adj Flow Rate, veh/h	197	330	279	165	304	109	209	575	86	114	919	152
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	5	3	1	3	20	2	3	1	7	1	2
Cap, veh/h	245	552	468	258	330	118	631	1237	184	202	1188	50
Arrive On Green	0.10	0.30	0.30	0.05	0.25	0.25	0.18	0.40	0.40	0.12	0.34	0.34
Sat Flow, veh/h	1767	1826	1548	1795	1298	465	3456	3066	457	1711	3068	507
Grp Volume(v), veh/h	197	330	279	165	0	413	209	330	331	114	536	535
Grp Sat Flow(s),veh/h/ln	1767	1826	1548	1795	0	1763	1728	1763	1760	1711	1791	1785
Q Serve(g_s), s	11.2	21.5	13.9	6.6	0.0	32.0	7.4	19.2	19.4	8.8	39.5	39.6
Cycle Q Clear(g_c), s	11.2	21.5	13.9	6.6	0.0	32.0	7.4	19.2	19.4	8.8	39.5	39.6
Prop In Lane	1.00		1.00	1.00		0.26	1.00		0.26	1.00		0.28
Lane Grp Cap(c), veh/h	245	552	468	258	0	448	631	711	710	202	608	630
V/C Ratio(X)	0.80	0.60	0.60	0.64	0.00	0.92	0.33	0.46	0.47	0.56	0.88	0.85
Avail Cap(c_a), veh/h	297	696	591	258	0	535	631	711	710	202	608	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.7	41.6	17.3	43.5	0.0	50.9	49.8	30.6	30.7	59.5	46.2	46.3
Incr Delay (d2), s/veh	12.4	1.0	1.2	5.3	0.0	19.6	0.3	2.2	2.2	3.6	16.9	13.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.8	184.1	160.7
%ile BackOfQ(50%),veh/ln	5.6	9.8	5.1	2.5	0.0	16.4	3.2	8.6	8.6	6.7	54.7	52.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.1	42.6	18.6	48.8	0.0	70.5	50.1	32.8	32.9	88.9	247.3	220.4
LnGrp LOS	D	D	B	D		E	D	C	C	F	F	F
Approach Vol, veh/h		806			578			870			1185	
Approach Delay, s/veh		35.9			64.3			37.0			219.9	
Approach LOS		D			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.1	61.0	11.1	46.8	30.1	52.0	17.9	40.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	56.5	6.6	53.4	14.5	47.5	17.5	42.5
Max Q Clear Time (g_c+I1), s	10.8	21.4	8.6	23.5	9.4	41.6	13.2	34.0
Green Ext Time (p_c), s	0.0	4.4	0.0	3.1	0.3	3.3	0.2	1.6

Intersection Summary	
HCM 7th Control Delay, s/veh	104.3
HCM 7th LOS	F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	606	275	551	547	117	73
Future Volume (veh/h)	606	275	551	547	117	73
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1856	1856	1781
Adj Flow Rate, veh/h	645	293	586	582	124	78
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	1	3	3	8
Cap, veh/h	869	395	646	2763	179	153
Arrive On Green	0.37	0.37	0.36	0.78	0.10	0.10
Sat Flow, veh/h	2466	1078	1795	3618	1767	1510
Grp Volume(v), veh/h	483	455	586	582	124	78
Grp Sat Flow(s),veh/h/ln	1777	1673	1795	1763	1767	1510
Q Serve(g_s), s	18.5	18.5	24.2	3.3	5.3	3.8
Cycle Q Clear(g_c), s	18.5	18.5	24.2	3.3	5.3	3.8
Prop In Lane		0.64	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	651	613	646	2763	179	153
V/C Ratio(X)	0.74	0.74	0.91	0.21	0.69	0.51
Avail Cap(c_a), veh/h	1353	1274	954	4760	803	686
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.5	21.5	23.8	2.2	34.0	33.3
Incr Delay (d2), s/veh	1.7	1.8	8.9	0.0	4.8	2.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	7.2	11.4	0.7	2.5	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	23.2	23.3	32.7	2.2	38.7	35.9
LnGrp LOS	C	C	C	A	D	D
Approach Vol, veh/h	938			1168	202	
Approach Delay, s/veh	23.3			17.5	37.6	
Approach LOS	C			B	D	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	32.6	33.1				65.7	12.4
Change Period (Y+Rc), s	4.5	4.5				4.5	4.5
Max Green Setting (Gmax), s	41.5	59.5				105.5	35.5
Max Q Clear Time (g_c+I1), s	26.2	20.5				5.3	7.3
Green Ext Time (p_c), s	1.9	8.1				4.9	0.6

Intersection Summary	
HCM 7th Control Delay, s/veh	21.6
HCM 7th LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	573	179	44	906	145	368
Future Volume (veh/h)	573	179	44	906	145	368
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1870	1796	1870	1870	1856
Adj Flow Rate, veh/h	597	186	46	944	151	383
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	2	7	2	2	3
Cap, veh/h	954	297	82	1776	547	483
Arrive On Green	0.35	0.35	0.05	0.50	0.31	0.31
Sat Flow, veh/h	2782	836	1711	3647	1781	1572
Grp Volume(v), veh/h	397	386	46	944	151	383
Grp Sat Flow(s),veh/h/ln	1791	1732	1711	1777	1781	1572
Q Serve(g_s), s	8.6	8.6	1.2	8.4	3.0	10.4
Cycle Q Clear(g_c), s	8.6	8.6	1.2	8.4	3.0	10.4
Prop In Lane		0.48	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	636	615	82	1776	547	483
V/C Ratio(X)	0.63	0.63	0.56	0.53	0.28	0.79
Avail Cap(c_a), veh/h	1866	1805	790	5688	1779	1571
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.4	12.5	21.7	7.9	12.2	14.8
Incr Delay (d2), s/veh	1.0	1.1	5.8	0.2	0.3	3.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	2.9	0.6	2.5	1.0	3.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	13.5	13.5	27.5	8.2	12.5	17.8
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	783			990	534	
Approach Delay, s/veh	13.5			9.1	16.3	
Approach LOS	B			A	B	

Timer - Assigned Phs	2	3	4	8
Phs Duration (G+Y+Rc), s	18.8	6.7	21.0	27.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	46.5	21.5	48.5	74.5
Max Q Clear Time (g_c+I1), s	12.4	3.2	10.6	10.4
Green Ext Time (p_c), s	1.9	0.1	5.9	9.3

Intersection Summary	
HCM 7th Control Delay, s/veh	12.2
HCM 7th LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	265	716	733	90	283	430
Future Volume (veh/h)	265	716	733	90	283	430
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	0.97	0.97	0.97
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1885	1856	1811	1885	1885
Adj Flow Rate, veh/h	288	778	797	98	308	467
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	1	3	6	1	1
Cap, veh/h	340	2081	1039	128	535	476
Arrive On Green	0.19	0.58	0.33	0.33	0.31	0.31
Sat Flow, veh/h	1781	3676	3206	383	1745	1553
Grp Volume(v), veh/h	288	778	451	444	308	467
Grp Sat Flow(s),veh/h/ln	1781	1791	1763	1733	1745	1553
Q Serve(g_s), s	12.5	9.3	18.3	18.3	11.9	23.9
Cycle Q Clear(g_c), s	12.5	9.3	18.3	18.3	11.9	23.9
Prop In Lane	1.00			0.22	1.00	1.00
Lane Grp Cap(c), veh/h	340	2081	588	578	535	476
V/C Ratio(X)	0.85	0.37	0.77	0.77	0.58	0.98
Avail Cap(c_a), veh/h	902	4322	1135	1116	535	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	9.0	23.9	23.9	23.4	27.5
Incr Delay (d2), s/veh	5.8	0.1	2.1	2.2	1.5	36.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	3.1	7.4	7.3	4.9	22.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	37.0	9.1	26.0	26.0	24.9	63.9
LnGrp LOS	D	A	C	C	C	E
Approach Vol, veh/h		1066	895		775	
Approach Delay, s/veh		16.6	26.0		48.4	
Approach LOS		B	C		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		51.0		29.0	19.8	31.2
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		96.5		24.5	40.5	51.5
Max Q Clear Time (g_c+I1), s		11.3		25.9	14.5	20.3
Green Ext Time (p_c), s		6.3		0.0	0.8	6.3

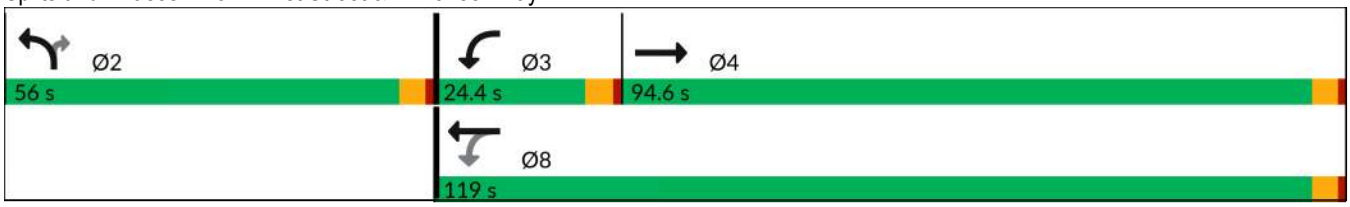
Intersection Summary	
HCM 7th Control Delay, s/veh	28.7
HCM 7th LOS	C

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	845	93	216	775	95	213
Future Volume (vph)	845	93	216	775	95	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		165	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		90	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00				0.99	0.98
Frt	0.985					0.850
Flt Protected				0.989	0.950	
Satd. Flow (prot)	3247	0	0	3218	1728	1546
Flt Permitted				0.546	0.950	
Satd. Flow (perm)	3247	0	0	1776	1717	1518
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	10					227
Link Speed (mph)	35			35	25	
Link Distance (ft)	627			605	465	
Travel Time (s)	12.2			11.8	12.7	
Confl. Peds. (#/hr)		2	2		2	2
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	1%	2%	4%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	899	99	230	824	101	227
Shared Lane Traffic (%)						
Lane Group Flow (vph)	998	0	0	1054	101	227
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	94.6		24.4	119.0	56.0	56.0
Total Split (%)	54.1%		13.9%	68.0%	32.0%	32.0%
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	4.5			4.5	4.5	4.5
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Min		Min	Min	None	None
Act Effct Green (s)	46.2			57.7	13.7	13.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Actuated g/C Ratio	0.56			0.71	0.17	0.17
v/c Ratio	0.54			0.77	0.35	0.51
Control Delay (s/veh)	10.6			10.1	42.5	11.1
Queue Delay	0.0			0.0	0.0	0.0
Total Delay (s/veh)	10.6			10.1	42.5	11.1
LOS	B			B	D	B
Approach Delay (s/veh)	10.6			10.1	20.8	
Approach LOS	B			B	C	
Queue Length 50th (ft)	136			93	39	0
Queue Length 95th (ft)	196			146	150	81
Internal Link Dist (ft)	547			525	385	
Turn Bay Length (ft)					165	
Base Capacity (vph)	3077			1819	1212	1133
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.32			0.58	0.08	0.20

Intersection Summary			
Area Type:	Other		
Cycle Length: 175			
Actuated Cycle Length: 81.8			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay (s/veh): 11.8		Intersection LOS: B	
Intersection Capacity Utilization 71.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: E 21st Street & E Pioneer Way



Intersection	
Int Delay, s/veh	4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	188	75	0	0	245
Future Vol, veh/h	27	188	75	0	0	245
Conflicting Peds, #/hr	2	2	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	1	1	5	1	1	1
Mvmt Flow	32	224	89	0	0	292

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	383	91	0	-	-	-
Stage 1	89	-	-	-	-	-
Stage 2	294	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	-	-
Pot Cap-1 Maneuver	622	969	-	0	0	-
Stage 1	937	-	-	0	0	-
Stage 2	759	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	620	967	-	-	-	-
Mov Cap-2 Maneuver	620	-	-	-	-	-
Stage 1	937	-	-	-	-	-
Stage 2	757	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	10	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	WBLn2	SBT
Capacity (veh/h)	-	620	967	-
HCM Lane V/C Ratio	-	0.052	0.232	-
HCM Ctrl Dly (s/v)	-	11.1	9.8	-
HCM Lane LOS	-	B	A	-
HCM 95th %tile Q(veh)	-	0.2	0.9	-

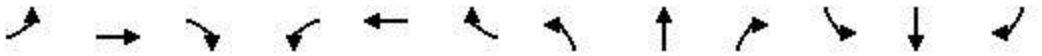
Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕			↕	
Traffic Vol, veh/h	8	2	2	0	0	0	1	74	8	123	133	18
Future Vol, veh/h	8	2	2	0	0	0	1	74	8	123	133	18
Conflicting Peds, #/hr	2	0	2	2	0	2	2	0	2	2	0	2
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	1	1	50	1	1	1	1	7	1	1	1	6
Mvmt Flow	9	2	2	0	0	0	1	82	9	137	148	20

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	520	528	162	170	0	0	93	0	0
Stage 1	433	433	-	-	-	-	-	-	-
Stage 2	86	95	-	-	-	-	-	-	-
Critical Hdwy	6.41	6.51	6.7	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	5.41	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.75	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	518	457	772	1414	-	-	1508	-	-
Stage 1	656	583	-	-	-	-	-	-	-
Stage 2	939	818	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	464	0	768	1411	-	-	1508	-	-
Mov Cap-2 Maneuver	464	0	-	-	-	-	-	-	-
Stage 1	654	0	-	-	-	-	-	-	-
Stage 2	843	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.34	0.09	3.42
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	21	-	-	504	789	-	-
HCM Lane V/C Ratio	0.001	-	-	0.026	0.091	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	12.3	7.6	0	-
HCM Lane LOS	A	A	-	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	244	425	329	174	337	114	211	600	99	143	1032	165
Future Volume (veh/h)	244	425	329	174	337	114	211	600	99	143	1032	165
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	8	80	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1870	1885	1885	1856	1796	1885	1856	1885	1826	1885	1885
Adj Flow Rate, veh/h	260	452	350	185	359	121	224	638	105	152	1098	176
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	2	1	1	3	7	1	3	1	5	1	1
Cap, veh/h	283	669	563	241	379	128	443	1218	200	109	1179	57
Arrive On Green	0.12	0.36	0.36	0.05	0.29	0.29	0.13	0.40	0.40	0.06	0.34	0.34
Sat Flow, veh/h	1795	1870	1574	1795	1322	445	3483	3019	496	1739	3085	493
Grp Volume(v), veh/h	260	452	350	185	0	480	224	372	371	152	636	638
Grp Sat Flow(s),veh/h/ln	1795	1870	1574	1795	0	1767	1742	1763	1752	1739	1791	1788
Q Serve(g_s), s	14.5	28.6	18.0	6.6	0.0	37.2	8.4	22.3	22.4	8.8	47.5	47.5
Cycle Q Clear(g_c), s	14.5	28.6	18.0	6.6	0.0	37.2	8.4	22.3	22.4	8.8	47.5	47.5
Prop In Lane	1.00		1.00	1.00		0.25	1.00		0.28	1.00		0.28
Lane Grp Cap(c), veh/h	283	669	563	241	0	507	443	711	707	109	608	628
V/C Ratio(X)	0.92	0.68	0.62	0.77	0.00	0.95	0.51	0.52	0.52	1.39	1.05	1.02
Avail Cap(c_a), veh/h	295	713	600	241	0	536	443	711	707	109	608	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.6	38.1	18.3	44.0	0.0	48.9	57.0	31.6	31.6	65.6	46.2	46.3
Incr Delay (d2), s/veh	31.5	2.3	1.8	13.9	0.0	25.5	0.9	2.7	2.8	222.7	49.3	39.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	263.7	237.0	229.2
%ile BackOfQ(50%),veh/ln	8.7	13.5	6.8	4.0	0.0	19.8	3.8	10.0	10.0	18.6	69.1	68.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	68.1	40.4	20.1	57.9	0.0	74.4	57.9	34.3	34.4	552.0	332.6	315.2
LnGrp LOS	E	D	C	E		E	E	C	C	F	F	F
Approach Vol, veh/h		1062			665			967			1426	
Approach Delay, s/veh		40.5			69.8			39.8			348.2	
Approach LOS		D			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.3	61.0	11.1	54.6	22.3	52.0	21.0	44.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	56.5	6.6	53.4	14.5	47.5	17.5	42.5
Max Q Clear Time (g_c+I1), s	10.8	24.4	8.6	30.6	10.4	49.5	16.5	39.2
Green Ext Time (p_c), s	0.0	5.0	0.0	4.1	0.3	0.0	0.1	0.9

Intersection Summary	
HCM 7th Control Delay, s/veh	151.6
HCM 7th LOS	F

CASCADE CHRISTIAN SCHOOLS CONDITIONAL USE PERMIT UPDATE
TRAFFIC IMPACT ANALYSIS

APPENDIX:
Sight Distance

CASCADE CHRISTIAN SCHOOL CAMPUS - ELEMENTARY SCHOOL PORTABLES

SIGHT DISTANCE EXHIBIT

A PORTION OF THE S 1/2 OF SECTION 26 AND N 1/2 OF SECTION 35, TOWNSHIP 20 NORTH, RANGE 4 EAST, W.M.
PIERCE COUNTY, WASHINGTON (CITY OF PUYALLUP)

NORTH

1" = 40'

0 20 40 80

SIGHT DISTANCE DSEIGN VALUES

POSTED SPEED: 25 MPH
DESIGN SPEED: 35 MPH
21ST ST GRADE: <1% (AVG.)

STOPPING SIGHT DISTANCE: 250 FT.
ENTERING SIGHT DISTANCE: 300 FT.

SIGHT DISTANCE TRIANGLE NOTE

CONTRACTOR TO VERIFY SIGHT DISTACNCE TRIANGLES CLEAR OF OBSTACLES AT HEIGHTS IDENTIFIED ON PLAN. TRIM AND MAINTAIN VEGETATION WITHIN RIGHT-OF-WAY AS NEEDED. CONTRACTOR TO CONTACT ENGINEER IMMEDIATELY IF OTHER SIGHT-OBSTRUCTION ISSUES ARE FOUND.

VERTICAL SIGHT ANALYSIS

SURVEY DATA AND A FIELD ANALYSIS BY AN ENGINEER CONFIRMS NO VERTICAL SAG OR CREST CURVE OBSERVED WITHIN SIGHT DISTANCE TRIANGLE.

BASIS OF BEARING

MONUMENTED CENTERLINE OF 21ST STREET EAST, THAT BEING N0°43'16"E

DATUM

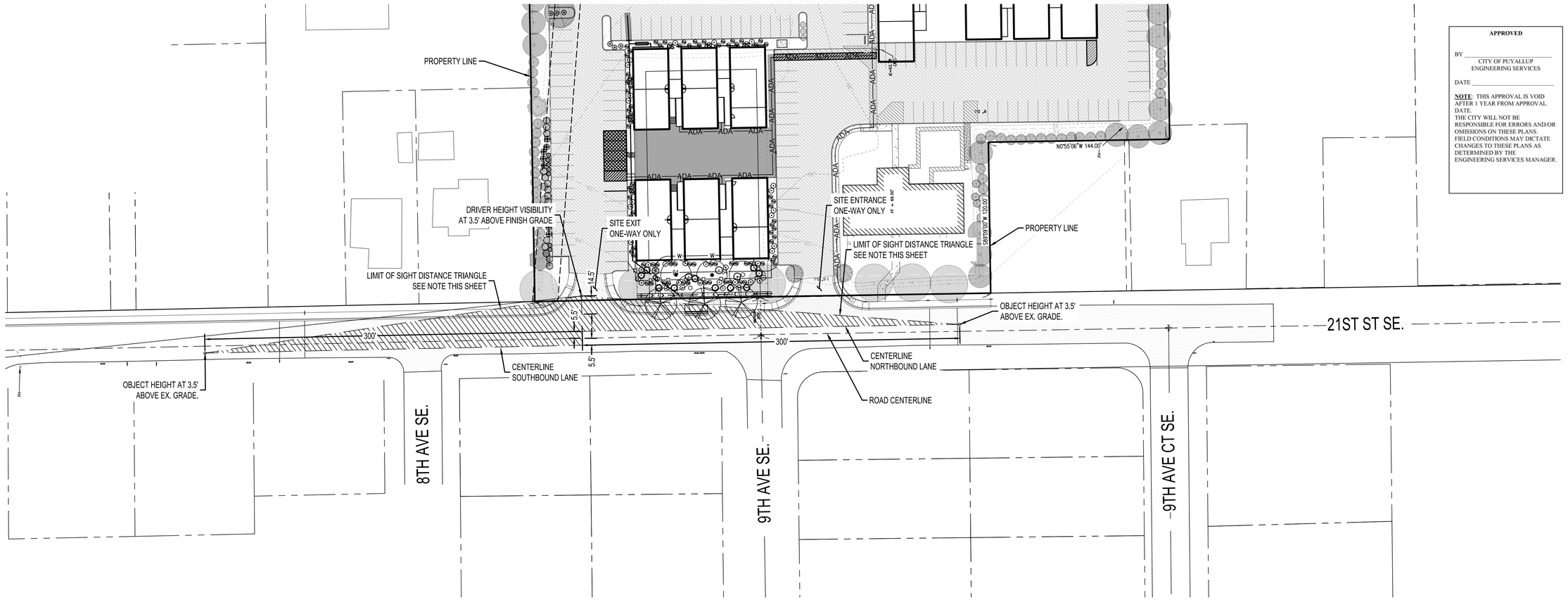
VERTICAL DATUM:
NAVD 88 - BASED ON PIERCE COUNTY GIS

CONTOUR INTERVAL: 2'

HORIZONTAL DATUM:
NAD 83-91 (WASHINGTON STATE SOUTH ZONE)

SITE BENCHMARK

MONUMENT IN CASE WITH 3" BRASS DISK, 0.8' BELOW RIM,
POINT NUMBER 501
AT INTX. 9TH AVE. CT E., & 21ST ST. E.
ELEVATION=64.528.



APPROVED

BY _____
CITY OF PUYALLUP
ENGINEERING SERVICES

DATE _____

NOTE: THIS APPROVAL IS VOID AFTER 1 YEAR FROM APPROVAL DATE.
THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS. FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE ENGINEERING SERVICES MANAGER.

BEFORE YOU DIG CALL
1-800-424-5555
NOT LESS THAN 48 HOURS BEFORE BEGINNING EXCAVATION WHERE ANY UNDERGROUND UTILITIES MAY BE LOCATED.

CASCADE CHRISTIAN SCHOOL CAMPUS ELEMENTARY SCHOOL PORTABLES

SIGHT DISTANCE EXHIBIT

SITE ADDRESS:
811 21ST ST SE
PUYALLUP, WA 98372

STATE OF WASHINGTON SCOTT VADER 21818 REGISTERED PROFESSIONAL ENGINEER

VADER ENGINEERING
6817 27TH ST W, #65353
TACOMA, WA 98464
253.363.2065
rvader@vaderengineering.com

NO.	REVISION

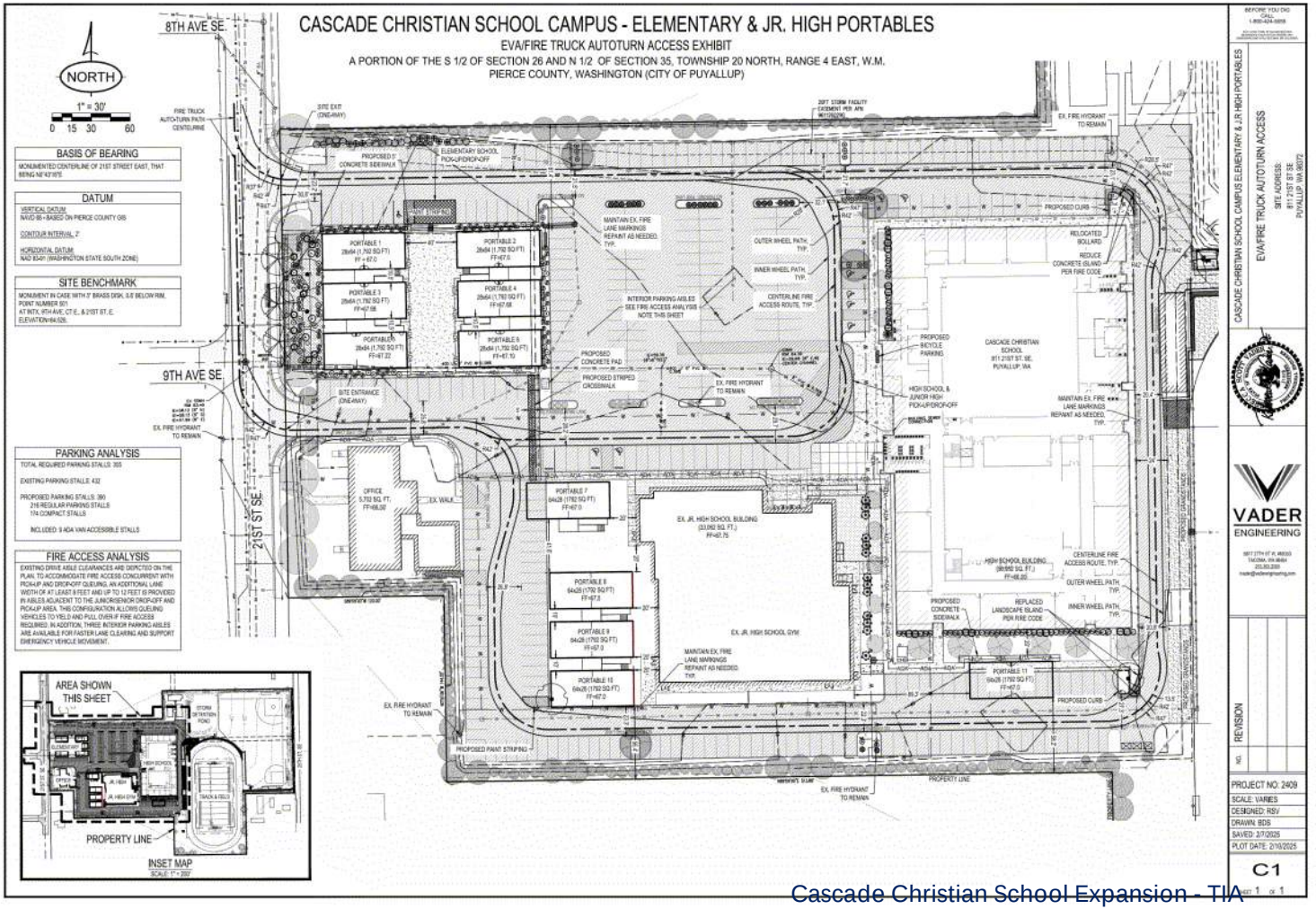
PROJECT NO: 2409
SCALE: 1" = 40'
DESIGNED: RSV
DRAWN: AMS
SAVED: 2/24/2025
PLOT DATE: 2/24/2025

C12

SHEET 12 OF 12

CASCADE CHRISTIAN SCHOOLS CONDITIONAL USE PERMIT UPDATE
TRAFFIC IMPACT ANALYSIS

APPENDIX:
Site Plan


CASCADE CHRISTIAN SCHOOL CAMPUS - ELEMENTARY & JR. HIGH PORTABLES
EVA/FIRE TRUCK AUTOTURN ACCESS EXHIBIT
A PORTION OF THE S 1/2 OF SECTION 26 AND N 1/2 OF SECTION 35, TOWNSHIP 20 NORTH, RANGE 4 EAST, W.M.
PIERCE COUNTY, WASHINGTON (CITY OF PUYALLUP)
NORTH
1" = 30'
0 15 30 60
8TH AVE SE
9TH AVE SE
21ST ST SE
BASIS OF BEARING
DATUM
SITE BENCHMARK
PARKING ANALYSIS
FIRE ACCESS ANALYSIS
AREA SHOWN THIS SHEET
PROPERTY LINE
INSET MAP
CASCADE CHRISTIAN SCHOOL CAMPUS ELEMENTARY & JR. HIGH PORTABLES
EVA/FIRE TRUCK AUTOTURN ACCESS
VADER ENGINEERING
REVISION
PROJECT NO: 2409
SCALE: VARIES
DESIGNED: RSV
DRAWN: BDS
SAVED: 2/7/2025
PLOT DATE: 2/10/2025
C1